SOUTH AFRICA'S WATER HERITAGE AND ITS FUTURE PRESERVATION: ESTABLISHING A WATER RESEARCH ARCHIVE FOR WATER-RELATED INFORMATION SOURCES

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Abstract

Archives and records are the tools that facilitate transparency, accountability and preserve collective social memory. They provide the mirror revealing governance, providing administrative and technical measuring instruments to ascertain the contexts and consequences of intended objectives, such as the promulgation and execution of water related policies. South Africa faces a water crisis and concerns exist about the governance of water affairs. Concerns and prospects for the creation of a water archive have been recommended. The prospects that such an initiative could provide is for better care and preservation of water-related records, including records on water services, water conservation and demand management currently across national government, municipalities and twelve water boards. The concept of the archives being an area storing dusty documents is being transformed, with the aid of technology. Through the digital environment, an archive can integrate hardcopy and digital material in a sustainable manner, accessible to a wide-range of researchers both within the archival institution and virtually to a different place and time zone. A dedicated "water archive" capturing and preserving water related information sources would provide water sector managers, engineers, scientists, researchers and administrators, with effective access to water-related information sources, as well as opportunities to contribute to the sustainability and further expansion of this archive.

Keywords: Records management; digital records; governance; water archives; archival collections; heritage.

Sleutelwoorde: Registerbestuur; digitale rekords; bestuur; waterargiewe; argivale versamelings; erfenis.

1. INTRODUCTION

UNESCO's adoption of the Universal Declaration of Archives marked a defining moment for archives on the international stage. The role of archives in democratic accountability and the preservation of collective social memory were reinforced.

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This declaration acknowledges that archives provide evidence of decisions, actions and memories; as well as being unique and irreplaceable legacies passed from one generation to another. Ideally, archives should be managed from creation to preservation to ensure that their value and meaning continue into the future. Archives contribute to the development of societies by safeguarding and contributing to individual and community memory. Access to archives enriches knowledge of human society, promotes democracy, protects citizens' rights and enhances life quality (UNESCO 2011). The declaration further emphasises the importance of managing and preserving records from the creation and utilisation of the information sources by the creating entities as evidence of decision-making, as well as accountability and transparency of administrative, financial, legal and executive operations. Further emphasis is attached to archives as being essential elements of the memory of individuals and communities, and as heritage which should be preserved and passed on to future generations (UNESCO 2011). In mid-2012, a group of historians, archivists and Water Research Commission staff began collaborating on a project to establish a South African Water History Archival Repository (SAWHAR). Unisa's Department of Information Science, with its large enrolment of undergraduate and postgraduate students in the archives and records management was approached to be part of this collaborative venture. This archival project involves developing archival collections from both hard copy information sources, as well as the challenges of capturing digital records, before such collections are lost indefinitely. This article describes how such a project should be envisioned and highlights challenges and resultant opportunities from the facility on the Vaal Campus of the North-West University.

Accountable, transparent, responsive, effective, efficient and adherence to the rule of law are characteristics of entities observing good governance. All of these characteristics are dependent on the quality of the evidence found in the information sources. These information sources may exist in the creating entity or stored in archival facilities.

Effective records management should encompass strategies, procedures and tools to manage all information sources from integrated database management systems to information products required by different stakeholders and researchers (Rossouw *et al.* 2005). In recent years, records management dynamics of archives have gained in significance by becoming the buzz word for vendors and service providers, selling any items from cardboard file covers to complex digital information management keeping systems. The retail-ability of records management often results in side-lining the preservation and heritage aspects of archives (Harris 2007). Many South African vendors focus primarily on compliance with International Standards Organisation (ISO) 15489, being the international standard for records management. ISO 15489, which has been adopted in South

Africa as South African National Standard 15489, promulgates internationally agreed principles of records management which proposes that the challenges encountered with electronic information sources would become a boardroom concern (McLeod and Childs 2007). This international standard aimed to elevate the status of records management into focus, establish best practices and yardstick which would result from good records management practices, beneficial to the entities by improving efficiency and managing the risks of poor record keeping (McLeod and Childs 2007:153). Meanwhile ISO 14721, which provides guidelines on "how digital assets should be preserved for a community of users – from the moment digital material is ingested into the digital storage area, through subsequent preservation strategies, to the creation of a dissemination package for the end user" (Factor *al.* 2007) is sidelined.

