



**PRESERVATION OF, AND ACCESS TO AUDIO-VISUAL RECORDS
AT THE NATIONAL FILM, VIDEO AND SOUND ARCHIVES OF
SOUTH AFRICA**

By

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DECLARATION

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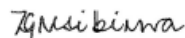


Date: 14 March 2018

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Date: 14 March 2018

ABSTRACT

The study investigated the preservation of, and access to audio-visual records at the National Film, Video and Sound Archives of South Africa in Pretoria. The ability to hear or see the recorded sound/images depends on the physical integrity of the carrier and functionality of projection/playback equipment. If collection is not properly safeguarded, deterioration emerges that complicates access. This results in the loss of valuable information.

A deteriorating audio-visual records carrier and failure to properly prioritise and plan for the “collection at risk” has resulted in many records being compromised of their integrity and stability, hence they are unplayable. Most audio-visual records at the National Film, Video and Sound Archives were not in a useable condition, and therefore inhibited appropriate access to the content.

The aim of the study was to assess the preservation of, and access to audio-visual records at the National Film, Video and Sound Archives of South Africa. The focus on the risk factors to preservation. As a result, plan and prioritise the “collection at risk” and give recommended practices and strategies on solving these problems. Consequently slow down and minimise the deterioration processes, which in turn might enhance access to the carrier and content.

The records life-cycle model was used to underpin the study in the theoretical framework. The quantitative approach, descriptive, cross-sectional survey was used. A response rate of 76% was achieved. The results of the structured, self-administered questionnaire, structured interview and observation schedule were analysed using the Statistical Package for the Social Sciences.

The results of the study show that the archives had on-going preservation strategies and activities practiced over the years. However, the lack of articulation of a preservation policy and an inappropriate environment, were the persistent challenges faced by the National Film, Video and Sound Archives of South Africa.

Other risk factors to preservation that the National Film, Video and Sound Archives faced included the following aspects: failure to conduct preservation assessment and planning; lack of tools to detect deterioration; inadequate training for staff working with Audio-visual records; massive uncatalogued Audio-visual records; lack of finding aids and playback equipment; and a degraded collection, which was mostly originals.

The study recommends that the archives should involve staff when they plan and prioritise for the “collection at risk”. The collection must be digitised. At least two copies of all archival items in their custody should be kept.

DEDICATION

This dissertation is dedicated to my loving Ncala family; including my late father Mduduzi General (May his soul rest in peace) and my mother Matete Sina who has supported me. In addition, it is dedicated to my son Thando and my siblings Gugu, Doh, Thabo and Qiniso who have all motivated me, as well as to my extended family and friends who have all contributed in various ways to my success.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAA	Associated Audio Archives Committee
A-D	Acid Detection
AES	Audio Engineering Society
AMIA	Association of Moving Image Archives
ARSC	Association of Recorded Sound Collections
AV	Audio-visual
AVAPIN	Audio-visual Archiving Philosophy Interest Network
AVR	Audio-visual records
AVRIT	Audio-visual Records Inspection Tool
BBAF	Binder-Base Adhesion Failure
BD	Blu-ray Disc
°C	Degree Celsius
CA	Cellulose Acetate
CCSDS	Consultative Committee for Space Data Systems
CD	Compact Disc
CD-ROM	Compact Disc Write Only Memory
DAT	Digital Audio Tape
DMSS	Digital Mass Storage System
DPRP	Disaster preparedness and recovery plan
DVD	Digital Versatile/Video Disc
DVT	Digital Versatile/Video Tape
ESARBICA	Eastern and Southern Africa Regional Branch of the International Council on Archives
FACET	Field Audio Collection Evaluation Tool
FIAF	Fédération Internationale des Archives de Film
FIAT	Fédération Internationale des Archives de Télévision
HVAC	Heating, ventilation, and air conditioning
IASA	International Association of Sound and Audio-visual Archives

ICA	International Council on Archives
ICT's	Information Communication Technologies
IFFA	International Federation of Film Archives
IFLA	International Federation of Library Associations and Institutions
IFTA	International Federation of Television Archives
INA	Institut national de l'audiovisuel
IPI	Image Permanence Institute
ISO	International Organisation for Standardization
LDA	Legal Deposit Act
LC	Library of Congress
LP	Long playing
MCAWP	Media Condition Assessment Work Package
MO Disc	Magneto-optical disc
MoW	Memory of the World
NARSSA	National Archives and Record Services of South Africa
NEDCC	North East Document Conservation Center
NFVSA	National Film, Video and Sound Archives of South Africa
PAIA	Promotion of Access to Information Act
PEN	Polyethylene Naphthalate
PET	Polyethylene-terephthalate
PVA	Polyvinyl acetate
PVC	Polyvinyl chloride
RAMP	Records and Archives Management Programme
RH	Relative Humidity
RLM	Records life-cycle model
ROM	Read-Only Memory
SABC	South African Broadcasting Corporation
SASA	South African Society of Archivists
SBS	Soft Binder Syndrome
SDEFSR	Survey Data Elements for Sound Recordings

SEAPAVAA	South East Asian and Pacific Audio Visual Archives Association
SPSS	Statistical Package for the Social Sciences
SSS	Sticky Shed Syndrome
StdDev	Standard deviation
TAPE	Training for Audio-visual Preservation in Europe
USSR	Union of Soviet Socialist Republic
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USA	United States of America
UV	Ultraviolet
VHS	Video Home System
VIPIRS	Visual and Playback Inspection Rating System
WWW	World Wide Web

CHAPTER 1

INTRODUCTION

“Of all the national assets, Archives are the most precious: They are the gift of one generation to another and the extent of our care of them marks the extent of our civilization”. Arthur G. Doughty, Dominion Archivist (1906-1935), (Nicholson, 2008).

1.1 Setting the scene

Audio-visual records (AVR) in the custody of archival institutions are a national asset but are fragile and vulnerable archives that have an important place in society. AVR connects cultures, educates, and unearths the history of a people; preserves the recorded history; is expressive of the artistic work of the nation from time immemorial; serves as the tangible source of outlining evidence that can be heard or seen as though the past is reconstructed. Preservation of AVR should not be delayed because the content carried in physical carriers is at the peril of deterioration, disappearing or becoming inaccessible (Casey, 2015:14).

Listening to aural recordings and/or viewing visual contents, which are sound and/or images depends on equipment. Audio-visual Records carry information on endangered media that was bestowed great honour by Edmondson (2002a:2), which resonates with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Memory of the World (MoW) 1994 aspirations. Edmondson (2002b) and UNESCO declared that AVR is part of the documentary heritage that charts the evolution of thought and is the inheritance of the world. There would be nothing left behind if the major risks of deterioration and obsolescence defeat the efforts of archivists in providing the utmost protection (Breen and Flam, 2014).

Protection and prevention against degradation are activities that are covered by preservation. An apt milieu on the argument about the significance of preserving and giving access to AVR is captured by the quotation of Arthur, G. Doughty an archivist from Canada from 1906 to 1935 who believed in preserving collections and making them accessible to the public (Drew, 2013; Nicholson, 2008). Originally, archives were preserved for the purpose of posterity for future generations. Preservation is a dominant archival function at the National Film, Video, and Sound Archives of South Africa (NFVSA).

1.1.1 The National Film, Video and Sound Archives of South Africa (NFVSA)

The National Film, Video and Sound Archives of South Africa (NFVSA), is a public institution at the national level and a sub-directorate of the National Archives and Records Service of South Africa (NARSSA); both are located in Pretoria. The NFVSA falls under the Department of Arts and Culture (DAC), which is the organisational infrastructure that every archival institution operates within the framework of its mandate (Millar 2017:125; Garaba, 2012:134; Egter-van Kuyk, 1999:73; Kofler, 1997:45). In the case of NFVSA, its legal broad mandate is “to collect audio-visual (AV) and related material which was made in or about South Africa” and to preserve the memory of humanity (NARSSA, 2014). There is legal framework that guides AVR preservation and access thereof.

In South Africa, legislation that puts into effect preservation of and access to such materials are the provisions of the Constitution section 32. Furthermore, Acts including the NARSSA Act (Act No. 43 of 1996); the Promotion of Access to Information Act (PAIA) (Act No. 2 of 2000); the Legal Deposit Act (LDA) (Act No. 54 of 1997) and some other Acts (NARSSA, 2014). The LDA Act No. 54 of 1997 specifically designates the NFVSA as a place of deposit for AVR that has been published and made available in South Africa (South Africa, 2000). The NARSSA Act (Act No. 43 of 1996) authorises the NFVSA to provide for preservation facilities and access (South Africa. 1996), (see Appendix 9). Every piece of legislation created by the government has implications (Okello-Obura, 2007:3; Ngulube and Tafor, 2006:61). Various types of acquisition form the AVR collection.

Acquisition of AVR according to NFVSA (2014) is mainly through donations by the film, video and sound industry as well as private persons and legal deposit. State generated AVR are transferred periodically in terms of the NARSSA Act No. 43 of 1996. In some instances, AVR are purchased or exchanged. The NFVSA’s collection comprises of different formats (see Figure 2.2 and Table 4.1 in Chapter 4, paragraph 4.3.1.1). The AVR should be maintained and protected including the carrier and the content for centuries to come (Gorman and Shep, 2006; Pymm, 2006; Feather, 2004; Schüller, 2004b; Ward, 1990). As such, media preservation must be addressed soon (Casey, 2015:14). This should be done within the legal framework and published standards should be followed (Rosenblum; Burr and Guastavino, 2013). Terms and concepts are defined for the study to be of benefit.

1.1.2 Terms and concepts

Terms and concepts are the building blocks of theory and are the requirement of gaining scientific knowledge (De Vos and Strydom, 2013:33). Certain terms are used in an umbrella, singular, or specific manner. Modern definitions have been developed to reflect their changing nature and inroads have been made by modern technology in the format of records, however, the fundamental concepts of the older definitions remain unchanged (Geber, 1987:1). There is no standardisation in the use of terms and concepts in the world of film preservation (Gracy, 2001). It is said, “The terms are interchangeable”; it is a matter of preference or consistency rather than value judgement (Edmondson, 1998: v). In this study, Audio-visual archives, archives, and repository are used interchangeably referring to an archival institution. The acronym AVR refers to records, archives, as in physical analogue, digital carrier and content (Edmondson, 1998:22).

The acronym “AVR” and the term “documents” are used interchangeably in this study. The major AV literature that prefer to use the term document instead of records, media or materials are, for example: the International Association of Sound and Audio-visual Archives (IASA); Technical Committee (TC) 03, 2005; the UNESCO publications of 2010; LDA (Act No. 54 of 1997) and many more. In most of the South African literature, the term AVR is used, for example, in the NARSSA Act 43 of 1996; whereas Edmondson (1998 and 2004) prefers the term “audio-visual media”. Edmondson (2004:22) pointed out that the term AV document is used interchangeably with AV media and material. In this study, AV materials, AV media, AV objects, and AV documents are treated as synonyms for AVR represented in the AV heritage. The term “access” is defined in the following section.

1.1.2.1. Access

Ngulube (2003:11) concurs with Segura (1990:193) that access is the availability, ability, and opportunity to consult records and archives. This definition is similar to Loewen’s (2008:164) which states that it is “the ability and opportunity to discover, use, and understand” the nation’s documentary heritage. Nsibirwa (2007:6) states “access refers to the way a document may be found”. Access is the availability of records for consultation because of legal authorisation and the existence of finding aids (International Council on Archives (ICA),

2012:3). Such access to archives fundamentals are adopted in this study, hence subscribing to the ICA ten principles of access to archives for guidance purposes.

1.1.2.2. Archivess

The Tripartite definitions as stated by Oregon (2003) in Garaba (2010:6) reveal that archives are:

- 1) the records created or received and accumulated by an institution or organisation in the course of routine business and retained due to their continuing value;
- 2) a building or area of a building used to house permanent records; and
- 3) a government agency, organisation responsible for appraising, scheduling, accessioning, preserving, and providing reference service to archival materials.

Similarly, Ngulube (2003:8); Abbot (1999:3); Harris (1997:4); Hunter (1997:2); Acland (1993:463); McKemmish (1993:2); Smith (1987:357) and Walne (1984:25) define archives as records selected for their archival continuing value and preserved at an archival institution. Archives can be seen as the repository, building, physical structures, or place dedicated to their storage, preservation, and use. Lastly, archives are commonly used as an institution, organisation, or agency responsible for the selection, management, care, and use of records as seen in the name of the NFVSA and NARSSA. An AV archives is defined below.

1.1.2.3 Audio-visual archives

Audio-visual (AV) archives are defined as an organisation which has a statutory or other mandate for providing access to AVR collections and heritage covering all spheres of commissioned recordings by collecting, managing and preservation (IASA TC-04, 2009:10; Edmondson, 2004:6). Examples of this are recorded sound, radio, film, video or other productions comprising moving images deposited at the archives (Egter-van-Kuyk, 1999:64). In this study, “AV archives” will be used in the context of an institution, organisation or agency responsible for the selection, management, care, preservation and use of archival records throughout their life-cycle.

1.1.2.4 Audio-visual records (AVR)

This study assumed that records in archives have been selected for having posterity therefore merit on-going preservation. Edmondson (1998: v) argues that the author may choose to use the word and an abbreviation as a matter of preference rather than a value judgement. Wright (2012:3), Edmondson (2004:21), Stauderman (2004:29), and UNESCO - MoW - Programme (1992:4), state that AVR may be items such as sound discs, magnetic tapes, films, photographs – whether in analogue or digital form, however recorded and in any format, they form part of AV heritage. The physical carrier may be paper or in any various forms of plastic or celluloid, shellac, metal or other material (UNESCO - MoW -Companion, 2010:4). Such recordings have two intentions (a) intended for public reception either by television or by means of projection on screens, or (b) intended to be made available to the public.

1.1.2.5 Preservation

Preservation is defined as “preventing the deterioration of archival material” (Ngulube, 2003:10; Harvey, 1993:74; St Laurent, 1992:149; Forde, 1990:118). In addition, Harris (2000:48) and Harvey (1993:75) states that preservation can be viewed as all deliberations involved in ensuring continual accessibility to the records and the information they contain. It is appropriate to use a definition that is comprehensive and able to distinguish the usage of preservation taking into consideration contestations that involve developments and emerging consensus on its application. In this study, a definition of preservation is adopted from Edmondson (1998:22; 2004:20) and used by Wright (2012:4) stating that:

Preservation is the totality of things necessary to ensure the permanent accessibility, with minimum loss of quality, of the visual or sonic content or other essential attributes of the work concerned. It therefore embraces such things as access, feedback, examination, conservation, repair, restoration, copying, surveillance, collection management systems, storage environments and methods, is preferred.

Conway (1989:51) includes amongst other things: planning, distribution of resources, implementation of policies, procedures and processes, organisation and acquisition. Combining definitions is all embracing and it gives a holistic approach to all activities that extend the life of the record. It subscribes to the insights of renowned scholars such as,

Schüller (2014); Wright (2012); Ngulube (2003:10); Ogden (1999); Hunter (1997); Swartzburg (1995:262); Harvey (1993:75); Ritzenhaler (1993); Bellardo and Bellardo (1992:26); Conway (1990:206,1989:51); Kenny (1990:184); Morrow and Dyal (1986:2); McColgin (1985); and Walne (1984) who distinguish preservation as a broader term that encompasses all the activities that constitute aspects of preservation. Contrary to this, the old schools of thought advocates for the use of the term “conservation” instead of preservation (Crespo and Vinas, 1990; Wright, 1990:317; Darling, 1985). Others perceive conservation synonymously with preservation (Wedgeworth, 1993:224; Conway, 1990:207; Kenny, 1990:184). In some cases, preservation is seen as a conservation strategy (Millar, 1997:73).

1.1.3 The types and varieties of Audio-visual recordings

Three terms applied in AVR classification are technical groups (recording principles), carrier types, and by media collection (recordings). Wright (2012:3) who referred it to three types made the term “technical groups” popular: analogue, physical digital and digital recordings. Analogue recordings refer to analogue technology, which comprises of vinyl discs, magnetic audio tape, video home system (VHS) and U-matic video tapes, and film. Secondly, physical digital recordings refer to that which is on dedicated physical carriers such as audio compact disc (CD), MiniDisc; digital audio tape (DAT), video, digital versatile/video disk (DVD) and digital versatile/video tape (DVT). Thirdly, digital recordings refer to that which exist as files on digital storage; in this case, modern equipment can record sound and moving image representations directly into the device’s memory. The recordings are files and have an existence that is independent of any particular storage media.

Carrier types refer to AVR recording medium such as mechanical, magnetic, and optical of which each category name gives a clue on the kind of reproduction, and material composition (Schüller and Häfner, 2014; Library-and-Archives-of-Canada, 2005). Schüller and Häfner (2014) point out those mechanical carriers include cylinders, coarse groove discs such as gramophone discs, long playing (LPs) or “vinyls”. Magnetic carriers are comprised of magnetic audio, film and video tapes. Optical carriers cover CDs, DVDs, blu-ray disc (BD) and read-only memory (ROM). Other carriers are a hybrid that fall within each of these distinct carriers, for example the magneto-optical carriers such as magneto-optical disc and the MiniDisc (Stauderman, 2004:36).

Classification according to AVR media refers to film, video, and sound collections. This study uses AVR classification according to media types, namely, film, video and sound recordings unlike in the study by Abankwah (2008) who used the types of carrier as groupings. Film as media refers to the reels of recorded motion picture films, movies or soundtracks not necessarily the film in a physical sense that forms the base material for recordings in general like in nitrate, acetate or polyester strips (KODAK, 2015; Edmondson, 2004:16; Schüller, 2004b). Video media cover VHS, U-matic, and BetaCam video tapes. Sound recordings involve music, interviews, and speeches recorded on cylinders, magnetic tapes or discs. However, all media have their own base material such as nitrate, acetate, or polyester. Their innate feature is the life expectancy of analogue or digital recording on physical structure.

1.2 Background and outline of the research problem

Audio-visual Records (AVR) are made of two components, that is, content/information and the carrier (Edmondson 1998:31). Each recording has the audio, and/or visual content, and the carrier on which they reside. The ability to hear or see the recorded sound/images depends on the physical integrity of the carrier, record format, availability, and functionality of reproduction equipment (Karafin, 2007:140; Bereijo, 2004a, 2004b; Lewis, 2004; Ngulube, 2002a:30).

Scholars that subscribed to the carrier/content principle are Schüller (2014), Wright (2012), Edmondson (2004 and 1998:31), and Lewis (2004). The survival of valuable information is important at a practical level where archivists formulate policies to guide the processes of protecting AVR. Archivists devote their time planning how best to meet preservation needs of the AVR in their custody. It is the content that is the memory of the nation although, recorded and carried on some form of deteriorating chemical physical mixture (Casey, 2015; Schüller, 2014; Wright, 2012; Karafin, 2007).

The focus in this study is on preservation issues that affect the carrier; consequently the complication of access that results from deterioration caused by external and internal factors. Trained and skilled staff is assumed to be key in the effective preservation of AVR and making them available to users irrespective of problems. However, the AVR landscape is fraught with a crisis worldwide and an analysis found the situation of AVR preservation in

Africa as being in a critical condition (Matangira, 2010; Zinyengere, 2008:37; Ngulube and Tafor, 2006:71; Matangira, 2003a:35; Oliver, 1999:10). The studies conducted in South Africa confirm that overall AVRs are at risk (Abankwah, 2008:12; Ngulube, 2003:352).

1.3 Statement of the problem

The internal physics and chemistry of AVR make the majority of them vulnerable to an inappropriate environment (Edmondson 2004:45). Ngulube and Tafor (2006) blame the majority of the archival institutions for not providing total preservation care. Many difficulties that are encountered in preservation result from fragility (Duchheim, 1988:95). Given that some of these AVR have been at the NFVSA for more than fifty years (1964-2017), their physical carriers get increasingly frail; Edmondson (2004:45) thus warns that the AV carriers are at circumstantial risk of survival. Wright (2012:5) and Schüller (2008:6) observed that AV carriers eventually are bound to deteriorate so much that their contents cannot be retrieved.

The AVR are machine dependent (Leary, 1988:119) and an absence of replay equipment may hinder access to the contents (Mnjama, 2010:144). The recording and playback technology face rapid obsolescence (Garaba, 2010:22; Edmondson, 2004:45). Inevitably, the risk of loss of the record stability, value, usefulness, access, and evidence emerge gradually. Forde (2007) sees access as secondary because without basic AVR, no service can be affected at the archives. A challenge is to find the means to minimise the risk of this unacceptable loss. Wright (2012:5) and Forde (2009) recognise that archivists in archival institutions face questions of how to plan a preservation strategy in less than perfect circumstances, or deal with a sudden emergency. Some efforts are made to raise awareness of the fact that, “unless action is swiftly taken, the loss of AV material is inevitable” (Schüller, 2008:6”).

Echoing Casey (2015:14), “the problem can be effectively summarised with a few keywords: large numbers, obsolescence, degradation, high research value, and short time window”. In other words, archives hold very large numbers of analogue and physical digital recordings on obsolete audio and video formats that are actively degrading, some of which contain content with high research value.

Given the above, the problem, which this study addresses, is the deterioration of AVR that inhibits the appropriate preservation of and access to AVR at NFVSA. Many problems affect preservation but “deterioration” is regarded as one of the highest risks. Many indicators of deterioration are in turn the actual preservation problems that this study addressed.

1.4 Justification of the study

The gap identified was that previous studies such as those by Abankwah (2008), Ngulube (2003) and Peters (1998) did not stress preservation assessment as an important step in AVR preservation in the South African context. According to Mnjama (2010), Ogden (1997), Hunter (1997) and Harvey (1993) preservation assessment is usually undertaken to determine the preservation requirements for the collection and to evaluate the strengths and weaknesses of the building, policies and guidelines, storage environment, archives’ holdings (media collection), holdings maintenance and disaster management. Related studies on preservation and access to records include Abankwah (2008), Ngulube (2003) and Peters (1998) but these studies did not focus on AVR at NFVSA or emphasise preservation examination.

The preservation assessment framework used in this study is based on a unique combination of preservation indicators, which constitute the Audio Visual Records Inspection Tool (AVRIT) (see Appendix 8). The AVRIT was used for the conditional analysis of the artefacts. It included the visual and aural inspection, storage, and processes of access. It assisted with the identification and listing of many preservation problems and their associated indicators. The researcher envisaged that the whole research procedure in this study would serve as a guide for others who may want to embark on identifying potential causes of preservation risks, and the discovery of solutions to prevent the risks. The AVRIT can also work as an observation checklist for the technical criteria considered when establishing priorities for the preservation of AVR. It may also assist in the process of selection for preservation reformatting. Collection assessment is crucial in guaranteeing the on-going care and complete protection of recordings of all types (Louko, 2012:73).

The motivation to assess the preservation of, and access to AVR stems from paucity of the relevant studies in South Africa and some authors like Abankwah (2008) and Ngulube (2003) suggest that further investigation needs to be conducted. Ngulube (2003) recommends that another study on the preservation of AV formats in South Africa be carried out. The same

sentiments were conveyed by, Abankwah (2008a). This study is yet to find out whether or not the situation on AVR preservation has changed. The findings will inform decision makers about the status of AVR in order to assess, plan and make decisions to implement strategies, minimising barriers to access whilst ensuring their total protection (Abankwah, 2008a:17; Matangira, 2003b:46; Ngulube, 2003:342). Findings will be of importance to AVR institutions because recommendations might be a solution to deterioration and scholars might find this study useful.

1.5 The aim of the study

The aim of a study can be defined as an abstract conception of something, which one plans to do or achieve (Fouché and De Vos, 2013:94). The aim of this study was to assess the preservation of and access to AVR at NFVSA. The special focus was on the risk factors to preservation. In turn, to be able to plan and prioritise the “collection at risk” and give recommended practices and strategies on solving these problems. Consequently, slow down and minimise the deterioration processes. As such, might enhance access to the carrier and content. Secondly, the study was to contribute to the improvement of the assessment tools and procedures that are fundamental to a proper preservation survey; reporting thereof adhering to the study research questions. The focus of the study is to assess the preservation of and access to AVR at NFVSA with a special focus on risk factors to preservation by asking the following research questions.

1.6 The research questions

From the aim, rationale and research problem the following research questions are posed:

- i) What policies and methods are used to preserve AVR at the NFVSA?
- ii) What plans are in place to safeguard AVR?
- iii) What kind of skills and experience do the staff possess regarding the preservation of AVR?
- iv) What processes are available for accessing AVR?
- v) What is the condition of AVR and their storage at NFVSA?

1.7 Delimitations of the study

This study focused on issues of preservation and access of the AVR housed at NFVSA in Pretoria. This study excluded AVR production and distribution, and any other marketing and

manufacturing activities and processes. South African Broadcasting Corporation (SABC) which also has the responsibility of preserving AVR was left out. The researcher concentrated on examination of three media, that is; film, video, and sound recordings whose scope includes analogue and digital physical carriers; for example, film, sound recordings (audiotape, cylinders) and videotapes, CD, DVD, DVT and DAT (stored in shelves). Thus, the assessment was limited to the physical carrier of AVR.

The scope of this study excluded digital content in files stored on computer, photographs, posters, music sheets, manuscripts, songs books, and other documentation. This study did not address archival functions such as accessioning, cataloguing, outreach, and appraisals, market trends, the decreasing availability of working equipment and technical expertise in detail because it was beyond its scope. Excluded also were the views of the members of the public who use the AVR despite the fact that they might have provided a different perspective.

1.8 Theoretical framework

According to Ngulube (2018), either a conceptual or a theoretical framework should guide credible and sound scholarly research. The archival theoretical framework that guided this study was the records life-cycle model (RLM). The RLM is a principle for records management and a model to manage records and archives (Millar, 2010; Ngoepe, 2008; Abbott, 1999; Roper and Millar, 1999a). Theories of managing information are diverse. The major concepts underlying this study are based on the processes of managing the collection (Ritzenthaler, 1990). Preservation is one of the strategies of collection management from record creation to its disposition or archival stage (Ngulube, 2003:4). The RLM demarcates compressed phases in the life of a record namely: current records, semi-current and non-current (Millar, 2010; Abankwah, 2008; Parker, 1999) where control mechanisms can be put in place starting at its creation until the disposition or permanent preservation at the archives.

This study presumes that the application of a life-cycle model within the last stage of the records life-cycle, that is, at the archival preservation stage can serve as a tool for planning and decision making. This in turn may benefit other areas such as the allocation of resources. At a specific stage of the life-cycle, like at the preservation stage, clarification of all the activities, which may be needed, may be matched with the available skill. Given the theory base of a records life-cycle, the archivist is responsible for the preservation of AVR

throughout its entire life-cycle in a manner that is useable to future generations (Ngulube, 2003:4). It is more appropriate to focus on preservation because it will guarantee chances of minimising deterioration.

1.9 Research methodology

The quantitative approach was used because it suited the problem at hand. Bias was avoided and reliability and validity research principles were enhanced in different parts of the study (see Chapter 3, sections 3.2 and 3.4.4 justified bias and 3.4.adressed validity and reliability). The research methodology was systematic and incorporated measurements of objective facts and numerical data to obtain information about the world (Fouch  and De Vos, 2013:89). The research design was a cross-sectional survey with data collection methods such as, self-administered questionnaires, observation, and interviews.

The research methodology for the study is summarised by the following points:

- Research Approach: quantitative, non-experimental.
- Research Design: survey, descriptive, cross-sectional.
- Population: NFVSA staff and audio-visual records (two sets of population).
- Probability Sampling: census, stratified, and simple random methods.
- Data Collection Methods: questionnaire, interview and observation.

The units of analysis were the entire staff complement from the departments of the NFVSA. The second set used stratified and simple random sampling to select the 384 units of analysis from 765 000 of AVR population in NFVSA. This sample was made of three strata namely: film, video, and sound recordings. This improved precision or efficiency of the sampling process (Bless, Higson-Smith and Kagee, 2006:103). The response from the closed-ended questions from questionnaires, interviews, and data from observation were organised, described, and analysed using the quantitative procedures; then synthesised and integrated. The results of the structured, self-administered questions and quantitative data were analysed using SPSS®¹. Chapter 3 elaborates on research methodology adopted for this study.

¹ SPSS®- Formerly, the acronym SPSS represented Statistical Package for the Social Sciences, then it was changed to Statistical Products and Services and Solutions. Nowadays it is just used as SPSS® Inc.

1.10 Limitations of the study

This section of the study outlines the limitations that might impact on the validity of the findings of this study. The time taken to complete the study was longer than anticipated. There might have been changes that have taken place at the NFVSA in-between the time the data was collected and the writing, presentation of findings and completion. The researcher was able to visit the NFVSA recently and found that nothing had changed.

Most sources consulted for this study were dated due to the fact that AVR formats under investigation are facing obsolescence. Reiterating the words from Hess (2008:241), “seventy percent of all audio-visual material is under immediate threat of deterioration, damage or obsolescence”. As explained in section 1.7 of this chapter, the focus of this study is on film, video, and sound recordings whose scope includes analogue and digital physical carriers. Such carriers are no longer manufactured and the supporting technology is also obsolete. Recent studies on preservation tend to address the issues of digital formats.

1.11 Structure of the dissertation

This section indicated the chapter layout of the study and applied guidelines from literature (Mouton, 2001:122-125) and from the Information Studies discipline of the University of KwaZulu-Natal (UKZN).

Chapter 1 is the introduction that sets the scene by giving a broad overview of the topics discussed that started with the NFVSA background, definition of terms and concepts, types and varieties of AVR, the research problem, a background, and a justification for the inquiry. Also covered are: the aim, research questions, delimitations, theoretical framework, and research methodology adopted for the study.

Chapter 2 deals with the theoretical framework and literature review. The theory explored is the records life-cycle as being the theoretical framework that was relevant to guide this study. The second part is the literature related to the area of the study.

Chapter 3 describes the research methodology adopted for this study. It gives a description of the research procedure and details of the research methodology, which start with the research approach, the research design, and the instruments used to collect, analyse and

interpret data statistically. This account, given that it was clear and consistent might make replication easier and more effective.

Chapter 4 elaborated on data presentation where the research results were presented strategically per research question as themes for each section.

Chapter 5 is the discussion of the results and is concerned with the analysis of the results in light of the research questions.

Chapter 6 consists of the summary, conclusions, and recommendations. This chapter opened the road for further debate, examination and the basis of continuity in research.

1.12 Summary

Chapter 1 introduced the importance of the AVR and the attention given to safeguard the collections. The problems that were presented affect most archival institutions caring for the AVR. In setting the scene, broad overview of the elements of the topics were briefly discussed. The NFVSA background highlighted the types of recordings in their holdings. The definition of terms and concepts, and many types and varieties guided the reader. The background and outline of the research problem provided a context for the research problem and other related factors that affected preservation. The study was justified and reasons for embarking on getting empirical evidence for the inquiry were given. It was clearly stated that, the aim was to assess the AVR at the NFVSA.

The research questions brought forward were five spanned from policies and methods, preservation to plans, expertise and educational background of the staff, processes of accessing AVR, and the condition of AVR. The delimitations were presented in order to know the scope of the study. For the theoretical framework, RLM was the most relevant theory for the inquiry at hand. The research methodology adopted for the study was quantitative and descriptive. Success with preservation of and access to AVR can be seen to mark the extent of civilisation, especially in an archival landscape of a democratic nation. The next chapter deals with the theoretical framework and literature review

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

“While mankind cannot stop natural aspects of deterioration, man can certainly slow down or control the speed at which deterioration occurs” (Tamula, 2001).

2.1 Introduction

This study augmented previous research work on preservation such as Abankwah (2008), Ngulube (2003) and Peters (1998), promoting the goal for the literature that is review and referencing (Ngulube, 2003:29). A literature review describes what has been empirically done in the past, and shows how this study fits in with what has already been done (Bertram and Christiansen, 2014:13; Leedy and Ormond, 2010:66; Hofstee, 2006:91). For the purpose of this study, the literature review enhanced the detection of gaps from proceeding studies within the topic. This review is congruent with Abankwah (2008:17) whose previous research gives insight on the research questions and objectives of the study.

There were attempts of tackling preservation issues in South Africa shown by the National Film, Video and Sound Archives of South Africa (NFVSA) membership to professional bodies (Kotze, 2013). Evidence of these endeavours was in 2005; there were several workshops hosted by The Fédération Internationale des Archives de Télévision (FIAF)/The International Federation of Television Archives (IFTA) and IASA Southern African Workshop on AVR Care (Melisia, 2009). In 2011, 27 March – 10 April, the Fédération Internationale des Archives de Film (FIAF) held a Summer School in Pretoria on film care skills, followed by the FIAF Congress from the 10 April – 15 April 2011 (Gilder, 2011). In 2012 November 13 and 14, Institut national de l'audiovisuel (INA) convened a seminar on audio-visual records (AVR) preservation and promotion of AVR in Cape Town, (INA, 2012; Kotze, 2013). In October 2014, French Government delegates came to South Africa on a mission to save the dictabelts of the Rivonia Trial. The researcher concurs with Abankwah that preservation issues were not completely neglected.

The literature on research as conceived in this study has allowed the researcher to see further by standing on the shoulders of giants (Newton in Machi and McEvoy, 2012:8). The proof of successful preservation is the extent of our care and the ability to slow down or control the speed at which deterioration occurs, measured throughout the entire life-cycle of AVR.

Preliminary stages of answering the question of deterioration starts with the theoretical framework, the historical background of theory in archival field and the role of theory in the design of the research study. Theories influencing the preservation of AVR that are discussed include the records continuum model (RCM) and the records life-cycle model (RLM). The preservation of AVR landscape argument is followed by five research question themes namely: policies and strategies for preserving AVR; condition of AVR and their storage; processes available for accessing AVR; plans to safeguard AVR; and, level of skills, experience and knowledge of AVR. The theoretical framework discussion is below.

2.2 Theoretical Framework

The study of preservation and access to AVR provides facts defined as empirically verifiable, selective, and meaningful observations, and theory as the explanatory framework. The theoretical framework underpins this study by guiding arbitrary observations where the focus is on the last stage of the RLM of the AVR at the archives. By using the RLM, the researcher is able to predict some facts. For example, AVR in archives preserved for posterity should be accessible. Therefore, such records must be in a conducive and proper environmental storage that prolong the lifespan in a useable manner. As such, a theoretical framework provides the structure and principles of preservation and access to AVR.

2.2.1 Historical background of theory in archival field

“This is what the Lord Almighty, the God of Israel, says: Take these documents, both the sealed and unsealed copies of the deed of purchase, and put them in a clay jar so they will last a long time” Jeremiah 32:14 (New International Version, 2011).

Quoting from biblical sources was not by any means to enshrine any religion or values but it was an attempt to link threads of long-standing history of preservation. Harris (2007:65) states that, “Without ignoring our pasts and to de-historicise the conceptual tools we work with”, revisiting the short historical background is the starting point. Preservation of archives (stated in the bible in the book of Jeremiah 32 verse 14), was seen as early as during the time of Zedekia (598-587 BC) and the Prophet Jeremiah (Ngulube, 2003:12). The New Living Translation Bible uses the word “preservation” (Verse 14 from the book of Jeremiah) which reads: This is what the Lord of Heaven’s Armies, the God of Israel says: “take both this sealed deed and the unsealed copy, and put them into a pottery jar to preserve them for a long

time”. This is evidence that the function of preservation has a long history and theory basis, which has resulted in the creation of recent archival principles.

Archival theory as well as archival practice is dynamic in nature (Harris, 2000:2). Edmondson (2004:1) notes that philosophies created theories. They are the basis for actions, decisions, structures and relationships. The archivists’ philosophy base is on functioning and useable record. The custodians who work with AVR recognise the sanctity of prolonged life, integrity, and the well-being of the recordings throughout their life cycle. Therefore, individual AVR must be kept in a useable manner. As Edmondson (2004) argues that from the user perspective, a readable or viewable AVR is as normal and in a desirable state. He further states that it is for this reason that the AVR custodians exercise a particular power over the survival, accessibility, and interpretation of the cultural memory. What is more fundamental is to consider the role of theory in the design of the research study, recognising the theories influencing the preservation of AVR. Edmondson (2004:3) points out that preservation of AVR is a value-laden act inherited from antiquity tradition and recent technological developments understanding archival theory.

2.2.2 The role of theory in the design of the research study

Theory or theory construction is the base from which subsequent stages of the scientific method flow and it is the first major component of the scientific method of enquiry (Connaway and Powell, 2010:47). Theorising in general is a powerful tool for exploring and understanding AVR professional terrain. It is a deeper view of the theoretical underpinnings, meaning the exposition of abstract principles. According to Edmondson (1998:31), carrier/content principle is a possible AVR principle, but is an untested explanation highlighting that AVR has two components; namely, the audio and/or visual content and the carrier (the physical film, tape or disc) on which recordings reside. The assumption is that every AVR carrier found in archives has content. Therefore, preservation and access is for both or either carrier or content. A choice at a theoretical level is whether to save the content or the carrier in the case of physical or chemical degradation or obsolescence.

Theories make sense of observed patterns in ways that can suggest other possibilities; they can shape, and direct research efforts, pointing toward likely discoveries through empirical observations, and are directly relevant to “why” questions (Babbie 2011:32). Theory helps to

make research more productive in that it recognises a number of “unsorted facts, laws, concepts, constructs, and principles into a meaningful and manageable form” (Mouly, 1978:35). Theories specify how concepts relate to one another (Neuman, 2000:46; Goldhor, 1972:42). They can help explain the nature of that relationship as well as aim at logical explaining and predicting phenomena or events (Mouton and Marais, 1990; Goldhor, 1972:42). According to Babbie (2011:32), theories seek to explain and provide logical explanations during the adventure of inquiry into social life.

2.3 Theories influencing the preservation of AVR

Theories influencing the preservation of AVR are within AV archiving. The AVR archiving theoretical basis, development, codification, acceptance, and use as a reference base was a result of practical experiences, expansion, and importance of AVR as the world’s memory towards the end of the twentieth century (Edmondson, 2004:1). Audio-visual records (AVR) are the carriers of various media in various sizes, shapes, configurations or formats of the content on the carrier that is the pillar for relevance of a theory. The records management model influences the guardianship and safeguarding of AVR collections. This model has a heuristic function and a partial representation of a given phenomenon (Edmondson, 2004:1). The records life-cycle model (RLM) and records continuum model (RCM) discussion in detail is in the following sections.

2.3.1 Records continuum model (RCM)

Two ways within the archives and information science discipline that can have an impact on records management according to Svard (2013:163) are planning and hence long-term preservation. The RCM is a more progressive way of dealing with the management of the entire records continuum. It therefore facilitates a proactive and holistic view of managing records (Svard, 2013:161). The RCM seems to be viable and effective for both records and archives’ management (Flynn, 2001:80; Bearman, 1994:32). It is in fact a strategy for mitigating long-term preservation challenges. Advocates of the RCM are Upward (2009); Tough (2004:19); Tafor (2001:23); McKemmish (1997, 2001); Dollar (2000); Roper and Millar (1999b:13); Rothenberg (1999); and Bearman (1994:32) who have contributed knowledge and insights to the mechanisms of the model.

Svard (2013:163) supports the view that the RLM and the RCM are appropriate for the long-term preservation of records within the archives and information science discipline. Contrary, Brothman (2001) prefers RCM to RLM because it outweighs the usefulness of RLM. He further criticises the shortcomings of the RLM indicating that it is linear, unidirectional, and loses its conceptual coherence when records reach the archival stage (Svard 2013:163). He postulates that certain elements of RLM were not compatible with the idea of social and organisational memory. The RLM discussion is in the next section.

2.3.2 Records life-cycle model (RLM)

The RLM can be seen within the stages of a record life span. In practice, records are created in various contexts at different periods under particular circumstances. They are used for certain purpose and by varying users. After the intended use is satisfied, they either they either re-use or preserve the records, or if the decision is made certain records are disposed of. This is a simple way to portray the life span of records (see Figure 2.1); hence the application of RLM as an archival theoretical framework is relevant and it guides this study.

The RLM is a principle for records management and a model to manage records and archives (Millar, 2010; Roper and Millar 1999:11a). It is the life span of a record from its creation to its final disposition and/or transfer to an archival institution for permanent preservation. Figure 2.1 illustrates all stages in a RLM: creation or receipt, maintenance and use, disposition or permanent. The base of RLM is on the idea that records become important as time passes and on the belief that managing records as depicted in Figure 2.1 starts from the creation stage that leads to the efficient use, maintenance, and disposition of recorded information (Mnjama, 1996:2; Ricks and Gow, 1988:4).

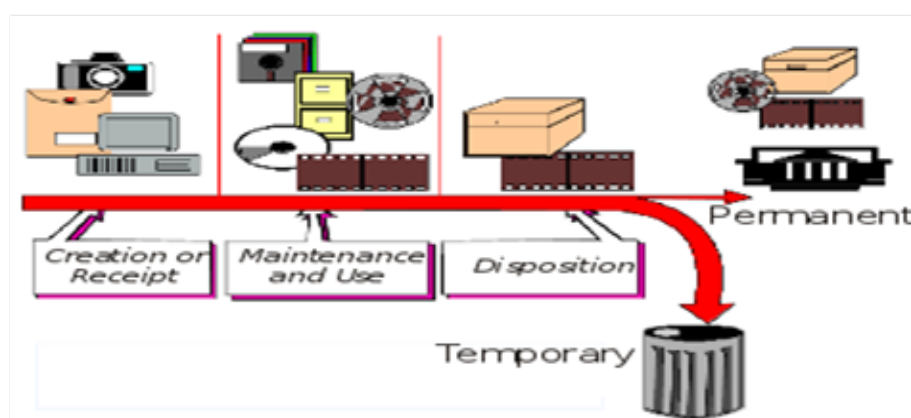


Figure 2.1: FEA Records Management Profile, Version 1.0 (Source: National Archives and Records Administration, 2005:8)

Theories of managing information differ. The major concepts underlying this study are based on the processes of managing the collection (Millar, 2010; Millar, 1997:63; Ritzenhaler, 1993:185). Preservation is one of the strategies of collection management from its creation to its disposition or archival stage (Ngulube, 2003:4). The use of a model is justified by the absence of a typical theory for preservation. According to Shepherd and Yeo (2003:10), the life cycle concept still offers a useful framework. Given the limitations proffered by Bailey (1994:322) that a model is a copy, replica or analogy that differs in certain aspects, RLM will provide a systematic view of the phenomenon.

