NAMIBIA

Safeguard of, and access to, the archival heritage

Computerization of National Archives

by Ana Franqueira

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COMPUTERIZATION OF NATIONAL ARCHIVES

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>ii</td>
</tr>
<tr>
<td>I. NATIONAL ARCHIVES</td>
<td>1</td>
</tr>
<tr>
<td>Holdings</td>
<td>1</td>
</tr>
<tr>
<td>Automation Projects</td>
<td>1</td>
</tr>
<tr>
<td>Purchase of a new minicomputer</td>
<td>2</td>
</tr>
<tr>
<td>Existing Archival Database</td>
<td>3</td>
</tr>
<tr>
<td>Data structure</td>
<td>3</td>
</tr>
<tr>
<td>Data Input</td>
<td>4</td>
</tr>
<tr>
<td>Online Information retrieval</td>
<td>4</td>
</tr>
<tr>
<td>Printed Outputs</td>
<td>4</td>
</tr>
<tr>
<td>Printed Finding Aids</td>
<td>5</td>
</tr>
<tr>
<td>II. GOVERNMENT LIBRARIES</td>
<td>5</td>
</tr>
<tr>
<td>III. OTHER LIBRARIES AND PROJECTS</td>
<td>6</td>
</tr>
<tr>
<td>Estorff Reference Library</td>
<td>6</td>
</tr>
<tr>
<td>NAMLIT</td>
<td>6</td>
</tr>
<tr>
<td>SABINET</td>
<td>6</td>
</tr>
<tr>
<td>Academy Library</td>
<td>7</td>
</tr>
<tr>
<td>IV. ESTABLISHMENT OF A NETWORK BASED AT THE NATIONAL ARCHIVES</td>
<td>7</td>
</tr>
<tr>
<td>V. RECOMMENDATIONS</td>
<td>9</td>
</tr>
<tr>
<td>Activities at the National Archives</td>
<td>10</td>
</tr>
<tr>
<td>Collecting data from other organizations</td>
<td>11</td>
</tr>
<tr>
<td>Data structures of the archival database</td>
<td>13</td>
</tr>
<tr>
<td>Use of CDS/ISIS</td>
<td>13</td>
</tr>
<tr>
<td>Computer staff</td>
<td>13</td>
</tr>
<tr>
<td>Training of Archivists and Librarians</td>
<td>13</td>
</tr>
<tr>
<td>Illustrations for networking possibilities</td>
<td>15</td>
</tr>
</tbody>
</table>
Foreword

The mission described in this report was carried out from 18 to 28 February 1992 at the request of the National Archives of Namibia, and was funded by UNESCO under its regular programme for 1992-1993. Besides proposing recommendations on the establishment of a centralized network for all the institutions based at the National Archives, the terms of reference of this mission included: the analysis of automation needs of the head office of the public libraries, recommending the most suitable software to be utilized, advising on specific questions concerning the operations of CDS/ISIS software, as well as on training for database managers and programmers.

The consultant met with the following persons in Namibia:

The Deputy Minister of the Ministry of Education and Culture - Mr Buddy Wentworth

The Permanent Secretary of the Ministry of Education and Culture - Mr Vitalis Ankama

The Under-Secretary of the Directorate of Culture - Mr Adolf de Klerk

The Deputy-Director of Cultural Promotion - Mr Andre Strauss

The Acting Deputy Director for Libraries - Mrs Alet Marais

During the consultant's stay in Namibia, several meetings and visits took place in order to become acquainted with the situation of archives and government libraries particularly with Mrs Briggita Lau, Head of National Archives, and Mrs Renata Morgenstern, Acting Head of Government Libraries Services. Other services visited were the Public Libraries Services, Estorff Reference Library, Geological Survey Library, Academy Library, and the Department Library & Information Science University of Namibia.
I. NATIONAL ARCHIVES

1. The National Archives of Namibia were up to March 1990 under the Directorate of Cultural Affairs, which in turn was a Division of the department of National Education. After independence in March 1990, this basic organizational structure was left intact, except that the previous Department of National Education was expanded into the Ministry of Education, Culture, Youth and Sport. The National Archives operate under the "Archives Act" April 1987.

