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PRESERVATION OF, AND ACCESS TO, LEGAL DEPOSIT MATERIALS IN SOUTH AFRICA

By

Zawedde Barlow Nsibirwa
(BA SWSA, Dip.IT, PGDIS, MIS)

Submitted in fulfillment of the requirements for the degree of Doctor of Philosophy in the Information Studies Programme, School of Social Sciences, College of Humanities, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

2012

DECLARATION

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Signed:Date:.....

Supervisor:
Dr. Ruth Hoskins

Signed:Date:.....

Co Supervisor:
Prof. Christine Stilwell

Signed:Date:.....

ABSTRACT

The study investigates the preservation of, and access to, legal deposit materials in South Africa. The rapid development of technology has led to an increase in electronic publications as well as no considerable decrease in the production of printed materials making legal deposit a multifaceted and dynamic area of research. The primary purpose of legal deposit collections is to provide access to materials, both those published recently and produced years ago; these materials are deposited and need to be properly preserved for future generations.

The specific objectives of the study were to, examine the activities and strategies in place to preserve materials while being used as well as the accessibility of these documents to the South African population. This study builds on and extends the candidate's investigation carried out in her master's thesis in 2007, about how legal deposit materials are kept and preserved. The highlight of the study includes identifying systems that assist with the collection of print and electronic documents. The means and processes to help make both print and electronic documents accessible in the long run are also identified. In addition, the study examines the challenges faced by legal deposit staff including their skills and knowledge in preservation management.

The National Library of South Africa (NLSA), Mangaung Library Services, Msunduzi Municipal Library, Constitutional Court Library, R J R Masiea Public Library (Phuthaditjhaba) and North West Provincial Library Services were the units of analysis in this study. The study population included members of the Legal Deposit Committee, the heads of the libraries and departmental heads of legal deposit sections of each library. The whole population was in each case studied. Methodological triangulation was used to look at the problem from different angles using different tools in order to get a more accurate result. The study used both quantitative and qualitative methods, using self-administered questionnaires and interview schedules to collect data. A response rate of 78.6% was achieved for the questionnaire and results were analysed using SPSS. The qualitative method of conceptual content analysis was used to analyse the open-ended questions for the

interview schedule. Descriptive statistics were used to summarise data in graphs, tables and pie charts.

The major research findings indicate that preservation is not carried out properly at present due to the combined lack of preservation policies, funding, staff training and expertise. Most of the legal deposit libraries do not have preservation policies to improve preservation conditions, develop conservation facilities or to train and recruit staff. Furthermore the study concludes that various critical issues surrounding and affecting all facets of legal deposit stem from a lack of policy. Recommendations based on the findings and conclusions are made and the study establishes that effective implementation, preservation and access of legal deposit are dependent largely on many factors. The most important of these are a proper legislative framework that provides a firm foundation for legal deposit, adequate funding as well as skills and knowledge in preservation management.

DEDICATION

This thesis is dedicated to my loving family. To my husband Martin who has supported me. In addition, to my children Kasalina, Nantale and Nikita who have motivated and loved me through the production of this work. As well as to my parents, Mary and Hugo Barlow and siblings Alice, Mirembe, Sematimba and Edward who have encouraged me and supported me in various ways.

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"Oh, give thanks to the LORD, for He is good! For His mercy endures forever"
(1Chronicles 16:34).

Table of contents

DECLARATION.....	i
ABSTRACT.....	ii
DEDICATION.....	iv
ACKNOWLEDGEMENTS.....	v
Table of contents.....	1
List of tables.....	7
List of figures.....	8
List of acronyms and abbreviations.....	9
Chapter 1: Introduction.....	12
1.1 Introduction - setting the scene.....	12
1.2 The research problem.....	13
1.2.1 Background to the statement of the problem.....	16
1.2.1.1 Digital preservation and access to legal deposit materials.....	20
1.2.1.2 Statement of the problem.....	21
1.2.2 Rationale for the study.....	23
1.3 The study.....	25
1.3.1 The research questions.....	25
1.3.2 Definition of terms and concepts.....	25
1.3.3 Delimitation of the study.....	28
1.3.4 Research methodology and methods.....	29
1.3.5 Structure of the study.....	30
1.4 Summary.....	31
Chapter 2: Literature review.....	32
2.1 Introduction.....	32
2.1.1 UNESCO Memory of the World.....	33
2.1.1.1 UNESCO Digital Preservation Charter.....	34
2.2 Conceptual framework.....	35
2.3 What is legal deposit?.....	36
2.4 History of legal deposit.....	37
2.5 Evolvement of legal deposit.....	38
2.5.1 Legal deposit, censorship and copyright.....	38
2.5.2 Copyright and printing privileges.....	38
2.5.3 Censorship.....	40