The last stage of a record at an archival institution is characterised by the evident relationship between preservation and access. In essence, preservation supports access (Feather and Eden 1997). In the case of AVR, Koch (1997:33) makes it clear that the phases of a life cycle of a record are similar to the functions given to AVR, for example, in RLM, the creation or receipt stage is similar to accessioning or registration at the archives. The RLM stage of maintenance and use match arrangement, description and creation of the finding aids. The last stage of RLM, which is the permanent stage, refers to preservation work at the archives. Such archival intellectual control done, make access easy and promote AVR use (Edmondson, 1998:33). Next is the physical control, which is the preservation of the activities of the AVR. In the last phase, the record falls in the jurisdiction of an archivist at the archives but not necessarily at the records managers of the creating entity. The findings of Mnjama (1996) reveal that national archival institutions in Africa concentrate on managing the last phase of the RLM, to the detriment of the other phases. Mnjama (1996:26) contrary to the opinion of Abbott (1999:6) notes that in the African archives, the last phase of the records life cycle gets more attention to the detriment of other stages.

The observations by Abankwah (2011:102) and Mutiti (1999) have found that in the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA), not all archives effectively apply the RLM. In the comparison of RLM to RCM, advocates of the RCM see the involvement of an archivist in decisions about how records are stored before they come to the archives as effective and serve AVR better (McKemish, 2003; Flynn, 2001; Harvey, 1993:84). In reality, AVR deposited at the NFVSA by governmental departments as well as other institutions, private organisations and individuals without an

opportunity to engage in their creation stage prior the transfer or the last stage (Abankwah, 2011:94).

This model has its critics like Flynn (2001:80) and Upward (2000:119) who argue that RLM puts demarcation between archivists and records managers. Abankwah (2011:91) captures criticisms against the RLM, for example, that the RLM puts an artificial barrier between the records management and the archivist's responsibilities. Other studies have observed that the RLM is still applicable to AV materials and is effective as a management of information tools, in comparison with the new competing models such as the RCM. It is for this reason that this study is guided by the RLM particularly paying attention to the last phase, that is the archival phase which deals primarily with preservation of AVR to fulfil the aim of archives. The following section elaborates on the literature review.

2.3.3 The link of the records life-cycle model to the research questions

There is a relationship between the RLM and the responsibility of preserving AVR heritage of South Africa for future generations. The first research question states, "what policies and methods are used to preserve AVR at NFVSA?" The RLM formed the basis for the recommendations for the development of relevant archival preservation policies. They are applied at the last stage of the record life-cycle. Preservation activities should include the planning and implementation of policies, procedure and processes that together prevent the further deterioration of records (Msibi, 2015:22).

Another research question addressed the plans that are in place to safeguard AVR. The RLM is a framework that guides the preservation of AVR especially at the last stage, namely, the preservation stage. All plans pertaining to the preservation of and access to AVR should be developed with full cognisance of the life of the AVR, that is, the last stage of the record.

The other research question looked at the kind of skills and experience the staff possess regarding the preservation of AVR. According to this study, RLM gave a discrete insight of the various stages of AVR and thus the requirements of relevant skills for preserving AVR at the last stage of RLM. The NFVSA staff require an opportunity for training in the preservation of AVR. If possible, NFVSA should ensure that a relevant policy that clearly stipulates the minimum requirements guides the recruitment of staff working with AVR.

The last question is about the condition of the AVR collection and their storage thereof. The RLM helped with the identification of the different stages of the records where AVR collection and the staff face challenges. Relevant mitigation measures can be applied a specific area of preservation, at the last stage of AVR if the adopted RLM is understood.

2.4 Preservation of Audio-visual Records landscape

These archives contain traces of my life and those who have lived it with me. Anyone who has explored the world of archives will know that it is a treasure house. It one that is full of surprises, crossing paths, dead ends, painful reminders and unanswered questions (Hobday and Mandela, 2010).

Deterioration and obsolescence are threats to AVR and pose risks to preservation and access thereof (Casey, 2015:14; Wright, 2012:5; Matangira, 2010; Mnjama, 2010:139; Zinyengere, 2008:37). Ability to access and use information carried by AVR depends on slowing down deterioration, and the process of preserving AVR. Having the legislation and regulations in place in an archival institution does not mean that preservation automatically takes place. Preservation is dependent on the availability of a collection in archival custody.

The researcher worked at the NFVSA in 2012 and conducted research in 2013 which opened up an opportunity to explore the world of AVR and the handling thereof. Due to long hours spent at NFVSA, the composition of AVR collection became general knowledge that prompted further research about the preservation of, and access to AVR in 2014. The composition of NFVSA's collection was summarised by Kotze (2013) in a presentation for the Department of Arts and Culture (see Figure 2.2 below). The researcher attended to in 2013. She stated that the NFVSA collection comprised of 3000 books across all spectrums of the entertainment and AV preservation fields. There was 1000 rare film posters, dating back to Die Voortrekkers (1916), 15 000 photographs which were related to various local feature films, 1200 film scripts from various feature films made locally, most were pre-production scripts, thus differ vastly from the finished on screen product. There were also newspaper clippings, photographs, programmes and old brochures about the theatre, music, literature, and fine arts. The oldest film dated back to 1898. It is one of more than 120 000 reels of film,

50000 videos in all formats including DVDs. The sound collection consisted of more than 595 000 units on a range of sound formats.

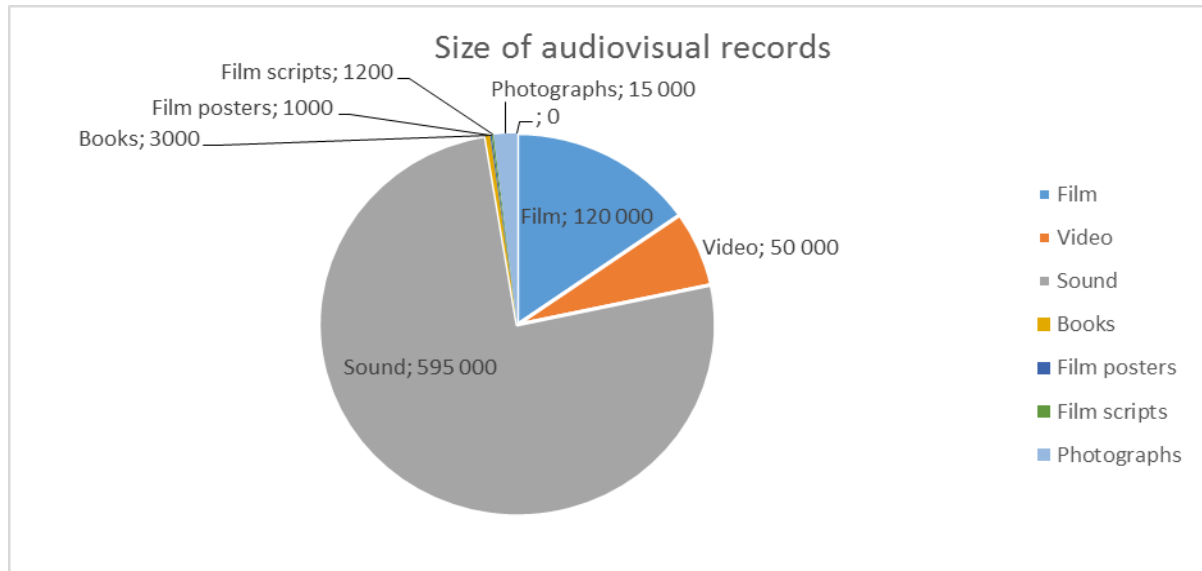


Figure 2.2: Size of audio-visual records held at the NFVSA

Even if AVR are properly preserved in good storage condition, access might still be a critical issue. The setbacks are inevitable because the NFVSA deals with archiving of the AVR, which has internal plurality and diversity (Edmondson, 1998:2). Addressing preservation and access to AVR requires mentioning of the associated risks and related issues that affect the practice of archives. There is inevitable growth and maturity of the archival profession in the sphere of AVR that requires both precision and flexibility in approach.

2.5 Strategies for preserving Audio-visual Records

“An archive does not have the choice of whether or not to preserve records, only the strategy it will use” (Sanett, 2002:388).

Preservation is one of the mandated archival functions that ensure the longevity of records throughout their life cycle, making AVR accessible to all. Preservation usually forms part of an archival institution’s mission statement. In contrast, strategic plans state how this mission is achieved. It is imperative to strive towards dominating the struggle of combating the challenges and risks facing AVR. According to Casey (2015:14), Louko (2012:73), and

Wright (2012:5), the physical risks, problems of deterioration and obsolescence are well documented. It means relevant strategies and policies must address such problems.

Policies are management principles (Millar, 2017:166). They are not necessarily always articulated (Edmondson, 2004:52). Formulation of policies is one of the management practices and a process of giving effect to an institution's mandate and mission statement. Shambaugh and Weinstein (2006:4) state that policy formulation is preceded by problem identification. Policy formulation is the development of policy alternatives for dealing with problems (Dye, 2005:41). Ideally, creating a preservation policy document is the starting point for formalising the activities and all processes according to the AV archive's needs. In a real situation, policy formulation gets considered at the end, when required, or problems arise.

A problem in this context can be defined as that condition of AVR that requires preservation needs assessment, such that, AVR situation does not reflect all the aims of an archival institution as listed on their mandate and mission statement. Deterioration is a problem that affects preservation of and access to AVR which potentially puts archives at risk. Consequently, relief is sought through policy formulation, application and the use of preservation strategies as a solution, provided understanding, knowledge, and skills prevails.

Policies are an indispensable tool (Millar, 2017:130; Matangira, 2003b:45; Ngulube, 2003:117; Schuurisma, 1997:81; Roberts, 1993:387; Njovana, 1989:25). Policies are logical and cogent explanations of the archive's stances, perspectives, and intentions (Edmondson, 2004:53); irrespective of the institution's approach, whether it is media-separation, medium, content, or multi-media centred. Policy is meant to be what an institution does, the reasons why they do it, and what difference it makes (Millar, 2017:131; Van Orden, 1998:75; Menou, 1991:51). In other words, it can be what the institution decides to do or not to do. Given the mission or goal to preserve and give access to the public, it is what the preservation policy will state (UNESCO, 2000), and hopefully implement successfully.

A preservation policy is defined as the written statement (*de jure*), authorised by the repository management that describes the approach to be taken for the preservation of objects accessioned into the repository (The Consultative Committee for Space Data Systems (CCSDS), 2011:4). A preservation policy is contextual in that it necessarily comes out of a time, at the end of the records life-cycle, and place, for example, at an archival institution. As AVRs come to the archives at their last stage according to the life-cycle, they are at the

beginning of a preservation stage. The first logical thing to do before developing a preservation policy according to Nelson-Strauss (1991:427) and Brichford (1977:8) is to do a thorough evaluation and appraisal of the collection.

Preservation policy issues are still a neglected area in earlier studies (Cloonan, 2001:232; Albrecht-Kunszer and Kastaly, 2000; Foot, 1997; Mbaye, 1995). Nelson-Strauss (1991) found that the emphasis on the importance of drafting preservation policies and initiating conservation measures for collections yielded positive results contrary to the findings that preservation programmes in most institutions are lacking (Association for Recorded Sound Collections' Associated Audio Archives Committee (ARSC/AAA), 1988:136). On the other hand, Johansen (2001) argues that policy making has been on the agenda of international conferences of FIAT/IFTA in the 2000's. They highlight that a policy of preservation of the material was needed for the benefit of access. Policy will make it possible to re-use the historical programmes to a new audience, "a new public who did not know anything about the Audio-visual heritage of the country" (Johansen, 2001).

A preservation strategy according to Mnjama (2010:140) "involves three aspects: assessment, planning, and action". Preservation activities can be categorised into four sections explicitly: maintenance, examination, conservation, and restoration. The two streams of preservation can either be preventative and remedial or renewal (Child, 1999a; Conway, 1990:207). It has been argued that preventative measures such as maintenance and examination are cost effective in the long run compared to remedial preservation, that is, conservation and restoration (Jones and Ritzenhaler, 1988; Chapman, 1990:2; Kathpalia, 1990:69). The way forward is to adopt the recommended guidelines and ethics of IASA-TC 03 (2005) which states that:

Preservation enables us to provide our successors with as much of the information contained in our holdings, as it is possible as to achieve in our professional working environment. It is the responsibility of an archive to assess the needs of its users, both current and future, and to balance those needs against the condition of the archive and its contents.

Mnjama (2010:140) further states that preservation assessment is usually undertaken to determine the preservation requirements for the collections and to evaluate the strengths and weaknesses of the building, policies and guidelines, storage environment, archive's holdings

(collection media), holdings maintenance and disaster management. It is anticipated that by safeguarding the collections the problems of deterioration will be solved and the collections will be used by the public (Labonne, and Braemer, 2013). The agents of deterioration range from contaminants, pollutants, dust, decay, mechanical damage, chemical degradation, sound/image degradation, project/play-start problems, direct physical force, mishandling, improper storage, fire, water, disasters, light, uncontrolled temperature and relative humidity (RH), pests, and improper building for the AVR and many more (Schüller and Häfner, 2014; Waller, 1995; Costain, 1994; Harvey, 1993; Roberts, 1993).

The preservation threats can be minimised by using preservation strategies and other preventative measures that protect and prolong the life of the AVR such as the guidelines of IASA-TC 03, (2005) and the publication by Schüller and Häfner (2014), on “Handling and storage of audio and video carriers”. The preservation strategies should address for example, sub-categories of environmental factors, handling, and storage such as: water/humidity; temperature, climatic storage conditions; mechanical deformation, dust, foreign matter, air pollution; light, ultra-violet radiation; and stray magnetic fields. The sub-categories for storage facilities and transport include storage environments; storage areas location; air conditioning and environmental control; walls, materials, heat transfer, and permeability to moisture; how to specify required conditions for a container; shelving; containers and transport. For disaster preparedness and fire, the sub-categories are fire; water; and uninterrupted power supply; all these factors affect the condition of the recordings and are partly embedded in the discussion in the following section, which deals with the preservation problems caused by improper environmental conditions.

Preservation problems caused by improper environmental conditions

The common preservation problems discussed under the following headings are temperature and relative humidity (RH), vinegar syndrome, paradox of nitrate film, soft binder syndrome (SBS) or sticky shed syndrome (SSS), and sound recordings preservation problems.

Temperature and Relative Humidity (RH)

Hernandez (2005:24); Schüller and Häfner (2014:46) warn about temperature and RH fluctuations and they suggest that stability is more important than the absolute conditions being met. The idea of maintaining stability outweighs the view of about the adherence to

internationally recommended climatic temperatures and RH advocated by Abankwah and Ngulube (2012:75); USAID (2008); Bereijo (2004b:374); Chida (1994:27); Kathpalia (1985:482). On the other hand, Setshwane (2005:59) state “failure to maintain constant temperature resulted in the formation of fungus and warping of the magnetic tapes and the discs”. In addition, Abankwah and Ngulube (2012:78) and Roper and Millar (1999b:16) stated, “It was damaging to archives”. Abankwah (2008:235) concludes that, “It could lead to further deterioration”.

Environment conditions refers to internal temperature, RH, light, air pollutants, insects and dust levels and whether there is mould growth/stains, fading, surface loss that pose a risk to the collection (AICCM, 2008:5; Edmondson, 2009; 2004:55; Julien, 2001). Recommended conditions are not the same for all AVR formats (Klijn, and de Lusenet, 2008:60). At The National Archives of the Netherlands, Teygeler, De Bruin, Wassink, and Van Zanen (2001), largely report inadequate environmental control and monitoring. At the time of conducting these studies, they might have not understood carrier or media specifications. Each media requirement is different; for example, film differs from audio, or video as far as internal temperature and RH controls are concerned.

Storage areas normally called strong rooms or vaults. They are crucial places where materials kept in a particular method promotes its longevity. In some cases, those methods employed might pose a risk to the collection (AICCM, 2008:5). To extend the life of AVR, it is essential storing them under good conditions (Klijn and de Lusenet, 2008:60). They further argue that proper storage will remain a cornerstone of any preservation strategy. The “ideal” requirements vary greatly depending on the type of material concerned: for example, different types of paper, film, magnetic tape, and audio discs have different, optimum levels of temperature and humidity (Edmondson, 2004:55). The four suggestions by Schüller and Häfner (2014:46) that must be taken into account when planning the control of storage environments are:

- prevailing conditions in the surrounding area;
- the construction of the storage facility;
- the quality of insulation and vapour seal; and
- the air-conditioning equipment.

Vinegar syndrome

Film preservation is affected by chemical damage called vinegar syndrome (Association of Moving Image Archives [AMIA]), 2015; National Film and Sound Archives of Australia, 2015; Schüller and Häfner, 2014:17; Casey, 2008:33; Hess, 2008; Klijn and de Lusenet, 2008:70; Hernandez, 2005:39). Vinegar syndrome is a hydraulic polymer breakdown, a process of decay (AMIA, 2015; Schüller and Häfner, 2014:30; Casey, 2008:33; Klijn and de Lusenet, 2008:70). Vinegar syndrome affects acetate-based film/tape only (AMIA, 2015; Schüller and Häfner, 2014:30; Casey, 2008:34; Hess, 2008; Klijn and de Lusenet, 2008:70; Hernandez, 2005:39). Film, sound, and video come in a variety of base materials, which, cannot suffer from vinegar syndrome other than acetate (Casey, 2008:34; Hess, 2008).

Research done by AMIA, (2015) found that vinegar syndrome follows at least seven stages or patterns of decay. The typical pattern for acetate decay is:

- 1) Vinegar odour
- 2) Shrinkage
- 3) Cupping: the film retains a curve. It will not lie flat, but instead appears wavy.
- 4) Crazing: the emulsion cracks and the image appears as a crazy mosaic
- 5) Appearance of white powder on edges (from binder deterioration, this is the plasticizer separating from the film.
- 6) Film becomes square on the reel
- 7) Film is no longer flexible and the emulsion flakes off from the base.

A discussion of the paradox of nitrate film follows below.

Paradox of nitrate film

Nitrate film is a nitro-cellulose base film, used almost exclusively for 35 mm film made before 1952 (KODAK, 2015; Klijn and de Lusenet, 2008:70). Since 1952 nitrate has not been produced in Europe. In the Union of Soviet Socialist Republic (USSR) now called Russia the production of nitrate film ended around 1970's; whereas in the United States of America (USA) it ended in 1950 (De Pew, 1991:212). Factors that led to the move away from nitrate production are attributed to problems of high flammability and rapid deterioration (AMIA, 2015; Klijn and de Lusenet, 2008:70). Nitrate film can ignite spontaneously, burn rapidly and

release toxic fumes (KODAK, 2015; Bereijo, 2004b:324; Klijn and de Lusenet, 2008:70; Schüller, 2004a). Most archives still have collections of nitrate film. They are transferred to recent film or video (Abankwah, 2008:102). This is not the best option either, given the fact that even the most recent film and video formats get obsolete rapidly, hence are in line of getting digitised too (Casey, 2015).

Soft binder syndrome (SBS) or sticky shed syndrome (SSS)

Soft Binder Syndrome (SBS) is a new term coined by Richard Hess (2008) for all polyester backed tapes that exhibit sticking, squealing and abnormal shedding (Casey, 2008:31; Hess, 2008:8). Sticky Shed Syndrome (SSS) is the most common deterioration process for video (Schüller and Häfner, 2014:20; Klijn and de Lusenet, 2008:84). The hydrolysis of the pigment binder and high pigment concentration are the first reasons for SSS. The second reason is lubricant exudation, which is a result of temperatures below 5 - 6° confirmed by Agfa experts, the makers of the magnetic tapes (Schüller, 2014:33; Schüller and Häfner, 2014:20). Other sources of SSS are primer exudation, surplus of dispersion agents and uneven dispersion of hardener. Playback problems exhibited by audio or video tapes might be caused by any of the sources of SSS.

Sound recordings preservation problems

Open reel/reel-to-reel tapes physical major problems that can be visually identified are tape pack problems such as cinching, curling, flange pack, slotted hubs, windowing, popped strands, spoking and stepped pack (Casey, 2008:21; National Film and Sound Archives, 2007; IASA, 1999; Van Bogart, 1995). Oxidation affects aluminium discs and wire recordings. Plasticiser exudation and delaminating impinge on lacquer discs. Rust/corrosion has an effect on wire recordings (Brothers, 2004 and 1997). Fungus can attack polyester, polyvinyl chloride (PVC), paper, acetate, and open reel tape, both analogue and digital audio tapes (Casey, 2008:73). Sticky Shed Syndrome (SSS) affects polyester open reel tape, and analogue audiocassette tape (Casey, 2008:71). During playback of open reel tape, the following problems can be diagnosed: on open reel tape, both analogue and digital audio tapes: binder-base adhesion failure (BBAF) or delimitation, blocking and pinning, dirt, oxide (magnetic pigment loss) and stick slip. The condition of AVR and their storage discussion is in the following section.

2.6 Condition of audio-visual records and their storage

“Nothing is built on stone; all is built on sand, but we must build as if the sand were stone” (Jorge Luis Borges, 1889-1986).

This section introduces the condition of AVR. Aspects covered include the condition of the film, video, and sound recordings and the storage conditions for the AVR.

The condition gives evidence of an on-going deterioration from deterministic hazards such as RH, visible and ultra violet (UV) radiation, pollutants, as well as the object’s instability, therefore calling for preservation (Waller, 2002:104; Keene, 2002; Johansen, 1999; Michalski, 1990). On the other hand, the condition of the film, video and sound recordings can be in an acceptable or very good condition but with unsatisfactory technical or sound quality (Klijn and de Lusenet, 2008:66). Audio-visual (AV) carriers are subject to deterioration, hence the content becomes of poor quality due to effects discussed below (AMIA, 2015; Schüller and Häfner, 2014:35). The researcher is able to refer to the carrier only and not necessarily the content in a carrier..

Condition of film

Film for motion picture is a thin, flexible, transparent ribbon with perforations along one or both edges. It bears either a succession of images or a sensitive layer capable of producing photographic images (AMIA, 2015; National Film and Sound Archives of Australia, 2015; Hernandez, 2005:39). Motion picture films come in countless formats, such as 80 mm, 70 mm, 35 mm, 28 mm, 17.5 mm, 16 mm, 8 mm, 9 mm and 9.5 mm/Pathè Baby, each with its own idiosyncrasies, but they all have the same essential physical structure consisting of two primary parts, the base and the emulsion (Klijn and de Lusenet, 2008:33).

There are three types of bases for film; namely, nitrate, acetate and polyester (AMIA, 2015; Hernandez, 2005:39; Klijn and de Lusenet, 2008:70; National Film Preservation Foundation, 2004). The emulsion (thin layer of gelatine in which the photographic images resides) is the image layer containing the image material, that is, (small metallic silver particles in the case of black and white images or colour dyes) within the gelatine binder (AMIA, 2015; Hernandez, 2005:39). The mass of the film is the base, which is the transparent support on which the emulsion lies and is prone to vinegar syndrome (AMIA, 2015; Schüller and Häfner, 2014:17; Hernandez, 2005:39). It is therefore crucial to know the film base so that the

identification and the proper care of each type can be done correctly, which is essential to the integrity and longevity of the collection.

Condition of video

A video cassette is a pre-packaged enclosed unit containing magnetic tape (either pre-recorded or blank) for video recording or playback, usually 2 inch 1/2 inch or 3/4 inch width (Schüller, 2008a and 2008b; Presto Space, 2005; Ward, 1990:272; Hurst and Delson 1980). Video carriers come as optical discs and magnetic/acetate/polyester tapes (Library of Congress, 1997). Video formats found in archives worldwide and in South Africa. They are: 2" Quadruplex, 1" B/1" Format, U-Matic, Lo/Hi band Umatic, Betacam, Betacam SP, M II, D1/2/3/5, DCT, DVD, DVCPRO, DV CAM, Betacam SX, VHS, S-VHS, Betamax, Video 8SP, Betacam Digital, Video 8/Video Hi8, Sony Open Reel Tape, and many more (Klijn and de Lusenet, 2008:13; Edmondson, 2004:73; Wilkie, 1999).

The life expectancy of video not only depends on the format but also on the brand, storage conditions, the number of recordings, tape handling and the playback conditions (Klijn and de Lusenet, 2008:81; Texas Commission on the Arts, 2004; Wheeler, 2002). Carriers base film materials range from nitrocellulose, cellulose acetate (CA), PVC, polyester (polyethylene terephthalate (PET or PE), polyethylene naphthalate (PEN) (Schüller and Häfner, 2014:17). Analogue and digital tapes are composed of base film materials, a layer of binder and pigment or magnetic particles (Stauder 2013; Klijn and de Lusenet, 2008:77; Stauderman, 2004:35). Base materials can provide more insight into vulnerability and preservation problems. The condition of video collection under SSS influence is detected through odour and texture by its "waxy" or "dirty socks" or "astringent/pungent" odour and viscid or gluey texture (Visual and Playback Inspection Rating System [VIPIRS], 2006).

Condition of sound recordings

Sound collections are a huge part of AVR and in comparison with video, are older and more vulnerable than film but cheaper to transfer than film (Klijn and de Lusenet, 2008:65). Audio formats and types found in archives are of a wide variety. They range from mechanical carriers, magnetic media to optical carriers (Stauderman, 2004:29). Mechanical carriers comprise cylinders, gramophone discs, and LPs/Vinyls. Magnetic media include reel-to-reel/open reel tape, compact cassette, DAT, and MiniDisk. Optical carriers consist of CD, DVD, magneto-optical disc (MO Disc), and MiniDisc. Frost (2004:44) found that

fundamental problems facing sound recordings is the custodians' lack of understanding about AVR, their variation of contents and their condition.

The base materials for cylinders are brass, tinfoil, plastic, cardboard, wax, with other ingredients such as: resins, soaps, oils, colourants, anti-fungal oils, plasticisers or lubricants, hardeners, stearic acid, caustic soda, ceresin or paraffin wax and aluminium oxide (Schüller and Häfner, 2014:8; Stauderman, 2004:30). The gramophone disc's base material differs according to the format such as shellac records. They are made of mineral powders with shellac resin. The instantaneous discs are composed of aluminium, zinc PVC, and gelatine. Lacquer discs are made of cellulose nitrate, plasticiser, castor oil, camphor, aluminium, zinc glass, cardboard and paper. In the case of LPs or "vinyls", the mixture is composed of co-polymer of PVC and PVA (Schüller and Häfner, 2014:8). The magnetic tape consists of two main layers: the base film/substrate and the magnetic layer/top coating/binder with pigment and lubricants; some tapes have back coating. The magnetic base film materials used were paper, cellulose CA, PVC, polyester, PET and PEN (Schüller and Häfner, 2014:19; Stauderman, 2004:35). The base materials for the sound recordings are the ones that carry the evidence of risks and preservation problems. Longevity and access are dependent on the storage conditions provided for such AVR collection.

Storage conditions for audio-visual records

The storage condition of vaults are faced with threats that also affect the condition of the AVR collection despite proper planning that has taken place. Internal temperature and RH control are linked because they are both important for preservation. It has been suggested that temperature control must be coupled with humidity control (Schüller and Häfner, 2014:46; Hernandez, 2005:26). In principle, heating air reduces the relative humidity whilst cooling air increases relative humidity at a given temperature, pressure and altitude, hence the need to use dehumidifiers, desiccant dehumidifiers and/or sensors in order to avoid the moisture in the air condensing and forming droplets of liquid. This approach is practical but not highly recommended because the air quality can fluctuate from low to high (Schüller and Häfner, 2014:47). In most cases, archival institutions depend on cooling systems. Only a knowledgeable and skilled archivist knows that a cooling system, which passes air through a moist environment and removes heat energy through evaporation, is not an ideal one for archives. Competency of the archival staff plays a crucial role in prolonging the life of AVR

throughout their life cycle. Internal temperature and RH controls play a crucial role in the storage condition if assisted by air filtering.

Air filtering becomes a necessity in order to help prevent any localised build-up of contaminants or airborne particulates. The International Standards Organisation (ISO) 14644-1, ISO 7, and ISO 8 elaborate on the amount of fresh air as a health issue and its lower proportions that bring chances of carbon dioxide localised build-up and other unwanted gases especially in the storage rooms. All AVR that is made of plastic gives off gases. To keep a clean room requires not only air filtering but also a combination of controls. It is for this inclusiveness of heat, air, ventilation and conditioning from the above discussion that prompts the recommendation of heating, ventilation and air conditioning (HVAC) systems as the control mechanism for AVR storage. Ngulube (2003:328; 2002b) found that HVAC systems in some archival repositories in South Africa were threatened by technological obsolescence. This means that most archives are struggling with maintaining ideal storage conditions where AVR is preserved for posterity. Closely related to internal temperature and RH, and air filtering, is light which can damage AVR.

The storage areas must be dust free and kept clean (Abankwah and Ngulube, 2012:75; Ngulube, 2003:68). The dust is not particularly damaging to magnetic and digital media only, as Abankwah and Ngulube (2012:75) mentioned, but dust effects are larger in varying degrees for all carriers. In the Schüller and Häfner (2014:30) study, experts found that dust in mechanical carriers causes deviations of the stylus, resulting in audible artefacts (clicks). With magnetic tape, dust can clog the replay head and prevent the swift breakdown of the signal (Van Bogart, 2008 and 1995). With optical discs, the reading laser that is obstructed leads to un-correctable errors and eventually muting. Ngulube (2003:328) said, “Records storage places in archival repositories in South Africa were generally clean”; it means he intended to say “an absence of dust”.

Many studies conclude that there are key risks associated with a lack of adequate storage facilities. What needs to be clarified, says Klijn and de Lusenet, (2008:69) is whether the larger share of collections in good and acceptable condition, should be ascribed to more expertise to make assessments or to find more possibilities to prevent deterioration (for instance because of better condition facilities). The preservation policy should state clearly that housekeeping and preservation strategies must be executed by skilled archivists. As a result deterioration process slow down. The AVR collection must be in a useable condition,

hence the emphasis of proper storage conditions. In whatever condition the AV collection is in, there should be processes available to access the content throughout the life-cycle.

2.7 Processes available for accessing audio-visual records

“The end of all archival effort is to preserve valuable records and make them available for use” (Waffen, 1983).

Segura (1990:193) is of the view that diversity in access exists, as a result, access defined in various ways depict different views, levels, perspectives, and points of emphasis. Audio-visual records that are in good condition are easily accessible. The processes for accessing AVR stand on the premise that an archival institution makes the collection available for consultation. Accessing such records is based on the assumption that all processes involved have taken place at an institutional level before users visit the archives. Processes for accessing AVR include the legal authorisation to consult records. After the arrangement and description of a collection, creation and use of finding aids follows. The means of accessing AVR can range from the technology used; information communication technologies (ICT's); adequate viewing/listening room; useable playback machines; the screens; playing tables; computers; headsets and copying machines. The actual access is the listening or viewing of the contents that takes place because of well-preserved AVR in its original form or in a reformatted version.

South Africans are guaranteed a right of access to information, witnessed since March 2001 when the Promotion of Access to Information Act (PAIA) No. 2 of 2000 came into operation (Ngulube, 2003:178). This means that the public is allowed into National Film, Video and Sound Archives of South Africa (NFVSA) or they can use an online database at National Archives and Records Services of South Africa (NARSSA) that gives the documentary titles because some collections are not yet digitised; they are physical formats in shelves in vaults (Ngulube, 2003:176). The ICA principle of access to archives (2012) is a strategic document with ten principles that guides access, (Ngulube, Sibanda, and Makoni, 2013). The ICA principle of access to archives are relevant and applicable to this study. Harris (2007:338) found that these principles give insights as to the parameters of the PAIA. He further speaks with authority about the hampering factors to the implementation of this Act.

Reformatting the AVR collection is a preservation strategy done for the promotion of access to the content. There is consensus that in order to safeguard materials on a medium threatened by deterioration and obsolescence, content is copied on a durable media. This strategy will render access to the content for the future generations (Labonne, and Braemer, 2013; Ngulube, 2002b:119; Dollar, 2000:27; Hunter, 2000:57; Harvey, 1993). Reformatting entails copying, digitisation, microfilming, migration, emulation, and photocopying (De Lusent, 2002; Dollar, 2000; Hunter, 2000). Reformatting comes with its own challenges especially in terms of legal issues, for example Ngulube (2003a:77) raised unanswered questions about the intellectual property of the reformatted record. The existence of copyright legislation is to provide legal protection to the creators and publishers of published works and to prevent unfair copying of original works. It is noted that AVR are “performance works” and carry additional rights beyond those, which relate to the content and the physical format.

The preservation strategy to manage the inherent and residual risks of the physical, mechanical recordings and their high demand, is to prioritise the collection for digitisation (Millar, 2017:166; Boston, Bradley, Casey, Cavaglieri, Fontaine, Gustard, Häfner, Molneryd, Ranft, Schuller, Wallaszkovits, 2014:14). There is a possibility of transferring the risk by digitising the collection before the inevitable loss of information (Boston et al, 2014:12). Digitisation is a tool for making the contents accessible, is indispensable for long-term preservation and is an indirect measure for preservation (Millar, 2017:167; Schüller, 2007). After digitisation, the original material is preserved. Digitisation is a process of mitigating further risks faced by the collections. The copying of the contents to a DVD and/or video is used as a “bridge” to allow older hardware to read the disc (Duryee, 2014).

The listening and/or viewing of the AVR is machine dependent (Lewis, 2004:61). The playback machines form an integral part of the AVR system. In a traditional (analogue) AVR machine readable, the carrier physically holds the information that is not ‘human readable’. This compares to a text document where the content and the carrier form a unit that a user can read without the machine. Machines are not immune to the limitations of obsolescence, improper storage, risk of mishandling when it turned on and in operation, posing a potential threat of damaging the equipment and the carrier (Casey, 2015:15; Lewis, 2004:61). The playback equipment includes tape recorders, Sony Walkman, Video recording equipment, (Boston et al, 2014:15).

2.8 Plans to safeguard audio-visual records

Planning is a systematic balancing of the aims and resources of an organisation, binding measures, procedures and stipulations that lead to the achievement of the set aim (Ngulube, 2003:121). Such a responsibility requires proper planning that will result in a long-range plan. Preservation is an integral part of a cultural institution's mission and preservation planning should be part of its overall strategic plan (Labonne, and Braemer, 2013; Ogden, 1999). Preservation planning is defined as a process of setting present and future preservation agendas (Ngulube, 2003:121). Another definition states that preservation planning is a process by which the general and specific needs for the care of collections are determined, priorities are established, and resources for implementation are identified (Ogden, 1999).

Preservation planning if done properly and timeously can achieve positive results that can lead the archival institution in the right direction. Protection of historic and valuable collections starts with sound preservation planning (DC Office of Planning, 2016). The main purpose of preservation planning is to define a course of action that will allow an institution to set its present and future preservation agendas (Ogden, 1999). According to Ogden (1999), and Jones and Ritzenthaler (1988:201) preservation planning maybe be essential in identifying resources that are required for the preservation of records and archives as well as setting priorities to address holdings' maintenance. Preservation planning has the potential of identifying the actions an institution will take. Even if the decision is not to take an action; however, the bottom line is a precautionary measure. Preservation planning can be seen as being instrumental in ensuring that the limited resources are used efficiently and effectively (Reed-Scott, 2000). As a result, the limited resources and tight budget are allocated appropriately to protect AVR from the dangers of deterioration and obsolescence.

Many archival institutions lack long-term preservation planning. The reasons include complexities of the nature of the AVR, huge numbers of hours of recordings, short-term solutions that concentrate on improving storage and access to AVR, lack of skill and tools to examine the condition of an AVR collection (Stawowczyk, 2009; Hackett, 2008:18). Reed-Scott (2000:84) states that the help of preservation planning increases knowledge about preservation issues among staff, as well as institutionalisation of the preservation process as a whole. The Washington DC office of planning which is a historic preservation office publishes annual reports regarding progress made in preservation planning for the whole

district. It is one of a few institutions dedicated to preservation planning. Protection starts with sound preservation planning (DC Office of Planning, 2016).

Despite improved technology and better records storage, technological obsolescence poses challenges that may obliterate institutional memories and lessen access to information resources if proper information planning is not undertaken, (Gladney, 2007; Sturges, 2006; Dollar, 2000; Rothenberg, 1999). The real world is where archivists face the challenges of preserving materials subjected to threats of deterioration. They risk the loss of information and inhabitants of access to the content of the carriers. Consequently, planning becomes crucial. Archivists need training and support in order to adapt. When doing collection assessments, it is also required that the tools and instruments used must be upgraded and accommodative of the archival principles as well as the demands of the formats.

2.9 Level of skills and experience of audio-visual records

Ngulube (2003) made a profound statement, “preservation of records irrespective of their format and media that they are captured on, hinges on staff with necessary skills and knowledge to deal with records at every stage of their use by society”. In the words of Patkus (2003:10), preservation is the function that needs proper management. The emphasis is on proper staffing and the preservation education and training. Thereafter staff is equipped with the relevant knowledge and skills. In an ideal world, technical background and experience is very essential as well as the use of workshops. The essence captured by Harrison (2004b), felt that education is the key ingredient for the development of sound, film and television archives. Patkus (2003:10) stressed that preservation activities should be included to staff jobs descriptions.

Abankwah (2008:1) responded to the growing concern about the deteriorating state of AVR in the region of the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) adding to the shortage of expertise crisis observed in earlier studies by Matangira (2003b:47); Ngulube (2003:134); Moyo (2000:10); Mazikana (1998:147); and Chida (1994:22). Abankwah (2008) particularly identified the lack of AVR technical skills. Mnjama (2010:144) states that limited technical expertise in restoration of AVR disables staff from repairing damaged materials. In the case of the study by Setshwane (2005:79), it is apparent that there is a lack of trained personnel in the Radio Botswana Music Library in the preservation of sound recordings. In the survey of AVR collections in 34

countries in Europe conducted by Klijn and de Lusenet (2008), they found that there was lack of qualified staff with expertise and professional training in working with AVR. It is the same situation as in South Africa, considering Research-Focus (2010:86) findings that the Library and Information Services (LIS) sector have challenges with respect to the lack of staff and skills deficiencies. This insufficiency could be addressed by education and training.

The reports on the availability of training changed during the period when Murray (2002) conducted his study. He was researching preservation education and training for South African library and archive professionals and students. Murray (2002) found that courses and modules offered in South Africa do not adequately cover essential preservation issues. Murray (2002) did not elaborate on the reasons for the meagreness of preservation contents taught in the LIS sector. The situation is probably more serious when considering the need for AVR specialised preservation strategies, for example, when bearing in mind that sound and moving images are mainly analogue. Some digital content are not on files but on dedicated carriers such as audio CD, video DVD, DAT, MiniDisc audio formats, and digital tape formats. This collection, which is the focus of this study, is highly dependent on playback equipment. Listening, and/or viewing, and making copies whether using the same technology like dubbing or a new technology like digitising a film, is a challenge because of the lack of experienced operators (Wright, 2012:6).

The type and level of education and training that answers the need for preserving AVR is a debatable issue. It remains a question whether accreditation is appropriate as the measure of education required by archivists. The optimistic view of Edmondson (2009; 2004:11) clearly supports academically accredited training courses. In order to equip archivists with the responsibility to safeguard AVR collection maybe a formal or professional training should be prioritised (Patkus, 2003:10). Ngulube (2003:192) carried out a survey of the preservation of, and access to archives situation in South Africa and mentioned Coates (1995) that had performed a similar study earlier. The conclusion at that time was that there were no formal training programmes for preservation management in South Africa. The educational landscape changed where several Higher Education Institutions offered formal qualifications in archival studies within Library and Information Studies Departments (Ocholla and Shongwe, 2013; Research-Focus, 2010:104). However, information technologies have become an indispensable skill for LIS (Ocholla and Shongwe, 2013:113). The study of Nsibirwa (2015) about the staff education and the preservation of legal deposit materials in

South Africa found that the staff responsible for preservation were not adequately trained in preservation management. It is more important to determine the type of training or education recommended.

2.10 Summary

This chapter looked at the theories, their role, and relevance to the preservation of AVR. The records life-cycle model (RLM) was chosen as the most relevant model for this study, followed by the literature review. The preservation policy was discussed and it is the foundation of guided activities aimed at safeguarding the AVR collection. A preservation strategy is necessary as a method to bring about the desired future and the achievement of the institution's goal of preserving their collections by keeping them useable in an optimum condition. The AVR condition is highly dependent on various factors such as the proper environment and storage.

Access to AVR materials and contents thereof at NFVSA is relative and its success depends on actions, interactions and relationships. However, for this study it is confined to the preservation for the benefit of eventually giving access. In order to safeguard the AVR collection, skills and knowledge of preservation techniques and procedures are fundamental to the implementation of preservation activities in an effort of combating the major problems of deterioration. Planning for preservation crucial. As such, it yields to decisions that assist in prioritising the most vulnerable AVR for consideration or to the selection of the most affected.