Holdings

2. Its holdings contain:

a) Archives
   i. Government Departments and offices
   ii. Magistrates
   iii. Local Authorities
   iv. Commissions and Committees
   v. Boards
   vi. Statutory Bodies

b) Accessions

c) Microforms
   i. Government Departments and Offices
   ii. Accessions
   iii. Newspapers/Periodicals
   iv. Theses

d) Photographs

e) Maps

f) Official Publications

g) Local Authorities Publications

h) Newspapers and Periodicals

i) Library

j) Audiovisual Archives

Automation Projects

3. The South African Archives Services began computerizing their holdings in earnest in 1970/71. The programme ran on a mainframe in Pretoria using IBM STAIRS software. The Namibian Archives were at that time a branch office of Pretoria and were
forced to computerize also. Two terminals were installed in Windhoek, linked by a dedicated line and a modem to Pretoria. Between 1972 and 1979 about 125 000 items from Namibian Archives were input into the database.

4. In 1979 Pretoria engineered an administrative 'independence' of Namibia as one of the attempts to convince the world that SA was decolonizing the country. As the Namibian Archives became part of a locally-based Department of National Administration, the connection to Pretoria was taken away and the computer link was cancelled. Due to the lobbying of the Head of the Archives, the Namibian Archives were allowed to continue the computerization on a new mainframe computer (an ICL) installed on the outskirts of Windhoek and again connected to the archives via two terminals, a modem and a dedicated line. The archives selected STATUS as the most suitable software for its purpose.

5. The conversion of STAIRS data onto STATUS base (i.e. the switch from IBM to ICL) and the new programming took several years. It was also found that the archives 'groups' status had changed, appraisal had been done, etc., and the data on STAIRS were partly out of date. Only by 1985 could regular computer data input begin again.

6. To date the database holds about 320 000 items, of which 20,500 are entered both in Phase 1 (reference) and also Phase 2 (subject analysis). This constitutes about 70% of current holdings. The annual input quantity does not go higher than 30,000 items.

Purchase of a new minicomputer

7. The mainframe operations described above were extremely costly. Firstly the National Archives had to pay ICL annual software license fees which by 1991 amounted to R50 000 per year. Secondly the mainframe computer was run by one of the eleven so-called "ethnic" administrations which charged computer time fees from the Archives. They also charged hire and maintenance fees for the two printers and terminals. Annual payments reached R100 000, and through the years amounted to more than a third of the National Archives total running budget. Lastly the only ICL STATUS programmer who was familiar with the Archives' needs and necessities left for Johannesburg in 1989 which resulted in a sharp drop in back-up support service. Altogether the situation was entirely unsatisfactory.

8. Therefore negotiations were begun for the purchase of a new computer, when a large donation from the German Foreign Office materialized in November 1991, the new system was finally ordered and was to be installed in March 1992.

9. The Tender Board cited the purpose for the new system as "mainly, the establishing of a database of archive holdings, incorporating a text retrieval system", providing adherence to industry standards (OSI compliant) connectivity to commonly used
word processing packages and computer networks; conversion of the present system is included on the tender as well as an allowance for future expansion.

**Existing Archival Database**

10. The actual database uses the software STATUS, running in a host computer, ICL 3900, with VME Operating System. Two terminals and a printer were installed in the archives and the connection to the system is done by modem through a private line.

**Data structure**

11. Description of archival materials includes the following Data Elements:

**Title**

Title
Custody
Type
Source
Storage unit
Code
Reference
Volume
Disposal
Arguse

**Description**

**Remarks**

12. According to the type of "article" recorded remarks may include the following data elements:

**Files**

Keywords

**Photos**

Origin
Photographer
Copyright
Acknowledge
Negative
Keywords

**Library**

Author/Editor
Form
Publisher
ISBN
Printer
Keywords
13. Data input to the database is done in two phases. First is only input an identification of materials - a "Title index"; the second phase includes a detailed description of contents - "Subject indexing".

