

**In this issue:**

**Media matters: Choosing the most appropriate storage medium** *(by Paul Mullon)* **pg. 4 - 10**

“At the risk of bearing the seemingly unattractive mantle of Luddite, this article seeks to highlight the issues and complexities of digital preservation, and propose a solution that is gaining increasing popularity worldwide.”

**Poor records management Exposed!** *(by Peter Sebina)* **pg. 11-12**

“The Presidential Commission set up recently in Botswana to investigate land allocation...has underscored two things: the importance of accountability and good records management practices.”

**ALSO Inside:**

- **Events,** **pg 2**
- **ESARBICA Journal in AJOL** **pg 3**
- **Call for papers** **pg 3**

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## Events

### Aug 2004

23<sup>rd</sup> – 29<sup>th</sup> **“Archives, memory, and knowledge” 15th International Congress on Archives** Vienna, Austria <http://www.wien2004.ica.org>

### Sept 2004

8<sup>th</sup> – 9<sup>th</sup> **“Electronic records management”** Conference convened in East London by Brain Africa Corporate Training. Contact Phone: +27118774000 Fax: +27118774008 Email: [sales@brainafrica.com](mailto:sales@brainafrica.com) Website: <http://www.brainafrica.com>

14<sup>th</sup> – 17<sup>th</sup> **“Records Management course”** Workshop convened by National Archives of South Africa in Pretoria, South Africa. Contact Arie Bot, Phone: (012) 323 5300, Fax: (012) 323 5287. E-mail: [rnc@dac.gov.za](mailto:rnc@dac.gov.za)

### Oct 2004

5<sup>th</sup> – 6<sup>th</sup> **“Email management”** Conference convened in Johannesburg, South by Marcus Evans. Contact Person Gabi Geffen, Senior Project Manager, Phone +27115161000 Fax +27115161001 Email [gabig@marcusevanssa.com](mailto:gabig@marcusevanssa.com)

6<sup>th</sup> -8<sup>th</sup> **“Cost Effective Health Informatics Initiatives for Southern Africa”** Conference convened in Kimberly, South Africa by South African Health Informatics Association. Contact Person: Ms Tish Naicker Phone +2753 830 0617 Fax: +2753 832 9221 Address: Information Management Department of Health Private Bag X 5049 Kimberley 8300 Email: [mail@hisa.co.za](mailto:mail@hisa.co.za) website: <http://www.epatientrecords.co.za/hisa2004/>

12<sup>th</sup> – 15<sup>th</sup> **“Records Management course”** Workshop convened by National Archives of South Africa in Pretoria, South Africa. Contact Arie Bot, Phone: (012) 323 5300, Fax: (012) 323 5287. E-mail: [rnc@dac.gov.za](mailto:rnc@dac.gov.za)

14<sup>th</sup> – 16<sup>th</sup> **“Justice, unfinished business and access to information”** Conference convened at the by University of Witwatersrand, South Africa by South African History Archive (SAHA) and Rosa Luxemburg Foundation. For more information contact SAHA Phone: +277171941. For registration Contact Lesley Stephenson Phone: +27117177031 Fax: +27113397835 Email: [stephensonl@ebe.wits.ac.za](mailto:stephensonl@ebe.wits.ac.za) website: [http://www.wits.ac.za/saha/conf\\_broch.pdf](http://www.wits.ac.za/saha/conf_broch.pdf)

### Nov 2004

1<sup>st</sup> – 2nd **“Conceptualising an aids museum: commemoration and celebration”** Conference convened by Perinatal HIV Research Unit in conjunction with South African History Archive (SAHA) and Wits Aids Research Institute (ARI). Contact: Lesley Stephenson Phone +27117177031, Fax +27113397835 Email: [stephensonl@ebe.wits.ac.za](mailto:stephensonl@ebe.wits.ac.za) Website <http://www.hivsa.com>

4<sup>th</sup> – 5<sup>th</sup> **“Expectation and realities in managing electronic records”** Conference convened in Gaborone, Botswana by Longsight in conjunction with Department of Library and Information Studies. Contact Richard, Phone +27113393300 Fax +2711 3393325 Email [richard@longsight.co.za](mailto:richard@longsight.co.za) Website <http://www.longsight.co.za>