CHAPTER 3

RESEARCH METHODOLOGY

Every method of data collection, including the surveys, is only an approximation to knowledge. Each provides a different glimpse of reality, and all have limitations when used alone (Warwick and Lininger, 1975:5).

3.1 Introduction

The previous chapter outlined the research phenomenon that the study tried to measure and provided the theories used to conceptualise and operationalise the variables measured. The research problem is defined in the first chapter, on the last paragraph of section 1.3. In this chapter, the process of investigation is conceptualised in Figure 3.1 below. Figure 3.1 (compiled by the researcher) represents a snap shot of the research methodology for this study, and displays the chosen methods used to assess the preservation of, and access to Audio-visual Records (AVR) at the National Film, Video and Sound Archives of South Africa (NFVSA).

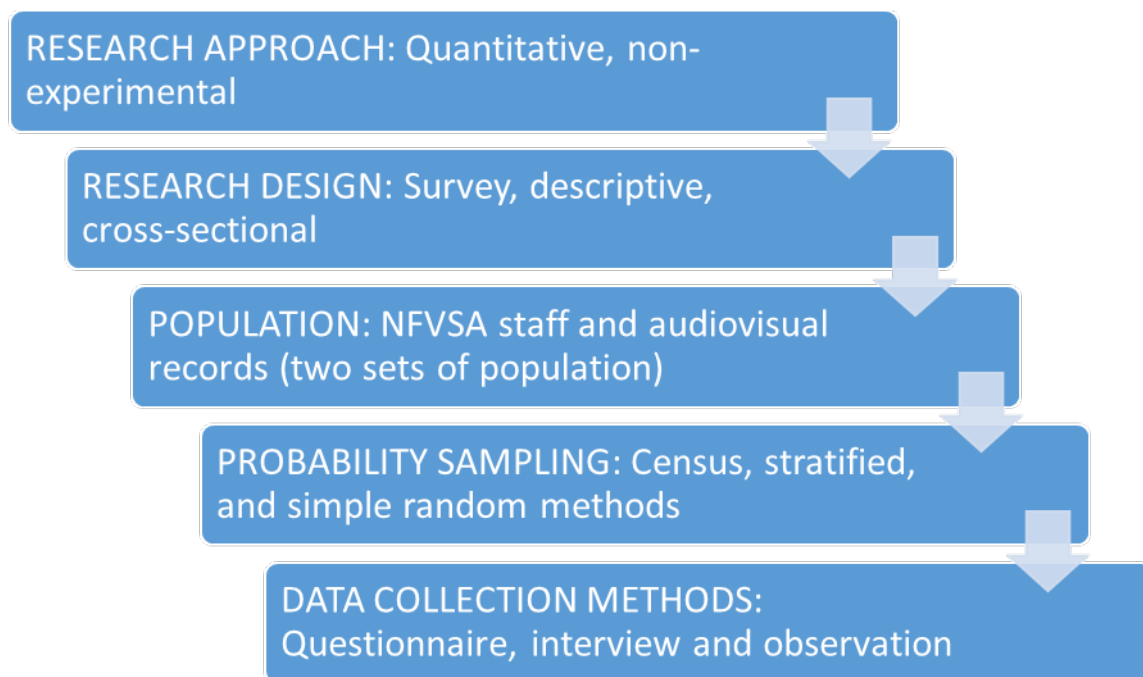


Figure 3.1: Conceptualisation of the research methodology (Compiled by B.N.M Ncala)

The salient points covered in this chapter are in an order of the sub-sections titles. It starts with introduction followed by quantitative approach. The research design covers the survey, cross-sectional survey, the population, sampling and types of sampling methods. Sub-sections of sampling are probability and non-probability sampling, census method, stratified sampling, simple random sampling, determining sample size and sampling error. Data collection methods and instruments is made of nine sections namely, the questionnaire, the structure of the questionnaire, types of questions, interview schedule, observation schedule, the structure of Audio-visual Records Inspection Tool (AVRIT), peer review and pre-testing, validity and reliability of instruments, administering the questionnaire, administering the interview, administering the observation and data analysis. The summary is at the end.

As stated in the first chapter, the NFVSA like other cultural heritage institutions especially those that have AVR in their custody. They face preservation challenges of deterioration and obsolescence of AVR collections. These challenges have become an impediment to the efficient and effective preservation of the recordings and access to the contents thereof. The NFVSA need strategies of averting, slowing down, and minimising the impact of these challenges throughout the life-cycle of the AVR collection. Consequently, the AVR would be preserved and accessed by future generations, hence conducted this research to discover the status quo and proffer suggestions. Research as a term is defined below.

There are many definitions of research but the following captures the essence of what this study is all about and the whole process. Research is defined as a methodological investigation into the subject in order to develop a plan of action based on the facts discovered (Creswell and Clark, 2007:38; Neuman, 1997:183). Research is a process that involves obtaining scientific knowledge by means of various objective methods and procedures (Welman, Kruger and Mitchell, 2005). Research is a systematic process of collecting, analysing, and interpreting information or data in order to increase our understanding of the phenomenon, which we are interested in or concerned about (Leedy and Ormrod, 2005:2).

This study is research that is a practical and procedural process employed to find answers to research questions. Appropriating the methodology was the pillar of the whole research process (Fouché and Delport, 2013:135; Kumar, 2011:31; Fink, 2010:63 and 1998:63; Kreuger and Neuman, 2006:461; Cryer, 2000:191). The survey research design chosen for

this study is deductive and affiliated to a post positivism paradigm hence a quantitative research approach was used (Sunders, Lewis, and Thornhill, 2000:45). The philosophical underpinnings influenced the chosen approach.

Philosophy is part of a person's experiences, culture, and history based on assumptions (Ellis and Levy, 2009:330). The belief system is the key criterion that guides a person's choice of the research approach utilised in addressing the inquiry (Saldana, 2011:22; Creswell and Clark, 2007:21). Putting it differently, the inquiry in question decided which approach and philosophical belief system or assumptions of a researcher were suitable (Saldana, 2011:8; Ellis and Levy, 2009:330; Creswell and Clark, 2007:21). Conception of how we understand relationships, how we conceive the world, the social reality and our assumptions influence us to choose which approach will best serve our interests (Saldana, 2011:66). For example, the data collection methods chosen for this study provided data required, henceforth, designed data collecting instruments as a result produce a complete piece of research. A quantitative approach has been the research approach of choice.

3.2 Quantitative approach

This study adopted a quantitative approach following the previous studies in the field of preservation and AVR; it was systematic and incorporated measurements of objective facts and numerical data to obtain information about the world (Fouch  and De Vos, 2013:89). The quantitative approach used quantitative data. It is information counted and expressed numerically and amenable to statistical manipulation (Fouch  and De Vos, 2013:89; Williamson, 2009:3). Some of the advantages for using a quantitative approach in this study were to avoid bias. The quantitative approach has its characteristics that made it most suitable for this study.

In a quantitative approach, settings are usually in laboratories and in an artificial environment (Neuman, 1997:183). In this study, statistical techniques used were the statistical tables, charts, and graphs. Quantitative approach is deductive, highly formalised and controlled (Saldana, 2011:93). Data collection techniques preferred, for example was structured questionnaires, interviews and observation. Using the quantitative approach minimised any influence on the subjects' responses and behaviour. The researcher was not personally involved in the studied subject. A quantitative approach is not context sensitive (Rowley, 2002:20). This approach has less regard to the setting where people converse (Creswell and

Clark, 2007:9; Neuman, 1997:14). It showed crudeness and some artificiality in the generation of useful insights in the study of human perception and human interactions (Neuman, 1997:14). Hence more focus was on AVR variables. A quantitative approach has been used before in other preservation of archives and records studies.

A quantitative approach applied in this study was like in Klijn and de Lusenet, (2008), Ngulube's (2003), Schüller (2008b), Smith, Allen, and Allen (2004) Asiamah (2008); Alegbeleye (1998); Feather and Eden (1997); and Mazikana (1995). The intent was to generalise from a sample to a population (Creswell, 2014:13). The plan depicting data collection and the determination of the nature of the relationship between research variables are discussed in the following section of the research design.

3.3 The research design

A research design is a plan for collecting evidence that can be used to answer a research question (Vogt, 2007:8). The outstanding feature of the research design was the measurement and analysis within the chosen positivist paradigm, hence the use of a quantitative approach. Often included are exploratory and/or explanatory studies, operation research studies, citation analysis, bibliometric, quasi-experiments, descriptive survey research, and experimental research (Ellis and Levy, 2009:326; Williamson, 2009:1). Other authors believe that the main types of research designs are document analysis, secondary analysis of data such as census data, naturalistic observation, surveys, interviews, experiments, quasi-experiments, and participant observation (Vogt, 2007:8). A simple classification of research design suffices.

A simple classification of research designs under a quantitative approach suggested by Creswell (2014:12); Maree and Pietersen (2007:149) are two classes namely, experimental and non-experimental research designs. An example of a non-experimental research design is a survey. A descriptive survey research as mentioned by Ellis and Levy (2009:326), and Williamson (2009:1) did not use any classes. A survey is the chosen research design for this study discussed in the next section.

3.3.1 The Survey

Survey research defined by Neuman (2003:546) is a quantitative social research in which one systematically asks many people or a sample of many respondents who answer the same

questions and the researcher records and analyses their answers. Neuman (2003:546) further argues that a survey follows a deductive approach where the researcher begins with a theoretical or applied research problem and ends with empirical measurement and data analysis. Surveys obtain quantitative information used to describe or explore certain research topics (Maree and Pietersen, 2007:7). Indeed this study argues the research problem as discussed in the first chapter section 1.3 and subsequent chapters presented the empirical measurement and data analysis thereof with a special purpose.

The purpose of the survey design was to generalise from a sample to a population in order to make inferences about some characteristic, attitude, or behaviour of the chosen population (Creswell, 2003). There are typical steps followed when doing a survey like developing an instrument such as a survey structured questionnaire, interview, and/or observation schedule. According to Connaway and Powell (2010:109), the basic purpose of descriptive surveys usually is to describe characteristics of the population of interest and to make estimate proportions in the population. This study is non-experimental, and slightly descriptive.

A non-experimental and descriptive survey assisted the researcher in obtaining information from various respondents and artefacts in the sample population. This allowed more focus on the exact characteristics under consideration. Numerical data used was on the the assumption that numbers describe a single reality. The survey met the researcher's expectations of producing evidence that was analysed quantitatively. According to Creswell (2014:13), surveys include cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection with the intent of generalising the data collected from a sample of a population. Time dimension was of utmost importance when doing research consequently using cross-sectional survey as a manner of dealing with the time of collecting data. The nature of this study is a cross-sectional survey, meaning that the researcher collected data at one point in time at NFVSA. It is unlike where collection of data is at various times over a given period in a longitudinal study. Aspects of the cross-sectional survey are discussed below.

3.3.2 Cross-sectional survey

The term cross-sectional in research is defined as a research like a "snapshot" and it looks at a single point in time (Neuman, 2003:532). It is designed to measure one or more phenomena across a sample representative of the population or whole (Connaway and Powell, 2010:110).

A research design where all data collected is on a single point in time is cross-sectional (Bless, Higson-Smith, and Kagee, 2006:182). A cross sectional survey is the most common choice for social sciences because of two reasons, the ease of data collection, and it is less expensive to conduct the research over a limited period (Creswell, 2014:157; Fouché, Delport and De Vos 2013:157; Bless, Higson-Smith, and Kagee, 2006:74; Neuman, 2003:31). However, there are two disadvantages of using a cross-sectional survey. Firstly, it does not allow the researcher to measure change over time. Secondly, it is very difficult to measure causality. In this regard, it is the responsibility of the researcher to choose a suitable option. Consequently, there were notable benefits for using a cross-sectional survey.

With cross-sectional survey, it was easier and economical to gather the necessary data for the research project. There was a rapid turnaround in data collection. For example, in 20 days the researcher had distributed and collected the questionnaires, interviewed some of the staff members and had done observation/artefact analysis. The inspection comprised the completely large AVR sample made up of 384 units. The population of the study is discussed below.

3.3.3 The population

A population is the theoretically specified aggregation of units of interest or elements in a study (Babbie, 2013:556; Balian, 2011:143). The population can be individuals, organisations, objects, or occurrences from which a sample is drawn (Denicolo and Becker, 2012:128; Ngulube, 2005a:129; Welman and Kruger, 2001:46). The term population is a broad term that covers both the target and survey population. The target population is the population for which information is required, whereas the survey population is part of the target population that is studied (Sarantakos, 2005:152; Black, 1999:111). The composition of the survey population differs from each context and study.

The survey population of the study was the NFVSA staff and AVR. The staff was made up of 17 personnel dealing with issues of preservation of and access to approximately 65 000 AVR in different departments of the NFVSA. Staff and AVR were the key sources of data for this study. According to Kotze (2013) AVR approximated at 765 000 in a variety of media (see Figure 2.2 in Chapter 2, paragraph 2.4) and made 140 kilometres of shelving space. The AVR was made up of heterogeneous media types such as film (120 000) reels, video (50 000), and sound recordings (595 000). Each media had divisions according to carrier, for example, the

sound recordings were according to four carriers ranging from cylinders, discs, magnetic and optical. As a result, the survey used manageable size of sampling.

3.3.4 Sampling and types of sampling methods

Sampling is a technique and a process of drawing elements for a sample from the population to represent the entire group (Bless and Higson-Smith, 2000:156; Black, 1999:111) Sampling can mean any procedure for selecting units of observation (Babbie, 2013:124; Sarantakos, 2005:432; Black, 1999:117). It is the most significant issue to be considered at research designing stage of the research procedure (Sarantakos, 2005:174) and it is commonly divided into two groups namely, probability and non-probability sampling.

3.3.4.1 Probability and non-probability sampling

Probability sampling allows samples selection in accordance with the probability theory, and treats respondents as units (Babbie, 2013:135; Sarantakos, 2005:155). Probability can be determined that any or all units have an equal, calculable and non-zero probability of being included in the sample, which might consequently be representative of the population and minimise all bias (Babbie, 2013:135; Bless and Higson-Smith, 2008:86; Ngulube, 2005a:132; Sarantakos, 2005:154; Welman and Kruger, 2001:47; Black, 1999:117). Probability sampling differs from non-probability sampling in the many ways described below.

Non-probability sampling refers to sampling techniques in which certain members may not have a chance of being included in a sample, units are selected in some way that is not suggested by probability theory but rely on available subjects therefore representativeness is limited (Babbie, 2013:135; Sarantakos, 2005:174; Welman and Kruger, 2001:47). In non-probability sampling, there is unpredictability, difficulty in measuring bias or sampling error; size is flexible and small, and not determined statistically; and involves low costs and simple procedures (Bless and Higson-Smith, 2008:86; Sarantakos, 2005:155; Black, 1999:118). This study opted for probability sampling.

This study used probability sampling where everyone in the population had a chance (greater than zero) to be chosen in the sample, and this probability was easily determined. A multi-stage method was used to select the two population sets; namely, census method for the first population set, then for the second population set a stratified and simple random sampling were used. Census method is discussed below.

3.3.4.2 Census method

The census method includes information on the characteristics of the entire population in a territory (Neuman, 2003:264). According to Antonius (2013:38), surveys conducted over the whole population are census. There were two types of samples made from the population, namely the entire staff and AVR collection. For the first population set, the researcher carried out a census. The researcher got the sampling frame, which was the list of respondents from Human Resources (HR) department at NFVSA. The census method was appropriate and used to choose units of analysis because the entire population of 17 staff members were included in the study as the population was very small. However, 13 staff members filled in questionnaires and the other four respondents interviewed. A combination of the census method, stratified and simple random sampling improved the precision and efficiency of the sampling process without altering the fundamental principles of probability sampling (Bless, Higson-Smith, and Kagee, 2006:103). Stratified sampling and simple random sampling complemented the census method.

3.3.4.3 Stratified sampling

The second population set was from the AVR of NFVSA. The researcher got access to the target population and selected elements of the second set. The researcher used a complete, precise, and up-to-date sampling frame for AVR from the NFVSA, that is, an accession register and an inventory list as suggested by Denscombe (2007:137) and Ngulube (2005a:133). In selecting the units of the second population set or the second sample from the target population of 765 000 AVR, a stratified random sampling technique was preferred. It accommodated every record type and got a correct sample size. Stratification is the process of dividing members of the population into homogeneous groups called strata so that each element of the population belongs to one and only one stratum (Bless, Higson-Smith, and Kagee, 2006:103). The second population set was further divided according to strata.

In this study, the second set included three strata and four subgroups in the same proportion as they occur in the population. There were 384 units of analysis, (calculating the sample size is discussed below in section 3.3.4.5) composed of three strata's and four subgroups, proportionally allocated. The breakdown in terms of 384 units of the AVR sample is as follows: The first strata consisted of film, which was comprised of 60 units (15.6%), comprising four subgroups made up of 15 units (25%) each. The second strata consisted of video and it was comprised of 24 units (6.25%), including four subgroups made up of six units (25%) each. The third strata was that of sound recordings which was comprised of 300

units (78.1%) and it encompassed four subgroups made up of 75 units (25%) each. Stratified sampling often improves the representativeness of the sample by reducing the sampling error (Strydom, 2013:230; Ngulube, 2005a:134; Rossouw, 2012). After the stratification process, each unit within each group from strata was selected by using simple random sampling.

3.3.4.4 Simple random sampling

Simple randomisation done was in all four subgroups of the three strata. For example, 15 units of each from the four subgroups from the film strata were randomly selected. Taking a random sample minimises sampling errors (Antonius, 2013:167). Simple random sampling is a sampling procedure that provides equal opportunity for the selection of each element in a population (Bless and Higson, 2008:87; Ngulube, 2005a:133; Welman and Kruger, 2001:47). Units composing a population had the same chance of being included in a sample, and were assigned from a set of random numbers generated, and units having those numbers were included in the sample as suggested by Babbie (2013:559); Sarantakos (2005:433); Welman and Kruger (2001:47). Simple random sampling served a useful purpose in this study.

The purpose of simple random sampling was to have a sample representative of the population with probability to be chosen as an element; and where there is equal chance to be selected, which is independent from each other. Furthermore, randomness expresses chance as the criterion to be selected (Bless and Higson-Smith, 2008:87; Ngulube, 2005a:133; Sarantakos, 2005:154). Simple random sampling has limitations (Balian, 2011:144; Ngulube, 2005a:133; Welman and Kruger, 2001:55; Black, 1999:118). Simple random sampling method is criticised for being a cumbersome process, unable to save time especially during planning and in cases where the researcher faces an enormous population (Babbie, 2013:160; Bless and Higson-Smith, 2008:90; Sarantakos, 2005:155; Black, 1999:118). Simple random sampling was supported by the proper determination of sample size.

3.3.4.5 Determining sample size

The values that help to calculate needed sample size are population size, margin of error (confidence interval), confidence level, and standard deviation. The size of a sample is important as it indicates the relative numbers of those sampled from the respective population and chance of representativeness (Balian, 2011:143). Sample size usually is expressed in the percentage of the population says Balian (2011:65) and Welman and Kruger (2001:64),

contrary to Ngulube (2005a:134) who said sample size does depend on the size of the population. A minimum sample size with 30 subjects per group was proposed by Balian (2011:156) whereas Ngulube (2005a:134) advocated 10% of the population, and Welman and Kruger (2001:63) recommended 25 units per sample if random sampling were used. The researcher found no consensus and therefore used a sample size determination formula from Qualtrics.com.

A formula from Qualtrics.com (2013) was used to ensure that the study employed a correct sample size for the second sample from the target population of 765 000 AV records. Calculation started where the confidence level was 95%, standard deviation (StdDev) was 0, 5 and the margin of error (confidence interval) was +/-5%. According to Qualtrics.com, confidence level corresponds to a Z-score as provided in a Z-score table. This is a constant value needed for the equation. In this case, 95% - Z-score = 1.96. The equation of the necessary sample size: $[(Z\text{-score} \times \text{StdDev} \times (1\text{-StdDev})) \div (\text{margin of error})]$. The mathematics calculations are:

1st step: $[(1.96)^2 \times .5(.5)]/ (.05)$

2nd step: $(3.8416 \times .25)/.0025$

3rd step: $9604/.0025$

4th step: 384.16

5th step: 384

The above calculation yielded 384 based on the Qualtrics.com (2013) sample size calculation. The sample size for this study was large enough to meet the requirements of the quantitative approach, purpose of the study, population characteristics, and usage of the Statistical Package for the Social Sciences (SPSS)® data analysis as planned. A large, simple random sample and excellent sampling frame as used in this study made the chosen elements of the population more representative. Determination of sample size might be affected by sampling error in some cases but this was avoided in the study by the correct large AVR sample.

3.3.4.6 Sampling error

Random and systematic sampling errors may occur at any stage of the sampling process (Antonius, 2013:166). Sampling error may be flaws in the sampling frame and/or non-

response error. Reduction of error in sampling is an imperative in the determination of the sample size but should be avoided at all cost (Babbie, 2013:160; Sarantakos, 2005:558). As the sample size increases and use of legitimate sampling techniques and the standard error decreases, when it is too small, it diminishes the utility of the results. (Babbie, 2013:141; Welman and Kruger, 2001:64). However, the aspect of sampling errors has attracted various views on the topic.

Another view according to Ngulube (2005a:135), is that increasing the number of respondents relative to the total population reduces the sampling error. It is advisable to draw a larger sample size as was done in this study. Sampling error became more apparent during the research report stage when analysing the research findings (Babbie, 2013:160; Sarantakos, 2005:171; Welman and Kruger, 2001:65). If the data collection process is done properly and according to the research design appropriate for the study, it might minimise the impact of sampling error and results can be generalised. Data collection methods and instruments usher in the practical side of the study.

3.4 Data collection methods and instruments

This survey involved collecting data about a large number of AVRs and the entire staff which was a small number in this particular institution; namely, the NFVSA. The nature of the study is descriptive. This survey described the status quo of the AVR and the existence of deterioration and/or obsolescence that might inhibit appropriate preservation and access to the content of these recordings. In order to describe the situation found at NFVSA, large quantities of data was summarised using a limited number of numerical values in a way that highlighted the most important features of the data. Data was collected using various methods and instruments.

The data collection methods were within the quantitative paradigm.. They included triangulation of questionnaire, interviews, and observation. Data collection instrument triangulation was at the data collection level. Data analysis was quantitative as in a related study by Ngulube (2003). Every other step of the research procedure followed the quantitative approach. This within-method of data collection triangulation is advocated by Denzin and described by Onwuegbuzie and Turner (2007:123). It means that the data is collected from a number of different sources (Vogt, 2007:8). According to Denscombe (2007:137), this triangulation of data collection methods improves accuracy and gives a fuller picture, minimises the limitations in questionnaires, observation and/or in interviews, and

increases the validity of the outcome. Reiterating Bertram and Christiansen (2014:188) and Ngulube (2003:238), the use of more than one method in collecting data for the present study was aimed at enhancing the validity and reliability of the results. The questionnaire was the main data collection instrument for this study.

3.4.1 The questionnaire

The questionnaire is one of the data collection tools used by the quantitative approach. The imperatives of a descriptive survey are the construction of the questionnaire (Antonius, 2013:39). A self-administered questionnaire (see Appendix 6) was used to collect data from the preservation and administration staff. The questionnaire was eight pages long and consisted of 44 questions. A questionnaire has the advantages of reaching a wider audience compared to interviews. Its disadvantage is the inability to customise a questionnaire to an individual, as it is possible with other methods of data collection. The self-administered questionnaire for this study was not originally constructed by the researcher but was an adaptation. The self-administered questionnaire for this study was adapted from Abankwah (2008), Klijn and de Lusenet (2008), and Ngulube (2003). Certain sections were taken from each of these studies' instruments. The adaptation of instruments is related to the response rate.

Bless, Higson-Smith, and Kagee, (2006:121) believe that it is possible to increase the response rate by using a covering letter convincing the respondents of the relevance of the research. The covering letter (see Appendix 5) was attached to the questionnaire to explain briefly the purpose of the study and it requested respondents to complete the questionnaire. The letter included issues on the voluntary participation, protection of privacy, instructions on when to return the questionnaire and the researcher's contact details. The first page of the questionnaire followed the letter. The response rate was also increased by keeping the questionnaire and interview schedule short and well formulated. To enhance the respondents' understanding, the questions were attractive, and as easy to respond to as possible (Gay, 1996). The researcher used information from the literature to adapt questions for the questionnaires, interviews, and observations.

3.4.1.1 The structure of the questionnaire

Instructions on how to fill in the questionnaire were included at the top of the first page. The questionnaire (see Appendix 6) was divided into five main sections (A – E) in order to collect different categories of information and data that would address the study sub-questions. These were:

- 1) A. Strategies and activities for preserving AVR
- 2) B. The plans in place to safeguard AVR
- 3) C. Levels of skills and knowledge in preservation of AVR
- 4) D. Access to information in AVR
- 5) E. The condition of AVR in the custody of NFVSA

Section A: Strategies and activities for preserving AVR was further divided into nine parts (Part A1 – Part A9) as follows:

- 1) Part A1: Institutional data and holdings

This section solicited information on the institution's type of AVR in the NFVSA holdings and their accession dates.

- 2) Part A2: Preservation policy

The questions asked in this section were about preservation policy, including institutional intentions to formulate the policy.

- 3) Part A3: The archival building

Questions were asked about the building and the storage of AVR in this section. This included a question on what the building is equipped with, and one question was on water pipes and if they were close to the stacks (vaults).

- 4) Part A4: Temperature and relative humidity

This section consisted of questions concerning the Heating, ventilation, and air conditioning (HVAC) system. It also comprised questions on the level of temperature and Relative Humidity (RH) in the vaults.

5) Part A5: Light in archival storage areas

The respondents were asked questions about the turning-off of lights when not in use, and control of the light from windows in the storage area.

6) Part A6: Pest Management

The questions posed included the experience of insect invasion or vermin infestation in the building and the routine extermination of vermin infestation. This included a question on the evidence of pests.

7) Part A7: Storage and handling

This section solicited questions about the cleaning of the storage area, the examination of records, the storage of film-base records, and storage equipment used in the repository, storage position and was about the written guidelines for handling AVR.

8) Part A8: Disaster preparedness and recovery plan (DPRP)

The respondents were asked questions about the DPRP. This included the aspects that are covered by the plan, and instruction of staff on DPRP.

9) Part A9: Fire detection and suppression

The questions asked in this section were about the records storage area's fire detection system. This section encompassed a question on the inspection of the fire extinguisher and staff training on the use of fire extinguishers.

3.4.1.2 Types of questions

With the quantitative approach, the data collected speaks not to the participants. Some writers are convinced that the voices of the participants are not heard directly through the quantitative processes (Creswell and Clark, 2007:9). It is seen as an inquiry of a phenomenon from the outside. Meaning that the position of the researcher's experiential engagement and direct contact with subjects remains objective, in the background, non-interactive and detached (Creswell and Clark, 2007:9; Neuman, 1997:14). It is for these reasons that the questionnaire for this study consisted mainly of closed-ended questions.

The reason for choosing closed-ended questions was due to the advantages which according to Neuman (2003:278) are stated as follows:

- 1) It is easier and quicker for respondents to answer.
- 2) The answers of different respondents are easier to compare.
- 3) Answers are easier to code and analyse statistically.
- 4) The response choices can clarify questions' meaning for the respondents.
- 5) Respondents are more likely to answer about sensitive topics.
- 6) There are fewer irrelevant or confused answers to questions.
- 7) Less articulate or less literate respondents are not at a disadvantage.
- 8) Replication is easier.

Despite the numerous advantages to closed-ended questions over and above as stated by Neuman (2003), disadvantages do exist. A disadvantage of a quantitative questionnaire is the aspect of control in questioning, which may refer to researcher bias (Ngulube, 2005:133; Sarantakos, 2005:47). In particular, closed-ended questions' disadvantages as suggested by Neuman (2003:278) are context dependent. For example, the researcher found that the respondents were adequately literate and were able to answer the self-administered questionnaire but complained that the questionnaire forced them to give simplistic responses to complex preservation issues. All comments and complaints were noted. They were compensated for, by the use of an interview schedule.

3.4.2 Interview schedule

In conducting face-to-face interviews, an interview schedule (see Appendix 7) was adapted from the study by Ngulube (2003) and Abankwah (2008). The Training for Audio-visual Preservation in Europe (TAPE) survey questionnaire from 2005-2006 was used as was used in the study by Laas (2011:133), though several changes were made to the original list of questions to suit the aim of the study and the character of NFVSA. The researcher interviewed the respondents directly in person at the NFVSA offices in Pretoria. The interviews were directed at the whole staff compliment of the NFVSA that deals with the issues of preservation and access.

The interview is a data collection method used in most research approaches, gathering information through oral quiz using a set of pre-planned questions (Saldana, 2011:32). The main advantage of interviews is that they can be structured, semi-structured, or unstructured. There was direct contact with the respondents and it often led to specific, constructive suggestions. Interviews were good at obtaining direct information irrespective of it being a semi-structured interview or not. Only a few participants are needed to gather rich and detailed data (Saldana, 2011:26). An advantage of a face-to-face interview is that well-trained interviewers can ask all types of questions, can ask complex questions, and can use extensive probes (Neuman, 2003:290).

The structured interview schedule for this study had 10 questions and was one page long. Most of the questions were closed-ended. The researcher found that respondents elaborated and volunteered responses over and above what was asked in closed-ended interview questions. The surroundings, feeling, opinions, and use of non-verbal communication were observed though not intended. The respondents did not evade questions. These assumptions and gaps in the data collected were compensated by observation.

3.4.3 Observation schedule

The observation schedule (see Appendix 8) was used to focus the observations and facilitate methodological recording of the physical and visual inspection of the artefact and the playback. Playback is the actual listening and or viewing of the contents of AVR using a relevant equipment/machine. Denscombe (2007:214) listed the advantages of an observation schedule as being a direct data collection instrument, efficient, systematic and rigorous,

reliable and containing pre-coded data. Observation was done using an Audio-visual Records Inspection Tool (AVRIT) and the assistance of Acid-Detection (A-D) strips.

In any cultural heritage research, findings are undermined where a condition observed excluded empirical evidence. It could have been provided if a visual instrument such as A-D strips were used to assess the process, (AMIA, 2015; The National Library of Australia, 2014; FIRST, 2008; AMICITIA, 2000). The AVR detection A-D strips are dye-coated paper strips. The A-D strips measure the presence of acetic acid off gassing in a roll of film, or tape. Apart from the smell, they assist in assessing the process and severity of acetate film deterioration objectively (Schüller and Häfner, 2014; Casey, 2008:34; Image Permanence Institute, 2015; Robley, 1996; Reilly, 1993). The A-D strips also determine the state of preservation of the material. Hess (2008:20) found that there is uncertainty about the A-D strips accuracy tested on audio tape with different material base. The A-D strips are only good for testing acetate film deterioration. However, visual perception provides more information than any other senses and aids in decision-making (Eysenck and Keane, 2000; Chalmers, 1999; Oaksford, and Charter, 1998; Tversky and Kahneman, 1974).

3.4.3.1 Audio-visual Records Inspection Tool (AVRIT)

Observation schedule AVRIT used in this study was an adaptation from a combination of assessment tools. It included the Film Preservation Handbook (2015), from the National Film and Sound Archives of Australia. Then Mike Casey's (2008) *Field Audio Collection Evaluation Tool, Procedures Manual* (FACET) from the Archives of Traditional Music at Indiana University. Also Teper and Jones (2008) from the University of Illinois Survey Data Elements for Sound Recordings (SDEFSR) by Frost (2004) from Stanford University; Visual and Playback Inspection Rating System (VIPIRS) of Goldsmith (2006) from New York University Libraries; and Media Condition Assessment Work Package (MCAWP) (WP06) of Thiébaut, Vilmont and Lavèdrine (2006).

FACET evaluates risks factors based on known degradation modes of different formats and scores the collection (Hess, 2008:266). According to Casey (2008:1), FACET is a tool that ranks audio field collections based on the preservation condition, the level of deterioration they exhibit, and the degree of risk they carry. He further states that this tool helps collection managers construct a prioritised list of collections enabling informed selection for preservation.

Similarly, SDEFSR provides for survey data elements and possible values for each. It facilitated the gathering, manipulation, analysis, and portability of the survey data (Frost, 2004:49). The SDEFSR is a chart, used for gathering information that identifies conditions and traits. It includes conditions that pose a threat to the collection as a whole, the condition of one artefact that poses a threat to it or to other artefacts, and conditions or traits that may have a bearing on preservation reformatting decisions. The information provided in the chart does not represent a comprehensive list of all formats, conditions, traits, and characteristics that may be encountered in the process of surveying (Ncala, 2013).

The VIPIRS is a freely accessible database for the moving image and sound preservation community that is structured to serve as a comprehensive archival Audio-visual inventory, assessment, and preservation prioritisation tool. It was originally developed for the magnetic media, which includes modules for videotape, audiocassettes, and ¼ reel-to-reel tapes. It generates item level, numerical scores on condition, playback ability, and ease of conservation/reformatting based on a series of inspection points. The playback analysis can be performed on a sample (if carrier/equipment allows). The structure of AVRIT is discussed below.

3.4.3.2 The structure of AVRIT

The AVRIT observation schedule was divided into six main sections in order to collect different categories of information. Observation focused on information about:

- 1) A. The artefact identification information
- 2) B. Visual inspection of the artefact
- 3) C. Playback inspection of the recordings
- 4) D. Storage
- 5) E. Access
- 6) F. Environment

The different main section's categories of information and data that addressed the study sub-questions through observation were:

- 1) A. Artefact identification information

The first section included artefact identification information, which comprised of observing categories of item and format of an artefact.

2) B. Visual inspection of the artefact

This section focused on visual inspection of preservation problems on the artefact. The preservation problems were identified by using deterioration indicators such as contamination, odour, mechanical damage, and chemical damage.

3) C. Playback inspection of the recordings

This section dealt with image/sound degradation, and projection/play-start problems.

4) D. Storage

The fourth section of AVRIT was about storage. This section covered inspection of the building, structure materials, floor of the vaults, windows, doors, walls, lights, shelves, shelves mode, relative humidity (RH) monitoring instruments installed, building equipment and the type of fire extinguishers.

5) E. Access,

The section about access relates to the inspection of reference service, finding aids, screens, playback equipment, essential equipment, and copiers.

6) F. Environment

In this last section, environment was of a limited scope where it included housekeeping.

Data collection instruments were meant to facilitate the collection of relevant data and information in a way that would answer the research questions. The researcher found that observation was an advantage in terms of a hands-on approach. Credit goes to this AVRIT since it covered both the AVR physical carrier with its visual and aural diagnosis, the replay of recordings on relevant equipment (subject to availability), facility or building and record's storage environment. The archive buildings and equipment framework of Harvey (1993:78)

and Ducheim (1988) were partially incorporated into the observation schedule. The AVRIT as a collection assessment tool helped in prioritising AVR collections by their preservation condition. It was a simple way of identifying potential causes of risk and it provided strong justification for preservation time and funds allocated for the sake of longevity and access by our future generations. The AVRIT simply provided the empirical evidence that is crucial for this study. After having designed all the data collection instruments, the researcher got peer review and pre-testing done before the actual survey or research project.

3.4.4 Peer review and pre-testing

The peer review and pre-testing of the data collection instruments was done before the actual survey. The peer review and pre-testing was a preferred method of testing a questionnaire and observation schedule on a small number of participants before using it on the sample, to see whether the questions were well understood. Ngulube (2005:136) recommends pretesting of data collection instruments and quoted Churchill (1992) “...The pre-test is the most inexpensive insurance the researcher can buy to assure the success of the questionnaire and the research project”. Peer review and pre-testing the questionnaires helped uncover defects, and fine-tune the instrument. It increased reliability and validity with a potential of replication. It minimised response bias, and ambiguity of the data collection instrument. It was noted that the pre-testing should be done with experts “to comment on the representativeness and suitability of your questions” (Abankwah, 2008:166).

Pre-testing of the instruments was done at the South African Society of Archivists (SASA) Conference on the 9-11 July 2014 in Nelspruit, Mpumalanga and at the National Archives and Records Services of South Africa (NARSSA) in Pretoria. The conference organiser selected experts at management level from archival institutions, academic institutions, and broadcasting organisations who dealt with preservation of AVR. Instruments were also pre-tested at NARSSA. The SABC staff members’ names that assisted are not mentioned here. The covering letter for the pre-testing questionnaire (see Appendix 4) introduced the researcher, the study objectives and consisted of 20 questions. The discussion sessions facilitated more views and recommendations, for example, the questionnaire was originally 12 pages long with 70 questions but was tailored down to eight pages with 44 questions. The researcher was able to correct spelling, rephrase, and eliminate duplication. From the original interview schedule of 23 questions, after peer review the number went down to 10 questions.

The contents of the interview schedule were slightly modified as per changes that were effected on the questionnaire and observation schedule.

Observation schedule pre-testing was done during the first week of September of 2014 with the assistance of staff from the NFVSA. The researcher used 10% of the sample at the NFVSA before the survey was formally underway. It means from the 384 units of the sample, only 38 units were tested. The researcher could only have access to the requested 384 randomly selected units. For balance and representativeness, the pre-testing sample was stratified. The researcher randomly selected from strata 6 units from the film collection, 2 units from video collection, and 30 units from sound recordings. Frost (2004:49) is of the opinion that such a pre-test serves as an opportunity to identify any aspect of the survey that may have been overlooked, to refine the tool, and to streamline its use. The results of pre-testing the observation schedule revealed that most of AVR are fragile and some causes of deterioration were identified such as dust, odour, chemical, and mechanical damage. The lesson learnt was to make AVRIT a manual paper-based chart that accommodated all media formats, and was used by non-specialists.

The questionnaire, interview, and observation schedule were refined and distributed to the whole sample. Peer reviewing and testing of instruments prior to the actual research project of this study contributed to the improvement of reliability and validity.

3.4.5 Validity and reliability of instruments

In social science research, there are theoretical and philosophical underpinnings of research, which include the most important principles of social research such as reliability, validity, and generalisability (Sarantakos, 2005:73). Reliability and validity are the major technical considerations that researchers take into account when constructing and evaluating instruments of data collection (Ngulube, 2005:135; Babbie and Mouton, 2001:119).

Joppe (2000:1) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study. Research is referred to as reliable if the results of a study can be reproduced under similar methodology. In this instance, the research is considered reliable. According to Williamson (2009:3), Neuman (1997:145), Kirk and Miller (1986) reliability relates to the following:

- the degree to which a measurement, given repeatedly remains the same;

- the stability of measurement over time; and
- the similarity of measurements within a given time period.

Reliability tells us about an indicator's dependability and consistency (Ellis and Levy, 2009:332; Golafshani, 2003:599; Rowley, 2002:20; Neuman, 1997:138). Reliability comes in three types; these include stability reliability, representative reliability, and equivalence reliability (Ellis and Levy, 2009:333; Rowley, 2002:20). In a quantitative approach, precision, credibility, and transferability mark the reliability. There are developed standardised instrumentation in place which renders the findings reliable (Golafshani, 2003:599; Rowley 2002:20). Ngulube (2005) concluded that reliability is the extent to which repeated instruments would yield constant results. Reliability may be perceived as the measure of objectivity, stability, consistency, precision and quality of measurement. It serves different purposes and complements the quality component found in instrumentation, data collection or the research findings (Ngulube, 2005:135). Reliability is a necessary precondition of validity (Neuman, 2000:171; Cohen, Manion and Morrison, 2000:105; and Schutt, 1996:100).

Validity is defined as the degree to which a test measures what it is supposed to measure (Gay, 1996:137). Validity in quantitative approach is in measuring instrumentation and evidence (Neuman, 1997:31). Validity is an overused term often confused with other related ideas, and is measured as internal and external validity (Neuman, 1997:144). Internal validity is enhanced by the natural settings and unobtrusive methods (Williamson, 2009:2). The view of Williamson (2009:2) is that threats to internal validity are selection bias, history, maturation, testing, instrumentation, mortality and statistical regression. Internal validity is complemented by external validity.

On the other hand, external validity is the ability to generalise experimental findings to events and settings outside the experiment itself (Neuman, 1997:145). External validity is intimately linked to the sampling procedures (Struwig and Stead, 2001:136). Validity has guards and directives in place to ensure consistency and sustainability, namely the public scrutiny, peer evaluation, scientific honesty requirements and open debates (Neuman, 1997:369). There are four ways of measuring validity, namely, face validity, content validity, criterion validity, and construct validity (Ellis and Levy, 2009:334; Neuman, 1997:144). Validity goes hand in hand with reliability.

For reliability, the researcher is convinced that constant and similar results would be achieved if the data collection instruments for this study were used repeatedly with a similar population in the same context. There are no threats to internal validity because selection bias was avoided by using the various sampling methods. The content validity of all the data collection instruments was guaranteed by the scope of questions asked that covered the relevant area of research that was supposed to be covered. There was proper identification of the AVR format affected. At the National Library of Australia (2000) Acetate Project, an assessment guide detailed the cellulose acetate decay detection strategy so that the findings could be valid and reliable. The reliability and validity of the research was improved by peer review and testing of instruments. Both was done prior to the actual research project. Administering the questionnaire is discussed in the next section.

3.4.6 Administering the questionnaire

The process of questionnaire adaptation, peer review, pre-testing, and the subsequent alterations was successful. An adapted self-administered questionnaire (see Appendix 6) was used to collect data from the preservation and administration staff. The questionnaire was emailed on the 18 August 2014 to the respondents; that is, the staff of the NFVSA as this was the easy, quick affordable, convenient and traceable method of communication. The questionnaire had a covering letter (see Appendix 5) as a cover page attached to the front page. This letter introduced the researcher, the study title, and the purpose of the study. The letter clarified that the survey was designed to gather data on five key study objectives that were all mentioned. Then the actual visit to the NFVSA followed.