Online Information Retrieval

14. The main function of this database is online information retrieval. As STATUS is a very powerful software for text retrieval, searches can be performed by any word included in description and remarks fields as well as by any other data elements.

Printed outputs

15. The system produces lists for proof-reading and the facility to print query results is also available. However these printouts have the same display as the input screens, which hampers reading, and they cannot be sorted according to users' criteria.
Printed Finding Aids

16. The production of finding aids is totally apart from the database. In 1990 desktop publishing facilities were introduced for the production of printed finding aids.

II. GOVERNMENT LIBRARIES

17. Three reports on the survey: "Status of Government library services and archives in Namibia and the need for training for Government information services" were recently published by the Department of Library and Information Science of the University of Namibia. These reports accurately portray the situation of information services in Namibia and many important recommendations are made in order to improve the quality of these services.

18. In connection with the purposes of this mission, it is relevant to mention the actions of the Acting Head of the Government Libraries Services, who introduced the use of Mini-Micro CDS/ISIS, programmed for supporting records in standard UNIMARC format, in most of the existing libraries of the following ministries or Government departments, namely:

   Agriculture
   Education
   Fisheries
   Geology
   Public Service Commission
   Water Affairs
   State Museum
   Transport
   Health and Social Services
   Information and Broadcasting National Information Service
   Legal Draughtsman

19. In an initial stage of development are the libraries of:

   Finance
   Foreign Affairs
   National Planning Commission
   Weather Bureau
   Mining and Energy
   Attorney General
   Labour and Manpower Development
   Trade and Industry

20. The use of CDS/ISIS has been very successful. Training courses were given by Mrs Renata Morgenstern and the use of CDS/ISIS is expected to be developed further. As there are in these libraries little expertise in cataloguing since trained staff is at a minimum, the main task is to have all the libraries open to the public and the level of automation to achieve in short term is at least a local database, using CDS/ISIS in a Personal Computer. Budget is a problem and this objective seems to be most accurate.
21. According to the questions raised by Mrs Renata Morgenstern several working sessions took place at the Government Libraries Services and some additional features were added to the application, like the establishment of links between records on the database, review of installation options in order to establish access privileges to users and database managers; some Pascal programmes were installed, in order to illustrate the possibilities of the CDS/ISIS Pascal programming language. The basis for constructing a Field Select Table was studied in order to export records for the SABINET network. This operation involves the conversion of the bibliographic records from the UNIMARC to the USMARC format.

III. OTHER LIBRARIES AND PROJECTS

The Estorff Reference Library

22. This library has been proposed to become the National Library of Namibia as soon as the necessary legislation has been passed and it is already performing some functions of a national library (for example, Legal Deposit according to Ordinance n° 10 of 1951)

NAMLIT

23. NAMLIT is a bibliographic database about Namibia, based on the software LIDOS, running on a microcomputer located at the Estorff Reference Library.

24. Data structures of this database were designed for combining features required for the production of a National bibliography, or subject bibliographies, and for a union catalogue (a joint catalogue of several libraries). Each entry of NAMLIT consists basically of four types of information. The first element is the formal bibliographic description, according to the requirements of ISBD (International Standard Bibliographic Description). The second element is a description with regard to the contents. The third element refers to libraries where the book or other material described can be found. The fourth element is data concerned with the internal functioning of the database.

25. The NAMLIT application provides variable field length, a hierarchical thesaurus facility, indexing of text fields, variable printing facilities and standardized data import and export. The structure of text fields and thesaurus can easily be adapted to changing requirements, which means that conversion of data structures to the UNIMARC format, for instance, is possible.