2. WATER MANAGEMENT AND GOVERNANCE

Effective management depends on decision makers to plan and invest in advance. As identified by UNESCO in 2006, the main problem with the state of water affairs in the world is not technical, nor natural (Castro 2007:98). The challenges are instead social and political in nature, and are relevant to South Africa too. "The water crisis [...] is mainly 'a crisis of governance'" (Castro 2007:98). In the last twenty years, the issue of good, effective or sound governance are themes found in many of the initiatives focussed on tackling the water crisis. Water governance is determined by the political, administrative and socio-economic systems related and involved with the management of water resources. Governance may be seen as an instrument, a means to achieve certain ends, an administrative and technical toolkit used in different contexts to reach a given objective, like enforcing a particular water policy. For others, governance is a process involving the implementation of decisions with considerations for debates and discussions of alternative, often rival projects of societal development. Good governance must incorporate participation and collaboration from communities and individuals, as evidence of democratic processes (Castro 2007).

According to the Integrated Water Resources Management report on South Africa by the United Nations (2007), water management has been sectored and reductionist for too long. It is emphasised that there is a need to better coordinate the management of information relevant to matters concerning ground and surface water. Furthermore, better coordination, management and access to information from relevant public and private entities as well as interested stakeholders linking the water chain from drinking water supply to wastewater treatment is needed. Prospects for areas in South Africa offering socio-economic development opportunities where water is available, as well as those hampered by the lack of

water sources, need to be identified (United Nations 2007). The Working for Water programme, concerning three hundred projects and programmes throughout South Africa are required to facilitate, "job creation, gender mainstreaming, poverty alleviation and economic growth, whilst promoting water resource management" (United Nations 2007). Cooperative governance is a crucial ingredient in water resource management, which should also provide information to all stakeholders, including civil society to understand the necessity for water resource management. These measures should include research, education and training to create water resource management awareness and capacity building (United Nations 2007).

Meanwhile, South African media headlines like "Water scarcity threatens mines' ratings"; "Researcher finds new acid water threat"; "Durban beaches toxic - report"; "Bacteria in PE hospital water"; "Giyani needs water solution"; "SA water under pressure – department"; "Report slams Eskom's use of water"; "Water scarcity drives protests – study"; "Wetlands most threatened ecosystem"; "Vaal River at risk – report"; "Kimberley loses nearly half its water"; "WWF urges responsible mining practice"; "Ecological mine disaster expected", amongst others, indicate the correlation between the need for effective water management and water governance. Effective management requires decision makers to strategise, plan and invest. All these activities can only be effectively executed and achieved by having access to reliable, authentic information. Effective access to authentic information sources would provide the evidence required to tackle the challenges of discrepancies between supply and demand of water, achieving management targets, repairing and upgrading decaying infrastructure, deteriorating water quality and theft of water sources, amongst others (Castro 2006). Further proposed by Castro (2006:99), is that water governance requires interdisciplinary approaches contributing to the management and sustainability of resources and filling the void between techno-scientific and socio-political fields of knowledge. The proposed SAWHAR would provide such a platform for relevant information to be captured, stored and made accessible to researchers.