The researcher visited the NFVSA on August 22, of 2014 to collect from the entire population of 17 staff members the questionnaires in person. The intention of a personal collection of the questionnaire was to avoid non-response, to ensure the full participation, check answers, and completeness. The response rate was 76%, meaning that out of the seventeen questionnaires sent to the staff, only thirteen were received back. After the collection of the questionnaires, the researcher arranged for the administering of the interview with the NFVSA staff.

3.4.7 Administering the interview

Interviews were conducted at the NFVSA from August 26, of 2014 until August 29 of 2014. The interviews clarified issues with the director, the departmental heads and staff of the NFVSA, see interview schedule (Appendix 7). The NFVSA agreed that the researcher may be

given an opportunity to interview four of the staff targeted, who were cooperative. They were at management level in various departments of the NFVSA and well informed about the NFVSA. Face-to-face interviews added a dimension and information that was not obtained from self-administered questionnaires or from observation (Bless, Higson-Smith, and Kagee, 2006:116). The information collected covered aspects of institutional holdings, preservation policy, preservation planning, level of skills and knowledge, access to information in AVR, and the condition of the AVR in custody. Administering the interviews was the researcher's sole responsibility.

In administering the interviews, the researcher made an appointment a few weeks in advance. The researcher brought the interview schedule with pre-planned questions of which a copy was given to the respondent to read for her/himself. The researcher was given permission to audio-record the interview. Each interview was conducted in different offices where each participant worked as it was more convenient for them to be in their own familiar, natural settings. The interviews were designed to last 45 minutes for each of the four interviewees. Interviews were followed by observation.

3.4.8 Administering the observation

The observation schedule (see Appendix 8) as a method of data collection employed an AVRIT. This tool works as an artefact analysis and assessment tool. Plowright (2011:53) is of the opinion that an artefact analysis is more beneficial than the use of questionnaires. He further stated that the use and procedure of artefact analysis entails a greater level of mediation compared to asking questions. A distinguishing feature of this AVRIT was that the AVR were played back in order to judiciously assess its contents and the quality of the recordings. Then observation of storage conditions was done at the vaults.

The observation of storage conditions was done at the vaults, cold storage of films, video and sound recordings from August 25 until August 29 of 2014. The film collection was in a different vault from that of the audio and video collections. The preparation of testing stations, viewing rooms, equipment, machinery, and pre-testing was done during the first week of September of 2014. The researcher checked whether the playback machines appropriate to each format were in good working order. The technical knowledge of how to operate the playback machine and how to handle the formats safely was important. The researcher was assisted by NFVSA staff. Preparation of the collection to be surveyed was done from the September 8 until September 9 of 2014. The actual testing or inspection of the

recordings was performed from September 10 until September 12 of 2014. The researcher worked as an evaluator during the observations. By virtue of the assistance rendered by the NFVSA audio engineer, video, film, and audio archivists, the researcher's ability to interpret was improved. Sound heard and images seen during the play-back was enhanced. The recognition of problems that required stopping and playback was effective. After the data collection through the questionnaire, interview, and observation, data analysis followed.

3.4.9 Data analysis

The aim of data analysis is to condense information in a body of data that can be easily comprehended and analysed (Garaba, 2010:29). Structured data from questionnaires and interviews was analysed using SPSS® Inc. Observation schedule AVRIT data generated a condition or a risk summary for each media per preservation problem. The percentages of all affected AVR were weighed reflecting the belief that selection for preservation is a technical process that examines media vulnerabilities. The higher numbers equal higher risk, and/or a worse condition. The bottom of the percentage points means that there is absence or a low amount of preservation problems. The data from an interview schedule was quantified and integrated to the quantitative data for consolidated analysis.

Descriptive statistics were used in Ngulube (2003:231). It is commonly used in quantitative research (Fouché and Bartley, 2013:252). In this study, information was summarised in a way that highlighted the important numerical features of the data as presented above which captured the essential aspects of the most relevant data. This study aimed to describe the responses to each question, to produce a scope of characteristics of the population distribution and it identified preservation problems through measures of central tendency using the mean between units of analysis. The focus was on values that represent the bulk of the data in the best way. According to Neuman (2003:539), mode is a measure of the central tendency for one variable that indicates the most frequent or common score whereas mean indicates arithmetic average (that is, the sum of all scores divided by the total number of scores). The mode is the easiest to use and can be used with nominal, ordinal, or ratio data whereas the mean can be used only with interval or ratio level data (Neuman, 2003:335-7).

The relationship of the mode and mean to this study is captured in certain instances in the assessment of the condition of AVR in Chapter 4, section 4.7.1-8. It is common to come across a summary showing a particular variable as indicating the most frequent score. For example, the mode was represented by the vinegar odour that was detected on all AVR

media. It was the most frequent score indicative of common preservation problem. The mean is strongly affected by changes in extreme values for example, in section 4.7.2, views about the general condition of AVR in custody was interpreted using the mean scores and percentage responses. It was apparent that the greatest causes of deterioration were wear and tear, high use, and chemical damage. This study benefited from the measures of central tendency using the mean. Data cleaning and correct data entries were the researcher's responsibility.

3.5 Summary

The key objective of this chapter was to disclose the research procedure used explicitly, that was sound, justifiable, and reliable. The methods of collecting data were valid. They yielded answers to the research question; consequently, dependable quality research output. Ngulube, (2005:127) states that the methods employed by the researchers are key to the quality of their research outputs. The problem statement determined the research methodology, therefore it was perceived pivotal in this study as was elaborated throughout the chapter.

The third chapter demonstrated the procedure followed when conducting the study. It presented in detail what and how it was done, and it was a deliberate effort of collecting appropriate evidence that supported and/or answered the research problem. The main aim of giving an account of the research procedure was to make it conducive for another researcher to replicate the study. It was also meant to improve the confidence level placed on the findings; allowing the comparison of methods used in other similar studies; and explaining the differences in findings among studies or preservation of and access to AVR in terms of the differences in research methodology. Following a quantitative approach, the data was collected from the population of the study. It was presented and interpreted in the fourth chapter.

CHAPTER 4

PRESENTATION OF DATA

Science is built up of facts, as a house is built of stones, but an accumulation of facts in no more a science than a heap of stones is a house (Frank, 1999:756).

4.1 Introduction

The aim of this chapter is to present the data that was gathered at the National Film, Video and Sound Archives of South Africa (NFVSA). Data was collected by means of a questionnaire, interview, and observation schedule. It was presented and interpreted through the research questions as themes per section. The quantitative information was collected and captured on computer as numbers in the form of raw data in a simplified and understandable manner. The next logical step was the use of plain text, tables, graphs, and statistical summaries to present data because this is a very popular way of displaying and communicating research findings (Smithson, 2000:52). Tables were used and they assisted in displaying percentages and/or measures of central tendency, specifically the mean and mode, as a way of being a descriptive survey (see Chapter 3).

The quantitative research approach requires a large sample, therefore large amounts of data; statistical tables need to be re-arranged and reduced into workable and a summarised package (Ngulube, 2005:130; Sarantakos, 2005:171). The researcher used the themes in an endeavour to achieve organised data presentation. It was possible to analyse the trends and direction relevant in meeting the research questions that were raised in section 1.6 of the first chapter. However, recommendations are in the final chapter. The data gathered from the NFVSA through questionnaire, interviews and observations guided by schedules (see Appendix 6, 7 and 8). The results of the questionnaire, interviews and observation are presented in this order together, and discussed in detail under the following themes:

- 1) The response rate.
- 2) The strategies and activities for preserving Audio-visual Records (AVR).
- 3) The plans to safeguard AVR.
- 4) The skills and experience staff possess regarding preservation and access to AVR.
- 5) The processes available for accessing AVR.
- 6) The condition of AVR and their storage.

4.2 Response rate

Descriptive statistics is a collective name for a number of statistical methods used to organise and summarise data in a meaningful way. It enhanced the understanding of the properties of the data. This study described the responses to each question, produced a scope of characteristics of the population distribution through frequencies, and measures of central tendency. Data cleaning and correct data entries were the researcher's responsibility.

The response rate was 76%. Out of 17 copies of the questionnaires distributed on August 22 of 2014, 13 copies returned by September 4 of 2014 yielding a response rate of 76%. This means that the proportion of distributed questionnaires that were filled-in and returned were more than those unfilled and unreturned. This relatively high response rate for the emailed questionnaire is because of the fact that the researcher visited NFVSA to collect them in person. Another reason is that prior to data collection, precautionary measures were observed. It increased the response rate as explained in the third chapter section 3.4.1.

The researcher managed to interview all four interviewees that were targeted by the study using an interview schedule (see Appendix 7). On August 26 of 2014 interviewed the Director of NFVSA. On August 27 of 2014 interviewed the departmental head of the Film Section. On August 28 of 2014 interviewed the Head of the Video and Sound Department. On August 29 of 2014 interviewed the Head of Client Services and Access in the NFVSA offices. The personnel chosen was cooperative, hence this resulted in a 100% response rate from the interviews.

4.3 The strategies and activities for preserving Audio-visual Records

The results of the questionnaire, interview and observation regarding the strategies and activities for safeguarding AVR are reported and according to the main sections of the questionnaire. The data presented here, was collected using a questionnaire from question 1 to 28, interview questions 1 and 2, and observation schedule points 9 to 20 and 27. This section is made up of nine subsections namely, institutional data and holdings, preservation policy, the archival building, temperature and relative humidity, light, pest management, storage and handling, disaster preparedness, fire detection and suppression. These subsections were used as indicators to assess preservation strategies and activities in NFVSA. From the responses received, all percentages were rounded off to one decimal place. Institutional data and holdings limited to the type, size, and AVR dates are presented in the following section.

4.3.1 Institutional data and holdings

The data presented in aggregate here is from the first two variables of the questionnaire and one from the interview that sought background information on the institutional data, size, and type of AVR in their holdings. The information included types of AVR in the holdings, size and the dates of the collection, and this was critical. The knowledge of the nature of preservation activities centres upon awareness of the diversity, enormity of the holdings, and essentially relates to life span expectancy.

4.3.1.1 Types of Audio-visual Records in the holdings

Question 1 of the questionnaire, asked the respondents to indicate the types of AVR kept in NFVSA holdings; responses are shown in Table 4.1 below. This question was a multi-response question; therefore, totals do not add up to 100%. Of the 13 respondents who answered the question, nine (69.2%) respondents indicated that film was held in NFVSA holdings; another nine (69.2%) of the respondents stated video as one type of AVR; sound recordings was mentioned by nine (69.2%) respondents; and followed by nine (69.2%) respondents that indicated photographs were held at the NFVSA holdings. The least type of AVR held in NFVSA holdings were manuscripts which were stated by four (30.8%) of the respondents; and another four (30.8%) of the respondents said that the NFVSA had miscellaneous types of AVR.

Table 4.1: Types of Audio-visual Records held at NFVSA (N=13) (Source: Field data)

Types of audio-visual records	Responses	
	Count	%
Film,	9	69.2
Video	9	69.2
Sound recordings	9	69.2
Photographs	9	69.2
Manuscripts	4	30.8
Miscellaneous	4	30.8

From the data presented on Table 4.1, the results revealed that NFVSA had a mixed collection of AVR, apparently the film, video, sound recordings and photographs were mostly cited. After collecting data on the type of AVR, the size of AVR followed.

4.3.1.2 Sizes of Audio-visual Records in the holdings

The first interview question addressed the issue of AVR collection size in the holdings of the NFVSA. Out of the four interviewees, only three stated that AVR collection was within the range of 800 000 - 1 000 000. One interviewee approximated 1000 000 - 1 500 000 doubtfully. However, from the responses given, the AVR collection is not less than 800 000 and not bigger than 1 500 000. These numbers are bigger than the figures presented by Kotze (2013) (see Chapter 2, section 2.4 on the second paragraph, and Chapter 3, section 3.3.3 last paragraph). Nevertheless, the NFVSA has a huge AVR collection in their custody that is dependent on the utmost care of the staff.

4.3.1.3 The dates of the collection

Question 2 of the questionnaire sought to discover the earliest dates of the collection in order to establish the age of the collection because AVR deteriorates over time. Data presented on Table 4.2 shows that 13 (100%) respondents mentioned that earliest dates for AVR were between the years 1850 until 1899, which was for film. They actually wrote the specific year; that is, 1898. The majority of the respondents, 13 (100%) said that the earliest dates for sound recordings were between the years 1900 until 1940. The 13 (100%) respondents indicated that the earliest dates for video were between the years 1950 until 2000.

Table 4.2: The earliest dates of the collection (N=13) (Source: Field data)

Dates	Film	Video	Sound	Responses	
				Count	%
1850 - 1899	13	0	0	13	100
1900 - 1949	0	0	13	13	100
1950 - 2000	0	13	0	13	100

The results revealed that the NFVSA has old collections dating back to between 1850 and 1899 therefore the collection has aged, but it has historical, heritage and research value. According to data presented in Table 4.2, the NFVSA oldest collection was the film followed

by the sound recordings and lastly the video collection. In spite of the age of the collection, preservation policies, strategies, and activities used to preserve such recordings are crucial in prolonging the life of the collection in a useable manner throughout their entire life-cycle.

4.3.2 Preservation policy

The study sought to establish the existence of a preservation policy at the NFVSA that shows commitment to the protection of AVR, which contains important information and the nation's heritage. Respondents were asked general questions about preservation policy. Three of the questionnaires sought to establish if NFVSA had a preservation policy. Nine (69.2%) respondents mentioned that there was no preservation policy. Two (15.3%) respondents reported that there was a preservation policy. One (7.7%) respondent did not know about the preservation policy and another one (7.7%) respondent was not sure. A second interview question asked whether staff adhered to their own preservation policy. One interviewee said that they do adhere to preservation policy whereas the other three interviewees said they do not.

Question 4 of the questionnaire was a follow up question from Question 3. Two respondents who said no to question three answered this question. Question 4 of the questionnaire solicited information about the intention to formulate a preservation policy within the next 12 months. The two respondents admitted that there would be a preservation policy within 12 months. In the quest to know how the collections were taken care of with or without a preservation policy, question five of the questionnaires ought to find out if they had an existing preservation strategy. The 10 (76.9%) respondents said yes; they had an existing preservation strategy, one (7.7%) respondent said no and one (7.7%) respondent stated that he did not know, while another one (7.7%) respondent was not sure.

4.3.3 The archival building

Question 6 of the questionnaire was an inquiry into the building and if it was adequately equipped. Respondents were required to tick all the applicable options from the following list: central air conditioning, individual air conditioning, heating, de-humidifiers, humidifiers, sprinklers, windowless walls, air filtering, and thermic isolation, windows with filtering glass, fire detection systems and fire extinction systems. This question was a multi-response question therefore, totals do not add up to 100%. The 12 (92.3%) respondents said yes to all the above mentioned installations; whereas seven (53.8%) indicated that the building was

equipped with sprinklers, windowless walls, air filtering, and thermic isolation, windows with filtering glass, fire detection system and a fire extinction system. Another six (46.2%) of the respondents reported that the building was equipped with thermic isolation, windows with filtering glass, fire detection systems and fire extinction systems and one (7.7%) respondent indicated that the building's installations were windowless walls, thermic isolation and individual air conditioners

Direct observation revealed that the building was not purposely built for archives but was adapted for use. Inspection of the structure showed that the materials used on the structure were bricks and cement, the floors in the vaults were cement, windows were stained, doors were steel, and all walls were painted, and had steel stationery shelves. The researcher found that the building was equipped with central air conditioning, heating, de-humidifiers, sprinklers, air filtering, and thermic isolation, windows with filtering glass, fire detection and extinction system. There were no individual air conditioners, humidifiers, thermic isolation, and windowless walls. Question 7 of the questionnaire was asked to determine if there were water pipes close to the vaults. Ten (76.9%) of the respondents indicated a yes to there were water pipes close to the vaults; two (15.3%) respondents said no and one (7.7%) respondent, was not sure.

4.3.4 Temperature and Relative Humidity (RH)

Question 8 of the questionnaire inquired if the building had a Heating, ventilation, and air conditioning (HVAC) system. The 12 (92.3%) respondents indicated that yes, the NFVSA has an HVAC system, one (7.7%) respondent said no. Question 9 of the questionnaire was a follow up question from Question 8, which was answered by the twelve respondents who said yes. Question 9 of the questionnaire sought to establish if the HVAC was in a good working condition. Nine (69.2%) of the respondents mentioned that the HVAC was in a good working condition, whereas one (7.7%) respondent said no, another one did not know, and the other specified that he was not sure if the HVAC was in a good working condition.

Question 10 of the questionnaire sought to discover the temperature level in the vault. The values of the variable (temperature) were grouped into four classes, namely:

- 1) Below 3°C
- 2) Between 4°C and 23°C,
- 3) Between 24°C and 34°C,

4) Above 35°C.

The grouping of this numerical variable into limited categories are not equal in range. This is due to a temperature continuum that the lower value indicates the minimum, falling temperature towards cold; that is, below and between 3°C and 4°C. Then, the higher values indicate the maximum rising temperature towards a warmer environment; that is, above 35°C. Nine (69.2%) respondents stated that it was between 4 - 23°C. Three (23.08%) respondents mentioned that temperature level was between 24° - 34° C and one (7.7%) respondent said the temperature was above 35°C. Observations revealed that the temperature inside the vault was 24°C as seen from reading the hygrothermograph.

Question 11 of the questionnaire asked about the level of relative humidity (RH) in the vault. The values of the variable (RH) were grouped into four classes, namely, below 20% between 21% and 40%, between 41% and 60%, and above 60%. The grouping of this numerical variable into limited categories that are not equal in range is due to relative humidity continuum, the lower the value indicates the minimum towards vapour condensation (wetness) of the air. The higher the value indicates the maximum towards high density (dryness) of the air. Twelve (92.3%) respondents reported that it was 45% and one (7.7%) respondent did not know. Observations revealed that the RH level was 45% reading from the humidity indicator strips. Monitoring temperature and RH levels as well as the control of light were essential.

4.3.5 Light in archival storage areas

Question 12 of the questionnaire on light sought to establish whether the lights were turned off when the vaults were not in use. Twelve (92.3%) of the respondents said yes, agreeing and one (7.7%) respondent did not know. that lights were turned off when the vaults were not in use. Question 13 of the questionnaire asked about the control of sunlight from the windows. Data presented on Table 4.3 shows that 10 (76.9%) respondents indicated a yes, while one (7.7%) respondent said no and one (7.7%) respondent said he does not know, while another one (7.7%) respondent was not sure.

Table 4.3: Control of light from windows in the storage area (N = 13) (Source: Field data)

Control of light from windows in the storage area	Responses	
	Count	%
Yes	10	76.9
No	1	7.7
Do not Know	1	7.7
4. Not sure	1	7.7
Total	13	100

The researcher spent more than two hours each day preparing for the observations. Four hours spent each day during observations from September 1 of 2014 to September 5 of 2014. The researcher found that lights were turned on when entering the vaults and switched off on exit. The sunlight was controlled from the windows with the use of black paint on the outer windowpanes, and there was use of window blinds coated with UV protection on the adjacent side. Almost every aisle had sets of fluorescent lights with individual sets of switch buttons that were painted red and visible in the dark.

4.3.6 Pest Management

Question 14 of the questionnaire asked whether the NFVSA have experienced any insect infestation in the building. The 10 (76.9%) respondents indicated a yes, two (15.3%) respondents said no and one (7.7%) respondent was not sure. Question 15 of the questionnaire asked if they carry out any routine extermination of vermin. Table 4.4 shows that 10 (76.9%) respondents attested to the routine examination of vermin infestation and one (7.7%) respondent said no. Another one (7.7%) responded did not know, while the last one (7.7%) was not sure about this.

Table 4.4: Vermin extermination (N = 13) (Source: Field data)

Routine extermination of vermin infestation	Responses	
	Count	%
Yes	10	76.9
No	1	7.7
Do not know	1	7.7
Not sure	1	7.7

Question 16 of the questionnaire sought to establish if staff saw evidence of pests in spite of extermination. One (7.7%) respondent said yes and 12 (92.3%) respondents said there is no evidence of pests in spite of extermination.

4.3.7 Storage and handling

Question 17 of the questionnaire inquired about how often storage areas within the vaults were cleaned. One (7.7%) respondent stated that the vaults were cleaned while another five (38.5%) respondents specified that they were cleaned only on instruction. Three (23%) respondents said vaults were cleaned sometimes, on special occasion while the other three (23%) respondents said very seldom and another (7.7%) respondent said not at all. During the observation, the researcher noticed that the general cleanliness of the floor was satisfactory however; the collection was lightly covered with some dust and residue, which calls for carrier cleaning.

Question 18 of the questionnaire asked the respondents about the frequency of AVR deterioration examination. One (7.7%) respondent said it was not frequent, while another (7.7%) respondent said examination was done only on instruction. One (7.7%) respondent said AVR examination was sometimes done on special occasion, while five (38.5%) respondents said it was done very seldom; another five (38.5%) respondents said not at all. Question 19 of the questionnaire asked whether each type of film-based records were stored separately. Eight (61.5%) respondents stated that recordings were stored separately according to the type of film-base and another (7.7%) respondent said no; two (15.3%) respondents said they do not know and another two (15.3%) respondents were not sure about the separation.

Question 20 of the questionnaire solicited information to find out whether AVR were stored in an appropriate storage. Respondents were required to tick all the appropriate storage equipment used from a given list. This question was a multi-response question therefore, totals did not add up to 100%. Table 4.5 below shows that 10 (76.9%) respondents stated that the appropriate storage equipment used had non-adjustable shelving, stationary racks, and film cans. Three (23%) respondents said that the collections were stored in adjustable shelving, wooden filing cabinet or drawers, steel (metal) filing cabinet or drawers and boxed in acid free archives. One (7.7%) respondent said that sliding racks were used to store the AVR.

Table 4.5: Storage equipment (N=13) (Source: Field data)

Collections storage equipment	Responses	
	Count	%
Adjustable shelving	3	23
Non-adjustable shelving	10	76.9
Sliding racks	1	7.7
Stationary racks	10	76.9
Wooden filing cabinets or drawers	3	23
Steel (metal) filing cabinet or drawers	3	23
Acid free archival boxes	3	23
Film cans	10	76.9

The researcher observed that the collections in the vaults were stored in the following: non-adjustable shelves, stationary racks and in film cans, acid free archival boxes, and in wooden filing cabinets in the offices of the archivists. Question 21 of the questionnaire required respondents to state the storage position for AVR carriers as used in their vaults. Ten (76.9%) respondents stated that an appropriate storage position for AVR is upright, whereas three (23%) stated that it was horizontal. Question 22 of the questionnaire asked about their written guidelines for handling Audio-visual Records. Ten (76.9%) respondents indicated there were

written guidelines, one (7.7%) respondent stated there were no guidelines and two (15.3%) were not sure about handling Audio-visual Records.

4.3.8 Disaster preparedness and recovery plan (DPRP)

Questions 23 to 25 of the questionnaire were asked in order to determine the availability and awareness of a disaster preparedness and recovery plan (DPRP). Question 23 of the questionnaire sought to discover if there was a DPRP at the NRVSA. Eight (61.5%) respondents stated that there was a disaster preparedness and recovery plan (DPRP) at NRVSA; one (7.7%) respondent stated there was none; two (15.3%) respondents did not know, while another two (15.3%) were not sure about this DPRP.

Question 24 of the questionnaire was a follow up question from Question 23 that was answered by the eight respondents who said yes. Question 24 of the questionnaire asked respondents to determine the aspects that were covered by the DPRP. The respondents were required to tick all the appropriate options. Data presented in Table 4.6 shows all the multiple responses to the question. This question was a multi-response question; therefore, totals do not add up to 100%. Five (38.5%) respondents stated that their DPRP covered aspects such as: safe evacuation of people from the building, whereas the other six (46%) mentioned emergency procedures and disaster response. Only one (7.7%) respondent reported that DPRP listed emergency supplies and a standby generator with auto-starting mechanisms.

**Table 4.6: Aspects covered by the Disaster Preparedness and Recovery Plan (DPRP)
(N = 13) (Source: Field data)**

Aspects covered	Responses	
	Count	%
Safe evacuation of people	5	38.5
The building	5	38.5
Emergency procedures	6	46
Disaster response	6	46
Emergency supplies	1	7.7
Standby generator with auto-starting mechanisms	1	7.7

Question 25 of the questionnaire sought to solicit if the staff had been instructed in disaster preparedness and recovery procedures. Two (15.3%) respondents stated that they were instructed in DPRP, the other 10 (76.9%) were not, and another one (7.7%) respondent was not sure about DPRP training. There seemed to be a lack of awareness.

4.3.9 Fire detection and suppression

Question 26 of the questionnaire sought to solicit information about the availability of a fire detection system in the records storage area. Ten (76.9%) respondents indicated there was a fire detection system, one (7.7%) respondent said no, two (15.3%) respondents did not know if there was a fire detection system in the records storage area. Question 27 of the questionnaire was to determine how often the fire extinguishers were inspected. Seven (53.8%) respondents indicated that fire extinguishers were always inspected, one (7.7%) respondent said it was not applicable, two (15.3%) respondents said that inspection was done only on instruction, one (7.7%) respondent said sometimes, on special occasion, another (7.7%) respondent said very seldom, and one other (7.7%) respondent said not at all have the fire extinguishers been inspected. Question 28 of the questionnaire sought to establish if staff had been trained to use fire extinguishers. One (7.7%) respondent said yes, seven (53.8%) respondents said no, two (15.3%) respondents said that they did not know, and three (23%) were not sure if the staff had been trained to use fire extinguishers.

4.4 The plans in place to safeguard Audio-visual Records

In this section, respondents were asked about the plans that were in place to safeguard AVRs and eventually enhance access. The data presented was collected using a questionnaire from Questions 29 to 33, and question 3 of the interview. Questions 29 to 33 of the questionnaire covered the following aspects: outsourcing preservation activities, type of work that was outsourced by the institution, conducting a complete survey of AVRs, transfer of materials to a new carrier, and prioritisation of AVRs at risk.

4.4.1 Outsource preservation activities

Question 29 of the questionnaire sought to establish if the NFVSA outsourced preservation work to commercial vendors. Respondents were required to tick all the applicable options. Table 4.7 shows that 10 (76.9%) of the respondents stated that they do outsource preservation work to commercial vendors, while one (7.7%) of the respondents said they did not. One

(7.7%) of the respondents did not know and one (7.7%) respondent was not sure if preservation work was outsourced to commercial vendors.

Table 4.7: Outsource preservation work (N = 13) (Source: Field data)

Preservation work outsourced to commercial vendors	Responses	
	Count	%
Yes	10	76.9
No	1	7.7
Do not Know	1	7.7
Not sure	1	7.7

4.4.2 The type of work outsourced by the institution

Outsourcing of work to commercial vendors was followed by Question 30 of the questionnaire, which solicited information on the type of work outsourced by the institution. Respondents were required to tick all applicable options. This question was answered by only 10 (76.9%) of the respondents. This question was a multi-response question therefore, totals do not add up to 100%. A majority of seven (53.8%) stated that the preservation work that was outsourced to commercial vendors is digitisation and three (23.1%) respondents said it was the transfer to new carriers.

4.4.3 Conducting a complete a survey

In Question 31 of the questionnaire, respondents were asked about plans to conduct a complete survey of the entire collection in their custody. Two (15.4%) of the respondents stated that a plan for a complete survey of the entire collection was in place; whereas the other five (38.5%) of the respondents indicated that there was no plan for conducting a survey. Three (23.1%) of the respondents said that they did not know; and one (7.7%) of the respondents was not sure if there was a plan to conduct a complete survey of the collection.

4.4.4 Transfer of materials to new carriers

Question 32 of the questionnaire sought to establish if the NFVSA do transfer analogue originals to a new carrier when they show signs of deterioration. Seven (53.8%) respondents stated that a plan existed for transferring materials to a new carrier if users wanted to consult

them. One (7.7%) of the respondents said it was not applicable, three (23.1%) of the respondents indicated that transfers were done for special project, one (7.7%) respondent stated that it was a systematic programme, another (7.7%) respondent indicated that it was very seldom to transfer analogue originals that deteriorate to a new carrier. The next section deals with the plans for prioritisation of AVR at risk.

4.4.5 The plans for prioritisation of AVR at risk

This section deals with the question about plans to prioritise collection “at risk”. Question 33 of the questionnaire solicited information using a Likert scale to find out about the staff attitude towards the plans for prioritisation of AVR at risk. The intention for using the Likert scale or summated-rating was to get an ordinal-level measure of the staff’s attitude. The respondents were asked to indicate whether they agree or disagree with the statement “plans for the prioritisation of AVR at risk are important for preservation programme”. Table 4.8 presented the scores of the attitude of the respondents towards the plans for the prioritisation of AVR at risk.

Table 4.8: The plans for prioritisation of AVR at risk are important for preservation programme (N = 13) (Source: Field data)

	Attitude of staff				
	Strongly agree (5)	Agree (4)	Strongly disagree (1)	Disagree (2)	Undecided (3)
Plans for prioritisation of AVR at risk	6	5	1	1	0
Total score	30	20	1	2	0

Respondents were asked to indicate their attitude towards plans for prioritisation in five categories to choose from strongly agree, agree, strongly disagree, disagree and undecided. The scale value for each level of response was assigned as strongly agree = 5, agree = 4, undecided = 3, disagree = 2, and strongly disagree = 1. Data presented in Table 4.8 shows that six (46.2%) of the respondents indicated the most favourable degree of agreement to the “plans for the prioritisation of AVR at risk are important for preservation programme” and

were allocated the highest score (5) in the first column. Five (38.5%) of the respondents agreed and were allocated a score of 4. One (7.7%) respondent disagreed and was allocated a score of 2. Another one (7.7%) of the respondents strongly disagreed with the statement that the plans for the prioritisation of AVR at risk are important for the preservation programme and was assigned the least score (1) in the middle column. None of the respondents were undecided, hence a neutral category with a zero score.

4.4.6 The staff engagement in planning activities for preserving of AVR

The interview respondents were questioned further in an interview with a closed question number 3 to determine whether they agree that all staff must be engaged in planning activities in the preservation of AVR. Three of the respondents stated that they agree and the other one respondent did not agree that all staff must be engaged in planning activities in the preservation of AVR. The next section deals with the level of skills and knowledge by staff regarding preservation of AVR.

4.5 The skills and experience staff possess regarding preservation and access to Audio-visual Records

The survey wanted to establish the status quo and aimed at collecting data on the skills and experience staff possess regarding preservation of and access to AVR. The data presented here, was collected using a questionnaire from Question 34 to 39, and interview Question 4. Questions 34 to 38 of the questionnaire asked respondents about educational training in the preservation of AVR, level of educational training, professional training, and area of expertise of professional training, workshop and the need for additional training.

4.5.1 Educational training in preservation of Audio-visual Records

Question 34 of the questionnaire solicited information whether the NFVSA staff had received a formal educational training in preservation of AVR prior to joining the NFVSA. Seven (53.8%) of the respondents declared that they received a formal educational training in the preservation of AVR prior to joining the NFVSA, while six (46.2%) said they did not receive a formal educational training in the preservation of AVR prior to joining the NFVSA.

4.5.2 Level of educational training in preservation of Audio-visual Records

Question 35 of the questionnaire was a follow up question from Question 34. Respondents were asked to indicate their level of educational qualification/s received. This question was answered by seven (53.8%) of the respondents who previously agreed that they received

formal educational training in the preservation of AVR prior to joining the NFVSA. Figure 4.1 presented the summarised results. One (7.7%) respondent reported that the formal educational training level was a university post-graduate degree, one (7.7%) respondent said it was a post graduate programme, another (7.7%) respondent mentioned a diploma, and the last four (30.8%) respondents specified a certificate.

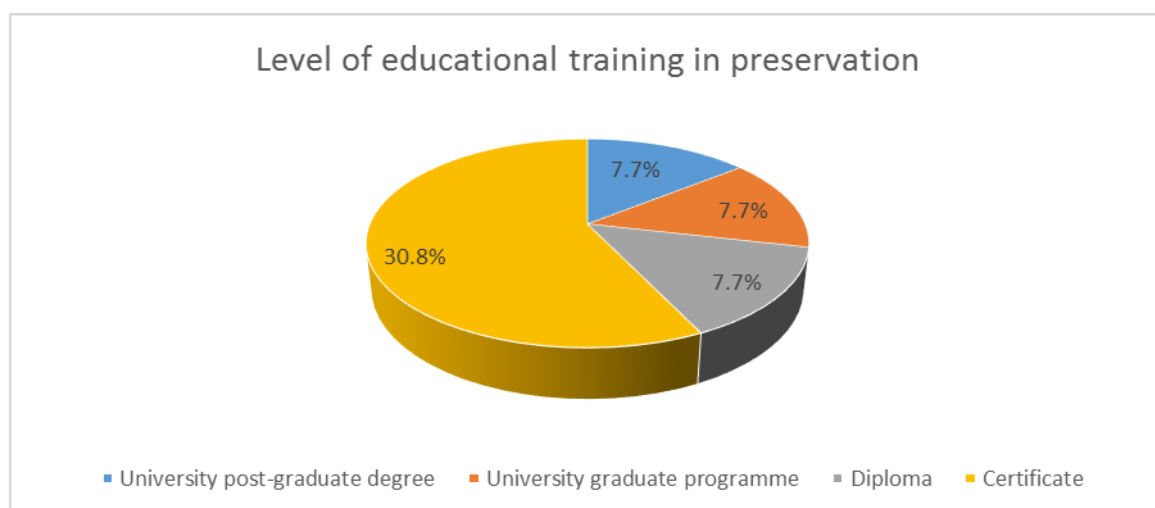


Figure 4.1: Levels of educational training in preservation of Audio-visual Records (N=7)
(Source: Field data)

4.5.3 Professional training in Audio-visual Records

Question 36 of the questionnaire sought to establish if staff had received professional training in AVR after joining the NFVSA. Five (38.5%) of the respondents said yes and eight (61.5%) alleged that they never received professional training in AVR after joining the NFVSA. In support and finding clarity, the researcher asked an interview question pertaining to the profession held. During the interview, the researcher got the relevant information from interview Question 4, as to which profession the respondents held when they joined the NFVSA. Interviews revealed that one of the respondents was holding a music profession before joining the NFVSA. Another one respondent came to the NFVSA as a librarian, while one respondent was a history schoolteacher and joined the preservation department; the last one came directly from university and entered the workforce at the NFVSA as an intern.

4.5.4 Expertise of professional training in Audio-visual Records

Question 37 of the questionnaire was a follow up question from Question 36 answered by five respondents who said yes. Question 37 of the questionnaire sought to solicit the area of

expertise of those respondents who received professional training in AVR after joining the NFVSA. Respondents were required to tick all the applicable options. Data presented on Table 4.9 below shows the area of expertise for each respondent that had received training on AVR. This question was a multi-response question therefore, totals do not add up to 100%. Five (38.5%) of the respondents indicated their area of expertise as follows: one (7.7%) respondent was trained in analogue AVR, two (15.4%) of the respondents in audio preservation, and the other two (15.4%) respondents was trained in film preservation.

Table 4.9: Expertise in dealing with Audio-visual Records (N = 5) (Source: Filed data)

Area of expertise related to training	Responses	
	Count	%
Analogue AVR	1	7.7
Digital AVR	0	0
Reformatting	0	0
Assessment of AVR	0	0
Audio preservation	2	15.4
Film preservation	2	15.4
Video preservation	0	0

4.5.5 The need for additional training

Question 38 of the questionnaire sought to establish if the respondents needed additional training. The respondents were required to select all the applicable options. This question was a multi-response question therefore, totals do not add up to 100%. Figure 4.2 below shows the need for additional training in the various areas of expertise as follows: Three (23.1%) of the respondents reported that their additional area of training needed was on preservation planning. Five (38.5%) of the respondents stated that reformatting was needed. Ten (77%) of the respondents needed training on the assessments of AVR. Seven (54%) of the respondents required training on audio preservation, six (46%) of the respondents needed training on video preservation, whereas four (31%) needed training on film preservation, and five (38%) of the respondents stated that their training needs were on disaster planning and recovery.

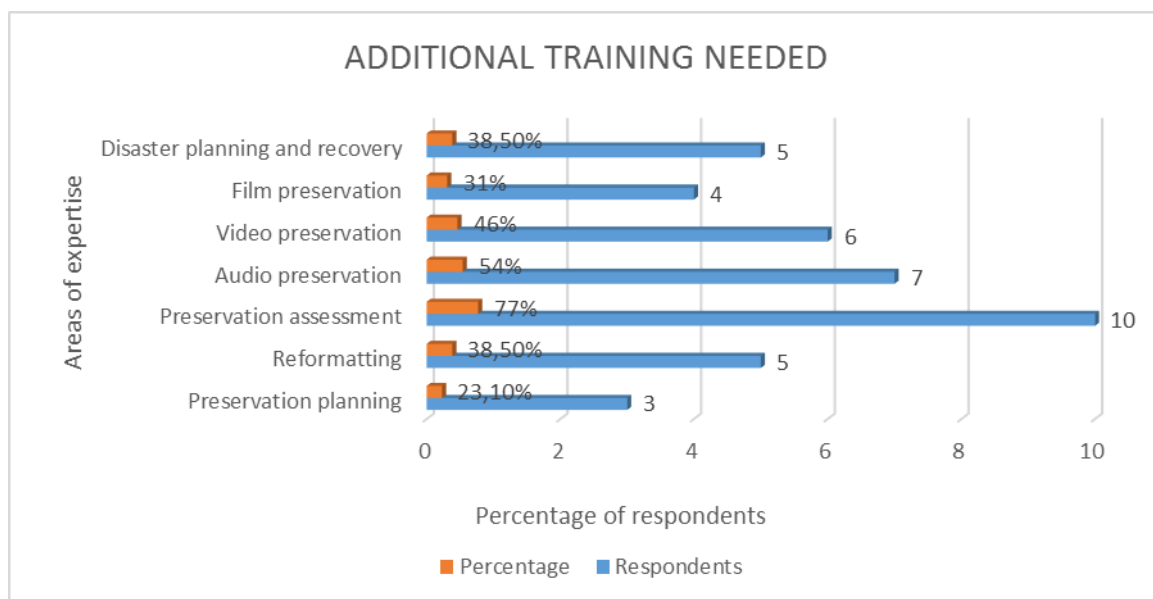


Figure 4.2: Additional training needs identified by respondents (N=13) (Source: Field data)

4.6 The processes available for accessing Audio-visual Records

In this section, findings are discussed in relation to the processes available for accessing AVRs at the NFVSA. Data presented here was collected using a questionnaire from Question 39 to 42, interview Questions 5 to 8 and observation. The questions pertain to access of records to the public, reasons for inaccessibility of records, finding aids used to locate the descriptions of collections and the copying of materials. Access to the AVR physical carriers from the NFVSA was covered by interview questions and in particular the aspects of legal rights issues, viewing/playing rooms, maintenance and suitable playback equipment.

4.6.1 Access of records to the public

Question 39 of the questionnaire sought to establish if all AVR were open for use to the public. Three (23.8%) of the respondents reported that all AVR are accessible to the public, seven (53.8%) said no, one (7.7%) did not know and two (15.4%) of the respondents were not sure if all AVR were open for use to the public.

4.6.2 Inaccessibility of records

Question 40 of the questionnaire asked the respondents to state a reason(s) for, if the response in Question 39 was a “No”. The respondents were required to tick all applicable options. This question was a multi-response question; therefore, totals do not add up to 100%. Data

presented on Figure 4.3 shows the results of the significant impediments as the reasons they thought hindered access to AVR.

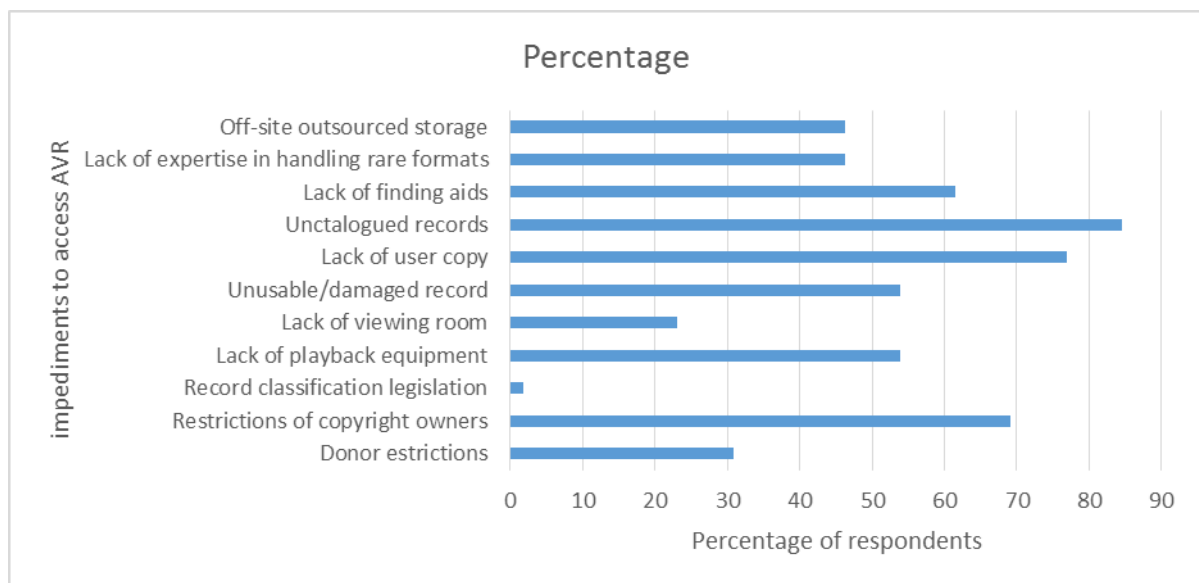


Figure 4.3: Significant impediments to access AVR (N=13) (Source: Field data)

Four (30.8%) of the respondents stated that donor restrictions as the reason for AVR not being opened to the public. Nine (69.2%) of the respondents said it was restrictions of copyright owners. Seven (53.8%) of the respondents mentioned the lack of playback equipment. Three (23.1%) of the respondents confirmed the lack of a viewing room. Seven (53.8%) of the respondents reported the unusable or damaged records and 10 (76.9%) of the respondents cited lack of user copy whereas 11 (84.6%) of the respondents specified uncatalogued records. Eight (61.5%) of the respondents indicated lack of finding aids; six (46.2%) of the respondents declared the lack of expertise in handling rare formats and five (38.5%) of the respondents expressed that off-site or outsourced storage was the reason for AVR not being open to the public. None of the respondents identified record classification legislation, as the reason for AVR not being open for use by the public.