9<sup>th</sup> – 12<sup>th</sup> **“Records Management course”** Workshop convened by National Archives of South Africa in Pretoria, South Africa. Contact Arie Bot, Phone: (012) 323 5300, Fax: (012) 323 5287. E-mail: [rnc@dac.gov.za](mailto:rnc@dac.gov.za)

10-12<sup>th</sup> **Electronic records management conference** Convened in Johannesburg, South Africa by Knowledge Up-grade. Contact Vanessa Phone +27117840888 Fax +27117849091 Email: [sales@knowledge-upgrade.com](mailto:sales@knowledge-upgrade.com)

### **ESARBICA Journal joins AJOL**

The Esarbica Journal has now joined the African Journals Online family and the latest edition can now be accessed online. See [http://www.ajol.info/journal\\_index.php?ab=esarjo](http://www.ajol.info/journal_index.php?ab=esarjo)

### **Call for papers**

The XVIII Bi-Annual Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) General Conference on Archives and Records in the Information Society: The African Agenda will be hosted by the Botswana National Archives and Records Services (Gaborone) in July 2005. Accommodation, traveling and subsistence are the responsibility of the paper presenters.

### **Themes**

The forthcoming ESARBICA Conference seeks to address some of the challenges faced by the African archivists in the information age. Contributions are invited that address issues related to archives, records and the African information society. Themes that may be addressed are wide and open, but an advanced academic level of discourse is required. Inter alia the following broad themes will be addressed at the conference:

- Managing Records for Good Governance
- Records and E-Governance
- Access to Archives and Records
- The African Agenda (Preserving the African memory, managing archival heritage in the ESARBICA region, indigenous knowledge systems, and oral history/traditions)
- Information and communication technologies and preservation of archival heritage
- Training and professional development

### **Call for Posters**

In addition to formal papers, submissions for posters are also welcome.

### **Submission Procedure**

Submissions should include the speaker's name, address, e-mail address, telephone and fax numbers, a short one-paragraph biographical note, the title of the presentation or poster, and an abstract of 400 to 500 words.

30 November 2004: Submissions of abstracts, sent to Dr Patrick Ngulube, E-mail: [ngulubep@ukzn.ac.za](mailto:ngulubep@ukzn.ac.za) or Fax +27332605092.

20 December 2004: Notification of acceptance or rejection of the submitted abstract.

30 April 2005: Final camera-ready copy of the paper to be submitted for publication in the conference proceedings.

## **Media matters: Choosing the most appropriate storage medium**

If one has to blindly follow the latest fads on the rollercoaster of digital development, it would be a fascinating, exhausting and hugely expensive trip. The pace of change in this increasingly digital world is simply too fast for the average person, company or government organisation to keep up. At the risk of bearing the seemingly unattractive mantle of Luddite, this article seeks to highlight the issues and complexities of digital preservation, and propose a solution that is gaining increasing popularity worldwide.

### **Who holds the high ground: Archivist or CIO?**

In the last couple of decades there has been a hitherto unprecedented awareness of and growth of technology in companies, each seeking to improve productivity, gain competitive advantage and increase sales. This has led to the creation of a new position which evolved over time from data processing manager, to IS manager, to IT manager and finally to Chief Information Officer (CIO). This CIO beast has held the high ground for a long time now, being represented on the board of directors, asking for and generally receiving huge sums of money to purchase new technology, each time promising the Holy Grail. The debate around whether or not the technology has achieved its stated goals, or whether IT has actually delivered any value to the business is not for this forum. What is important to note here, is the fact that the CIO has held a very high profile position, and has had a great influence in setting direction for many companies. The position has commanded high salaries, and in many instances was held in awe by the rest of the company because frankly they didn't understand a word of what was being said.

This lofty position of the CIO has been highlighted because it needs to be compared to the relatively lower status in the organisation of the Archivist, Librarian or Records Manager. These dedicated staff have often been relegated to the basement, where they are seldom seen, hardly heard, and only called into the executive office when vital documents go missing. The key issue here is that their voices of reason have generally been lost when it came to issues such as appropriate technology and long term preservation. Through the very nature of their job specifications, they are required to acquire, protect and ultimately destroy documents and records which could be decades old. The following question needs to be asked, not only of the records manager, but also of the CIO: "What is the *most appropriate* technology and media to get the most value out of the business record, at that particular stage in its lifecycle, taking into account available technology with the associated costs?" In asking this question, one caveat exists – technology doesn't necessarily mean high-technology, but could refer to filing cabinets, paper, microform, video, or carved stone tablets for that matter.