According to the Minister for Water and Environmental Affairs, over R570 billion investment was needed across South Africa's water value chain in April 2012 for the coming ten years (*Mail & Guardian* 2012). This investment money is needed to pay for water resources infrastructure, water services and water conservation and demand management across national government, municipalities and the country's existing twelve water boards (Roussouw *et al.* 2005). However, such ventures cannot be undertaken without adequate access to information, regardless of whether the information sources are in paper, electronic or in another format, to provide evidence of how decisions were made, how the figures were determined and how the received investment funding was utilised (Schellnack-Kelly 2012). Without effective records management, access to

authentic information sources and older records further planning and development is hampered. Furthermore, the governance barometers of such ventures cannot be accessed and entities' credibility can be questioned. The effective and responsible management of information sources, as in an archival establishment, can facilitate the barometers of good, effective and sound governance by means of authentic records, created, managed and cared for in accordance with required standards in managing information sources, regardless whether in paper or digital format.

Governance models should conform to prevailing social, economic and cultural particularities of a country (Huitema *et al.* 2009). However, basic principles or attributes are essential. In line with the South Africa's constitutional objectives, the approach concerning water governance should be transparent, inclusive, coherent and equitable (Huitema *et al.* 2009). Similarly, the governance system should provide evidence that is accountable, efficient and responsive. Better governance requires the participation of government, civil society and the private sector, all of which are instrumental in the effective implementation of reforms.

In practice, water governance should involve the interaction between governments, large businesses, political parties, civil and other organisations representing various interest groups, international donor agencies, nongovernmental organisations and community-based organisations. Governance would involve: providing access to information as evidence relating to the ends and values determining water policies and management, identifying the decision makers and participants in determining these ends and values, the processes involved in decision-making and the involvement of communities, citizens and other affected groups (Castro 2007). All of the relevant stakeholders, interested and affected communities and organisations are the role-players involved in creating and continuing debates concerned with political and socio-economic challenges concerning water related affairs, including how essential water services should be managed and controlled. A water research archive, such as the South African Water History Archival Repository, would provide relevant evidence to address and investigate water governance related matters, and facilitate dialogue, negotiations and enquiries based on authentic information, securely captured, preserved and accessible. A secure, well managed water archive may well provide authentic evidence which may provide "donor funding to initiate capacity building and lesson sharing programmes" in the SADC region (United Nations 2007:6).

3. SOUTH AFRICAN WATER HISTORY ARCHIVAL REPOSITORY

Since mid-2012, a group of historians, archivists and Water Research Commission staff members have been working on a project entitled the *South African Water History Archival Repository*. The project is being collaborated with institutions,

private sector stakeholders and private donors, with the hope of having the SAWHAR up and running towards the end of 2013, on the Vaal Campus of North-West University in Vanderbijlpark.

The proposed archival project will include developing archival collections from hard copy information sources. A vast reservoir of information sources, both in paper and digital format exist in public and private entities that could contribute to our water heritage. In many parts of the world, comprehensive, sustainable archival projects have been launched, integrating both paper and digital information sources that provide valuable evidence for current and future users. The SAWHAR would fulfil a similar objective. Included in the scope of the project is developing and capturing digital records before such information is lost completely due to technological obsolescence The proposed SAWHAR should be in a position to partially address the existing shortage of historical information, especially in the pre-digital era (before 1980). The intention is to create a repository where hard copies of valuable information sources are stored. Simultaneously, there is a need to digitalise the information so that the documentation, otherwise confined to dusty storerooms, can be turned into functional, accessible electronic material. The development of an electronic archival repository, making research material more accessible for researchers, will simultaneously enhance the viability and appeal of this South African water archive

All archives and records management projects in South Africa, particularly involving public records, must be viewed, planned and managed with the realisation of the very low status attached to the management and care of public records. Narratives of the poor conditions and limited capacity to effectively manage traditionally paper-based record collections tend to be wide-scale. Meanwhile, the narratives concerning digital records become even more magnified and worrisome (Allan 2009).

The undertaking of creating a water research archive would involve the following:

i. Identifying all the entities that have collections of documentation which should be incorporated into the archives. Entities such as Umgeni Water, being one of the first entities to provide information in South African archival journals on an electronic records management project (Stabbins 2001). However, the viability and status of record collections in entities like Lepelle Northern Water Authority, in Limpopo Province, may need to be assessed (Lepelle Water Authority 2012). Thorough investigations would need to be conducted to ascertain where the records are, in what conditions they are stored, the physical conditions of the documentation, and whether they are in fact adequately arranged and described.