However, the interviews uncovered the fundamental reasons making AVR not accessible by the public user. Interview Question 5 inquired if legal rights complicated access to AVR collection. . Three interviewees affirmed that legal rights complicated access to AVR collection whereas one interviewee said no. Interview Question 6 inquired if there were adequate rooms dedicated to viewing/playing AVR. One interviewee avowed that there were adequate rooms dedicated to viewing/playing AVR; three interviewees said no. Interview Question 7 was probing about regular maintenance of playback equipment for AVR. One

interviewee said that there was regular maintenance but the other three interviewees said that there was none. Question 8 inquired if the NRVSA had adequate playback equipment suitable for all the recordings. One interviewee averred that it was adequate, whereas the other three interviewees expressed the inadequacy of the playback equipment. The overall responses quantified hindrances that were making AVR not easily accessible.

4.6.3 Finding aids

In Question 41 of the questionnaire, respondents were asked how users of AVR were able to locate descriptions of the collections consulted. The respondents were required to tick all the applicable options. This was a multi-response question therefore, totals do not add up to 100%. Figure 4.4 below summarised the tools used to facilitate access to AVR. Nine (69 %) of the respondents listed the card catalogue as the means used to find AVR. Ten (77 %) respondents indicated that the word-processed register helped discover the collection they wanted. Seven (53.8%) respondents itemised that inventories uncovered AVR needed. Eight (61.5 %) respondents detailed that printed guides ferreted out the relevant AVR consulted. Five (38.5%) specified that computer catalogue accessible in-house was used to locate descriptions of collections. Eight (61.5%) respondents quantified that computer catalogue pin pointed the collection used. Ten (77%) respondents specified that the web site localised the collection. Nine (69%) respondents said that indexes traced the descriptions of AVR. Information gathered by the researcher during observation confirms the availability of physical paper finding aids; such as the card catalogue, word processed register, printed guide and a link to the NARSSA's website, but not updated and not in a satisfactory condition.

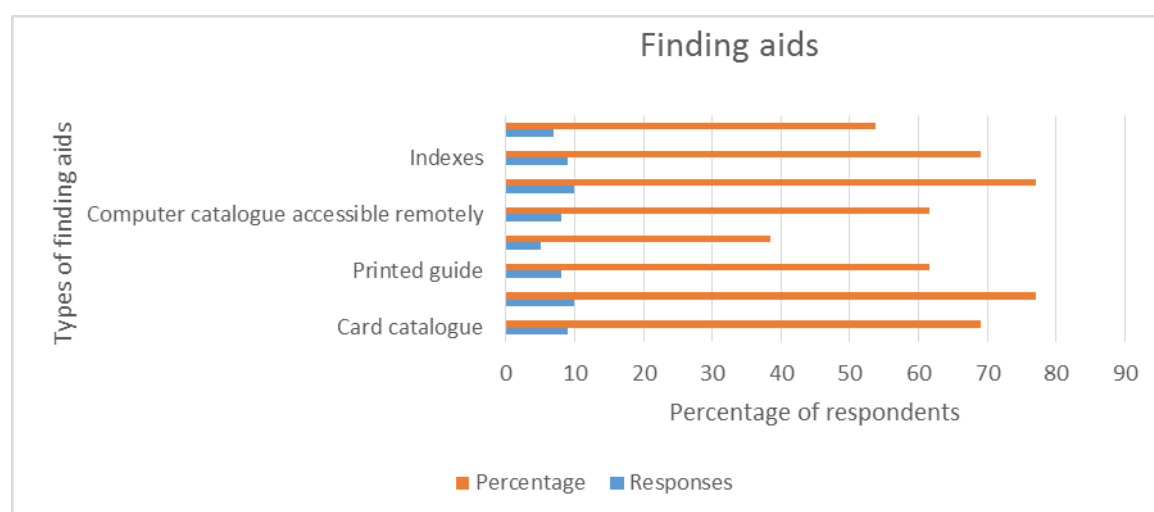


Figure 4.4: Types of finding aids (N=13) (Source: Field data)

4.6.4 Copying of materials for having duplicates

Question 42 of the questionnaire established if the NFVSA made copies of AVR collection for having duplicates. Five (38.5%) respondents said always, four (30.8) respondents specified that only on request, three (23.1%) respondents quantified that sometimes for special projects, one (7.7%) specified very seldom. However, none of the respondents said it was not applicable.

On observation of the reference service, screens, playback and essential equipment, the reference room had a small white screen for viewing motion films that were in a good working condition. On the other side of the same room, there was an outdated television and Video Home System (VHS) machines that were used for viewing videos. In another room, there was sound playback equipment, Hi-Fi, turntable, and the Quadriga that was used to convert analogue audio into digital, files. The Quadriga was not in a working condition because of the missing additional amplifier sound storage device. However, most of the playback equipment was fragile, old and was not in good order. Film and video copying was outsourced at the cost of user. The researcher found that the only working copier available was for sound recordings. Results regarding the condition of AVR and their storage are presented in the next section.

4.7 The condition of Audio-visual Records and their storage

The main aim of this section was to gain information on the condition of AVR carriers per specific media from the second population set with a focus on preservation problems encountered by the NFVSA. The second population set was made of 384 units of analysis of AVRs selected from the target population of 765 000 AVR using stratified random sampling technique and simple random sampling which resulted in three strata and four subgroups each. Strata per media were as follows: film had 60 units (15, 63%) and 4 subgroups of 15 units (25%) each; video had 24 units (6, 25%), and 4subgroups of six units (25%) each; sound recordings had 300 units (78.12%); and 4subgroups of 75 units (25%) each.

However, the data was collected through questionnaire, interview, and observation was presented together per theme. Results presented do not allow an analysis at the level of each type of carrier, even though some respondents volunteer comments that shed more light on certain specific formats. The observation schedule, AVRIT used was intended to serve as an

instrument to collect a set of data elements that adequately addressed the range of possibilities reflected in the collections assessed.

4.7.1 The overall condition of AVR in the holdings

This section gathered information about the general physical condition of AVR and their storage at the NFVSA. Question 43 asked the respondents to rate the overall condition of AVR in the holdings, and Question 44 probed the respondents' views about the general condition of AVR in their custody. Interview schedule Question 9 solicited information regarding what the staff used to inspect AVR collection, and Question 10 and the last interview question inquired how staff detected the deterioration of AVR. The observation confirmed responses from the other instruments.

The observation schedule key inspection areas were the following:

- a. Artefact's identification information: role and formats;
- b. Visual inspection of an artefact: contamination, odour, mechanical damage, and chemical damage;
- c. Playback inspection of the recordings: image/sound damage, and playback/projection problems;
- d. Storage: The building, structure-materials, floor-vaults, windows, doors, walls, lights, shelves, shelves mode, relative humidity monitoring instruments, building equipment, fire extinguishers;
- e. Access: Reference service, finding aids, screen, playback equipment, essential equipment, and copiers;
- f. Environment: housekeeping and measurements thereof.

However, only sections A to C are addressed in this theme.

Question 43 of the questionnaire asked the respondents to rate the overall condition of the AVR in their custody. One (7.7%) respondent indicated that the overall condition of the AVR was excellent. One (7.7%) respondent said it was very good and two (15.4%) of the respondents stated that it was good. However, five (38.5%) of the respondents said poor, and four (30.8%) of the respondents affirmed it was very poor. The results revealed that the majority of the respondents rated the overall condition of the collection as poor.

4.7.2 Views about the general condition of AVR in the custody

Question 44 of the questionnaire probed respondents to state their views in terms of five levels of the Likert Scale regarding agreement or disagreement with certain causes of deterioration of AVR. Respondents were required to indicate if they strongly agree, agree, strongly disagree, disagree or are undecided about the causes of deterioration namely dirt (soiled, stained), wear and tear, high use, biological decay such as fungi, and chemical damage such as decomposition.

The results in Figure 4.5 shows that one (7.7%) of the respondents strongly agreed that the cause of deterioration is dirt; two (15.4%) respondents agreed; seven (53.8%) of the respondents strongly disagreed; another two (15.4%) respondents disagreed and one (7.7%) respondent was undecided. Six (46.2%) of the respondents strongly agreed that wear and tear were the causes of deterioration; three (23.1%) respondents agreed, whereas one (7.7%) respondent strongly disagreed; another one (7.7%) respondent disagreed; and two (15.4%) were undecided. Six (46.2%) respondents strongly agreed that high use was the cause of deterioration; four (30.8%) respondents agreed; one (7.7%) respondent strongly disagreed; another one (7.7%) of the respondents disagreed; and the other one (7.7%) was undecided about the high use being the cause of deterioration. One (7.7%) of the respondents strongly agreed that a biological decay such as fungi was the cause for deterioration; two (15.4%) respondents agreed; five (38.5%) strongly disagreed; four (30.8%) respondents disagreed; and one (7.7%) of the respondents was undecided. Six (46.2%) respondents strongly agreed that chemical damage: decomposition was the cause of deterioration; four (30.8%) respondents agreed, one (7.7%) respondent strongly disagreed, another one (7.7%) of the respondents disagreed, and the other one (7.7%) was undecided.

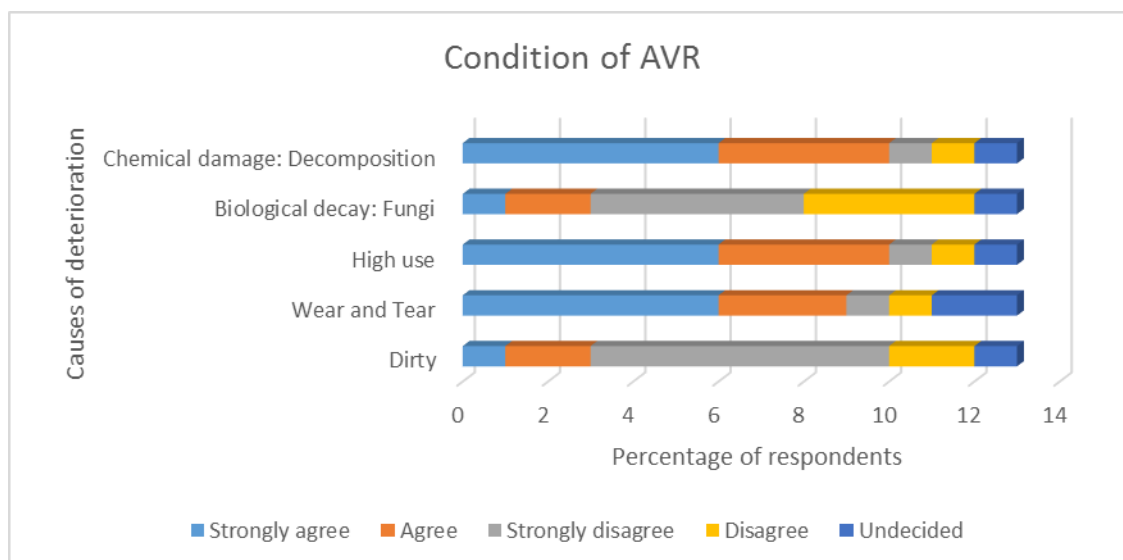


Figure 4.5: Condition of AVR at NFVSA (N=384) (Source: Field data)

In summing up the responses given, and to describe the situation statistically in order to highlight the most important numerical feature of the data, a measure of central tendency in Table 4.10 was drawn up. Only essential aspects of the data and the most relevant ones were captured. The mean scores and percentage responses on the deterioration of AVR are presented in Table 4.10 below.

Table 4.10: Mean scores and percentage responses on the deterioration of AVR (N =13) (Source: Field data)

No	Causes of deterioration	Mean	Percentage Agree
1	Dirt (soiled, stained)	2.08	23.1
2	Wear and tear	3.69	69.2
3	High use	4.77	76.9
4	Biological decay such as Fungi	2.23	23.1
5	Chemical damage: decomposition	4.77	76.9

Table 4.10 shows the mean scores and percentage responses on the causes of deterioration of AVR. The results revealed that the greatest causes of deterioration of AVR were high use and chemical damage: decomposition respectively, their (Mean = 4.77) as indicated by 76.9% of the respondents each. Other causes of deterioration of AVR as shown on Table 4.10 were

wear and tear (Mean = 3.69) as supported by 69.2% of the respondents. Factors like dirt (Mean = 2.08) and biological decay such as fungi (Mean = 2.23) were not responsible for the deterioration of AVR. The researcher further interrogated the respondents about issues of deterioration during the interview session such as the instruments or processes used to inspect their collection and the last question was on the detection of deterioration.

4.7.3 What is used to inspect the collection at NFVSA

Interview Question 9 asked the respondents what they use to inspect the collection. Two of the interviewees said that they use their exercise book and pen to note down indicators of deterioration, whereas the other two reported that they do use checklists to inspect the collection. The last questions inquired as to how NFVSA staff detected deterioration. One interviewee cited using diagnostic natural senses of smell and another one respondent mentioned the use of A-D Image Permanence Institute (IPI) strips to test the acidity and playback, listening for funny sounds or viewing faded images. The other two interviewees did not know how to detect deterioration of AVR. The last two interview questions seemed to be very difficult to answer. The actual inspection of the collection revealed more. The following is the preparation for the inspection.

4.7.3.1 Preparation for the inspection of Audio-visual Records at NFVSA

The actual inspection was done in an office prepared for the task. Assessment was done with the assistance of an AV archivist, an audio engineer, and the researcher. Preparation for the inspection included acquiring lint-free cotton cloth, film cleaner, splicing tape or film cement, cotton gloves, new acetate and polyester film leader, archival cores and cans, acid-free paper tape, loupe and magnifying glasses, projector lenses, light table and rewinds, A-D strips, perforated tape, molecular sieves, and a dust mask. We cleaned the work area. The table was uncluttered and had rewind shafts and plenty of light. The table work area was covered with a towel to avoid abrasions caused by the film being exposed to the tabletop. The metal equipment metal parts were cleaned off with 100% alcohol so that the process invites no rust.

In order to get a deeper level of information and more accurate assessment, safe playback and projection of the collection were performed. This exercise required good working playback machines appropriate to each format, technical knowledge of how to operate the playback machines, and knowledge of how to safely handle each format, ability to interpret what is heard and seen during playback, experience in recognising problems that require stopping playback, and time. The collections (film, video and sound) did not all have the information

about their names, succession dates and numbers, and where they originated. Observation was done per media at a time as per sections A to C of the observation schedule following sub-themes; that is, categories of item, formats, contamination, odour, mechanical damage, chemical damage, image/sound degradation, and projection/play-start problems.

4.7.4 Categories of items

We started with identification information for the whole collection, that is, the categories of item, and format. Categories of recordings vary ranging from an original copy of the recordings, to master, edit master, preservation master, dub master, use copy, commercial, commercial dubbed copies and original dubbed copies. Use copy was used in this study, which has the same meaning with an access copy, viewing copy, and user copy. Items were categorised according to the role they played. For example, in an everyday use, an original copy is more protected and limited to use instead visitors, and researchers are offered the use copy dedicated for use and research.

In this study sample of 384 units of analysis, the categories represented in the sample were nine. Original copies were 120 (31.2%), master copies were 31 (8.1%), edit master copies were 23 (6%), preservation master copies were 46 (12%), dubbed master copies was one (0.3%), commercial copies were 23 (6%), commercial dubbed copies were twenty two (5.7%), original dubbed were 22 (5.7%), and use copies were 96 (25%).

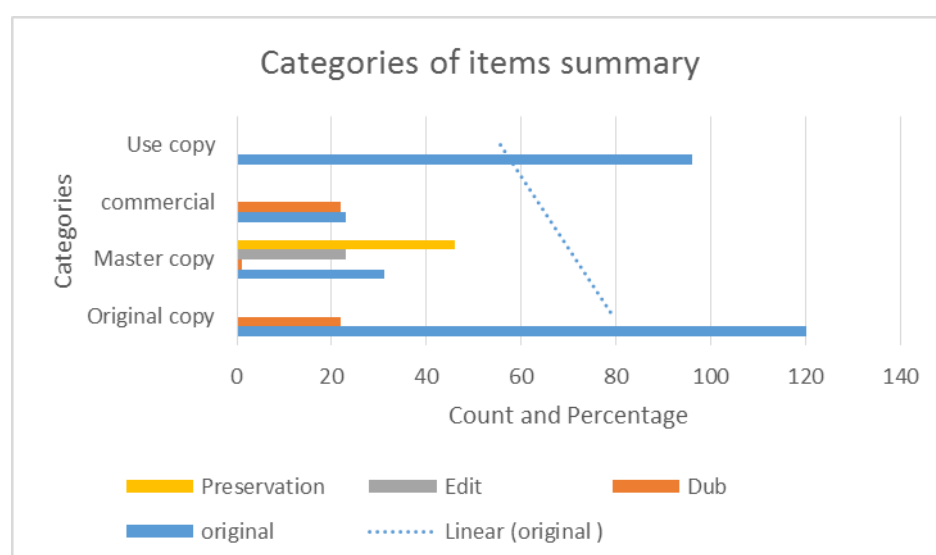


Figure 4.6: Categories of items summary (N=384) (Source: Field data)

It is imperative for the archives to keep original copies if available. These categories were represented in the sample as summarised in Figure 4.6 above. Types of format per media are presented in Table 4.11 below.

4.7.5 Formats of Audio-visual Records

Identification of the format in a collection of AVR played a crucial role because the researcher could get to know what each medium had. Data presented in Table 4.11 shows that film, video, and sound collections were further divided according to format. The sound records represented the majority of the formats, and had about eight types of formats whereas the other recordings had five each respectively. In such a mixed collection, more time was used to get proper identification information as presented.

Tabl 4.11: Types of formats per media (N=384) (Source: Field data)

Media	Film	%	Video	%	Sound	%
Format	Film 35 mm (20)	33.3	Betacam (6)	25	Open reel tape (37)	12.3
	Film 16 mm (28)	46.7	U-matic (8)	33.3	Cassette (38)	12.7
	Film 9.5 mm (1)	1.7	VHS (8)	33.3	Gramophone (25)	8.3
	Film 8 mm (8)	13.3	S-VHS (1)	4.2	MiniDisc (25)	8.3
	Other (3)	5	DVD (1)	4.2	DAT (50)	16.7
					CD-R (75)	25
					LP “Vinyl” (25)	8.3
					Cylinder (25)	8.3

Table 4.11 showed a variety of formats. The different formats of film are shown in Figure 4.7. The film collection comprised of 20 (33.3%) of 35 mm films, 28 (46.7%) 16 mm film, one (1.7%) 9.5 mm and eight (13.3%) 8 mm films. The last film format category had three (5%) of the other formats with acetate base.

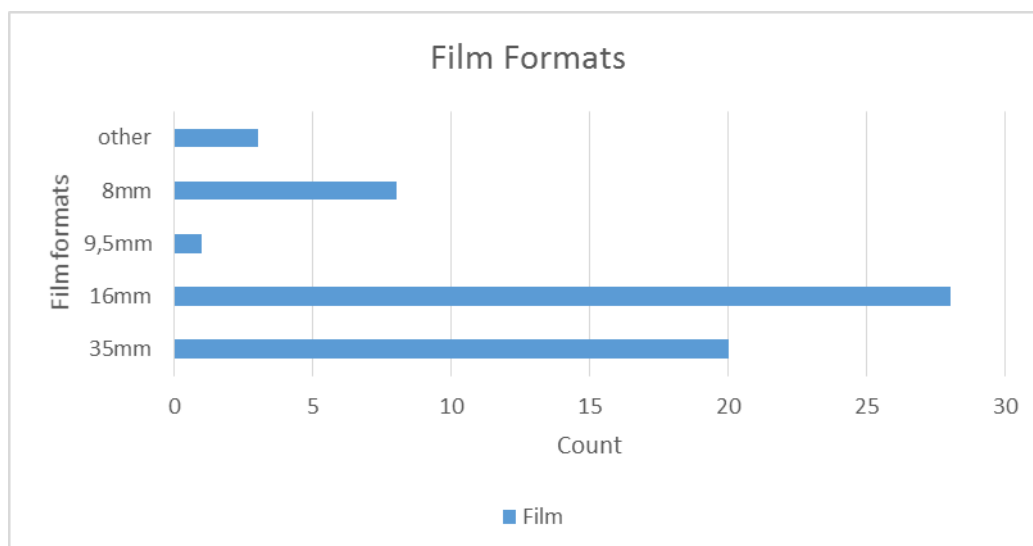


Figure 4.7 Film formats (N=60) (Source: Field data)

Video collection had a slightly lower number than film. Data on video formats presented in Figure 4.8 below shows that video carriers comprised of six (25%) Betacam, eight (33.3%) U-matic, eight (33.3%) VHS, one (4.2%) S-VHS and one (4.2%) DVD.

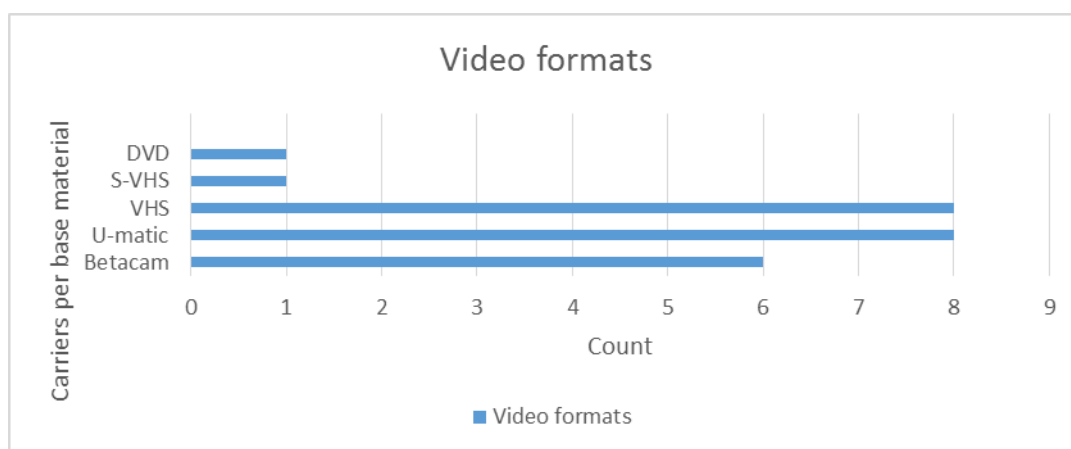


Figure 4.8: Video formats (N=24) (Source: Field data)

Figure 4.9 shows sound recordings as largest media than film and video.

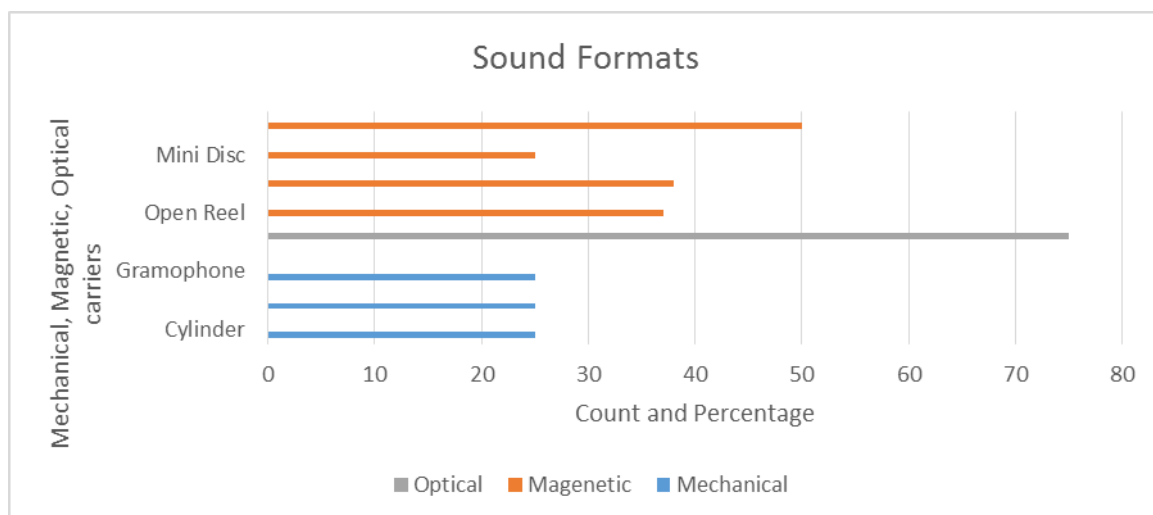


Figure 4.9: Sound recordings format (N=300) (Source: Field data)

Sound recordings ranged from open reel tape 37 (12.3%), cassettes 38 (12.7%), gramophone 25 (8.3%), Minidiscs 25 (8.3%), R-DAT 50, (16.7%), CD-R 75 (25%), LP “vinyl” 25 (8.3%) and cylinders 25 (8.3%). According to the data presented in Figure 4.9, optical carriers had one type, CD-R, and it was the largest group, followed by R-DAT a digital physical carrier from magnetic carriers. Summary of preservation problems are presented in Figure 4.10 in the next section.

4.7.6 Summary of the preservation problems

Assessment of AVR required that AVRIT, the data collection instrument for this study, be divided according to key identifiable deterioration elements. Preservation problems were grouped under two headings, that is, the visual inspection of artefact, and playback inspection of the recordings. Under each of these headings, major problems were listed. Under visual inspection of the artefact, there were four preservation problems, namely, contamination, odour, mechanical damage, and chemical damage. Playback inspection of the recordings had two subdivisions; namely, sound/image degradation, and projection/play-start problems. Below is Figure 4.10, which displays the results of the condition of AVR collection per preservation problem following observation schedule headings (see Appendix 8).

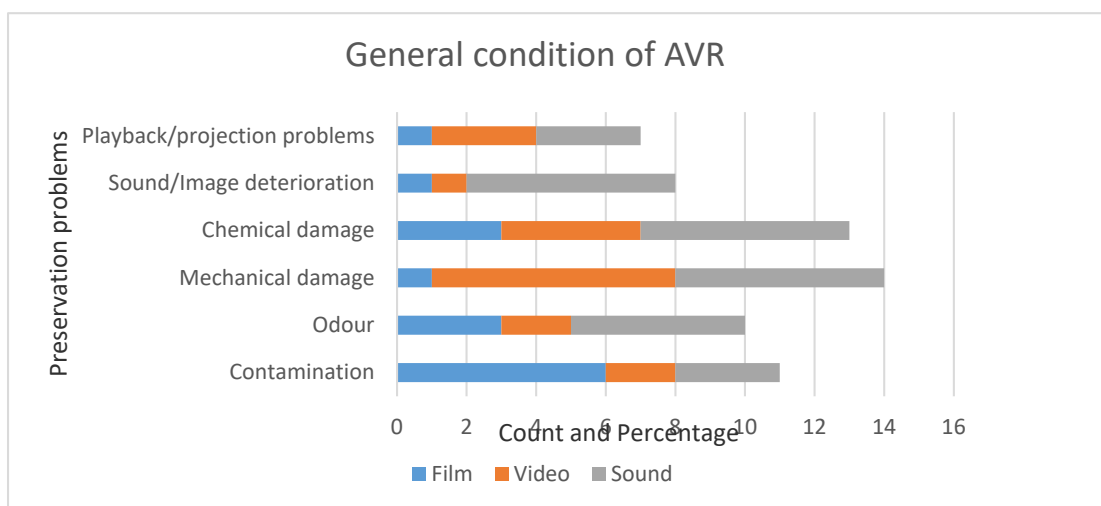


Figure 4.10: Summary of the preservation problems in AVR (Source: Field data)

As indicated by Figure 4.10 above, the AVR inspected had a range of preservation problems. Mechanical damage 3.7% and chemical damage 3.4% represented the source of preservation problems respectively. Contamination accounted for 2.9% of observed preservation problems whilst playback/projection problems were 1.8%; sound/image deterioration 2.1% and odour 2.6%. Contamination was the first element presented below.

4.7.7 Contamination

According to Figure 4.11, the data presented is evidence of contamination. From the 384 AVR sources that were analysed, 2.9% of sources tested positive for contamination. Within this, a range of contaminants was identified and this included as dust at 1%, Fungi at 0.8%, Water at 0.5%, Oil at 0.3%, and insect droppings at 0.3%. The contamination was primarily with respect to film degradation, with fungi being the only contaminant that degraded film, video, and sound components of the AVR.

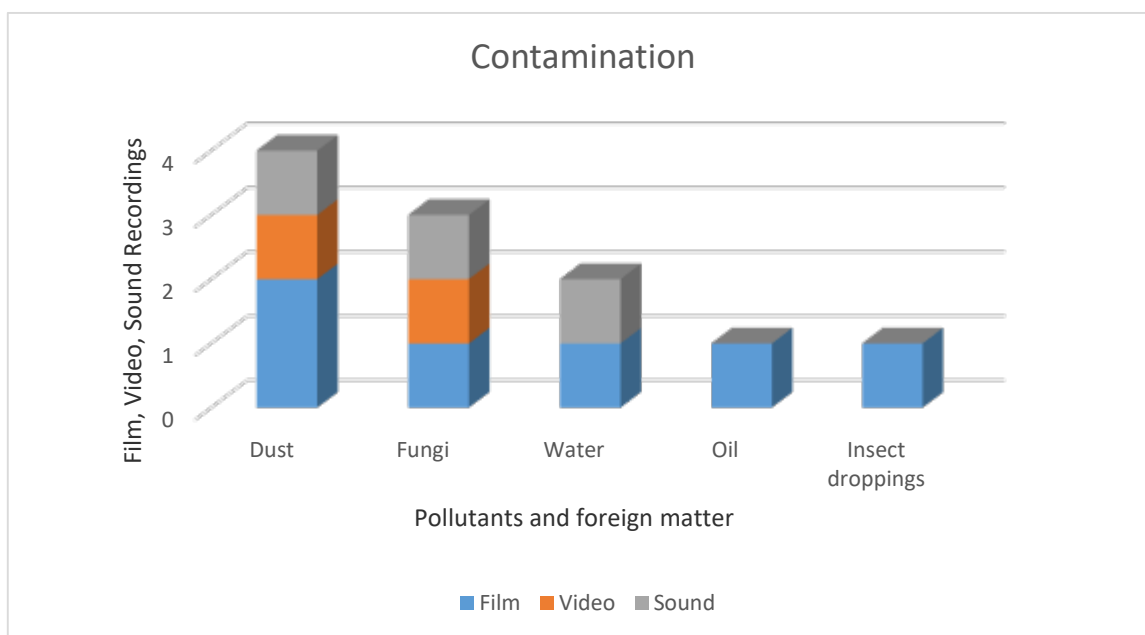


Figure 4.11: Contamination (N=384) (Source: Field data)

Smelling the AVR helped in identifying signs of decay and early presence of deterioration.

4.7.8 Odour

If the vinegar smell is present, deterioration is well underway. A more accurate assessment of acetate decay was determined by using A-D Strips. These IPI's A-D Strips provided an objective approach in determining the state of preservation the materials and their needs to be further stabilised. Nitrate decay was detected by smelling a faint noxious odour and only four indicators of decay were used.

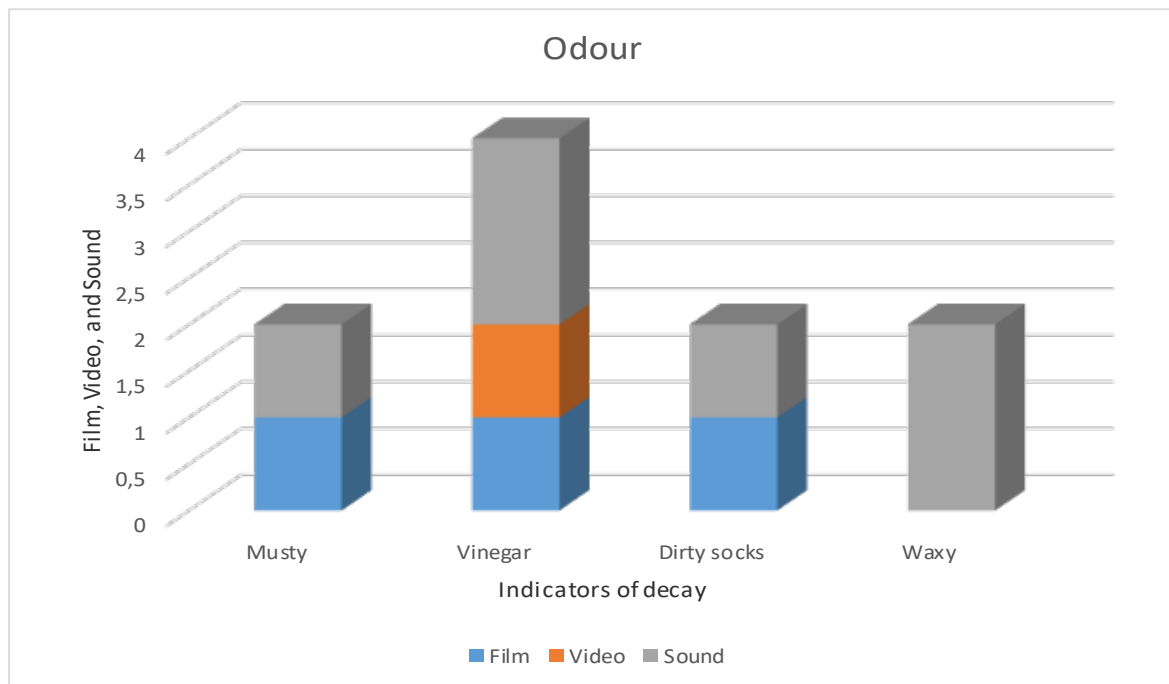


Figure 4.12: Odour (N=384) (Source: Field data)

Figure 4.12 above highlights the existence of the different odours associated with film, video, and sound degradation that was detected. The distribution by 2.6% odour indicated that a vinegar smell accounted for 1% and other odour accounted for 0.5% including a musty odour, dirty socks, and waxy odour.

4.7.9 Mechanical problems

In Figure 4.13 below the results revealed that 3.7% of 384 AVR had mechanical problems of which 0.5% was stained, 1% showed high use, 0.8% scratched and 0.5% was shrunken, 0.3% cupping, 0.3% stretch, and 0.3% brittle.

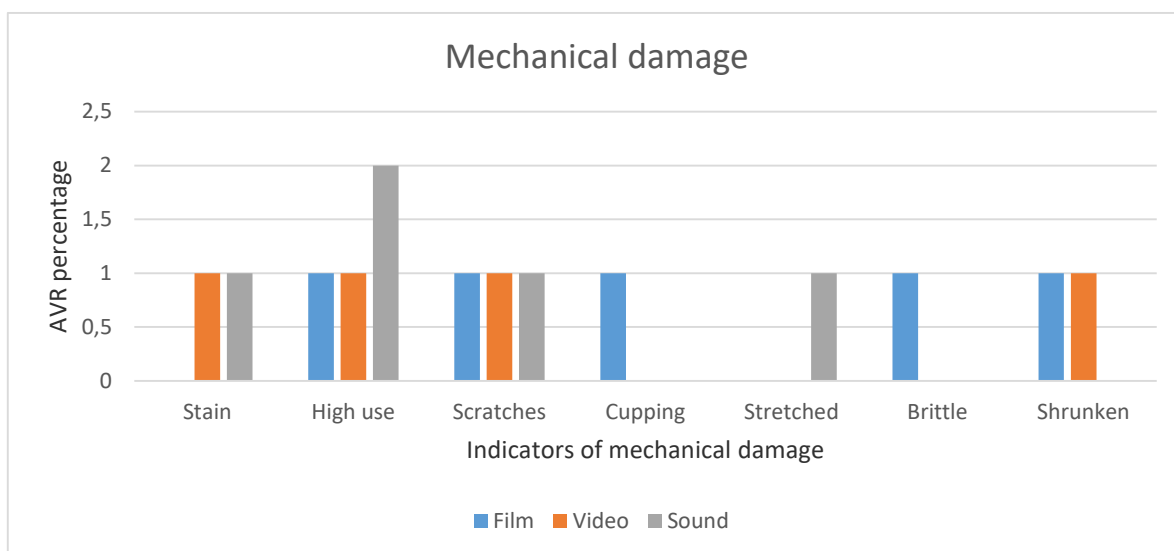


Figure 4.13: Mechanical damage (N=384) (Source: Field data)

4.7.10 Chemical problems

Components of carriers and their stability are a major concern for AVR. Film components such as film support (for example, nitrate, and acetate) and colour dyes are inherently subject to chemical degradation. Figure 4.14 below shows the range of eight indicators that were observed on 3.4% of the total sample of 384 AVR carriers. Inspection found 0.5% had bumpy surfaces, 0.5% had brown acrid powder, 0.5% had a white border on the edges, 0.5% had colour fading, and 0.3% of each of these three stuck together; had a oily sheen surface and a peeling per carrier.

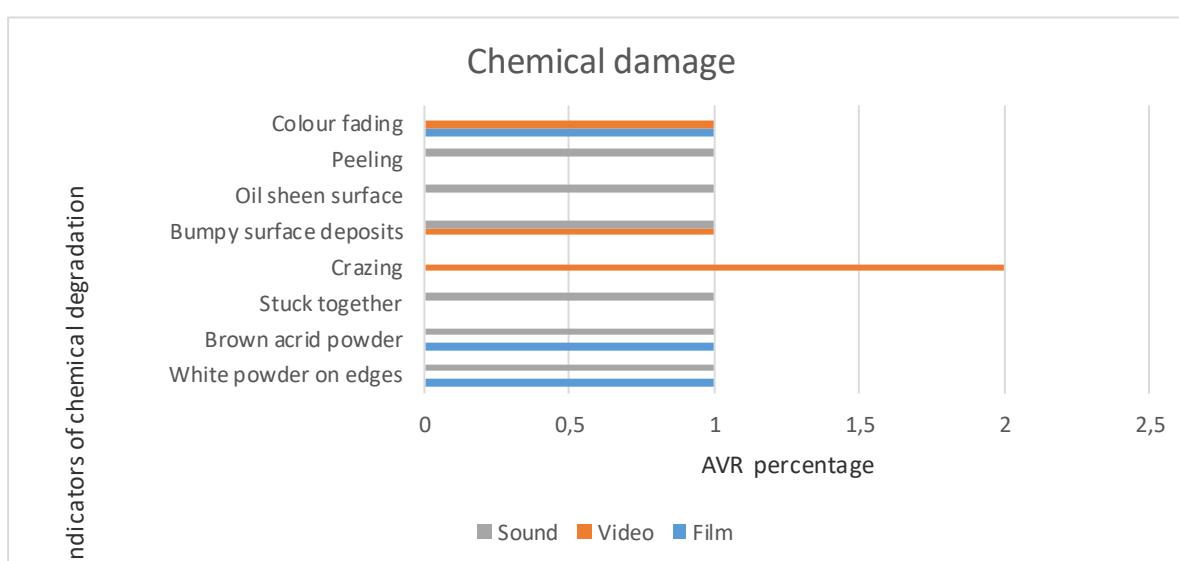


Figure 4.54: Chemical damage (N=384) (Source: Field data)

4.7.11 Sound/image degradation

Measurement of collection condition over time will provide verification (or not) of the efficacy of the preservation function but not by itself provide sufficient information to monitor or plan the preservation function (Waller, 2002:102). Data presented in Figure 4.15 below is evidence of sound/image degradation problems according to the seven indicators.

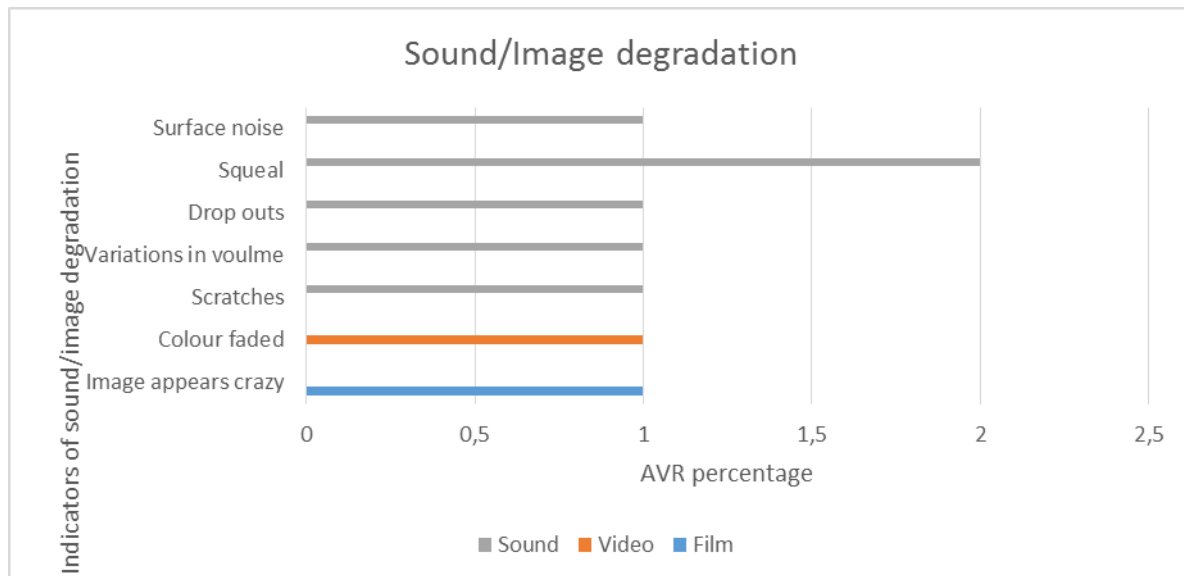


Figure 4.65: Sound/image degradation (N=384) (Source: Field data)

During playback in Figure 4.15, the 1.8% of the total sample of 384 AVRs had sound, image or degradation problems. Squealing was at 0.5%, and least the afflicted were 0.3% crazy images, colour fade, scratches, and variations in volume, dropouts, and surface noise respectively.