### **Choosing the right technology: Understanding the issues.**

At first glance, information technology holds great value for managing corporate records, and my position here should be made clear. I am a great advocate of technology, holding the belief that appropriately applied, technology is a great tool, reducing costs, simplifying the management of information and often significantly streamlining operations. In order to better understand when technology does assist,

it is useful to look at the lifecycle of an organisations records. Figure 1 shows a simplified representation of a typical document during its life in an organisation. The following discussion ignores the “maintain” stage as the issues will be covered under “active” and “Retention” or “Archive”.

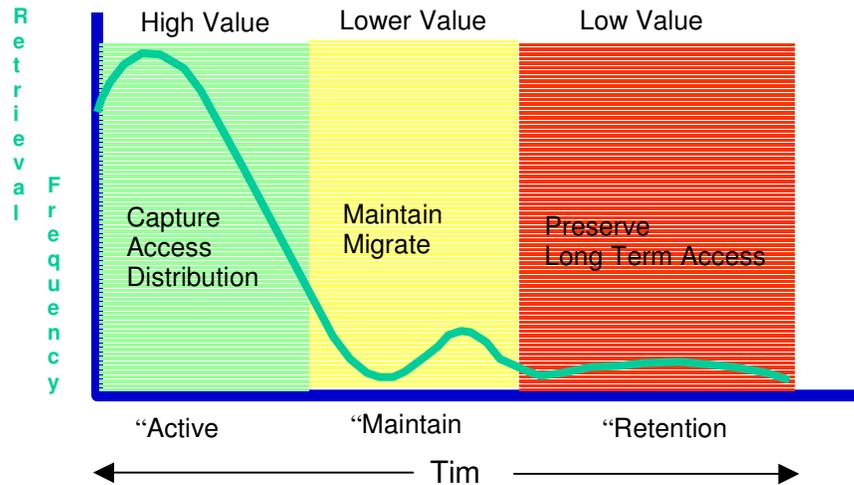


Figure 1. The lifecycle and typical retrieval pattern of documents. Source - Kodak

**Active documents (Access is paramount):**

During the initial stages of its life, a document will need to be captured into a system of sorts and will need to be distributed to and accessed by any number of people. The graph shows the high rate of retrieval/access of a document during the early stages. It is this high retrieval rate that has made the use of IT so attractive during this “Active” stage. The technologies that have been used here include, but are not limited to:

*Document capture systems.* These often include document scanning whereby documents in paper form are converted to electronic images. Through the use of high volume scanners with sophisticated index and capture software, significantly more documents can be captured than is possible with manual systems. Forms recognition software, with various forms of character recognition capability has further sped up this process, allowing very high volumes of information to be captured, with exceptional accuracy. This technology has been proven time and time again to save time and money, given the right types of documents.

*Document imaging and document management systems.* The power of these systems lies in their ability to make large volumes of information available to many people, often simultaneously. Because of the nature of digital storage, thousands of documents can be stored in a very small physical area (for example a compact disk), saving space and costs. The documents are available instantly, which once again saves time and money wasted in searching for and retrieving information, a large cost in most organisations. The high retrieval rates at this stage of the lifecycle make these technologies a particularly attractive proposition.

*Output management systems (Enterprise report management).* Computers generate high volumes of print-outs, often in the form of statement runs or monthly reports. These reports create mountains of paper which are often valueless in that they are held for some forgotten reason, yet are stored in such a way that access to the information is generally impossible. Searching for line number 7397 on a million line report which is stored underneath hundreds of similar reports in a basement is often a fruitless task. Output management systems store the output electronically rather than in printed form, and have search tools that allow for the easy access to and retrieval of the required information at the push of a button. Once again, this holds great value for organisations that need to be able to find that information instantaneously and has been a great cost and time saver in many instances.