- Collections that are well indexed and managed may be needed to be appraised to determine which records warrant being incorporated into the archives, and consequently digitised.
- iii. Documentation and collections with little or no control may need to be arranged and described to facilitate the process. Some documentation and collections may well need to be restored. Large volumes of documentation may need to be arranged and described. Archives and records management students could be afforded opportunities to gain practical experience in arrangement and description. However, security clearances and confidentiality agreements may need to be considered for individuals involved with these projects.
- iv. It will also be necessary to determine which legislation is relevant to the records. Water records in public bodies, being national, provincial, local government and parastatals fall within the jurisdiction of the South African National Archives Act. This act requires the obtaining of written authorisation from the national and /or provincial archivists to digitise the public records, and consent or approval would need to be obtained from the same officials if these collections are to be relocated and or disposed of (NARS 2007). Some collections may be in the private sector domain, while others may well involve transnational agreements, like the Katse Dam, involving the Lesotho Highlands Water Authority (Lesotho Highlands Development Project 2012). A similar scenario exists with the Komati Basin River Authority, between South Africa and Swaziland (Rossouw *et al.* 2005).
- v. Selection of competent, credible service provider(s) who will observe international standards and demonstrate compliance, as well as cognisance and acknowledgement of South African legislative requirements concerning documentation, archives and records management will be required.
- vi. An important element of the project should be capacity building, with skills and knowledge transfer to individuals required to ensure such a venture is sustainable.

4. DIGITISATION: OPPORTUNITIES AND TREPIDATIONS

The main objective of digitisation initiatives is to enhance and improve access to information (Manaf and Ismail 2010). Vital records, records of official status and strategically important records should be converted to digital format. Water information sources are records that should be protected in the event of an emergency, because of the severe consequences that could arise if the information

was destroyed. Events such as Hurricane Katrina, Australian floods and earthquakes in New Zealand and more recently Superstorm Sandy emphasise the significance of having access to information to facilitate effective dealing with urgent situations during and after disasters, natural and manmade. Furthermore, effective records management ensures that crucial records in digital format are adequately backed up, when paper records would not survive regardless of contingency strategies. Vital information sources are those sources essential for emergency operations. Access to this information should be quick, near enough to the disaster response site to ensure emergency support information and that resources can be effectively coordinated, with electronic replication methods providing effective access to required information (*Be prepared* 2013:36). Digitisation thus facilitates a disaster management component too. Of the 1200 businesses in the World Trade Centre Towers, in New York, the only paper records recovered were those removed in briefcases. This catastrophic event clearly demonstrated the importance of ensuring information sources are digitised and effectively backed up (Stephens 2003).

There are concerns about the digitisation programme being undertaken by the Cape Town Deeds and Survey-General's offices on documents by a commercial company with no experience in archival conservation management treatment (Malan 2012). The information sources in question include, "irreplaceable documents related to cadastral development and property ownership since the 1650s – title deeds and transfers, survey diagrams and township plans, mortgages, territorial and water disputes, land use and land management, privatisation of public land, slave transactions" (Malan 2012). Other concerns evident in the South African records management landscape are the deteriorating records cluttering up stairwells, fire escapes and other undesirable storage areas.

Digital information management systems may seem to provide faster and more efficient access to the documentation. One of the greatest challenges involves creating and maintaining reliable digital records and preserving their authenticity over time (Duranti 2011:272). Furthermore, authentic, credible digital information sources require sufficient evidence to be retained, free from alterations to prove "what they purport to be" and safeguard their trustworthiness (Duranti 2011:272). Effective management and care of digital records unleash complex riddles for many South African entities. From personal observations and involvement in records management projects in South Africa, specifically records management components are required to understand complex legislation, observe good governance concerning related issues and navigate through uncharted challenges posed by support and line management employees (Cox 2005), without comprehensive capacity building and knowledge sharing. A watershed event such as the collapse of the United States multinational corporation ENRON highlighted records management challenges, predicaments of individuals assigned with the

safekeeping as well as those with responsibilities relating to the destruction of information sources (Cameron 2002). The United States District Court determined that boards of directors are accountable for actions and business operations as well as the wrong doings of their subordinates. Executive and management echelons may be held accountable for the deliberate shredding of supporting information sources concealing evidence, the fabrication of false records and the premature destruction of records (Isa 2009:63, 233).