4.7.12 Projection/play-start problems

Data presented in Figure 4.16 below is evidence of projection/play-start problems according to the six indicators, which were identified.

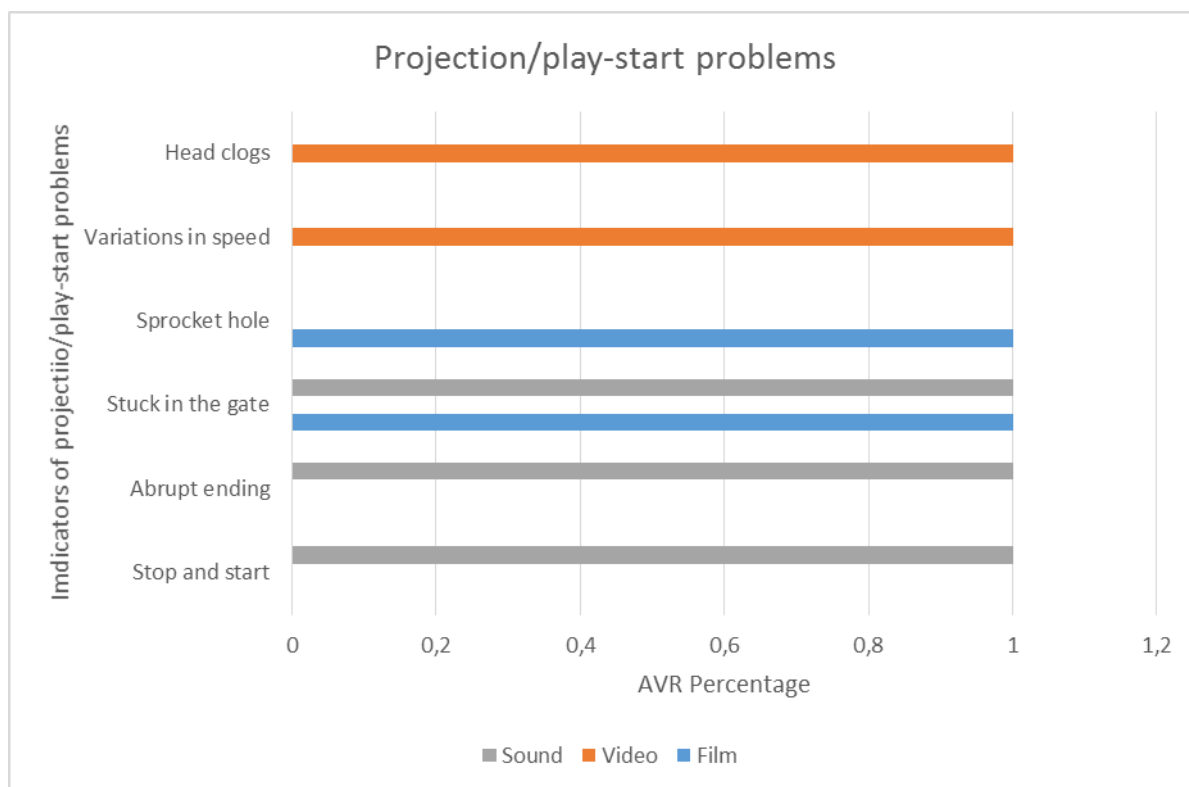


Figure 4.16: Projection/play-start problems (N=384) (Source: Field data)

Figure 4.16 above specifies the range of indicators of projection/play-start problems that were observed at 1.8% of 384 AVRs during playback. The degradation described as stuck in the gate appeared at 0.5% for AVR. Equally evident in carriers inspected were 0.3% for the stop and start, 0.3% for abrupt ending, 0.3% for sprocket holes, 0.3% for variations in speed and 0.3% for the head clog.

4.8 Summary

This chapter covered data presentation as the summary of information from questionnaires, interviews, and observation. The study covered the response rate that was relatively good from the questionnaire perspective and 100% in interviews. Strategies and activities for preserving AVRs was broken into nine segments namely: institutional data and holdings, preservation policy, strategies to preserve AVRs, temperature and relative humidity, lights in archival storage areas, pest management, storage and handling, disaster preparedness, fire detection and suppression. The plans to safeguard AVR section was short and covered issues of outsourcing preservation activities, the type of work outsourced, the time of conducting a complete preservation survey, and the views about the staff engagement in planning.

The section on the skills and experience staff possess regarding preservation and access to AVRs presented data on various aspects such as the educational training in preservation prior to joining the NFVSA; level of training in the preservation of AVRs; professional training in AVRs; area of expertise of professional training and the need for additional training. The data presented on processes available for accessing AVR covered the openness of records to the public, inaccessibility of AVRs; finding aids used to locate AVRs; and the copying of materials for duplicates.

The condition of AVRs, their storage and the actions that are taken to preserve them for use by future generations was the last section of the chapter. The results revealed that the AVR collection was at risk and not in a very good condition according to the perceptions of the staff. The results revealed that film was the most contaminated collection, followed by sound then video. Notably, dust and fungi was found on all media, water on film, sound, and oil and insect droppings on film. It revealed the presence of musty, vinegar, dirty socks, and a waxy smell, which indicated a possibility of acetate and nitrate decay. The next chapter discusses the research findings according to the data that was presented in this chapter.

CHAPTER 5

DISCUSSION OF RESEARCH FINDINGS

The major concern of descriptive statistics is to present information in a convenient, usable, and understandable form (Runyon and Haber, 1980:6).

The responses collected were more than what was hoped for, hence the calculations and complexity of data invited the researcher to pursue endless potential measures of central tendencies especially the mean and the mode, which naturally led to this discussion. The researcher caught a glimpse of the concerns and ambitions of the respondents after carefully studying the individual questionnaires, interview, and the observation report. In their responses, they were hoping that their contribution might help to change things at the National Film, Video and Sound Archives of South Africa (NFVSA), thus brought the story of Audio-visual Records (AVR) preservation to life.

5.1 Introduction

The discussion in this chapter is not a selective emphasis or partisan interpretation; rather, it is a candid analysis of what was in the data presentation section. The discussion is separated from the results so that the reader can examine the data and arrive at different interpretations (Neuman, 2003:477). The discussion describes the “what” of a status quo and tries to find basic information. The results describe issues of AVR preservation guided by the research problem, the literature reviewed and the rationale of the study as presented in Chapter 1.

The findings are presented following the themes of the research questions. The primary purpose of the study was to gather information that was needed to give guidelines on solving these risk factors of preservation problems. As such, to enable the AVR Archives to plan and prioritise those collections which are at risk; to minimise deterioration and to enhance access. Secondly, was to contribute to the improvement of assessment tools and procedures that are fundamental to a proper preservation survey and reporting thereof by answering the following research questions:

- 1) What policies and strategies are used to preserve AVRs at NFVSA?
- 2) What plans are in place to safeguard AVR?
- 3) What kind of skills and experience do staff possess regarding the preservation of AVR?

- 4) What processes are available for accessing AVR?
- 5) What is the condition of AVR and their storage at the NFVSA?

The discussion of significant aspects of the study is based on the questionnaire, structured interview with selected staff members of the NFVSA, visits to the NFVSA, observation and literature review pertaining to the arguments in the preservation of and access to AVR. The discussion follows the themes and inputs of the data as presented in Chapter 4. This excluded recommendations because they are discussed in Chapter 6.

5.2 Strategies and activities for preserving Audio-visual Records

This section describes the findings of the strategies and activities used for the preservation of AVR at the NFVSA. The background information was very useful in shedding light on the background and characteristics of the collection. The general picture that emerges from the survey reflects the diverse, mixed, and multimedia collection in the NFVSA holdings such as film, video, sound recordings, photographs, manuscripts, and miscellaneous (see Table 4.1 in Chapter 4, paragraph 4.3.1.1). The results are consistent with Figure 2.2 which displayed the collection composition found at the NFVSA. It showed a diverse historical path followed by AVR, collection size being large was ranging between 800 000 to 1 500 000. The earliest date of the collection that was between 1850 and 1899 was film, which demonstrated preservation options. According to Clement (n.d.), on page 18, preservation objectives are both to preserve the intellectual content of the collection and/or to preserve the physical form of artefacts as long as possible. Ideally, such options should therefore be included in the preservation policy. The discussion of salient points are the preservation policy, archival building, temperature and relative humidity, light in archival storage areas, pest management, storage and handling, disaster preparedness plan, and, fire detection and suppression.

5.2.1 Preservation policy

The preservation policy is aimed at maintaining items consistent with their defined values. A preservation policy is important because it defines the objectives, which an organisation seeks to achieve in maintaining the structure and/or usefulness of its collection to meet the needs of its users (Chapman, 1990:5).

In this study, it was revealed that a majority of nine (69%) respondents stated that there was no preservation policy. Even if it was available as two interviewees claimed, it means it was not fully instrumental in their daily preservation operations. As a result they never adhered to

a preservation policy but speculated that there would formulate the policy within two months. Studies of Nsibirwa (2012:205), Mnjama (2010:142), and Abankwah (2008:236) found that most archival institutions did not have preservation policies and Mnisi (2015:105) confirmed this. This will indeed affect negatively especially on the staff that ought to be committed and guided by appropriate options. The policy of preservation needs to be linked to the work and activities of the archivists who safeguard the collections. The results revealed that the majority (76.9%); that is, 10 respondents knew the preservation strategies used. Therefore, one may argue that the staff undertook preservation actions through strategies for specific AVR that required intervention and overall prevention starting with the archival building.

5.2.2 The archival building

The starting point in developing a preservation strategy that maintains material that is not affected by its surroundings is to ensure that the building and the materials housed meet the basic requirements for the storage of such archival materials (Rhys-Lewis, 2000:3). The present study revealed that the NFVSA was not purpose built but adapted for AVR archival use, hence adequately equipped with equipment and facilities that made it conducive for proper preventative preservation of the collection. Inadequate archival buildings are a well-documented challenge given that Abankwah (2008b:34) raised the point which was debated prior by Mwangwera (2003), Ngulube (2003) and Mazikana (1997/1978).

The researcher's observation revealed central air conditioning, heating, de-humidifiers, sprinkles, air filtering, thermic isolation, windows with UV filters, a fire detection system and fire extinguishers but all these were never checked and tested to see if they were installed properly and whether they were in good working condition. The major concern was the water pipes that were so close to the vaults and therefore posed a threat. Should there be any flooding, water leakage or pipe bursts, they might experience loss of all the valuable collections. These mechanisms and equipment installations should be planned prior to the building construction. Securing an archival building structure and equipment is the beginning of preservation where the desired result is the long-term usage of AVR. The requirements of environmental controls are important in minimising the speed of deterioration and the promotion of the physical integrity of the collection and emphasis is on the temperature and the relative humidity.

5.2.3 Temperature and Relative Humidity (RH)

Climate controlled storage in an archival building prolongs the life of AVR; however, keeping an AVR collection in sub-optimal storage raises doubts about the chances of their survival in the long-term. Moreover, fluctuating temperatures and Relative Humidity (RH) adversely affects the life expectancy of AVR (Hill, 2012:92). The life span of AVR can be affected by temperature and RH affecting the stability of AVR collection as reflected in its deterioration (Bigourdan, Reilly, Santoro, Sales, IPI, Rocheste Institute Technology, 2006:6).

In this study, it was revealed that a majority of 12 (92.3%) respondents stated that vaults had Heating, ventilation and air conditioning (HVAC) which only nine (69.2%) respondents said was in a good working condition. Respondents differed in terms of the temperature levels where nine (69.2%) respondents said it was between 4 and 23°C whereas a few others considered that the temperature was warm. Contrary to this, when the researcher measured the temperature it was 24°C reading from the hygrothermograph. Higher temperature holds higher amounts of vapour, while lower temperatures hold less. Maintaining a cold temperature is best for preservation (Hill, 2012:92). An ideal physical environment includes controlled RH. It was clear from the results that RH was properly controlled. Twelve (92.3%) respondents reported that RH was 45% with an exception of one respondent who did not know. Observation confirmed the RH of 45% reading from the humidity indicator strips. Inappropriate temperature, RH and light in archival storage areas contribute significantly to the deterioration of AVR.

5.2.4 Light in archival storage areas

Light and UV radiation has several deteriorating effects on AVR carriers, therefore protecting the collection from UV light is of utmost importance. The study conducted by Schüller and Häfner (2014) on handling and storage of audio and video carriers, revealed that permanent exposure of such AVR to daylight, and direct sunlight, can render recordings unreadable within weeks. It was clear from the results that a majority of 13 (100%) respondents adhered to switching off lights when not in use in the vaults. There was a remarkable effort of controlling light from the windows, attested to by 10 (76.9%) respondents. Observation confirmed the control of lights in the vaults and from the windows. It is therefore a safety precautionary measure for NFVSA to avoid any unnecessary exposure of all AVR carriers to

light, as they paid attention to ensure that any direct sunlight, which may also increase temperature above a safe limit, was inhibited.

5.2.5 Pest management

Tropical areas suffer from many forms of insects and pests which are difficult to keep out of archives and AVR carriers such as Long playing (LP) covers are the most threatened (Schüller and Häfner, 2014:40). Evidence of pest (insect, rodent, and others) infestation includes sightings of the pests themselves, insect/rodent droppings, urine stains, tracks, and gnawing damage. The main threat of pests is the breeding and multiplication in numbers, consequently there is more damage to AVR. The study found that 10 (76%) of the respondents stated that the NFVSA experienced insect invasion in the building. However, they successfully carried out the routine extermination of vermin infestation. As a result, there was no evidence of pests after the extermination.

5.2.6 Storage and handling

In a joint report by Bigourdan et al. (2006:7), proper storage for AVR collections is often presented as having been integrated in preservation strategies for a long time. The present study revealed that the storage areas were satisfactorily clean with slight dust residue on top of the carriers. Five (38.5%) respondents said that storage areas were cleaned on instruction, while another three (23%) respondents stated that they were cleaned sometimes on special occasions and that was seldom. It was good to see shiny and clean floors, however; a big concern was the slight dust on carriers, which could have been mineral dust or textile particles that should have been prevented. The study found that not much attention was paid to the good habit of examining the collection for any potential threats or hazards. The majority of the respondents said examination was sometimes done and it was very seldom. In this study, it was revealed that the majority of eight (61.5%) respondents stated that each type of film based records were stored separately, whereas few respondents did not know nor were not sure about the separation of the records in storage. Either way, the lack of awareness about separating AVR per type is a threat as each type has varying preservation and handling needs.

Shelving and containers are crucial elements for proper storage and the handling of AVR. The study found that the majority of 10 (76.9%) respondents said that the storage equipment that was used at the NFVSA was non-adjustable shelving, stationary racks, and film cans. The researcher observed that collections were stored on non-adjustable shelves, stationary racks

and in film cans, acid free archival boxes, and wooden filling cabinets. The argument about the metal (steel) shelves has moved in to salvage wooden stacks are now discouraged as chemical treatment components may interact with AVR carriers (Schüller and Häfner, 2014:49). It is indeed a prevention strategy to have the films in cans to protect them against dust and damage.

All AVR carriers should be stored upright except for soft instantaneous discs, like gelatine or decelith discs; they should be stored horizontally in small piles with not more than 10 in a stack (Schüller and Häfner, 2014:50). A large number of respondents 10 (76.9%) revealed that storage position for AVR was upright. It is assumed that the collection was in proper storage positions that minimise impact. Handling guidelines are the key to preservation as they help to improve the welfare of the material (Nsibirwa, 2012:177). A great number of 10 (76.9%) respondents indicated that there were guidelines for handling AVR. It is therefore expected that there would be less damage to the collection, since the staff had the guidelines at hand.

5.2.7 Disaster preparedness plan (DPRP)

Disaster preparedness includes all measures to prevent, or at least minimise, the negative effects of unpreventable incidents of all kinds; be they of natural origin, such as earthquakes and extreme weather conditions or man-made, like fire, bomb threats, and others (Häfner, 2014). The disaster and preparedness recovery plan will enable staff to react effectively and efficiently if an emergency occurs. The DPRP must be clearly understood by all; it further requires rigorous training and review (Rhys-Lewis, 2000:7). Eight (61.5%) respondents said there was a DPRP, which covered safe evacuation of people, building, emergency procedure, and disaster response, but the staff was not instructed on DPRP. This finding is quite worrying because should a disaster happen, staff might not be able to rescue the AVR collection, and more harm can result to the AVR.

5.2.8 Fire detection and suppression

In an archival landscape, fire prevention and extinguishing must be given utmost importance because burning AVR carriers produce highly toxic fumes, which are of a considerable risk to health, and irreplaceable losses of holdings maybe the result of such incidents (Häfner, 2014; Schüller and Häfner, 2014:52). Fire detection at an early stage is essential to activate systems and procedures to counter loss (CDP, 1997:15). Furthermore, special attention must be given

to staff training. The study revealed that there were fire detectors in place and fire extinguishers were inspected on a regular basis however, no training on the use of fire extinguishers has been given to the staff. This situation poses risks. According to Swartzburg (1995:30) if a mission statement does not exist, planning for preservation becomes very difficult if not impossible. Planning to safeguard AVR might be the starting point in ensuring preservation of AVR.

5.3 The plans in place to safeguard Audio-visual Records

What makes preservation planning an indispensable tool for AV archives stems from the fact that AVR are in peril of disappearing or becoming inaccessible within a few generations; therefore, preservation planning will depend on a well-executed preservation assessment or survey in order to prioritise collections that are at high risk. In this school of thought, proponents who share this view include Allen and Allen (2004), Ianna (2003), Smith (2003), Council (1999), Institute (1999), Gilroy and Godfrey (1998), Ogden (1998) and Cunha (1979). Without planning, there could be a huge loss in terms of human knowledge. Planning to safeguard AVR is a safety precautionary measure taken by management of an archival institution in order to prolong the usefulness of the collection throughout its life-cycle. Protection starts with sound preservation planning (DC Office of Planning: 2017). Plans to safeguard AVR covers aspects such as outsource preservation activities, type of work outsourced by the institution, conducting a complete survey, transfer of materials to new carrier, and prioritisation of AVR at risk.

5.3.1 Outsource preservation activities

In this study, it was revealed that a majority of 10 (76.9%) respondents stated that the NFVSA outsourced preservation work to commercial vendors. Outsourcing to outside consultants has its own advantages; hence, the NFVSA opted for such a decision. As part of the plans in place to safeguard AVR, it was assumed that preservation work was assigned to more experienced, non-biased, objective, and critical AVR consultants who were more aware of external resources that would enable preservation projects to be accomplished and would have a broader comprehensive base for making recommendations. Perhaps the person had more quality time for the task outsourced.

5.3.2 The type of work outsourced by the institution

The task of preventing AVR collection from deterioration and subsequent losses is daunting. However, not all preservation activities can be outsourced to outside consultants or commercial vendors but only the most crucial and highly specialised work that requires scarce expertise and its own technological infrastructure that guarantees easy access, saving AVRs from further deterioration. The study revealed that a majority seven (53.8%) of respondents stated that the preservation work that was outsourced to commercial vendors was digitisation. The recent findings from other studies are suggesting that the way forward in saving the content from degrading obsolete AVR formats, is to digitise the collection (Casey, 2015:14). In the words of Schüller and Häfner (2014:4), “long-term preservation of AVR can be achieved by converting contents into digital files and by maintaining these files like any other computer data”. This means that the NFVSA are on the right track and are going to be able to save the content of their AVR collection. It is possible that the decision to outsource work was influenced by the results of the survey of the whole collection.

5.3.3 A preservation survey

It is known that surveying preservation needs is a vital first step in preservation planning (Patkus, 2003:5). The majority of five (38.5%) respondents indicated that there was no plan to conduct a preservation survey at the NFVSA. Since surveys are the foundation of preservation planning, having a survey that meets the institutions’ planning needs is critical. It is disturbing however, to learn that there were no plans to conduct such a survey soon. The results of a survey could inform the management as to which collection is in good condition or deteriorating so that a plan to transfer materials to new carriers can be made before the information is lost.

5.3.4 Transfer of materials to new carriers

Long-term preservation of the AVR can be achieved by transferring the image and/or sonic content to another carrier or to a more durable media before the original works is lost through physical or chemical degradation. The study of Casey (2015:21) realised that they could not wait until planning was completed or everything was perfectly in place to begin the work of transferring materials to new carriers. The only way to curb the threat of losing invaluable content is to transfer it to new carriers. Seven (53.8%) of the respondents stated that a plan for transferring materials to new carriers if users wanted to use them was in place.

5.3.5 The plans for prioritisation of AVR at risk

Preservation planning is a process by which the general and specific needs for the care of the collection are determined, priorities are established, and resources for implementation are identified. In this study, the results revealed that the attitude towards prioritisation of AVRs at risk as an important element for preservation programme were positive. Table 4.8 in Chapter 4 illustrated the attitudes towards the plans for prioritising AVR at risk. The results revealed that the staff strongly agreed with the plans for the prioritisation of AVR at risk. Planning is an important preservation programme. It means the NFVSA will use these priorities, together with other relevant issues such as available institutional resources to create preservation plans that set forth a specific schedule or accomplishing particular preservation projects.

5.3.6 The staff engagement in planning for preserving AVR

Patkus (2003:78) argued that the feasibility of the plan is an essential factor that includes staffing levels and expertise. She further stated that even if the preservation action has a high impact and is a priority, it might be given a low priority if implementation is not feasible. The hindrance is due to lack of knowledge and low levels of skills in preservation of AVR. This study revealed during the interview that respondents agreed that all staff must be engaged in planning activities in the preservation of AVR.

5.4 The skills and experience staff possess regarding preservation and access to AVR

In this section, findings are discussed in relation to the knowledge, skills, and experience that the staff possesses regarding preservation and access to AVR at the NFVSA. Education and training plays a crucial part in preservation as it affects the way staff take care of and relate to the collections; therefore, knowledge of the staff's skills regarding preservation and training was essential (Nsibirwa, 2015:134). Some factors have a potential of compromising the preservation of AVR such as lack of adequate resources in the form of educational training, expertise and the need for additional training within Audio-visual (AV) institutions. These aspects of the problem contribute to the perception of a lost or, at best, a very challenging battle for handling preservation of the content of AVR by the staff.

5.4.1 Educational training in preserving AVR

According to Ngulube (2003:264), skills and knowledge of preservation techniques and procedures are fundamental to implementing preservation activities. In this study, it was

revealed that a majority of seven (53.8%) respondents received formal educational training in the preservation of AVR prior joining the NFVSA.

5.4.2 Level of educational training in preserving AVR

It is argued that the objective of university education and training is to ‘grow’ people who while being marketable are at the same time able to adapt easily to whatever environment they may find themselves in (Khayundi, 2011a:65). Figure 4.1 in Chapter 4 illustrated the results where it shows that the majority of the respondents held a certificate in educational training in preservation of AVR prior to joining the NFVSA. The AVR archives has the responsibility to ensure that professional training in AVR is given to all staff that has the duty to protect the collection from deterioration.

5.4.3 Professional training in AVR

Professional training for AVR archiving is crucial because it guarantees knowledge and skills in dealing with preservation problems and implementation of preservation activities. However, many countries do not offer a curriculum for AVR training except for background in theory and history, whereas technical skills are required as archivists work with obsolete and obsolescent carriers and playback equipment (Klijn and de Lusenet, 2008:16). The study revealed that a majority of eight (61.5%) respondents said that they never received professional training in AVR after joining the NFVSA. It means they were expected to perform their duties with the minimal knowledge compromising the integrity, physical durability, and life span of the collection. This scenario is similar to the recent study of Nsibirwa (2015), that staff responsible for preservation was not adequately trained in preservation management. Chapman (1986: vii) once remarked that the Achilles heel of the information professional’s education, was preservation. In the study of Derges (1992:100), it was discovered that archival institutions with AVR had a lack of trained staff. During the interview, it was found that most of the respondents came from various backgrounds, other than AVR archiving.

5.4.4 An area of expertise of professional training in AVR

The technical challenges of dealing with AVR require special skills (Khayundi, 2011b:299). According to the research done in South Africa by Research-Focus (2010:102), employers indicated shortages of skills in film, video and sound preservation, especially archivists of skills in digitisation, scanning, colour correction and other detailed technical work. Five

(38.5%) respondents who received professional training in AVR after joining the NFVSA indicated their areas of expertise. The results revealed that audio and film preservation had favourable responses compared to training in analogue AVR results. This may be due to relevancy and the fact that there were different sections where each respondent was working. The lack of expertise might add to the problem of deterioration of AVR; however, additional training might be the solution to shortages of expertise.

5.4.5 The need for additional training

Perhaps the most important component to successful preservation is properly trained technicians (Hill, 2012:94); unfortunately, no institution in Africa teaches AV archiving (Zinyengere, 2008:40). The situation has not changed. The results in this study confirm Ngulube's (2003:316) findings that there is a critical shortage of staff with expertise to preserve records and archives in South Africa. However, the results in this study revealed that most areas of expertise are needed by most of the respondents in the following manner: Results presented in Figure 4.2 in Chapter 4 illustrated that the majority of the respondents needed additional training in preservation assessment followed by audio and video preservation. Film preservation and preservation planning seems to be the least needed training area, therefore might not be the expertise of priority.

It is difficult to escape the conclusion that most of the staff are ill qualified for preservation activities because institutions offering LIS education in South Africa do not pay much attention to preservation issues (Ngulube, 2003:340). Research-Focus (2010:86) in their study on the demand for and supply of skills in library and information services, archival services and records management, an effort was made to profile the skills in the sector by looking at the workforce, as well as the demand for skills and the education and training provided by higher education institutions. It remains an educational problem (Research-Focus, 2010:165). Research-Focus (2010) found that the training in AVR is complex and intricate. Given that fact, Ngulube (2003:270) indicated that a lot needs to be done in terms of training and educating archivists in South Africa in order to ensure future access to records; the same sentiment was raised by Research-Focus (2010:165), Ocholla and Shongwe (2013), and Nsibirwa (2015). Such training might facilitate and enhance processes for accessing AVR.

5.5 The processes are available for accessing AVR

This section discusses research findings concerning the processes available for accessing AVR at the NFVSA. An objective of archival effort is to preserve valuable records and to make them available for use (Schellenberg, 1984; 1956:224). Drawing from the study of Ngulube (2003:270), accessible public records and archives are the key to accountability, efficient research, protecting people's rights, transparent governance, and efficient administration. The following four areas are amongst many but considered as critical in accessing AVR at the NFVSA.

5.5.1 Access of records to the public

The NFVSA is required to give access to their collection according to the Legal Deposit Act (LDA) Act No. 54, 1997, section 7(1) (c) that stipulates, "a place of legal deposit shall subject to such limitations as may be prescribed to ensure freedom of access to the documents in terms of section 2 (1)". The Act further states that the NFVSA shall preserve at least one copy of each document supplied in terms of section 2 (1) for current and future use. The study revealed that the majority of seven (53.8%) respondents said that the AVR at the NFVSA were not open to use by the public. It is a non-adherence to the legislation. This was a disturbing response; however, the purpose of preservation was defeated.

5.5.2 Inaccessibility of records

It may be difficult to justify the preservation, particularly at the public's expense, of recordings that the archive may never be able to make available to users (Schüller, 2008). In this study, as Figure 4.3 in Chapter 4 illustrated, it was revealed that majority of 11 (84.6%) respondents mentioned that impediments to AVR access was due to uncatalogued records. Other main reasons stated by respondents in a chronological manner were lack of user copy, restriction of copyright owners, lack of finding aids, unusable/damaged records, lack of playback equipment, and a lack of expertise in handling rare formats. Impediments that were mentioned by the least of the respondents were off-site outsourced storage, donor restrictions, and the lack of a viewing room. The plethora of possible restrictions and the number of permissions required can seem almost overwhelming to the researcher. The first top halves of the restrictions were significant impediments that were a threat and inhibited access to the AVR collection.

In this study, it was revealed during the interview that the fundamental reasons making AVR not accessible to the public was the complication concerning legal rights. It was also mentioned that inadequate viewing/playing rooms was another challenge. It was confirmed that there was no regular maintenance of the playback equipment, which makes it impossible to play AVR for the users. Lastly, interviewees avowed about the inadequacy of the playback equipment. The combination of all these impediments makes the situation not attractive and useful in terms of giving access to AVR.

5.5.3 Finding aids used to locate descriptions of collections

Finding aids that result from the processing of archives communicate information about archival materials to users (Ngulube, 2013:141). A problem of backlogs severely compromised the capacity of the archives from making the finding aids, hence were not able to make all archival holdings accessible. Finding aids defined by Edgecombe (1993:248), are the source documents that lead researchers or information users to the required information. The results revealed that respondents mentioned various finding aids available to locate descriptions of AVR collections. The majority of 10 (77%) respondents said the word-processed registers/inventories and the NFVSA website were used, followed by card catalogues and indexes; thereafter the printed guides and computer catalogues were accessed remotely. It means it was possible to search online through the websites and online catalogues without having to travel to the NFVSA. Those who were onsite mostly preferred registers/inventories and indexes. It is however, not clear whether these finding aids listed all collections, and if they were updated or not.

5.5.4 Copying of materials for duplicates

The copying of materials for duplicates adds value in maintaining the physical integrity of AVR collections and is extremely important. The effects of heat and moisture on AVR collections, together or alone, can necessitate copying or reformatting in order to avoid loss of the recorded information. Copying and reformatting are daunting tasks for most institutions and requires expertise and proper equipment. The results of the study according to majority of five (38.5%) respondents suggested that the copying of AVR materials for duplicates was

done. Four (30.8%) said on certain occasions it would be as per request and other instances as a special project; though not all AVR materials were copied or had duplicates, and saved the originals. Observation of the reference service confirmed that some playback and copying equipment was displayed; unfortunately, their performance was not adequate and not capable for rendering the services. Obsolescence can come from the AVR itself that renders the available playback machines obsolete or not useable. Users had to pay in order for the NFVSA to outsource services of copying of film and video.

5.6 The condition of AVR and their storage at the NFVSA

Assessments of preservation condition plays a crucial role in giving the status quo of the holdings in order to determine the preservation effectiveness of activities, to identify potential preservation problems and to prioritise and prepare a relevant preservation plan. The useful lives of AVR are limited by material deterioration. The extent of our care for AVR started with the creation of a framework for collection condition survey, which addressed three main categories of environmental, chemical, and mechanical decay.

5.6.1 The overall of condition of AVR in the holdings

This study confirms that carriers in the NFVSA were not in a good condition, or significant parts of the holdings were already damaged or may be at a state beyond recovery and are lost forever. It is the majority of nine (69%) of the respondents that rated the overall condition of the AVR in the NFVSA as poor and very poor. All analogue and physical digital film, video and sound recordings are actively deteriorating, and some catastrophically; this degradation and the rate at which a recording deteriorates varies by format, the condition of any given recording, and storage conditions (Casey, 2015:14). It is therefore important to look at the overall condition of the collection and note what parts of the collection are in poor condition and most at risk.

5.6.2 Views about the general condition of AVR in the custody

Causes of deterioration may be external or internal of the recording; therefore, assessing the physical condition of an item determined the amount, and type of preservation work needed. In this study, as depicted in Figure 4.5 in Chapter 4, it was revealed that the majority of the

respondents agreed with the view that chemical damage: decomposition, high use, and wear and tear were causes of the deterioration of AVR. Other respondents perceived biological decay: fungi and dirt as not necessarily the main causes of deterioration. The results revealed that the collections are exposed to high risk, therefore are not in good condition. This problem is similar to findings of Abankwah (2008:234) where deterioration of AVR was observed in several archival institutions in the Eastern and Southern African Regional Branch of the International Council on Archives (ESARBICA). Notable, on surveying the condition is that, the focus is on collections that are in poor condition and most at risk (Ncala, 2014).

5.6.3 What is used to inspect the collection at NFVSA

Anyone addressing preservation of AVR must first have working knowledge as well as the ability to recognise the ways in which those formats are likely to deteriorate. Documentation of format-specific preservation problems is very important provided the right tools are used. The interview results revealed that respondents used an exercise book and pen, whereas the others used checklists to gather data when inspecting the collection. However, a report on inspection of each item is coupled with a particular tool that assisted in detecting deterioration. It became apparent that the respondents did not know how to detect deterioration even though one respondent said he used A-D strips. One explanation for this may be the lack of diagnostic tools. Future condition assessments that ought to be carried out remain questionable.

5.6.4 Categorisation of item

Data presented on Figure 4.6 in Chapter 4 shows that original copies were 120 (31.2%) which was more than all other categories followed by 96 (25%) user copies; then the preservation master copies were 46 (12%), followed by 31 (8.1%) master copies. The least of the categories was the dub master for which there was only one (0.3%) copy. The rest of the categories were less than the sixteenth of the sample, that is, 22, and 23 respectively. This means that the NFVSA has a huge task of copying the originals so that they can be preserved and let the users use copies. The use copies should have been more to ensure the protection of the original works for posterity. This situation poses risks of damaging the original AVR.

5.6.5 Formats of AVR

Knowing the carriers' categorisation helped in understanding the stability issue and the deterioration processes. The film collection had about five types of formats. In this study, the assessment results as in Figure 4.7 in Chapter 4 revealed that 16 mm film was more than all other film format types followed by 35 mm, then 8 mm. The least number of formats were 9.5 mm film and the "other" category. There is a close relationship between film and video because feature films are often distributed on video. The video formats graphical presentation in Figure 4.7 in Chapter 4 confirmed by observation, shows that U-matic and VHS were slightly more than the Betacam, whereas S-VHS and DVD were the least represented with only one item each. Betacam, U-matic, VHS, and S-VHS belonged to magnetic carriers, whereas DVD was in optical carriers. Categories for the sound recordings were done according to their carrier type, that is, mechanical, magnetic, and optical as presented in Figure 4.9 in Chapter 4. Observation found that mechanical carriers included cylinder, LP "Vinyl", Gramophone discs (includes replicated coarse groove discs or shellac records, instantaneous discs and lacquer discs). Magnetic carriers comprised of open reel, cassettes, mini-discs, and R-Dat. Notably, MiniDisc is a magnetic carrier that is an exceptional case. MiniDisc is a crossover format with properties of magnetic and optical recordings and categorised as a magnetic carrier by Stauderman (2004:36). Contrary to this, Schüller, and Häfner (2014:28) categorised MiniDisc as an optical carrier. The reason for this categorisation stems from the fact that all carrier types are vulnerable and most are unstable in comparison with their chemical composition for each. All formats have their own preservation problems.

5.6.6 Summary of preservation problems

The analysis of the inspection as presented in this section discusses film, video and sound recordings as a collective with all their preservation problems encountered thereof. Identification of all format-specific preservation problems was considered essential in determining the condition of the collection. The condition of the AVR collection was the result of the inspection process where known preservation problems were used and presented as salient points of diagnosis. It should be noted that the link between the chemical stability and climate conditions applies to a wide range of organic materials such as films (Bigourdan, et al, 2006:6).

In this study, observation showed that there were preservation problems, which were discovered by visual inspection, playback and projection. The researcher found most of which was diagnosed as the causes, symptoms and identification of pattern of deterioration. Thereafter, collections were considered a serious risk factor and added points to their degrading condition. They exhibited symptoms of deterioration and encountered presence of identification points of deterioration. The identification points were extremely important because they linked the whole inspection to the presence of possible causes of deterioration. Figure 4.10 in Chapter 4 summarised preservation problems such as mechanical damage at 3.7% which was the highest and chemical damage accounting for 3.4%. Contamination came as third at 2.9% of observed preservation problems. Odour at 2.6%, playback projection at 1.8%, sound/image deterioration at 2.1%, which were all also observed though their presence, was minimal but still a source of concern.

5.6.7 Contamination

Audio-visual Records are extremely sensitive to dust, pollutants, and foreign matter, which influence not only the integrity of the carrier by abrasion, but also deteriorate the retrieval of the signals in the replay process. The study revealed that, as noted in Figure 4.11 in Chapter 4, dust at 1% was the most prevalent foreign matter across all media followed by fungi at 0.8%, water at 0.5%, However, stains were on film and sound recordings only. Oil was at 0.3% and insect droppings at 0.3% were the least spotted pollutants and foreign matter that only affected film collection.

5.6.8 Odour

The results of this study revealed that 2.6% of AVR had odour problem. The presence of vinegar was 1%, and musty, dirty socks and waxy smells accounted for 0.5% respectively. These indicators of decay signalled that some forms of decomposition existed in 2.6% of the AVR collection. The Figure 4.12 in Chapter 4 illustrated that 1% vinegar smell was found in film, video, and sound. According to the information in Chapter 2.5, these AVR found with vinegar syndrome are still at their early stages; it gives hope of correction unlike if they have reached advanced stages (AMIA, 2015).

5.6.9 Mechanical problems

AVRs are vulnerable to physical or mechanical damage. Mechanical deformation is a major threat, which affects all kinds of AVR carriers and is one of the greatest risks. There are abnormalities visible on or within the recordings. The results revealed that 3.7% of the 384 AVR had mechanical problems of which 0.5% was stained, 1% showed high use, 0.8% scratched and 0.5% was shrunken, 0.3% cupping, 0.3% stretch, and 0.3% was brittle. Video was most affected followed by sound recordings. Film was the least affected with one carrier that exhibiting cupping, brittleness and was shrunken. The origin of mechanical damage may be natural, accidental, or due to human handling.

5.6.10 Chemical problems

Early discs had problems with crazing, which made the polymer opaque, and unreadable (Schüller and Häfner, 2014:28). The AVR can fail for a series of reasons but it is generally recognised that the deterioration of the binder is the most common cause for example for a tape structure failure in audiotapes and video tapes mostly through chemical decay called hydrolysis (Bigourdan, et.al, 2006:6). In this study, observation results found prevalence and distribution of indicators of chemical degradation, which offers important direction about the type of deterioration of AVR carriers. As illustrated in Figure 4.14, in Chapter 4, the results revealed that 3.4% of 384 AVR had chemical problems of which 0.5% crazing was more evident on video but other indicators were colour fading, peeling, oil sheen surface, bumpy surface deposits, stuck together, brown acrid powder and the presence of white powder on the edges. This means these AVR are at risk would eventually not be playable.

5.6.11 Sound/image degradation

Preservation problems were discovered by replay of the recordings. It confirmed the existence of selected indicators of sound/image degradation as illustrated in Figure 4.15 in Chapter 4. The results revealed that 2.1% of 384 AVR had sound/image degradation of which squeal was found to be the most prevalent indicator on sound recordings followed by surface noise, dropouts, variations in volume, and scratches. Sound was the most affected media unlike film and video, which were the least suffering from sound/image degradation. Colour fading and film only affected video by the image appearing crazy. Sound/image degradation is a sign of poor condition.

5.6.12 Projection/play-start problems

The AVR life expectancy can be affected by hardware as seen in projection/play-start-problems. In this study, observation confirmed the existence of the six indicators of projection/play-start problems. The results revealed that 1.8% of 384 AVR had projection/play-start-problems of which indicators identified were 0.5% stuck in the gate, 0.3% of stop and start, abrupt ending, sprocket hole, variations in speed and head clog, respectively. However, during playback, there might be other risks of damage to AVR carriers through unforeseen malfunction of replay equipment.

Projection/play-start problems were identified in the studies of Schüller and Häfner (2014:20), Abankwah (2008:127), Bereijo (2004a), Casey (2008:31), Hess (2008:8), Klijn and de Lusenet (2008:77), and Wheeler (2005). They observed that a video signal can come to a complete breakdown and, during replay, the tapes' sticky pigment and binder particles are deposited on to the machine, which clogs tape guides and causes friction. Clogging, a result of Soft Binder Syndrome (SBS) and Sticky Shed Syndrome (SSS) inhibits access to the content of AVR. Improper threading of the film in the projector might have caused perforation damage and sprocket holes usually found at the beginning and the end of reels or after a bad splice. The AVR collection at the NfVSA was not in a good condition or with unpredictable threats. The AVR can be damaged further by projector mechanisms if no maintenance is implemented. It is also possible that older or poorly serviced machines have severely damaged, if not destroyed AVR during replay.

5.7 Summary

The discussion included the strategies and activities for preserving AVR, the plans in place to safeguard AVR, the skills and experience that staff possess regarding the preservation of AVR, processes available for accessing AVR, and the condition of AVR and their storage. This chapter described and explained the nature and dimension of the preservation problem that was uncovered by the survey. The discussion provided valuable insights into the evaluation and assessment processes involved, as well as giving the results and analysis of the information collected. It is evident that AVR collection is indeed deteriorating therefore inhibiting access. There is room to prioritise the collection at risk and to improve on preservation activities although much depends on proper planning and more training.