SABINET

26. In this same Library, there is a terminal connected to SABINET, a network for bibliographic information centralized in South Africa, where several libraries can input data directly in this terminal or send records on magnetic tape. The National Archives also co-operates with SABINET.
Academy Library

27. In the Academy Library a full integrated system for library management is running on a Bull computer under a proprietary operating system. This system, ULRICA, was developed especially for library management and in a modular way allows acquisition control, cataloguing, and circulation. An interesting feature of this system is the possibility of cataloguing according to ISBD and then converting data into MARC formats (UNIMARC, SAMARC, USMARC or UKMARC).

IV. ESTABLISHMENT OF A NETWORK BASED AT THE NATIONAL ARCHIVES

28. The concept of a network is sometimes ambiguous as it can refer to the co-ordination of activities and services of the organizations, or a physical connection among several computers, or even a combination of both.

29. For the purpose of this report we will refer to the network as the possibility to access archival and bibliographic descriptions from national archives and government libraries, by means of online consultation with the computer system based at the National Archives.

fig.1
30. Despite technical solutions for hardware and software there are some prior conditions and decisions to be taken to be able to centralize and manage descriptions of different materials from different organizations, and that relates to:

- Data structures - what information elements to describe in entirety;

- Data contents - rules to apply when entering data (punctuation and capitalization, formats for expressing dates and quantities)

- Data values - lists or tables of terms, names, codes or other specific entities that are acceptable for entry in a particular data element (list of keywords and thesauri are included here).

31. In both library and archival contexts, to describe means to create a representation (by means of recording information) for an entry; these representations can be stored and manipulated by database technology but the three items mentioned above (data structures, contents and values) are different in nature for archives and libraries, as archival materials are of a different nature to bibliographic materials.

32. It is therefore convenient to separate the two areas and assume that a database for archives is going to be different from that for libraries, although they can both be supported by the same computer system.

33. The components of the computer systems can be identified at various levels. Apart from the hardware configuration, let us consider the following approach:

```
DATABASE

  database management system

  operating system

  machine
```

fig. 2
34. The present situation can be summarized as follows:

a) Where archives are concerned, the system is already working on the local level, and as soon as the new equipment for which tender bids are out, is acquired, this database can be accessible from the outside either through a public data communication network or dial-up modem.

This system, however, contains only archival descriptions of the existing archival materials at the National Archives, and data structures, contents and values are specific of the archive.

On the other hand this database includes descriptions for bibliographic materials.

b) For government libraries the situation is rather different; instead of a single unit we have several units (the different government libraries) in different stages of automation, although each of these work with the same data structures (UNIMARC), the same software tool (CDS/ISIS) and similar hardware (Personal Computers IBM compatible). Each of these units can produce a local database which can only be accessed locally by a single user. In this cases however data contents or values can be different as each library can use different indexing systems.

35. For archives, the main system is running, and the next step for networking should be to input data from other archival units. Here it is important that the vendor guarantees the system to support data importing. Acceptance of standard ASCII files formatted according to ISO 2709 should be imperative.

36. For government libraries, as local units are working, the question is gathering data and making it, accessible from the outside.

V. RECOMMENDATIONS

37. The following recommendations are based on existing computer infrastructures, and existing staff (which is quite small or even inexistent in so far as concerns the automation field) in order to develop the project in different stages, both in timing or activities. They are for a period of two years, and it is assumed that decisions will be taken upon data structures, contents and values according to current standards (at the national or international levels).

38. The order in which these recommendations are presented does not mean that they have to be implemented that way. With reference to staff and management activities, these suggestions need not necessarily be taken.
Activities at the National Archives

39. The activities to be carried out are as follows:
   a. Installation of the new computer system;
   b. Conversion of the archival database to the new software version;

   ![Database for Archives Diagram]

   c. Separate bibliographic descriptions from archival descriptions by means of:
      i. Creating a database (with STATUS software) for bibliographic information that can handle UNIMARC format.
      ii. Downloading bibliographic records from the archival database and importing them to the new bibliographic database, in UNIMARC format; this operation involves the conversion of data structures; it might be necessary to consider the recataloguing of all the collection.