In South Africa, executive and management echelons often appear to have little concern or interest in conforming to uniform, standardised policies and procedures. Compliance and observation is only considered when negative reports from auditors are received. However, the management of information sources are soon sidelined for other ventures. Corporate governance and best practices are seldom associated with the management of the information resources. The constantly evolving information management environment requires the records management officials to fully comprehend, to adapt and to implement sophisticated information technology, ensuring the expensive venture is not wasteful expenditure.

According to Rossouw, Botha and Dlamini (2005), water quality information systems in South Africa have tended to focus on data collection, data management, information generation, information dissemination and knowledge products. However, little attention has been given to the "management and organisation" of the information management systems. Entities in possession of water related documentation and records may need to be more associated to the role of the information sources. Entities appointing and supporting information management practitioners require competency in understanding information sources, information management systems and processes ensuring accessibility of the information. As mentioned, this comprehensive collaborative *South African Water History Archival Repository* could provide valuable tools for further sustainable information-based and knowledge enabled development strategies (Mohamed, Murray and Mohamed 2010).

Despite the availability of a vast reservoir of electronic products and services, there is a need for users to have access to information, both physically and virtually. The importance attached by users requiring effective, efficient and timeous access to reliable, authentic information sources provides incentives for an archive focussing on a cause, person, community or organisation. A water archive can enable interested persons to research, view and consult the documentary sources captured and being preserved. Although the concept of a conventional archives facility has transformed from an area storing dusty documents, the digital environment requires a credible archive to integrate hardcopy and digital material in a sustainable manner, accessible to a wide-range of researchers both within the archival institution, as well as virtually to a different place and time zone. An information storage facility

dedicated to be the water archive would be able to provide water sector managers, engineers, scientists, researchers and administrators, with effective access to water-related information sources.

The proposed involvement of Unisa's Department of Information Science with the South African Water History Archival Repository project would be from the information management perspective. Such an endeavour would fulfil a need for a South African benchmark case study, free of commercial bias. This benchmark could serve as a model for other South African ventures, and for similar ventures to the African continent, as a whole. South African public sector records management is in desperate need of sustainable digitisation projects, with capacity building for more South Africans to become familiar with the investigations, implementations and maintenance of such ventures. Clear guidelines and practical experiences are needed to demonstrate the practicalities and possibilities that a digitised archive would have in enabling all relevant stakeholders and researchers to collaborate, synthesize, utilise and share information and knowledge concerning water-related matters.

Unisa's large student base demonstrating interests at both undergraduate and postgraduate levels in the disciplines in archives and records management makes it imperative for a case study in clear guidelines and understanding when embarking on digitisation projects. The Mandela Centre of Memory Digital Project, the Mandela Portal, (Katuu *et al.* 2011) may provide such a benchmark. However, the water archive may need to consider other dynamics, and refer to other related international projects to ensure this archive can be accessed and used conscientiously.

5. CONCLUSION

Like the Mandela Portal, the establishment of a comprehensive, fully inclusive water archive will require observations and interactions with similar ventures around the globe to ensure that the project is well-planned, coordinated and maintained. Involvement and assistance from InterPARES (International Research on Permanent Authentic Records in Electronic Systems) may provide such a platform to ensure that the process is sustainable and remains relevant. This archive will not only fulfil a heritage aspect but may, in addition, provide information that facilitates further planning, development and responsible utilisation of water resources, and related causes in South Africa. It may also extend to the rest of the African continent too.

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