CHAPTER 6

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

“I may have gone astray at many points ... It is up to others to try to do better, My one hope is that I have made the reader feel both the reality, difficulty, and urgency of the problem and, at the same time, the scale and form which the solution cannot escape” (De Chardon, 1975).

6.1 Introduction

The aim of the study was to assess the preservation of, and access to Audio-visual Records (AVR) at the National Film, Video and Sound Archives of South Africa (NFVSA). The special focus was on the risk factors to preservation in order for the management to be able to plan and prioritise the collection at risk, and to give recommended practices and strategies on solving preservation problems. As a result, the deterioration process will slow down and will be minimised; therefore, access to AVR carrier and content will be enhanced. The second aim was to contribute to the improvement of assessment tools and procedures that are fundamental to proper preservation survey and reporting. These recommended practices and strategies will be guided by the literature such as Schüller and Häfner (2014), IASA-TC 03 (2005) and Casey (2015:14).

This chapter presents a summary of the research findings, the conclusions, and recommendations of the study. The recommendations for further research are found at the end of the chapter. The discussion in this chapter covers the various issues that aimed to answer the research questions. This includes the literature review in Chapter 2 and an explanation and description of the nature and dimension of the preservation that was uncovered by research in Chapter 4, and Chapter 5. The order of this chapter follows the research questions that guided the purpose of the study.

6.2 Summary of the study findings

The findings from this study indicate that NFVSA was found to be no exception; the scenario of their AVR (published and unpublished) is that they are a mixed and huge collection that is

fragile and aged. The study found that some AVR formats are without the technology to support them and that they face preservation problems such as the deterioration of materials, both analogue and physical digital recordings. The AVR are brought to the archives as their last stage according to the theory of the records life-cycle Model (RLM), consequently are at the beginning of a preservation stage that requires strategies and activities to be executed for longevity and use.

The summary of the findings were drawn from the aim of the study, which was to assess the preservation of and access to AVR at the NFVSA. The special focus was on the risk factors to preservation in order to be able to plan and prioritise the “collection at risk”. Consequently, recommended practices and strategies are given on solving these problems in order to slow down and minimise the deterioration processes. Of which in turn might enhance access to the carrier and content. The study intended to contribute to the improvement of assessment tools and procedures that are fundamental to proper preservation survey. The summary of different issues pertaining to the preservation of, and access to AVR at NFVSA were presented in the different thematic areas, which were drawn from the research questions as follows:

- 1) The strategies and activities for preserving AVR.
- 2) The plans in place to safeguard AVR.
- 3) The skills and experience staff possess regarding preservation and access to AVR.
- 4) The processes available for accessing AVR.
- 5) The condition of AVR and their storage.

6.2.1 Strategies and activities for preserving Audio-visual Records

The first research question was to examine the strategies and activities used for preserving AVR at the NFVSA. Strategies safeguard the recordings throughout their life-cycle, and enhance access for future generations. Findings on storage environment from studies of preservation, in particular, in developing countries suggest that the situation is not good (Ngulube, 2003: 208; Moyo, 2000; Porck and Teygeler, 2000; Rhys-Lewis, 1996; Khayundi, 1995; Musembi, 1995:11; Chida, 1994). The findings were as follows:

- The NFVSA does not have preservation policy. A preservation policy was not used. Infact, a preservation policy was not considered instrumental in their daily preservation operations. Therefore, there was no adherence preservation to policy.

- The staff knew preservation strategies that were used in an effort to prolong the life of their collection inspite the absense of a preservation policy.
- The NFVSA was not a purpose built archival institution but was adapted for AVR archival use, hence adequately equipped. The adaptation made it conducive for the proper preventative preservation of the collection. Inspite of the adaptations made the study found that water pipes were too close to the vaults and posed a threat.
- Temperature and relative humidity levels were controlled by Heating, ventilation and air conditioning (HVAC) that was in good working condition. The study found that the temperature in the vaults was a bit higher than required for AVR preservation however, the Relative Humidity (RH) was properly controlled.
- Light in the storage areas was under control. Unnecessary exposure to light was avoided. The study found that NFVSA staff ensured that any direct sunlight, which may cause temperature above a safe limit, was inhibited and blocked.
- Pest management was a success story at the NFVSA. The study found that there was no evidence of pests after extermination was administered.
- The slight dust that was found on carriers threatened the storage and handling at the NFVSA. The study found that the examination of the collections at the NFVSA was not the priority. Each type of film-based record was stored separately, which was a good preventative measure. Films were stored in cans to protect them against dust and damage; and this was consistent with a preservation strategy. Indeed, the NFVSA has written handling guidelines, hence all the AVR was in a proper storage position that minimised impact and damage.
- Disaster preparedness and recovery plan (DPRP) covered the safe evacuation of people from the building. The study found that NFVSA staff had no training on usage and other safety aspects of the DPRP.
- Fire detectors and suppression machines were installed. Contrary to a norm of creating awareness of the fire safety rules, no training was provided in using the fire extinguishers.

6.2.2 The plans in place to safeguard Audio-visual Records

The second research question investigated issues pertaining to the plans to safeguard AVR at the NFVSA. The findings were:

- NFVSA outsourced preservation work to commercial vendors.

- Digitisation was the preservation work outsourced to commercial vendors.
- There was no plan to conduct a preservation survey at the NFVSA with immediate effect.
- A plan for transferring materials to new carriers if users wanted to use them was in place at the NFVSA.
- The staff strongly agreed with the plans for the prioritisation of AVR at risk as an important preservation programme.
- The respondents agreed that all staff must be engaged in planning the activities of the preservation of the AVR.

6.2.3 The skills and experience staff possess in preserving AVR

The third research question addressed aspects related to the educational and professional training of the NFVSA staff responsible for the preservation of AVR. The findings were:

- Seven (53.8%) of the staff of the NFVSA working at the Film, Video, and Sound departments had formal educational training in the preservation of AVR prior to joining the NFVSA, but their qualification in educational training in preservation of AVR was at a certificate level.
- Eight (61.5%) personnel working with AVR never received professional training in AVR after joining the NFVSA considering the fact that they joined coming from various professional backgrounds and held qualifications such as a university postgraduate programme in librarianship, a diploma in music, a university postgraduate degree in history. Among these included a schoolteacher and a university student who got a certificate in music; however, the few staff members that had training were mostly on audio and film preservation than in analogue AVR.
- Ten (77%) of the respondents needed additional training in preservation assessment followed by audio and video preservation respectively. Film preservation and preservation planning seemed to be the least needed training area.

6.2.4 The process available for accessing Audio-visual Records

The fourth research question investigated issues pertaining to access to AVR at the NFVSA. The findings were:

- The AVR at the NFVSA were not open for use by the public. The main impediments stated by 11 (84%) of the respondents were uncatalogued records; other reasons in a chronological manner were lack of user copy 10 (77%); restriction of copyright owners nine (69.2%); lack of finding aids eight (61.5%); unusable/damaged records seven (53.8%); lack of playback equipment seven (53.8%); and a lack of expertise in handling rare formats six (46.2%).
- Finding aids that were used to locate descriptions of the collections were mainly the word-processed registers/inventories, the NFVSA website, followed by card catalogues and indexes; thereafter the printed guides and computer catalogues were accessed remotely.
- Five (38.5%) respondents suggested that the copying of AVR materials for having duplicates was done. Four (30.8%) said on certain occasions it would be as per request and in other instances as a special project; though not all AVR materials were copied or had duplicates and saved originals.

6.2.5 The condition of Audio-visual Records and their storage at NFVSA

The fifth research question sought to discover the status quo regarding the condition of the AVR at NFVSA. The findings were as follows:

- The overall condition of the AVR at the NFVSA was rated by nine (69%) of the respondents as poor and very poor.
- A majority of the staff agreed with the view that chemical damage, decomposition, high use, and wear and tear were causes of deterioration of AVR; they did not agree that biological decay, fungi, and dirt were necessarily the causes of deterioration.
- The staff did not have the proper tools to inspect the collection and it was apparent that the respondents did not know how to detect deterioration on AVR properly.
- In the categories of item, the study found that the NFVSA kept vast numbers of originals, which posed risks of damage. There should have been more copies made rather to ensure the protection of the original works for posterity.
- The formats of AVR under study were film, video, and sound where 16 mm and 35 mm film, U-matic and VHS video, and CD, DAT, Cassette, Open reel tapes were the majority representing each format respectively. Other formats were less.
- The summary of preservation problems confirmed that mechanical damage at 3.7% was the highest followed by chemical damage at 3.4%, then contamination was third

at 2.9%. The presence of odour 2.6%, playback projection 1.8%, and sound/image deterioration 2.1% was minimal but still a risk.

- Contamination found was dust 1%, the most prevalent foreign matter across all media followed by fungi 0.8%, water stains 0.5% on film and sound only, oil 0.3% and insect droppings 0.3% which were the least spotted pollutants that affected film.
- Vinegar odour at 1% was detected and signalled vinegar syndrome on film, video, and sound recordings but was at its early stages. However, musty and dirty socks at 0.5% indicators of decay were detected respectively across sound recordings and video, whereas waxy odour was on sound only.
- Mechanical problems were 3.7% of 384 AVR. The study revealed that 0.5% AVR were stained and shrunk, 1% AVR was damaged due high use, and in 0.8% of scratches were the main causes of mechanical problems visible on video and sound collection as matters of concern.
- Chemical damage resulted at 3.4% of 384 AVR affected, of which 0.5% crazing was more evident on video, while 0.3% was colour fading, peeling, oil sheen surface, bumpy surface deposits stuck together, brown acrid powder and white powder on edges were evident. This is an exhibition of deteriorating AVR collection.
- Eight (2.1%) of 384 AVR had image/sound degradation observed; squeal was found to be the most prevalent indicator especially on the sound recordings followed by surface noise, drop outs, variations in volume, and scratches.
- This prevalence and distribution of indicators of projection/play-start problems such as 0.5% of stuck in the gate, 0.3% of head clogs, stop and start, abrupt ending, sprocket hole, and variations in speed offered important direction about the type of deterioration of the AVR carriers.

6.3 Conclusions of the study

Based on the findings of the study, the literature reviewed and the theoretical framework, that is the records life-cycle (RLM), the following conclusions have been reached and will be discussed according to the research questions of the study in the following sections.

6.3.1 Strategies and activities for preserving AVR

The study concluded that this AVR collection was not optimally preserved due to the lack of a preservation policy which made it difficult to tell what the NFVSA does, the reasons why

they do it, and what difference it makes. The absence of a preservation policy was found to impact negatively on formalising the activities according to the AVR and AV archive's needs. The water pipes posed a significant threat, as they were so close to the vaults. The brittle part of the collection suggested that there were some parts that suffered from hydrolysis caused by the moisture in the atmosphere within the storage area. There was brown acrid powder found on the tape path where the oxide part of the tapes make contact with the guides or a part of the machines transport system, hence the resulting projection/play-start problems. The high temperature found was a signal that the controls of the HVAC were not proper.

The temperature in storage areas was higher than required which caused severe damage to tapes, such as cupping, a form of tape pack problem, which led to severe replay problems. The effects of long-term storage under conditions of high temperature caused chemical problems such as blocking where adjacent layers of the tape stick together. The study concluded that some of the AVR were suffering from vinegar syndrome stage five, caused by high temperature. Some of the AVR exhibited vinegar odour, shrunken, cupping, brittleness, and crazing and had white powder on edges. Squealing was detected on polyester backed tapes therefore some parts of the collection suffered from SBS. The presence of fungus signalled the high temperature measured in the storage area, which caused dropouts.

There was slight dust on the carriers suggesting that the air filters were not working properly or the building equipment was out-dated and that the examination of the collections was not prioritised. The dust found on AVR influenced the integrity of the carrier and deteriorated the retrieval of the signals, hence image/sound problems such as drop out were experienced, and head clogging problems such as projection/play-start problem. It was assumed that the dust in or on the tape pack was of significant amount which was caused by poor housekeeping. The staff were found to have no training on DPRP usage and other safety aspects, as well as no training in fire extinguisher usage because there was no adequate planning.

6.3.2 The plans in place to safeguard Audio-visual Records

The study concluded that the NFVSA never properly planned the preservation of their AVR. They never conducted a preservation survey in order to determine the needs of their collection and to determine potential preservation problems facing their collection. It is significantly a limitation in terms of preservation planning. Surprisingly the NFVSA had no tangible plans to conduct a survey immediately so that staff could know what problems existed. There were no plans for the removal of the deteriorating collection to a more suitable environment and more on suitable carriers. It is not a new thing to find that an archival institution rarely examines their records as was concluded by Ngulube (2003:336).

Outsourcing digitisation, a specialised preservation work to commercial vendors was safe; however, it revealed a weakness in the knowledge and skills level for staff. It means they did not have the infrastructure and trained staff to perform such necessary activities in order to save the collection. Fortunately, the plan for transferring materials to new carriers was in place, although post-dated. Transferring materials to new carriers should have been done long before in order to protect the originals from high use, which accelerates deterioration. It is probably for this reason that the staff strongly agreed that a preservation programme was important to plan for prioritisation of AVR at risk. Moreover, the gaps identified was that the staff would like to be engaged in the planning activities of the preservation of AVR.

6.3.3 The skills and experience staff possess in preserving AVR

On one of the main limitations to understanding AVR collection and its deterioration problems is the paucity of staff skilled in preservation. The results of the study revealed seven (53.8%) of the respondents held a certificate in preservation prior to joining the NFVSA, which was not an adequate level for the intricate and specialised task ahead. They had a certificate that was regarded as the lowest level compared to a diploma, university, and postgraduate qualification. Even after joining the NFVSA, most of the staff never got professional training in AVR; this raises suspicion of how they will take care of AVR if they lack such a critical preservation component. Nsibirwa (2015) raised such concerns in a study for legal deposit preservation issues.

Abankwah (2008:143) confirmed that there is an acute shortage of staff and an absence of expertise that was observed by Ngulube (2003:264) who identified this problem in key areas such as microfilming, digitisation, AV materials, environmental, disaster planning, and recovery. This inadequacy was concurred by Matangira (2003a:35) who felt that the problem was more exacerbated in AVR handling and storage. Few respondents received professional training in audio and film preservation after joining NFVSA. The majority 10 (77%) of the respondents needed additional training in preservation assessment followed by audio and video preservation. Film preservation and preservation planning seems to be the least needed training area therefore it might not be the expertise of priority.

6.3.4 The process available for accessing Audio-visual Records

The NFVSA has challenges with making AVR collection open and accessible to the public at large because impediments existed; such as uncatalogued records, the lack of user copy, restriction of copyright owners, lack of finding aids, unusable/damaged records, lack of playback equipment, and a lack of expertise in handling rare formats. The researcher assumed that the uncatalogued AVR could be the reason for the view that finding aids were lacking since the unprocessed collection could not be accessed. Moreover, probably these finding aids were rudimentary, not updated and perhaps not covering the whole collection in the custody of NFVSA. It was assumed that impediments were caused by the lack of expertise and training of staff. These impediments are indicators of the limitation to access to AVR and a breach of human rights, the mission of NFVSA, provision of section 32 of South African Constitution, NARSSA (Act No. 43 of 1996); the PAIA (Act No. 2 of 2000), and the LDA (Act No. 54 of 1997) and ICA Principles of Access to Archives (2012).

It is apparent from the study analysis that the copying of AVR materials was inadequate, even though it was done at a minimal scale not for all recordings; hence, more originals were found. The protection of originals or archival copies was not enough because the collection had projection/play-start problems. This preservation process of transferring image and/or sonic content to another carrier, that was lacking, has many benefits such as the facilitation of access to content by making access copies available. This comes with its own challenges, for example, access aids achieved through the description and cataloguing of AVR, which was

already a standing problem. The limited access problems were exacerbated by the poor condition of the collection.

6.3.5 The condition of Audio-visual Records and their storage at NFVSA

This analogue and physical digital collection at NFVSA was found to be actively deteriorating, some catastrophically and others damaged. The rate at which the recordings deteriorated varied per format. Factors that contributed to degradation were mechanical, chemical, contamination, image/sound deterioration, playback/projection, and decay. The majority of nine (69%) respondents even though they did not use any proper diagnostic tool, were of the view that the collection was not in a good condition because of chemical damage, decomposition, high use, wear and tear. However, the majority by format was sound recordings followed by film and the least was video. According to the categories of item, most recordings were still originals followed by used copies. There is a potential loss of the original works. Evidence of preservation problems on AVR was confirmed.

6.4 Conclusion regarding the research problem

The aim of the study as stated in 1.5 of Chapter 1 and 2.5 of Chapter 2 was to assess the preservation of and access to AVR at NFVSA with a special focus on the risk factors to preservation in order to give recommended practices and strategies on solving these problems. As a result, the deterioration process will slow down and minimise, therefore enhance access to AVR carrier and content. This study addressed the risk factor of preservation, which was found to be mainly the deterioration of AVR that consequently inhibited the appropriate preservation of and access to AVR at the NFVSA. Deterioration compromised the physical integrity of the AVR, availability and functionality on which the ability to hear or see the recorded sound/images depends.

The NFVSA had legislation in place but that did not translate automatically to proper preservation without a preservation policy. The strategies applied did not yield optimum protection from detected deterioration because of the level of knowledge and expertise of the staff. The failure to conduct preservation surveys, regular examinations and a lack of tools to detect deterioration hindered the planning process. Preservation planning would have helped in identifying weaknesses in the collection, storage, and environment. They would have been

able to prioritise and take corrective measures on time and minimise damage, impact, and further risks. The degraded collection was caused by high temperature in storage areas, dust residue, and lack of preservation policy. Since deterioration existed, chances of access diminished which was exacerbated by uncatalogued AVR, lack of user copy, restrictions of copyright owners, lack of finding aids, and lack of playback equipment.

Deterioration was indeed a preservation problem that affected negatively on efforts of safeguarding this AVR collection and the access thereto. Deterioration as a high risk factor and its indicators were the actual preservation problems that this study addressed. Based on some of the prominent conclusions made in this study, recommended practices and strategies on solving preservation problems are discussed in the next section.

6.5 Recommendations

In the light of the findings and conclusions, the preservation of and access to AVR at NFVSA requires balance of the problems raised in the study in order to be able to plan and prioritise the collection at risk. Moreover, it was to contribute to the improvement of the assessment tools and procedures. They are fundamental to the proper preservation survey and reporting thus improving AVR preventative and remedial preservation strategies. Proper planning should be put in place and involve the NFVSA staff responsible for safeguarding the collection. More opportunities should be open to improve the knowledge, level of skills and expertise of the AVR staff for a meaningful contribution in the care of the NFVSA collection. The processes available to access AVR at NFVSA need revamping, expansion and implementation. The condition of the collection can be improved by the examination of AVR using assessment tools that will assist in the identification of the preservation problems associated with each format.

6.5.1. Strategies and activities for preserving AVR

It is recommended that NFVSA should develop and implement a preservation policy to initiate a formalisation of preventive preservation that focuses on efforts to prevent or slow down the ongoing deterioration in large numbers of AVR contained in their custody. Suggested elements for the policy are the purpose, context, authorities, definitions, roles and responsibilities. Policy principles and requirements entail preservation planning, preservation

management of collections, accommodation security and environment, disaster and emergency preparedness, copying, conservation treatment and access. It is optional to have loan of records, and exhibitions, preservation research and training, stakeholder, partnership and professional connections, and public awareness. Consideration of monitoring, other related policies, date of effect, and communication of the policy is essential. Policy is not a static document therefore, it can be updated from time to time by the NFVSA when needed.

In the absence of a preservation policy, Rhys-Lewis (2000:3) recommends the development of a strategy in order to establish the real priorities to support the preservation of the collection. The strategy should be based on the individual situation of the collection and the specific policy of the NFVSA. The priority should be given to the materials that are at immediate risk, and/or to AVR that are part of a commercially unsupported system, and/or to that collection that is in regular demand. For example, carriers that are considered inherently unstable should be copied first. In the case of the NFVSA, their collection is endangered by decay. In this study, the collection showed signs of chemical decomposition with the consequent implications for the integrity of the information they contain and impeded access to information.

The NFVSA should safeguard the information, according to IASA-TC 03 (2005), by preservation of the carrier. Efforts must be made to preserve the carrier in a useable condition for as long as it is feasible. Preservation requires storage in an environment that is suitable for the purpose. NFVSA staff as needed should perform routine maintenance and cleaning. This maintenance should include the regular checking of test tones, if available, on analogue carriers and the data integrity of digital carriers. In addition, the equipment used for handling and replay must meet the physical requirements of the carriers. It means the NFVSA should also minimise the use of originals/archival copies by making access copies. Strategies and activities of preserving AVR are essential if the NFVSA are to plan safeguarding this repository of human knowledge throughout the life-cycle for future generations.

6.5.2. The plans in place to safeguard Audio-visual Records

It is recommended that NFVSA start by doing a preservation survey, as it is a preliminary procedure for preservation. It is envisaged that it will become crucial for preservation planning of AV archives in the 21st century. Preservation survey is synonymous with examination, which is a sub-segment of preservation. The tool to use for a preservation

survey should be an Audio-visual records Inspection Tool (AVRIT) that was an adaptation for this study by the researcher. Through AVRIT, storage, access, environment, carrier inspection and playback to hear and/or view images' effect of preservation problems can be performed. In fact, AVRIT may facilitate the preservation survey report that summarises the condition of the whole collection and its environment. It may be used to evaluate the strengths and weaknesses of the preservation policies and strategies for cultural heritage institutions and may assist archivist to assess the collection current housing and storage facilities. This AVRIT includes collection or media maintenance, disaster management and access processes. The NFVSA management in considering priorities for preservation planning may use the AVRIT report.

Preservation planning requires that the NFVSA management and AVR archiving staff set priorities by looking at the resources available for preservation and weighing the condition, needs, and value of materials against them (Patkus, 2003:5). Using AVRIT might contribute to the improvement of NFVSA assessment tools and procedures that are fundamental to the proper preservation survey and reporting.

6.5.3. The skills and experience staff possess in preserving AVR

Cultural institutions should put human resources development high on their priorities list; set measures to speed up the transfer; integration of knowledge into professional training and develop special courses for key areas such as digital management and preservation (Mulrenin and Geser, 2001). Staff should receive basic training in the operation of any disaster response equipment held, and be familiar with any systems compiled (CDP, 1997:21). It is recommended that the NFVSA staff should take formal qualifications in information technologies and archival studies within Library and Information Studies Departments as was suggested by Ocholla and Shongwe, (2013) and Research-Focus, (2010:104). Reiterating Nsibirwa (2015:139), it is recommended, that the NFVSA staff should be given an on-going training and assistance through workshops, seminars and conference attendance to stay abreast of the current good practice of preservation. It is recommended that the NFVSA should implement programmes for staff and users in good preservation practices and handling of AVR. The NFVSA should provide training as to enhance skills in the use of AVR for staff involved in providing access, and in particular, professional development for staff involved in AVR preservation. Proper advanced education and training per format or media will equip the

NFVSA staff with knowledge, skills and expertise that can help minimise the physical handling of the original AVR to reduce further risks of damage and deterioration.

6.5.4. The process available for accessing Audio-visual Records

It is recommended that NFVSA familiarise, adopt and implement seven of the 10 fundamental principles of access to archives developed by ICA in 2011, which were adopted by the AGM on August 2012. The following seven principles were selected for relevancy to access issues found at NFVSA and as a framework to improve access to AVR, *(numbering does not correspond to the original ICA 2012 document that start from 1-10)*:

- 6.5.4.1 The public has the right of access to archives of public bodies. Both public and private entities should open their archives to the greatest extent possible.
- 6.5.4.2 Institutions holding archives must make known the existence of the archives, including the existence of closed materials, and the disclosure the existence of restrictions that affect access to the archives.
- 6.5.4.3 Institutions holding archives must adopt a pro-active approach to access.
- 6.5.4.4 Institutions holding archives should ensure that restrictions on access are clear and of stated duration, are based on pertinent legislation, acknowledge the right of privacy, and respect the right of owners of private owners.
- 6.5.4.5 The archives should be made available on equal and fair terms.
- 6.5.4.6 Users should have the right to appeal a denial of access.
- 6.5.4.7 Institutions holding archives must ensure that operational constraints do not prevent access to archives.

At a practical level, the only measure to minimise risks is to keep at least two copies of all the archival items (Schüller and Häfner, 2014:54). The AVR at NFVSA are still degrading and there is no guarantee that the future playback will achieve the same fidelity and accuracy as playback now, or during this survey. To achieve optimal playback, degradation processes and mechanisms must be mitigated before digitisation. The NFVSA should safeguard the information, according to IASA-TC 03 (2005), by preservation of the carrier and by subsequent copying of the information. The NFVSA stands a chance to digitally preserve legacy AVR in its national recording preservation plan. Their collection must be digitised within the next few years before the AVR carrier deterioration and the challenges of

acquiring and maintaining playback equipment make the success of these efforts too expensive and unattainable.

Regarding plans to transfer materials to new carriers, the NFVSA must prioritise the user needs and access to the content thus minimising impediments of access. Given the AVR formats that have inherent instability, as a result all information contained on this medium that is to be retained will need to be transferred to another medium (Casey, 2008:8). Categories of items found in this study provided for more originals that should be highly protected. It has been found that transferring content to new carriers also protects the original masters of the recordings from further use and damage. New carriers are good for user copies and enhance access. This transfer of the collection solves the problems found in this study, such as deterioration and dependency on playback equipment that is obsolete. Lastly, the NFVSA should withdraw AVR from circulation/use when they are at risk due to handling and deterioration. In this case, surrogates can be provided for use while the original is undergoing conservation treatment or repair.

6.5.5 The condition of Audio-visual Records and their storage at NFVSA

It is recommended that the NFVSA must ensure that the condition under which AVR are kept are of internationally accepted archival standards (see Table 6.1). The control of temperature is the basic preventive preservation that is crucial for the survival of the collection. In order to retard chemical deterioration, humidity and temperature must be very low. Mechanical problems and related stress can be minimised by avoiding climatic changes. In addition, condensation in the air can be prevented by avoiding climatic fluctuation.

Table 6.12: Recommended storage conditions (Source: Schüller and Häfner, 2014:34)

Humidity	Medium	40 - 50% RH
	Low	23 - 35% RH
	Variability	Narrow +/- 3% RH Relaxed +/- 5% RH
Temperature	Room	20°C
	Cool	Between 8°C and 12°C
	Variability	Narrow +/- 1°C Relaxed +/- 3°C

At a practical level, tapes that were found with cupping (mechanical problems) can be corrected. The standard procedure is to wind a tape from beginning to end before storing using either play or the library wind setting found on some machines (Casey, 2008:21). Active mould contains some moisture and may smear while dormant colonies are dry and dusty. It means it can grow and contaminate other parts of the good collection if nothing is done to prevent further damage. Such collections that present a health hazard should be separated from the good ones and must be treated accordingly by a professional archivist. The dust problem can be solved by installing an air filtering system. Parts of the collection that are infected with Vinegar Syndrome must be kept away from the rest of the collection Casey (2008:34). AVR found with Sticky Shed Syndrome (SSS) can be treated though baking, which renders the tape temporarily playable.

6.6 Further research issues for consideration

A study into the preservation of AVR with a special focus on assessment tools and analytic methods should be conducted. Analytical methods should reveal which parts of the collection are closer to deterioration and in need of immediate transfer, while others found to be less endangered may wait. Analytical methods and assessment tools study will help institutions that are aiming at prioritising digitisation according to the individual levels of instability

progression. Researchers and scholars might benefit in terms of empirical evidence yielded using assessment tools and analytic methods for AVR preservation.

6.7 Final summary

The study investigated the preservation of and access to AVR at the NFVSA. There are persistent challenges of long-term preservation of AVR despite the on-going preservation strategies and activities in the area that have been generated and practised over the years. In particular, the size of the AVR collection in the NFVSA was a big mixed collection that had aged over time. The NFVSA are still grappling with issues of lack of articulation of preservation policies; no proper assessments of collection and environment condition; inadequate processes for accessing AVR; sub-minimal planning for the safeguarding of AVR; and inadequate knowledge, skills and experience of AVR archivists. The stability and susceptibility of AVR to deterioration throughout their life-cycle in the custody of the NFVSA is a concern; therefore, recommendations preferred in this study should be implemented in order to properly preserve and give access to information for posterity.

In response to the research questions, the study reviewed the literature. This entailed discussing the relationship of the theoretical framework of the study. As such, RLM demarcated preservation as the last phase of the record-life cycle and a function of the archives. The study discussed the preservation of AVR landscape and different issues relating to the preservation of AVR. Prominent issues discussed were, strategies for preserving AVR, the condition of AVR and their storage, processes available to access AVR, plans to safeguard AVR, and level of skills, experience and knowledge to safeguard AVR.

The research findings indicated that there were inadequate preservation strategies and plans however, not fully understood and followed hence the empirical evidence revealed the poor condition of “the collection at risk”. High temperature in the storage areas was accelerating the deterioration of AVR, which affected projection/playback and consequently inhibited access to content. The level of skills and knowledge of handling AVR might have been the contributing factor to the status quo. All these issues were discussed with a special focus on risk factors to preservation. In order for the NFVSA to be able to plan and prioritise the collection at risk, practices and strategies that will slow down and minimise the deterioration process must be adopted. A fundamental contribution to proper preservation survey and

reporting can be improved by the use of assessment tools and procedures. Therefore, as a result the preservation of and access to AVR will be enhanced for future generations.

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Appendices

Appendix 1: Letter to the National Film, Video and Sound Archives of South Africa

Ms BNM. Ncala, Masters in Information Studies Student, Information Studies Programme, Pietermaritzburg Campus, University of KwaZulu-Natal, Private Bag X01, Scottsville, 3209.

08 April 2014

DIRECTOR

NATIONAL FILM, VIDEO AND SOUND ARCHIVES OF SOUTH AFRICA

PRETORIA

REQUEST TO CONDUCT RESEARCH AT YOUR INSTITUTION FROM JUNE 2014

My name is Nthabiseng B. Ncala a Master's degree (Information Studies) (Full-thesis) student at the University of KwaZulu-Natal, 2014. My area of specialisation is in "Archival Science". My intended topic reads: PRESERVATION OF AND ACCESS TO AUDIO-VISUAL RECORDS AT THE NATIONAL FILM, VIDEO AND SOUND ARCHIVES OF SOUTH AFRICA.

I have passion for archival science especially in the field of preservation of records. This study will be of importance to the archival community because it is hoped that, the findings will inform decision makers about the status of AV materials in order to assess, plan and make decisions to implement strategies minimizing barriers to access to audio-visual records whilst ensuring their total protection. Once I have done the research proposal, I will forward you with the copy by the end of June 2014.

I am looking forward to your positive response and support for my academic endeavour.

Kind Regards

Nthabiseng B. Ncala 0735507479

Appendix 2: Authority to conduct research



arts & culture

Department:
Arts and Culture
REPUBLIC OF SOUTH AFRICA

PRIVATE BAG X897 PRETORIA 0001 SOUTH AFRICA T: +27 12 441 3000 F: +27 12 441 3699
PRIVATE BAG X9015 CAPE TOWN 8000 SOUTH AFRICA T: +27 21 465 5620 F: +27 21 465 5624

National Film, Video and Sound Archives
698 Stanza Bopape
Arcadia
Pretoria
0001

Fax: (086) 529 5883

Dear Ms. Ncala

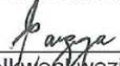
RESEARCH AT THE NATIONAL FILM, VIDEO AND SOUND ARCHIVES

This is to inform you that the NFVSA gives you permission to visit and conduct research as per your request.

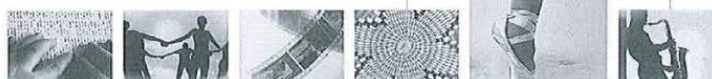
Please note that accommodation, transport, printing/photocopying of any material and meals are at your cost and not that of the institution.

Thanks and we are so much looking forward to having you at our institution.

Yours sincerely



Nkwenkwezi Languza
National Film, Video and Sound Archives
DATE: 26/6/2014



Appendix 3: Informed consent

DECLARATION

I..... (*full names of participant*) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at anytime, should I so desire.

I hereby provide consent to:

Audio-record my interview/focus group discussion	YES	NO
Video-record my interview/focus group discussion	YES	NO
Use of my photographs for research purposes	YES	NO

I understand the intention of the research. I hereby agree to participate.

SIGNATURE OF PARTICIPANT

DATE

.....

Appendix 4: Covering letter for pre-testing questionnaires

Dear Colleague

I am a student at the University of KwaZulu-Natal doing a Master's degree in Information Studies. I am seeking your assistance in my research project. The main aim of the project is to assess the current preservation of, and access to audio-visual records in the National Film, Video and Sound Archives of South Africa. In order to ensure the validity and reliability of the questionnaire as a data collection tool, I am conducting a pre-test on the questionnaire I am intending to use for the study. The target population is the audio-visual archives. Your comments and contributions will be most welcome. Your participation is voluntary and harmless. Your privacy will be protected and no name will appear on the questionnaires. You have a right to withdraw at any time of the research when the need arises. Over and above your comments and observations, please scrutinize the questionnaire using the checklist that is provided below.

i) Are there any typographical errors? Yes [] No []

ii) If your answer is "Yes", please indicate them in the questionnaire.

iii) Are there any misspelt words? Yes [] No []

iv) If your answer is "Yes", please indicate them in the questionnaire.

v) Do the item numbers make sense? Yes [] No []

vi) If your answer is "No", please, provide some suggestions below:

.....

vii) Is the type size big enough to be easily read? Yes [] No []

viii) If your answer is "No", please, provide some suggestions below:

.....

ix) Is the vocabulary appropriate for the respondents? Yes [] No []

x) If your answer is "No", please, provide some suggestions below:

.....

xi) Is the survey too long? Yes [] No []

xii) If your answer is "Yes", please, provide some suggestions below:

.....

xiii) Is the style of the items too monotonous? Yes [] No []

]

xiv) Are the skip patterns too difficult to follow? Yes [] No []

xv) If your answer is “Yes”, please, provide some suggestions below:

.....

xvi) Does the survey format flow well? Yes [] No []

xvii) If your answer is “No”, please, provide some suggestions below:

.....

xviii) Are items appropriate for the respondents Yes [] No []

xix) If your answer is “No”, please, provide some suggestions below:

.....

Please return the completed questionnaire to me at the University of KwaZulu-Natal, School of Social Sciences, Private Bag X01, Scottsville, 3209, Pietermaritzburg, South Africa. Cell: 073 550 7479. Email: nonodesigns@gmail.com by 18 July 2014.

Thank you in advance for your time in taking part in the pre-test of my questionnaire.

Yours faithfully

B.N.M. Ncala

Appendix 5: Covering letter for the survey instrument for collecting information on the preservation of, and access to audio-visual records at the National Film, Video and Sound Archives of South Africa

Dear Colleague

I am a student at the University of KwaZulu-Natal doing a Master's degree in Information Studies. I am seeking your assistance in my research project. The main aim of the project is to assess the current preservation of, and access to audio-visual records in the National Film, Video and Sound Archives of South Africa. The survey is designed to gather data about preservation policies, strategies and activities, means and processes to access records, education and training for preservation, condition and storage and plans to safeguard audio-visual records.

All replies will be treated in the strictest confidence. This is a voluntary and harmless participation. Your privacy will be protected and neither your name nor identity will be disclosed. You have the right to withdraw at any time should the need arise. Data will be presented only in the aggregate; responses will not be attributed to particular respondents, or department. I intend to share the results of the study with all archival institutions mandated to preserve audio-visual records in South Africa. Drawing on current good practice, the project will be of direct practical benefit to archivists and records managers with audio-visual records in their holdings. It is hoped that the findings of the study will inform decision makers about the status of AV materials in order to assess, plan and make decisions to implement strategies minimizing barriers to access whilst ensuring their total protection.

I should be grateful if you would complete and return questionnaire by 20 August 2014. Should you have any queries about the study, please do not hesitate to contact me at the University of KwaZulu-Natal, School of Social Sciences, Private Bag X01, Scottsville, 3209, Pietermaritzburg, South Africa. Cell: 073 550 7479. Email: nonodesigns@gmail.com by 20 August 2014.

Thank you in advance for your time and cooperation.

Yours faithfully

B.N.M. Ncala

Appendix 6: Questionnaire

Instructions for filling in the questionnaire

- a) Tick the applicable answer(s).
- b) Use space provided to write your answers to the questions. Please print.
- c) Do not leave blank spaces. If the question does not apply, please indicate “N/A”.
- d) If you use additional sheets of paper for detailed answers, please, indicate in all cases the question number you are referring to.
- d) There are different interpretations of the terminology used in archives.
Where applicable, please, refer to the given definitions when responding to the survey to increase consistency of the results.

A. STRATEGIES AND ACTIVITIES FOR PRESERVING AUDIO-VISUAL RECORDS

This section deals with the questions related to the strategies and activities for preserving audio-visual records comprising nine parts (Part A1-9I) covering the following aspects: Institutional data and holdings; Preservation policy; The archival building; Temperature and Relative Humidity; Light; Pest Management; Storage and handling; Disaster preparedness and recovery plan; and Fire detection and suppression.

Part A1: Institutional data and holdings

- 1) What type of audio-visual records do you have in your holdings? (Please tick all the applicable options)

- a) Film ☐
- b) Video ☐
- c) Sound recordings ☐
- d) Photographs ☐
- e) Manuscripts ☐
- f) Miscellaneous ☐

- 2) What are the earliest dates of the collection? Tick the appropriate box

Dates	Film	Video	Sound
1850 - 1899			
1900 - 1949			
1950 - 2000			

Part A2: Preservation policy

- 3) Do you have a preservation policy?

- a) Yes ☐
- b) No ☐
- c) Do not know ☐
- d) Not sure ☐

4) If “No”, do you intend to formulate one within the next 12 months?

- a) Yes ☐
- b) No ☐
- c) Do not know ☐
- d) Not sure ☐

5) If you do not have a preservation policy, do you have an existing preservation strategy?

- a) Yes ☐
- b) No ☐
- c) Do not know ☐
- d) Not sure ☐

Part A3: The archival building

6) Is the building equipped with? (Please tick all the applicable options)

- | | | |
|---------------------------------|------------------------------|-----------------------------|
| a) Central air conditioning | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| b) Individual air conditioning | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| c) Heating | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| d) De-humidifiers | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| e) Humidifiers | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| f) Sprinklers | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| g) Windowless walls | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| h) Air filtering | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| i) Thermal isolation | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| j) Windows with filtering glass | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| k) Fire detection system | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| l) Fire extinction system | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

7) Are there any water pipes close to the stacks (vaults)?

- a) Yes ☐ b) No ☐ c) Do not know ☐ d) Not sure ☐

Part A4: Temperature and Relative Humidity

8) Does your building have a heating, ventilation and air conditioning (HVAC) system?

- a) Yes ☐ b) No ☐ c) Do not know ☐ d) Not sure ☐

9) If yes, is the HVAC in a good working condition?

- a) Yes ☐ b) No ☐ c) Do not know ☐ d) Not sure ☐

10) What is the temperature level within the vault?

- a) Below 3° ☐
- b) Between 4° and 23° ☐
- c) Between 24° and 34° ☐
- d) Above 35° ☐

- 11) What is the level of Relative Humidity (RH) within the vault?
- a) Below 20% ☐
 - b) Between 21% and 40% ☐
 - c) Between 41% and 60% ☐
 - d) Above 60% ☐

Part A5: Light in archival storage areas

- 12) Are lights turned off when not in use in the vaults?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐
- 13) Do you control light from the windows in your storage area?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐

Part A6: Pest Management

- 14) Have you experienced any insect invasion infestation in the building?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐
- 15) Do you carry out routine extermination of vermin infestation?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐
- 16) Do you see evidence of pests in spite of extermination?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐

Part A7: Storage and Handling

- 17) How often is the storage area cleaned?
- a) Always ☐
 - b) Not applicable ☐
 - c) Only on instruction ☐
 - d) Sometimes, on special occasions ☐
 - e) Very seldom ☐
 - f) Not at all ☐
 - g) Never ☐
- 18) How often are the audio-visual records examined?
- a) Always ☐
 - b) Not applicable ☐
 - c) Only on instruction ☐
 - d) Sometimes, on special occasions ☐
 - e) Very seldom ☐
 - f) Not at all ☐
- 19) Do you store separately each type of film-based record?
- a) Yes ☐
 - b) No ☐
 - c) Do not know ☐
 - d) Not sure ☐

- 20) The collections are stored in?: (Tick all the appropriate storage equipment used)
- | | | |
|--|------------------------------|-----------------------------|
| a) Adjustable shelving | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| b) Non-adjustable shelving | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| c) Sliding racks | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| d) Stationary racks | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| e) Wooden filing cabinets or drawers | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| f) Steel (metal) filing cabinet or drawers | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| g) Acid free archival boxes | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| h) Film cans | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
- 21) The storage position for your carriers in your vaults used by your institution?
- | | | |
|-----------------|------------------------------|-----------------------------|
| a) Upright | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| b) Horizontal | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| c) Slant | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| d) Any position | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
- 22) Are there any written guidelines for handling audio-visual records in place?
- | | | | |
|---------------------------------|--------------------------------|---|--------------------------------------|
| a) Yes <input type="checkbox"/> | b) No <input type="checkbox"/> | c) Do not know <input type="checkbox"/> | d) Not sure <input type="checkbox"/> |
|---------------------------------|--------------------------------|---|--------------------------------------|

Part A8: Disaster Preparedness and Recovery Plan (DPRP)

- 23) Is there a disaster preparedness and recovery plan for your institution?
- | | | | |
|---------------------------------|--------------------------------|---|--------------------------------------|
| a) Yes <input type="checkbox"/> | b) No <input type="checkbox"/> | c) Do not know <input type="checkbox"/> | d) Not sure <input type="checkbox"/> |
|---------------------------------|--------------------------------|---|--------------------------------------|
- 24) If "Yes", please choose the aspects that it covers from the list below
- | | |
|---|--------------------------|
| a) It deals with safe evacuation of people | <input type="checkbox"/> |
| b) It deals with the building | <input type="checkbox"/> |
| c) It describes emergency procedures | <input type="checkbox"/> |
| d) It outlines disaster response | <input type="checkbox"/> |
| e) It lists emergency supplies | <input type="checkbox"/> |
| f) Standby generators with auto-starting mechanisms | <input type="checkbox"/> |
- 25) Have staff been instructed in disaster preparedness and recovery procedures?
- | | | | |
|---------------------------------|--------------------------------|---|--------------------------------------|
| a) Yes <input type="checkbox"/> | b) No <input type="checkbox"/> | c) Do not know <input type="checkbox"/> | d) Not sure <input type="checkbox"/> |
|---------------------------------|--------------------------------|---|--------------------------------------|

Part A9: Fire detection and suppression

- 26) Does your records storage area have a fire detection system?
- | | | | |
|---------------------------------|--------------------------------|---|--------------------------------------|
| a) Yes <input type="checkbox"/> | b) No <input type="checkbox"/> | c) Do not know <input type="checkbox"/> | d) Not sure <input type="checkbox"/> |
|---------------------------------|--------------------------------|---|--------------------------------------|
- 27) How often are the fire extinguishers inspected?
- | | |
|------------------------------------|--------------------------|
| a) Always | <input type="checkbox"/> |
| b) Not applicable | <input type="checkbox"/> |
| c) Only on instruction | <input type="checkbox"/> |
| d) Sometimes, on special occasions | <input type="checkbox"/> |
| e) Very seldom | <input type="checkbox"/> |
| f) Not at all | <input type="checkbox"/> |
- 28) Has training been given to the staff in the use fire extinguishers?
- | | | | |
|----------------------------------|--------------------------------|---|--------------------------------------|
| [a) Yes <input type="checkbox"/> | b) No <input type="checkbox"/> | c) Do not know <input type="checkbox"/> | d) Not sure <input type="checkbox"/> |
|----------------------------------|--------------------------------|---|--------------------------------------|

B. THE PLANS IN PLACE TO SAFEGUARD AUDIO-VISUAL RECORDS

This section deals with the issues pertaining to the plans to safeguard audio-visual records. Preservation planning is a process by which the general and specific needs for the care of collections are determined, priorities are established, and resources for implementation are identified (Ogden, 1999).