There are many other technologies which can be included here, but the intention is not to provide a technology list, rather to highlight that in the active state, technology can and does have significant value, and should be used wherever possible. The value lies in the instant access to and ability to share information. When taken in the context of the number of people (who could be geographically dispersed), who need to find and use the documents, going digital is often the most cost effective method of storage, retrieval and sharing. Low cost, high availability and instant access make this the most appropriate medium.

#### **Archive documents (Preservation is paramount):**

IT vendors, CIOs and industry analysts have long touted the value of electronic storage for active documents. One of the major benefits was the ability to store large volumes of information on a low-footprint media. As a result, the natural assumption was that the same benefits would apply to those documents which need to be kept well into the future. In order to analyse whether this does apply or not, it is critical to understand the usage patterns of these documents or records.

Generally documents are kept for the long term for different reasons than in the active state, and hence the value of those documents changes. Few companies are in the business of storing documents because they are lovers of history, with a penchant for old parchments. With the exception of museums, libraries and archives, most organisations see long-term retention as a painful task, forced on them by legislation, corporate governance, and in some instances, the need to keep customer records in case of future information requests. These documents will seldom be requested, and the need for instant retrieval falls away. When requesting information that is five years old, most users will be satisfied with a four-hour response. Compare this to the active stage when a two-minute response may be totally unacceptable. The issue then becomes one of ensuring preservation, at a cost which is not prohibitive, and which allows searchability and retrievability appropriate to the particular request. The appropriate media must be one that is affordable, and ensures that the information will still be available and readable for the entire life-cycle.

#### **Why doesn't electronic storage hold the same value for archive documents?**

The prevalent belief in the IT industry has been that because disk and other digital

storage is inexpensive, there will be the same cost and storage benefits in using these mediums for long-term storage. The cost of technology has been steadily decreasing, at the same time as performance and storage capacity has been increasing. A powerful value proposition no doubt, but one that carries a range of dangers.

## **The risk of obsolescence**

The very nature of the speed of technological advancement is the area of biggest concern. *There is no guarantee that information created and stored on today's media will be readable in future, and this has to be of grave concern to those interested in long-term preservation.* A simple example will highlight this point.

A few months ago, very emotionally, I disposed of a few hundred floppy disks (some of you may remember these). These disks held about ten years history of my life – previous contracts, research I had undertaken, correspondence, some applications and games which I was particularly fond of. So why did I have no choice but to get rid of them?

The first, most obvious reason was that my latest computer no longer had a floppy drive. This had been replaced with two drives – one for “stiffies” and one for “compact disks”. I no longer had the hardware which was capable of reading these old disks. My previous floppy drive was worn out, and search as I did, I couldn't find a supplier who could sell me this “old” technology. Even if I managed to find a second hand device in good working order, finding the necessary hardware drivers proved almost impossible.

I then took a look at the quality of the actual media. Some of the disks had been stored badly and had been bent or creased. I knew that these were valueless as I had been down the road of trying to read them previously (but had held onto them regardless). Some of the disks were covered in dust as they had been in the back of my cupboard. Still others would have been unreadable as they had been exposed to various temperature variations during my various household moves.

In the unlikely event that I would have been able to find some disks in good condition, with all the information intact, it dawned on me that I no longer had the applications capable of reading and interpreting the information. My latest version of Microsoft Word just could not read MultiMate version 1.

If we examine the issues outlined in this rather simple example, the warning signs for long term preservation become clear:

## **The rapid rate of change leads to a high risk of technology obsolescence:**

Most hardware and software vendors work on backwards compatibility for 2 generations (on the odd occasion this could be 3 generations). Because of the rate of change, a new generation will probably be developed every 18 months. This means that on average, any information older than about four and a half years won't be readable on the equipment then installed. This applies not only to hardware, but includes software applications, drivers and operating systems. Sadly it also applies

to media. As an example, it is worthwhile looking at some of the technologies and how they have changed in a relatively short period of time. Reel to reel tape had a number of formats depending on manufacturer, which then gave way to IBM 3480 type cartridge tape. Since then there have been a number of different formats including 4 and 8mm cartridges, DLT, DAT, DIS, QIC and LTO. Optical media has shown a similar trend, from laserdiscs to CD ROM, CD R/W, WORM, and finally DVD. Even within these formats there has been a lack of consistency. I had the experience recently where I produced a DVD which could not be read on other computers DVD drives only two years old.