40. At this point we have in the same computer two databases, built with STATUS software, one for archival materials and other for bibliographic materials.

41. The information of these two databases concerns only the holdings of the archive.
As an alternative to the use of the software STATUS to build the database for bibliographic data it should be mentioned that UNESCO is preparing CDS/ISIS for the UNIX Operating System. This version already being tested, is expected to be distributed by late 1992. As government libraries are already using this software for DOS, it is very important to consider this alternative to STATUS software. The strong dissemination of CDS/ISIS in African countries for working in libraries and archives services allows the sharing of problems, exchange of experiences, and training facilities. We could have then a solution such as:

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<td>UNIX OS</td>
</tr>
<tr>
<td>ICL DRS 4000</td>
<td></td>
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</tbody>
</table>

fig. 4

Collecting data from other organizations

Government Libraries

Export from each local database produced at each government library, bibliographic records in UNIMARC format to an ASCII file, formatted according to ISO 2709 standard for bibliographic data interchange, on a floppy disk, to be mailed to the National Archives.
Other archives or institutions holding archival materials

44. Build an application with Micro CDS/ISIS running under MS-DOS using the same data structure currently existing on STATUS at the National Archives.

45. Input data in local databases and proceed as mentioned above for libraries: export records onto a floppy disk to an ASCII file formatted to ISO 2709 and mail the disk to the National Archives.
Data structures of the archival database

46. It is advisable to introduce multilevel descriptions in the archival database, following the ICA recommendations in this matter. It is important to keep up to date with the work being done by the ICA AD-Commission for Archival Description.

Use of CDS/ISIS

47. The use of CDS/ISIS should be encouraged as it has given good results in the library areas. Not only was the main system for cataloguing developed but some other applications were developed for internal use in libraries.

48. It is important to encourage personnel with computing skills to teach the basics of PASCAL which will allow librarians to improve the initial application package.

49. Co-operation with other countries that have developed similar applications is very important. In Portugal, the National Library of Lisbon, has been developing an entire programme for library automation which include the main UNIMARC cataloguing procedures - FORBASE, serials control KARDBASE, and indexing languages IDEIA.

50. Concerning archives, the Portuguese Institute of Archives has developed the ARQBASE application, and information on this was supplied to the head of the National Archives. Forms of effective co-operation should be studied.

51. Contacts with CDS/ISIS distributors and associations of users can be extremely useful.

Computer staff

52. In order to ensure the maintenance of the new archival computer system it is essential to have computer staff. It is vital that someone be responsible for computer operations. The system must always be operational.

53. A database manager is also necessary. In the initial stages the computer system can work with the support of the vendor only. But as soon as co-operation with other organizations begins, for instance, external data arrives, it is indispensable to have a rigorous control of database production.

Training of Archivists and Librarians

54. Efforts should be made to train new archivists and librarians. Work in archives and libraries becomes easier with automation, especially for information retrieval. However, organizing and describing archives, cataloguing and indexing books, require expertise. Information cannot be retrieved if it does not exist.
Network concept

To access archival and bibliographic descriptions from National Archives and Government Libraries by means of online consultation with the computer system based at the National Archives of Namibia.
CDS/ISIS can be programmed for PCs outside the Archive for data input from other institutions. This could be interesting for data on photographs.

The system at NAN is growing, with the implementation of a bibliographic database.
Libraries can now co-operate in the production of a common database.

In the same PC, archival and bibliographic databases can be compiled which are similar to the main system.
An alternative to STATUS software to build a bibliographic database. This will be possible when the UNIX version of CDS/ISIS is available.
7 Alternative

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<th>database for libraries (unimarc)</th>
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Alternative
Data input

Online Consultation