- 29) Do you outsource preservation work to commercial vendors?
a) Yes ☐ b) No ☐ c) Do not know ☐ d) Not sure ☐
- 30) What type of work is outsourced by the institution you work for?
a) Conservation work Yes ☐ No ☐
b) Transfer to new carriers Yes ☐ No ☐
c) Cleaning and repackaging Yes ☐ No ☐
d) Digitization Yes ☐ No ☐
- 31) Do you plan to conduct a complete survey of the entire collection in your custody?
a) Yes ☐ b) No ☐ c) Do not know ☐ d) Not sure ☐
- 32) When analogue originals deteriorate, do you transfer materials to new carrier?
(Please tick all the applicable options)
a) If users want to consult them ☐
b) Not applicable ☐
c) For special projects ☐
d) Systematic programme ☐
e) Very seldom ☐
f) Not at all ☐
- 33) Plans for the prioritisation of AVR at risk are important for preservation programme
a) Strongly agree ☐ b) Agree ☐ c) Disagree ☐ d) Strongly disagree ☐
e) Undecided ☐

C. LEVEL OF SKILLS AND KNOWLEDGE IN PRESERVATION OF AVR

This section contains question related to the educational and professional training. Cultural institutions should put human resources development high on their priorities list: set measures to speed up the transfer, integration of knowledge into professional training and develop special courses for key areas such as digital management and preservation (Mulrenin and Geser, 2001).

- 34) Have you received educational training in preservation of audio-visual records prior joining NFVSA?
a) Yes ☐ b) No ☐
- 35) If in question 34 is "Yes" at which level?
a) University post-graduate degree ☐
b) University graduate programme ☐
c) Diploma ☐
d) Certificate ☐
e) Other, please specify ☐

36) Have you received professional training in audio-visual records after joining NFVSA?
 Yes ☐ No ☐

37) If in question 36 is “Yes”, state the area of expertise

(Please tick all the applicable options)

- a) Analogue audio-visual records ☐
- b) Digital audio-visual records ☐
- c) Reformatting ☐
- d) Assessment of records ☐
- e) Audio preservation ☐
- f) Film preservation ☐
- g) Video preservation ☐

38 For which of the following do you feel you need additional training? (Please tick all the applicable options)

- a) Preservation planning ☐
- b) Reformatting ☐
- c) Examination and assessments of records ☐
- d) Audio preservation ☐
- e) Film preservation ☐
- f) Video preservation ☐
- g) Disaster planning and recovery ☐

D. ACCESS TO INFORMATION IN AUDIO-VISUAL RECORDS

This section deals with questions of access to audio-visual archives.

39. Are all of your audio-visual records open to use by the public?

- a) Yes ☐
- b) No ☐
- c) Do not know ☐
- d) Not sure ☐

40. If in question 39 is “No”, State the reason(s)

(Please tick all the applicable options)

- a) Donor restrictions ☐
- b) Restrictions of copyright owners ☐
- c) Record classification legislation ☐
- d) Lack of playback equipment ☐
- e) Lack of viewing room ☐
- f) Unusable or damaged record ☐
- g) Lack of user copy ☐
- h) Uncatalogued records ☐
- i) Lack of finding aids ☐
- j) Lack of expertise in handling rare formats ☐
- k) Off-site or outsourced storage ☐

41. Through which of the following are users able to locate descriptions of collections? (Please tick all the applicable options)

- a) Card Catalogue ☐
- b) Word processed registers/Inventories ☐
- c) Printed Guide ☐
- d) Computer catalogue accessible in-house ☐
- e) Computer catalogue accessible remotely ☐
- f) Web site, please provide URL..... ☐
- g) Other, please specify.....

42. Do you make copies of audio-visual records for the purpose of having duplicates? []
- a) Always []
- b) Not applicable []
- c) Only on request []
- d) Sometimes, in special projects []
- e) Very seldom []
- f) Not at all

E. THE CONDITION OF AUDIO-VISUAL RECORDS IN THE CUSTODY OF NFVSA

This section has questions addressing the condition of the audio-visual records.

43. What is the overall condition of the audio-visual recordings in your custody?
- a) Excellent [] b) Very good [] c) Good []
- d) Poor [] e) Very poor []

44. In the table below, state your views about the causes of deterioration for the audio-visual recordings in your custody

Causes of deterioration of AVR	Strongly agree	Agree	Strongly disagree	Disagree	Undecided
Dirt (soiled, stained)					
Wear and tear					
High use					
Biological decay such as Fungi					
Decomposition					

Thank you very much for your time.

Please return the completed questionnaire to: Ms Bongekile Nthabiseng M. Ncala, University of KwaZulu-Natal, School of Social Sciences, Private Bag X01, Scottsville, 3209, Pietermaritzburg, South Africa. Telephone: +27 (0) 73 550 7479. E-mail: nonodesigns@gmail.com by 20 August 2014.

Appendix 7: Interview schedule

The interview questions pertaining to the preservation of, and access to audio-visual records are divided into A – F under the following themes: Institutional data in the holdings; Preservation policy; Preservation planning; Level of skills and knowledge in preservation; Access to information in AVR; and The condition of audio-visual records in custody

A. Institutional data in the holdings

1. What is the size of the AVR collection? (Please approximate from the following)
 - a) 500 000 – 800 000 []
 - b) 800 000 – 1 000 000 []
 - c) 1 000 000 – 1 500 000 []
 - d) More than 1 500 000 []

B. Preservation policy

2. Do you adhere to your own preservation policy? Yes [] No []

C. Preservation planning

3. Do you agree that all staff must be engaged in planning activities in preservation of AVR? Yes [] No []

D. Level of skills and knowledge in preservation

4. Did you get preservation training? Yes [] No []

E. Access to information in AVR

5. Is access to your audio-visual collection complicated by legal rights issues?
Yes [] No []
6. Do you have adequate rooms dedicated to viewing/playing your AVR?
Yes [] No []
7. Is there regular maintenance of playback equipment for AVR?
Yes [] No []

8. Do you have adequate playback equipment suitable for all the recordings in NFVSA custody? Yes [] No []

F. The condition of audio-visual records in custody

9. What do you use to inspect your AVR collection? (Please choose all applicable)

- a) Database system []
- b) Checklist []
- c) Software package []
- d) Condition assessment tool []
- e) Survey tool []
- f) Open source web application []
- g) Graphic-based tool grid []
- h) Other, please specify

.....
.....

10. How do you detect deterioration of your AVR?

- a) Use of A-D strips []
- b) Diagnostic tools []
- c) Visual examination []
- d) Playback []
- e) Other, please specify.....

Appendix 8: Observation schedule

AUDIO-VISUAL RECORDS INSPECTION TOOL (AVRIT)

The observation schedule pertaining to the preservation of, and access to audio-visual records, consists of six areas (A – F) namely: artefact identification information; visual inspection of the artefact, playback inspection of the artefact, storage; access; and environment. Questions 1 – 27, (6 pages)

	Identification elements	.	Indicators	Film	Video	Sound
A.	Artefact Identification Information					
1	Categories of item	1	Original			
		2	Master			
		3	Edit Master			
		4	Preservation Master			
		5	Dub Master			
		6	Use Copy			
		7	Commercial			
		8	Commercial Dubbed copies			
		9	Original Dubbed copies			
2	Format	1	35 mm			
		2	16 mm			
		3	8 mm			
		4	9 mm			
		5	VHS			
		6	U-matic			
		7	Betacam			
		8	DV/Digital			
		9	Cylinders			
		10	Coarse groove			
		11	Instantaneous discs			
		12	Microgroove discs			
		13	Open Reel Tape			

		14	Compact Cassette			
		15	R- DAT			
		16	Replicated CD's, DVD's			
		17	Recordable and rewritable CD's and DVD's			
		18	MiniDisc			
B	Visual Inspection of the Artefact					
3	Contamination	1	Insect droppings			
		2	Dust			
		3	Fungi			
		4	Water			
		5	Oil			
4	Odour	1	Musty			
		2	Vinegar			
		3	Dirty Socks			
		4	Waxy			
5	Mechanical problems	1	Shrunken			
		2	Stained			
		3	High Use			
		4	Scratched			
		5	Cupping			
		6	Stretch			
		7	Brittle			
6	Chemical damage	1	Colour fading			
		2	White Powder on edges			
		3	Brown acrid powder			
		4	Stuck together			
		5	Crazing			
		6	Bumpy surface deposits			
		7	Oil sheen surfaced			
		8	Peeling			

C	Playback Inspection of the Recordings					
7	Image/Sound degradation	1	Surface noise			
		2	Image appears crazy			
		3	Colour faded			
		4	Squeal			
		5	Scratches			
		6	Variations in volume			
		7	Drop Outs			
8	Projection/play-start problems	1	Head clogs			
		2	Stop and Start			
		3	Abrupt ending			
		4	Stuck in the gate			
		5	Sprocket hole			
		6	Variations in speed			
D	Storage					
9	The Building	1	Purpose built			
		2	Adapted for use			
		3	Hired/Rented			
		4	Other			
10	Structure-Materials	1	Cement			
		2	Bricks			
		3	Wood			
		4	Fiber Glass			
11	Floor – Vaults	1	Cement			
		2	Vinyl carpet			
		3	Tiles			
		4	Wooden			
12	Windows	1	Glass			
		2	Fiber			
		3	Plastic			

		4	With filtering glass			
		5	Bullet proof			
		6	Tinted			
		7	Stained/painted			
13	Doors	1	Steel			
		2	Aluminium			
		3	Wood			
		4	Other			
14	Walls	1	Painted			
		2	Coated			
		3	Cement			
15	Lights	1	Ultra violet light			
		2	Fluorescent			
		3	Protected bulb			
16	Shelves	1	Wooden			
		2	Steel			
		3	Aluminium			
17	Shelves mode	1	Stationary			
		2	Mobile			
18	Relative humidity (RH) monitoring instruments installed	1	Hygrothermograph			
		2	Data loggers			
		3	Psychrometer			
		4	Humidity indicator strips			
		5	Thermometer			
		6	Hygrometer			
19	Building Equipment	1	Central Air Conditioning			
		2	Single Air Conditioning			
		3	Heating			
		4	De-Humidifiers			
		5	Humidifiers			

		6	Sprinklers			
		7	Windowless Walls			
		8	Air Filtering			
		9	Thematic Isolation			
		10	Windows with filtering Glass			
		11	Fire Detection system			
		12	Fire Extinction system			
20	Fire extinguishers	1	Halon			
		2	Multi-purpose			
		3	Electrical			
		4	Water			
		5	Carbon Dioxide			
E	Access					
21	Reference Service	1	Viewing Room			
		2	Studio			
		3	Reference Room			
22	Finding Aids	1	Card Catalogue			
		2	Inventories			
		3	Word Processed Register			
		4	Printed Guide to Whole Collection			
		5	Computer Catalogue accessible in-house			
		6	Computer Catalogue accessible remotely			
		7	Website (URL)			
23	Screens	1	White Wall			
		2	White Canvas			
		3	White Sheet			
24	Playback Equipment	1	Turntable			
		2	Tape Recorder/Player			
		3	Video Recorder/Player			

		4	CD-Player			
		5	DVD-Player			
		6	Hi-fi			
		7	Music Centre			
		8	Sound System			
		9	Boom Box			
		10	Stereo			
		11	Gramophone			
		12	Cylinder Machine			
		13	Stylus			
		14	Disc Spinner			
25	Essential Equipment	1	Quadriga			
		2	Ime Base Corrector (TBC)			
		3	The Clarity			
		4	Cedar			
		5	Cube-Tec			
		6	Datacine			
		7	Computer			
26	Copiers	1	Copy			
		2	Duplicate			
		3	Transfer			
F	Environment:					
27	Housekeeping and measurements of	1	Cleanliness			
		2	Tidy and Arranged			
		3	Coolness On/Off			
		4	Humidity level			

Compiled and Adapted by Nthabiseng 2014 for the Research Project – MIS University of KwaZulu-Natal.

Appendix 9: The National Archives and Records Service of South Africa Act (No 43 of 1996)

NATIONAL ARCHIVES AND RECORDS SERVICE OF SOUTH AFRICA ACT (ACT NO. 43 OF 1996)

as amended by

Cultural Laws Amendment Act 36 of 2001

ACT

To provide for a National Archives and Record Service; the proper management and care of the records of governmental bodies; and the preservation and use of a national archival heritage; and to provide for matters connected therewith.

[Long title substituted by s. 20 of Act 36 of 2001.]

[ASSENTED TO 27 SEPTEMBER 1996]
[DATE OF COMMENCEMENT: 1 JANUARY 1997]
(Afrikaans text signed by the President)

1. Definitions

In this Act, unless the context otherwise indicates-

'appraisal' means the archival function of determining the eventual disposal of records;

'archives' means records in the custody of an archives repository;

'archives repository' means any archives repository contemplated in section 11;

'Council' means the National Archives Advisory Council contemplated in section 6;

[Definition of 'Council', previously definition of 'Commission', substituted by s. 7 (a) of Act 36 of 2001.]

'custody' means the control of records based upon their physical possession;

'disposal authority' means a written authority issued in terms of section 13 (2) (a) specifying records to be transferred into the custody of the National Archives or specifying records to be otherwise disposed of;

'electronic records system' means any records system in which information is generated electronically and stored by means of computer technology;

'governmental body' means any legislative, executive, judicial or administrative organ of state (including a statutory body) at the national level of government;

'head of a governmental body' means the chief executive officer of a governmental body or the person who is acting as such;

'Minister' means the Minister responsible for the administration of this Act;

'National Archives' means the National Archives and Records Service of South Africa established by section 2;

[Definition of 'National Archives' substituted by s. 7 (b) of Act 36 of 2001.]

'non-public record' means a record created or received by a private individual or a body other than one defined as a governmental body in terms of this Act or a provincial law pertaining to records or archives;

'prescribe' means prescribe by regulation;

'public record' means a record created or received by a governmental body in pursuance of its activities;

'record' means recorded information regardless of form or medium;

'recording' means anything on which sounds or images or both are fixed or from which sounds or images or both are capable of being reproduced, regardless of form;

'records classification system' means a classification plan for the identification, arrangement, storage and retrieval of records;

'regulation' means any regulation made under this Act;

'this Act' includes the regulations.

2 Establishment of National Archives of South Africa

There is hereby established a branch of the public service of the Republic to be known as the National Archives and Records Service of South Africa.

[S. 2 substituted by s. 8 of Act 36 of 2001.]

3 Objects and functions of National Archives

The objects and functions of the National Archives shall be to-

- (a) preserve public and non-public records with enduring value for use by the public and the State;

- (b) make such records accessible and promote their use by the public;
- (c) ensure the proper management and care of all public records;
- (d) collect non-public records with enduring value of national significance which cannot be more appropriately preserved by another institution, with due regard to the need to document aspects of the nation's experience neglected by archives repositories in the past;
- (e) maintain a national automated archival information retrieval system, in which all provincial archives services shall participate;
- (f) maintain national registers of non-public records with enduring value, and promote co-operation and co-ordination between institutions having custody of such records;
- (g) assist, support, set standards for and provide professional guidelines to provincial archives services;
- (h) promote an awareness of archives and records management, and encourage archival and records management activities;
- (i) generally promote the preservation and use of a national archival heritage.

4 National Archivist and staff

(1) (a) The Minister shall, after consultation with the Public Service Commission contemplated in section 196 of the Constitution, appoint an experienced and qualified person as National Archivist in terms of the Public Service Act, 1994 (Proclamation 103 of 1994), on such grade as the Minister may determine.

(b) The National Archivist shall manage the National Archives under the direction of the Director-General: Arts, Culture, Science and Technology.

[Sub-s. (1) substituted by s. 9 of Act 36 of 2001.]

(2) The National Archivist shall in the performance of his or her functions be assisted by officers and employees appointed in terms of the Public Service Act, 1994 (Proclamation 103 of 1994).

(3) (a) The National Archivist may, subject to any conditions, delegate a power or assign a duty to a member of the staff and may at any time cancel such delegation or assignment.

(b) A delegation or assignment shall not divest the National Archivist of the power delegated or duty assigned and he or she may at any time amend or set aside any decision made thereunder, or exercise the power or perform the duty concerned.

5 Powers and duties of National Archivist

(1) The National Archivist shall-

- (a) take such measures as are necessary to arrange, describe and retrieve records;
- (b) provide information, consultation, research and other services related to records;
- (c) with special emphasis on activities designed to reach out to less privileged sectors of society, make known information concerning records by means such as publications, exhibitions and the lending of records;
- (d) require of a person who has made use of records in the custody of the National Archives while researching a publication or dissertation to furnish a copy of the publication or dissertation to the National Archives;
- (e) generally, take such other steps and perform such other acts as may be necessary for or conducive to the achievement of the objects of the National Archives.

(2) The National Archivist may-

- (a) provide training in archival techniques and the management of records;
 - (b) co-operate with organisations interested in archival matters or the management of records;
 - (c) provide professional and technical support in aid of archival activities and the archival community;
 - (d) on the advice of the Council and with the concurrence of the Minister exempt a governmental body from any provision of this Act.
- [Para. (d) substituted by s. 10 (a) of Act 36 of 2001.]
- (e) publish the appraisal policy and lists of records that may be destroyed.

[Para. (e) added by s. 10 (b) of Act 36 of 2001.]

6 Establishment, constitution and functions of National Archives Advisory Council

(1) The Minister shall by notice in the Gazette establish a council to be known as the National Archives Advisory Council.

(2) The Council shall consist of-

- (a) not more than six members appointed by the Minister from among persons who are knowledgeable of or have an interest in archival matters; and

(b) every chairperson of the various provincial councils advising on archives or, in the absence of such a provincial council, a representative for the province in question elected through a public and transparent process which shall be determined and overseen by the responsible member of the Executive Council of that province.

(3) The procedures and other conditions for appointment as a member of the Council shall be as prescribed.

(3A) The Minister may dissolve the Council on any reasonable grounds.

(4) The functions of the Council shall be to-

(a) advise the Minister and the Director-General: Arts, Culture, Science and Technology on any matter related to the operation of this Act;

(b) advise the National Archivist on furthering the objects and functions of the National Archives;

(c) advise and consult with the South African Heritage Resources Agency on the protection of records forming part of the National Estate;

(d)

(e) consult with the Public Protector on investigations into the unauthorised destruction of records otherwise protected under this Act; and

(f) annually submit a business plan to the Minister for approval.

(5) The Council may appoint committees from amongst its members and may assign to any committee so appointed such of its functions as it may deem fit: Provided that the Council shall not be divested of any function which it has so assigned and may amend or revoke a decision of such a committee.

(6) The procedure at meetings of the Council and of a committee shall be as prescribed.

(7) The Council or any committee may, subject to the approval of the Minister, co-opt any person to serve on the Council or on a committee, as the case may be, in an advisory capacity, but such a co-opted member shall not have any voting rights.

(8) (a) Subject to paragraph (b), a member of the Council who is not in the full-time service of the State, may receive in respect of his or her functions as a member of the Council such allowances as the Minister may determine with the concurrence of the Minister of Finance.

(b) The Minister, with the concurrence of the Minister of Finance, must determine criteria for payment of allowances contemplated in paragraph (a).

[S. 6 substituted by s. 11 of Act 36 of 2001.]

7 Secretary and staff of Council

The administrative and secretarial functions of the Council must be performed by a

section established by the Director-General in terms of the Public Service Act, 1994 (Proclamation 103 of 1994).

[S. 7 substituted by s. 12 of Act 36 of 2001.]

8 and 9

[Ss. 8 and 9 repealed by s. 13 of Act 36 of 2001.]

10 Annual reports

(1) As soon as practicable after the end of each financial year the National Archivist shall compile a report on all the activities of the National Archives during that financial year, and the Council shall compile a report on all the activities of the Council during that financial year.

(2) The report of the National Archivist shall include-

- (a) details of income and expenditure;
- (b) a complete list of disposal authorities issued;
- (c) an account of all cases of unauthorised disposal of public records investigated by the National Archives; and
- (d) an account of all governmental bodies which have failed to comply with this Act.

(3) The report of the National Archivist and of the Council, together with the audited annual financial statements pertaining to the funds of the Council, shall be submitted to the Minister, and the Minister shall table them in Parliament within 14 days after receipt thereof if Parliament is then sitting, or if Parliament is not then sitting, within 14 days of the commencement of the next sitting of Parliament.

(4) Within five months after the reports have been tabled, a delegation consisting of the National Archivist and at least two members of the Council must brief the Portfolio Committee on Arts, Culture, Science and Technology on the reports.

[S. 10 amended by s. 14 of Act 36 of 2001.]

11 Custody and preservation of records

(1) The Minister may from time to time establish archives repositories under the control of the National Archivist for the custody of records.

(2) Public records identified in a disposal authority as having enduring value shall be transferred to an archives repository when they have been in existence for 20 years: Provided that-

- (a) no other Act of Parliament requires such records to be kept in the custody of a particular governmental body or person;

(b) the National Archivist may, after consultation with the head of a governmental body, identify such records which-

(i) should remain in the custody of a governmental body; or

(ii) should be transferred to an archives repository before they have been in existence for 20 years;

(c) the National Archivist may defer the transfer of any public records; and

(d) the National Archivist may grant permission for any public records to an archives repository before they have been in existence for 20 years.

(3) The Minister may prescribe terms and conditions governing the transfer of records under subsection (2).

(4) The National Archivist shall take such measures as are necessary to preserve and restore records.

12 Access and use

(1) Subject to any other Act of Parliament which deals with access to public records-

(a) a public record in the custody of the National Archives shall be available for public access if a period of 20 years has elapsed since the end of the year in which the record came into existence;

(b) access to a public record in respect of which a period of less than 20 years has elapsed since the end of the year in which the record came into existence may be given by the National Archivist upon request.

(2) A non-public record in the custody of the National Archives shall be available for public access subject to any conditions agreed upon at its acquisition in terms of section 14 (1) of this Act.

(3) Notwithstanding subsections (1) and (2), the National Archivist may refuse access to a record on the grounds of its fragile condition, provided that there shall be a right of appeal to the Director-General against the refusal.

[Sub-s. (3) substituted by s. 15 of Act 36 of 2001.]

(4) The Minister may make regulations as to the admission of the public to archives repositories, the making available of records for public access, and the use of equipment for the making of copies of or extracts from records in the custody of the National Archives.

13 Management of public records

(1) Subject to the provisions of this Act, the National Archivist shall be charged with the proper management and care of public records in the custody of governmental bodies.

(2) Without limiting the generality of subsection (1)-

(a) no public record under the control of a governmental body shall be transferred to an archives repository, destroyed, erased or otherwise disposed of without the written authorisation of the National Archivist, issued subject to-

(i) section 6 (4) (e) of this Act; and

(ii) a final ruling by the Minister when unresolvable differences arise between the National Archivist and the Council;

[Sub-para. (ii) substituted by s. 16 of Act 36 of 2001.]

(b) the National Archivist shall-

(i) determine records classification systems to be applied by governmental bodies;

(ii) determine the conditions subject to which records may be microfilmed or electronically reproduced; and

(iii) determine the conditions subject to which electronic records systems should be managed;

(c) the National Archivist shall inspect public records in so far as such inspection may be necessary for the performance of his or her functions under this Act: Provided that the inspection of public records which contain information the disclosure of which is restricted by any other Act of Parliament shall be done only with the consent of the head of the governmental body concerned.

(3) The Minister may make regulations as to the management and care of public records in the custody of governmental bodies.

(4) The National Archivist may from time to time issue directives and instructions, which shall not be inconsistent with the regulations, as to the management and care of public records in the custody of governmental bodies.

(5) (a) The head of a governmental body shall, subject to any law governing the employment of personnel of the governmental body concerned and such requirements as may be prescribed, designate an official of the body to be the records manager of the body.

(b) The records manager shall be responsible to see to it that the governmental body complies with the requirements of this Act.

(c) Additional powers and functions may be prescribed to a records manager.

14 Acquisition and management of non-public records

(1) The National Archivist may on behalf of the State acquire by purchase or donation or on loan for a temporary period or in perpetuity, either unconditionally or subject to such conditions as may be agreed upon, non-public records which, in his or her opinion, have enduring value of national significance and which cannot be more appropriately preserved by another institution.

(2) Subject to any conditions as may be applicable, non-public records acquired under subsection (1) shall be deposited in the archives repository determined by the National Archivist.

(3) The producer or distributor of a recording which is a non-public record in terms of this Act shall, within six months after a request in writing is made by the National Archivist, provide the National Archivist with a copy of the recording in such form as may be specified in the request.

(4) Subsection (3) shall not apply in respect of a recording that is required to be deposited in a legal deposit library, defined in section 1 of the Legal Deposit of Publications Act, 1982 (Act 17 of 1982), or that has not been broadcast or made public in South Africa.

(5) The National Archivist shall maintain national registers of non-public records in South Africa which, in his or her opinion, have enduring value, in consultation with the institutions having custody of such records.

(6)

[Sub-s. (6) deleted by s. 17 of Act 36 of 2001.]

15 Limitation of liability

No person, including the State, shall be liable in respect of anything done under this Act in good faith and without negligence.

16 Offences and penalties

(1) Any person who-

(a) wilfully damages any public or non-public record in the control of a governmental body; or

(b) otherwise than in accordance with this Act or any other law, removes, destroys or erases such record,

shall be guilty of an offence and liable on conviction to a fine or imprisonment for a period not exceeding two years or both such fine and imprisonment.

(2) Any person who fails to comply with-

(a) a request mentioned in section 14 (3); or

(b)

[Para. (b) deleted by s. 18 of Act 36 of 2001.]

shall be guilty of an offence and liable on conviction-

(i) in the case of an offence contemplated in paragraph (a) of this subsection, to a fine not exceeding R5 000;

(ii) in the case of an offence contemplated in paragraph (b) of this subsection, to a fine not exceeding R10 000.

(3) The National Archivist may refuse to allow any person convicted of an offence in terms of subsection (1) access to an archives repository for such period as he or she may deem fit, subject to an appeal to the Minister.

17 Transitional provisions

(1) The person who, immediately prior to the commencement of this Act, performed the functions of the director of archives under the Archives Act, 1962 (Act 6 of 1962), shall continue in office as the National Archivist.

(2) Every public servant who, immediately prior to the commencement of this Act, performed functions as a member of the staff of the said director, shall be deemed to be a member of staff of the National Archives.

(3) Any records in the custody of the said director on the day immediately prior to the commencement of this Act are hereby transferred to the National Archivist subject to any terms and conditions that were applicable to such records on that day.

(4) Until such time as a provincial legislator promulgates provincial legislation in terms of which a provincial archives service is established for that province, every provision of this Act shall apply in that province, and-

(a) wherever the expression 'governmental body' occurs it shall mean a legislative, executive, judicial or administrative organ of state (including a statutory body) in such province at the national, provincial or local level of government; and

(b) wherever the expression 'public record' occurs it shall mean a record created or received by any institution contemplated in paragraph (a) in pursuance of its activities.

18 Regulations

The Minister may make regulations as to any matter which in terms of this Act is required or permitted to be prescribed or done by regulation, and, generally, with reference to any matter which is necessary or expedient to be prescribed in order to achieve or promote the objects of this Act.

19 Repeal of laws

The following laws are hereby repealed:

- (a) The Archives Act, 1962 (Act 6 of 1962);
- (b) the Archives Amendment Act, 1964 (Act 12 of 1964);
- (c) the Archives Amendment Act, 1969 (Act 63 of 1969);

- (d) the Archives Amendment Act, 1977 (Act 54 of 1977); and
- (e) the Archives Amendment Act, 1979 (Act 32 of 1979).

20 Short title and commencement

This Act shall be called the National Archives and Record Service of South Africa Act, 1996, and shall come into operation on a date to be fixed by the President by proclamation in the Gazette.

[S. 20 substituted by s. 19 of Act 36 of 2001.]

Appendix 10: The Legal Deposit Act, (Act No. 54, 1997)

Legal Deposit Act, (Act No. 54, 1997)

ACT

To provide for the preservation of the national documentary heritage through legal deposit of published documents; to ensure the preservation and cataloguing of, and access to, published documents emanating from, or adapted for, South Africa; to provide for access to government information; to provide for a Legal Deposit Committee; and to provide for matters connected therewith.

(Afrikaans text signed by the President.)
(Assented to 6 November 1998)_____

Be it enacted by the Parliament of the Republic of South Africa, as follows:

Definitions

1. In this Act, unless the context indicates otherwise-

'Committee' means the Legal Deposit Committee referred to in section 8;

'Department' means the Department of Arts and Culture

'document' means any object which is intended to store or convey information in textual, graphic, visual, auditory or other intelligible format through any medium, and any version or edition of a document which is significantly different from that document in respect of its information content, intelligibility or physical presentation, is considered to be a separate document;

'medium' means any means of recording or transmitting information intended for subsequent reading, listening or viewing;

'Minister' means the Minister of Arts and Culture

'official publication' means a document published by an organ of national, provincial or local government, a parastatal organisation or any other institution listed as a public entity in terms of section 3 of the Reporting by Public Entities Act, 1992 (Act 93 of 1992);

'official publications depository' means a place of legal deposit designated in accordance with section 6;

'place of legal deposit' means a library or institution referred to in section 6;

'prescribed' means prescribed by regulation made under section 12;

'published' means produced to be generally available in multiple copies or locations to-

- (a) any member of the public, whether through purchase, hire, loan, subscription, licence or free distribution; or
- (b) the members of an association or a society, the membership of which is open to any qualifying member of the public;

'publisher' means the person who or body, whether public or private, which-

- (a) publishes and distributes a document;
- (b) authorises and accepts the financial risk of the production, whether by that person or body or by another, of a document which is intended to be generally available;
- (c) imports a document produced abroad for a South African publisher or a document specially adapted for the South African market to make it generally available;

'this Act' includes the regulations made under section 12.

Deposit of documents and information

2. (1) A publisher shall for each published document supply to the prescribed places of legal deposit the prescribed number of copies in the format and of the quality prescribed for each version and type of medium: Provided that the prescribed number of copies of documents other than official publications shall not exceed five.

(2) A publisher shall for each published document furnish the State Library with the prescribed information pertaining to that document.

Cost

3. The cost of documents supplied in terms of section 2 (1) and of the information furnished in terms of section 2 (2) and of the supply and furnishing of such documents and information shall be borne by the publisher.

Time of Deposit

4. Unless otherwise prescribed, the publisher shall dispatch a document contemplated in section 2 (1) and furnish the information contemplated in section 2 (2) within 14 days of the day on which the document is published.

Exemptions

5. (1) (a) If, owing to the high unit cost of publishing any particular document, or its unique or labour-intensive production method, the publisher of such document is likely to suffer serious financial or other hardship should he or she supply a copy of the document free of charge to every place of legal deposit in terms of section 2 (1), the Minister may, upon application from the publisher and after consultation with the Committee, exempt such publisher from the obligation to supply a copy of such document to such place or places of legal deposit as may be specified by the Minister.

(b) The Minister shall not exempt a publisher under paragraph (a) from his or her obligation to supply a copy of a document to the South African Library or the National Film, Video and Sound Archives, as the case may be, and to furnish the State Library with the information contemplated in section 2 (2).

(c) The Minister may, after consultation with the Committee, grant financial relief to publishers who suffer serious financial hardship as a result of their obligation to supply certain documents to the South African Library or the National Film, Video and Sound Archives, as the case may be: Provided that such relief shall not exceed the cost of producing an additional copy of such documents.

(2) If a place of legal deposit does not require a particular document, or a particular category of documents, to which the provisions of section 2 (1) apply, the head of such place of deposit may exempt the publisher in writing from the obligation to supply a copy of such document or category of documents to that place of legal deposit.

(3) If a publisher is exempted under this section from the obligation to supply a copy of a document to the State Library, such publisher must nevertheless furnish the State Library with the information contemplated in section 2 (2) relating to that document.

(4) An exemption granted under subsection (1) (a) or (2) in respect of a particular document or any particular category of documents may be withdrawn in writing by the Minister or the head of the place of legal deposit in question, as the case may be.

Places of legal deposit

6. (1) The places of legal deposit shall be-
- (a) the City Library Services, Bloemfontein;
 - (b) the Library of Parliament, Cape Town;
 - (c) the Natal Society Library, Pietermaritzburg;
 - (d) the South African Library, Cape Town;
 - (e) the State Library, Pretoria;
 - (f) the National Film, Video and Sound Archives, Pretoria, for purposes of certain categories of documents as prescribed; and
 - (g) any other library or institution prescribed by the Minister for purposes of certain prescribed categories of documents.
- (2) (a) The Minister shall, on the recommendation of the Member of the Executive Council responsible for libraries in each province, designate at least one place of legal deposit in each province to serve as an official publications depository, which shall be entitled to receive a copy of every official publication but not of other categories of documents.
- (b) Except in the case of subsection (1) (b), an official publications depository may be designated in an existing place of legal deposit if the Minister deems this advisable: Provided that such a place of legal deposit shall retain its right under section 2 (1) also to receive documents other than official publications.
- (3) The Minister or the relevant Member of the Executive Council for each province shall, from funds voted for that purpose by Parliament or the relevant Provincial Legislature, as the case may be, disburse such sums as are necessary to places of legal deposit to enable them to fulfil their obligations.

Duties of places of legal deposit

7. (1) A place of legal deposit shall, subject to such limitations as may be prescribed-
- (a) receive, accession, retain and preserve;
 - (b) catalogue or inventories; and
 - (c) ensure freedom of access to, the documents supplied in terms of section 2 (1).

The State Library shall, with the assistance of other places of legal deposit and other appropriate libraries or institutions, compile-

- (a) a national bibliography; and
 - (b) statistics of the South African production of published documents on the basis of the documents supplied in terms of section 2 (1) and the information furnished in terms of section 2 (2).
- (3) The South African Library and the National Film, Video and Sound Archives shall, with the assistance of other places of legal deposit, preserve at least one copy of each document supplied in terms of section 2 (1) for current and future use.
- (4) An official publications depository shall-
- (a) serve as a centre for promoting public awareness of, and access to, official publications and information held by the government and the institutions listed in terms of section 3 of the Reporting by Public Entities Act, 1992 (Act 93 of 1992); and
 - (b) provide public access to databases and other information sources to which the public may gain access under any law.
- (5) Notwithstanding subsections (1) and (2), the head of a place of legal deposit may, on the recommendation of the Committee-
- (a) dispose of;
 - (b) omit from catalogues or inventories;
 - (c) omit from a national bibliography; or
 - (d) impose restrictions on access to,
- certain categories of documents, supplied in terms of section 2 (1) to one or more places of legal deposit.
- (6) If a place of legal deposit persistently fails to comply with subsection (1), (2), (3) or (4), the Minister may, upon the recommendation of the Committee, by notice in the Gazette exempt all publishers from the obligation to supply to that place of legal deposit the documents contemplated in section 2 (1).

Legal Deposit Committee

8. (1) There is hereby established a committee called the Legal Deposit Committee, consisting of-

- (a) the heads of the places of legal deposit referred to in section 6 (1);
- (b) the head of the Government Printing Works;
- (c) one representative for all provincial official publications depositories, designated by the Minister in the prescribed manner; and
- (d) two representatives of the publishing industry, designated by the Minister in the prescribed manner:

Provided that the regulations prescribing the manner of designation shall apply the principles of transparency and representivity.

- (2) The Minister may appoint no more than four additional members to the Committee in the prescribed manner to represent other interested parties, including representatives of library and information services.
- (3) The Minister shall, in consultation with the various interest groups, such as the publishers and the library and information services sector, appoint one of the members in the prescribed manner as chairperson of the Committee to serve for a renewable term of three years.
- (4) The object of the Committee is to coordinate and promote the implementation of this Act.
- (5) The Committee shall-
 - (a) advise the Minister on any matter dealt with in this Act;
 - (b) make recommendations to the Minister concerning any regulations which the Minister may make under this Act;
 - (c) co-ordinate the tasks carried out by the various places of legal deposit in respect of legal deposit;
 - (d) advise any place of legal deposit regarding any matter dealt with in this Act;
 - (e) establish subcommittees or working groups when necessary to investigate any matter dealt with in this Act and to execute any tasks relating to the implementation of this Act and to co-opt persons to such subcommittees or working groups for the duration of the investigation or task; and
 - (f) report to Parliament on the activities and financial affairs of the places of legal deposit in accordance with the provisions of the Reporting by Public Entities Act, 1992 (Act 93 of 1992).

- (6) No remuneration shall be payable to the members of the Committee or the members of its subcommittees or working groups other than such reasonable travel and subsistence costs as the Minister with the concurrence of the Minister of Finance may determine within the limits of the approved budget of the Committee, its subcommittees and working groups.

Offences

9. Any publisher who fails to comply with section 2, 3, 4 or 5 (3) shall be guilty of an offence and liable on conviction to a fine not exceeding R20 000.

Action to remedy non-compliance

10. (1) (a) If a publisher fails to supply the documents contemplated in section 2 (1) to one or more places of legal deposit, an officer authorised thereto by the Minister may in the prescribed manner demand that such documents be supplied to such place or places of legal deposit within 30 days.

(b) If, on the expiration of that period, such documents have not been received by the place or places of legal deposit in question, such officer may forthwith by purchase acquire the documents or, if copies are no longer available, cause a reproduction of acceptable quality to be made thereof and recover the cost of that purchase or reproduction from the publisher.

(2) If the officer is unable to acquire or reproduce the documents or recover the cost thereof under subsection (1), the Department may, in consultation with the Committee, institute civil proceedings against such publisher.

Delegation of powers

11. (1) The Minister may delegate any power conferred upon him or her by this Act to an officer in the Department.

(2) A delegation under subsection (1) shall not prevent the exercise of the power in question by the Minister himself or herself.

Regulations

12. The Minister may make regulations regarding-

- (a) any matter which is required or permitted to be prescribed under this Act; and
- (b) generally, any matter which is necessary or expedient to be prescribed in order to achieve the objects of this Act.

Act binds State

13. This Act, except section 9, shall bind the State.

Repeal of laws

14. The laws mentioned in the Schedule are hereby repealed to the extent set out in the third column thereof.

Short title and commencement

15. This Act shall be called the Legal Deposit Act, 1997, and shall come into operation on a date fixed by the President by proclamation in the Gazette.

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Schedule

Laws repealed

Number and year of law	Title	Extent of repeal
Act No. 11 of 1977 (Transkei)	National Library Service Act, 1977	Section 12
Act No. 8 of 1978 (Bophuthatswana)	Bophuthatswana National Library Service Act, 1978	Section 19 (5)
Act No. 18 of 1980 (KwaZulu)	KwaZulu Library Act, 1980	Section 7
Act No. 19 of 1980 (Ciskei)	Ciskeian Library Services Act, 1980	Section 12
Act No. 12 of 1981 (Venda)	Venda National Library Services Act, 1981	Section 14 (4)
Act No. 4 of 1982	National Library Service Act,	Section 14 (4)

(Gazankulu)	1982	
Act No. 17 of 1982	Legal Deposit of Publications Act, 1982	The whole
Act No. 10 of 1983 (Qwaqwa)	National Library Service Act, 1983	Section 14 (4)
Act No. 7 of 1991 (Lebowa)	Central Library Service Act, 1991	Section 18

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