The Domesday project in the UK is a good example whereby the latest technology was used to record information for future generations to access, and yet less than 20 years later the information is rendered unusable due to technology changes.

### **The quality of the media is suspect and subject to interference**

There have been many claims about the longevity of tape and various optical formats, however these have yet to stand the test of time. CD was thought to last for 30 years, yet there have been a number of reports of the media not being readable after 5 years. This may or may not be purely the fault of the media. Storage conditions, heat and humidity and other environmental effects will no doubt have an impact on the ability of a given media to last its stated life. Further to this, the quality of the recording technology will also have an impact on the life of the information recorded onto the media.

This is not to say all media is of a poor quality. There are many manufacturers who produce media of an exceptionally high standard, yet it is still subject to degradation due to poor handling.

### **Is there hope?**

A number of potential solutions to this challenge are being debated worldwide and are briefly discussed here.

### **Store everything on hard disk.**

This does have potential as a solution, and will generate support amongst the IT fraternity. It seems attractive, as disk is cheap, and mirror copies can be stored in off-site locations. The first objection is about the premise that disk is cheap. Hardware may be inexpensive, but the costs of managing the storage quickly mount. Typical costs of managing storage amount to 5 – 8 times the cost of the storage disks themselves, especially when including the costs of back-ups. There is also the added complication that whilst the disks may be able to store the information, the software applications themselves are often changing. This necessitates a regular migration from one application to the next if the stored document is to be readable. It is well known that anytime a conversion is done, there is a risk of losing information – hardly the ideal scenario for a records manager. In addition, the formatting of the document could change during the conversion process, posing serious questions regarding the integrity of the document.

## **Migrate all archives on a regular basis**

This option suggests that every 5 years all archived information is migrated onto the latest technology or media. This means that information will be moved from older media onto disk and copied from there onto the latest media type. Obviously this requires that both the “old” and “new” versions of the entire environment must be present and talking seamlessly to one another. All information must be copied off the old media, a conversion process to new applications must take place, and then the “new” information must be written back to the new media.

Not only is this grossly time consuming, but the risk of losing information is simply too high. As discussed earlier, there are also implications in determining the validity of the information as a genuine replica of the original, certifiable in a court of law. An IT vendors dream – an archivist’s nightmare.

## **Reference Archive Media**

There does appear to be hope, which satisfies the demands of both IT and the records management fraternity. The solution seeks to extract the benefits of IT during the active stage, and provide comfort and longevity to the records manager during the archive stage. The principles are as follows:

Documents entering the company as paper documents are scanned and indexed in the normal manner. These are then used to provide all the benefits discussed earlier, achieving the “access” goal. Once scanned into a repository, the images and associated index information are written to a new generation of high quality microfilm. The microfilm is stored off-site as an archive copy, providing the additional benefit of disaster recovery.

Benefits of this approach include:

The process of capture is faster than traditional microfilming as scanning technology is used as compared to filming. Documents are placed on a document feeder which inputs to the scanner at high speed. Scanning software provides additional functionality in straightening, cleaning up and removing unwanted noise from the image. This means that the stored image is of very high quality which improves readability into the future. Those documents which will benefit from forms and character recognition technology can be processed quickly as the indexing can be largely automated.

Once captured, the batch of images and associated index information is passed directly to a processor which writes the information to the reference archive media. This media is then taken off-site for storage.

The media is the latest generation microfilm, which has been designed to last for hundreds of years. This can be safely stored off-site, for later retrieval. On request, the microfilm is placed in a digitizer and the image sent back to the document imaging system of the day.

Long term microfilm storage is a low-cost option. As with digital, many documents

can be stored on a relatively small foot-print. It also takes away the need for data migrations which adds so significantly to the cost of storing digital information. The fact that it is low cost suggests that retrieval times will be relatively slow, and this is correct, yet the retrieval times match the level of service demanded of an archive document.

Microfilm has been generally accepted worldwide as a legitimate archive media, accepted in most of the courts. Compare this with digital information which in many countries is still not accepted as a legal document.

Microfilm technology is not subject to the same pressures of technology obsolescence as faces IT solutions. Because of its low-tech status, microfilm equipment can easily be manufactured in future as it uses standard well-established technology. In many hundreds of years from now, microfilm will still be able to be read using simple readers.

### **Microfilm is dead – long live microfilm**

The rapid evolution of information technology has been of great benefit to businesses and organisations worldwide. In the same breath, archivists and records managers have added value through their ability to provide long-term solutions to the preservation requirement. Reference archive media provides a bridging solution to meet the divergent needs of these two fraternities, each with their own objectives. The message remains clear: We will need to keep information for indefinite periods of time, and the best way to achieve this will be to provide technology which is proven as standing the test of time, is cost effective, legally admissible, and at the same time allows and facilitates the benefits that digital solutions offer.

Paul Mullan

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Metrofile <http://www.metrofile.co.za>

### **Additional information**

Association of Computing Machinery <http://www.acm.org/>

Association of Moving Image Archivists <http://www.amianet.org/>

Information Management Resources Association <http://www.irma-international.org/>

International Records Management Trust <http://www.irmt.org>

Society of Information Management <http://www.simnet.org/>

Examples of digital preservation case studies and research projects

- Digital Testbed <http://www.digitaleduurzaamheid.nl/home.cfm>
- InterPARES project <http://www.interpares.org/>
- VERS <http://www.prov.vic.gov.au/vers/welcome.htm>

For more information visit <http://www-personal.si.umich.edu/~calz/ermlinks/>

## Poor records management Exposed!

The Presidential Commission set up recently in Botswana to investigate land allocation along the Segoditshane valley has underscored two things: the importance of accountability and good records management practices. Instances have been cited where the commissioners had requested for official records relating to allocation of certain tracts of land.

These records were not made available by the responsible government department to a point where the former Director of Lands had to rely on his memory in giving evidence to the commission. What is clear is that records did exist at one stage as evidenced by the fact the commissioners were able to get *possession* of them from people testifying to it. This suggests record keeping at the Department of Lands is in disarray. This department might be one of the many having similar problems.

Government departments have to account for what they do. This they cannot do where records are created then go *missing*. The principle of being able to account presumes the need to be able to justify why an action was taken. In fact accounting for an action provides more much more than just a justification. It provides an answer and an explanation why something was done in whatever way. Plainly, an official account cannot be derived from memory recollections alone and this need not be the case anyway.

What if the re-collector has some memory lapse or related problem? Would the recollection stand? To account for any given action in government is not based on *hear-say* but on the availability of records that are evidence of what transpired. Records capture both information and evidence about what has transpired, how it has transpired, who was responsible, who the clients were, the procedures followed and so on. Where the records are unavailable accountability is at stake as it will rely on memory recollections?

Proper management of records (creating records that appropriately reflect the transaction; maintaining records for periods complying with provisions of statutes both salient and pronounced, and disposing records according to well laid down procedures) supports accountability.

The revelation about poor records management in certain government departments is something that needs urgent attention. The Botswana National Archives and Records Services is available to help governments departments develop good records management practices. This the archives cannot do without full support of the departments concerned.

Government departments need to acknowledge the importance of records management to the functions that they carry out. Absence of proper records management within government will continue to lead to problems such as the one the commission is looking at.

Poor records management if it continues unabated will lead to corruption, administrative difficulties and the possibility of more commissions. Proper records management may lead to fewer commissions and a much more accountable public

service. The time for change is now. The need to be accountable is an everyday activity that will not be realised without proper management of records.

Peter M. Sebina

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University College London <http://www.slais.ucl.ac.uk/> and University of Botswana

[http://www.ub.bw/departments/humanities/library\\_mission.cfm](http://www.ub.bw/departments/humanities/library_mission.cfm)

## **Additional information**

Botswana National Archives and Records Services

[http://www.gov.bw/government/ministry\\_of\\_labour\\_and\\_home\\_affairs.html#national\\_archives\\_and\\_records](http://www.gov.bw/government/ministry_of_labour_and_home_affairs.html#national_archives_and_records)

Botswana's Ministry of Land and Housing

[http://www.gov.bw/government/ministry\\_of\\_lands\\_and\\_housing.html](http://www.gov.bw/government/ministry_of_lands_and_housing.html)

Botswana's Daily News <http://www.gov.bw/cgi-bin/news.cgi>

Botswana's Mmegi newspaper <http://www.mmegi.bw>