2.6 Nature and role of legal deposit.....	40
2.7 Legislation	41
2.7.1 Legal deposit in Britain	44
2.7.1.1 History of legal deposit in Britain	44
2.7.1.2 Current legal deposit legislation in Britain.....	45
2.7.2 Legal deposit in South Africa.....	46
2.7.2.1 History of legal deposit in South Africa	47
2.7.2.1.1 Cape Colony.....	47
2.7.2.1.2 Natal.....	48
2.7.2.1.3 Transvaal.....	48
2.7.2.1.4 South Africa after 1910.....	49
2.7.2.2 Current legal deposit legislation in South Africa	49
2.7.3 Elements of legal deposit legislation	53
2.7.3.1 Origin of the publication.....	53
2.7.3.2 Objects of deposit and comprehensiveness of collection	53
2.7.4 Role players	55
2.7.4.1 The government	56
2.7.4.1.1 The South African Government	57
2.7.4.2 The Depositor.....	57
2.7.4.2.1 The Depositor in South Africa.....	58
2.7.4.3 The Depository	58
2.7.4.3.1 The National Library	59
2.7.4.3.2 South African Depositories	59
2.7.4.3.2.1 The National Library of South Africa (NLSA).....	60
2.7.4.3.2.2 Official Publications Depositories (OPDs)	60
2.7.5 Deposit requirements	61
2.7.5.1 Number of copies to deposit.....	61
2.7.5.2 Time period and costs incurred	63
2.7.5.3 Enforcement of legal deposit legislation	65
2.8 Preservation	69
2.8.1 Preservation and access	73
2.8.2 Factors of deterioration	74
2.8.2.1 Environmental factors.....	74
2.8.2.1.1 The building.....	76
2.8.2.1.2 Environmental control.....	82
2.8.2.1.2.1 Light.....	83
2.8.2.1.2.2 Temperature and relative humidity	85
2.8.2.1.2.3 Air quality and chemical factors	90
2.8.2.2 Biological factors	91
2.8.2.2.1 Macro-organisms.....	92
2.8.2.2.2 Silverfish.....	92
2.8.2.2.3 Booklice.....	94

2.8.2.2.4 Cockroaches	95
2.8.2.2.5. Termites (white ants)	95
2.8.2.2.6 Rodents	96
2.8.2.2.7 Humans	96
2.8.2.2.8. Micro-organisms	99
2.8.2.2.8.1 Fungus	99
2.8.2.3 Control of biological agents	100
2.8.3 Disaster preparedness and security	103
2.8.4 Conservation and restoration	110
2.8.5 Preservation of electronic publications	112
2.8.5.1 Issues related to the preservation of electronic records	116
2.8.5.1.1 Legislation	118
2.8.5.1.2 Technological obsolescence	121
2.8.5.1.3 Media stability.....	121
2.8.5.1.4 Authenticity and integrity	123
2.8.5.2 Preservation strategies.....	124
2.8.5.2.1 Refreshing and migration	125
2.8.5.2.2 Emulation	126
2.8.5.2.3 Replication (backups)	127
2.8.6 What should be preserved?.....	127
2.8.7 Funding	128
2.8.8 Training and research	129
2.9 Access.....	132
2.9.1 Access using technology	134
2.9.1.1 Legislation affecting access to digital materials	136
2.9.2 Access to legal deposit in South Africa	138
2.9.2.1 Legislation affecting access to legal deposit in South Africa	138
2.9.2.2 Access via Official Publications Depositories	141
2.10 Summary.....	142
Chapter 3: Research methodology	144
3.1 Introduction.....	144
3.1.1 Research paradigms	144
3.2 Review of literature.....	146
3.3 Study population.....	146
3.4 Research design	147
3.5 Research method	147
3.5.1 Methodological triangulation.....	149
3.5.2 Data collection techniques.....	150
3.5.3 The survey instruments	151
3.5.3.1 The questionnaire.....	151

3.5.3.2 Interview schedule.....	154
3.5.3.3 Validity and reliability of the instruments	154
3.5.3.3.1 Pre-testing the instruments.....	156
3.5.3.4 Changes made to the questionnaire.....	157
3.5.3.5 Changes made to the interview schedule.....	158
3.5.3.6 Administering the instruments	158
3.5.4 Data presentation and analysis	159
3.5.5 Research ethics.....	161
3.6 Summary.....	163
Chapter 4: Research findings.....	164
4.1 Introduction.....	164
4.2 Response rate	164
4.3 The results.....	165
4.4 The questionnaire results	165
4.4.1 The demographic profile of the population	165
4.4.2 Print materials	166
4.4.2.1 Preservation policies	167
4.4.2.2 The environmental conditions of the stack rooms	167
4.4.2.2.1 Temperature and relative humidity	168
4.4.2.2.2 Light.....	174
4.4.2.2.3 Pest management	175
4.4.2.2.4 Storage and handling	176
4.4.2.2.5 Disaster preparedness and management.....	178
4.4.2.3 Condition and care of materials in general	180
4.4.2.4 Access to information	183
4.4.3 Digital/electronic materials	187
4.4.3.1 Digital/electronic materials policy	187
4.4.3.2 Current holdings	188
4.4.3.3 Storage methods and formats	189
4.4.4 General comments and concerns.....	195
4.5 Interview results	196
4.5.1 Demographic data	196
4.5.2 Print materials	196
4.5.2.1 Preservation policies	196
4.5.2.2 Preservation means	198
4.5.2.3 Disaster preparedness and management.....	199
4.5.2.4 Levels of skills and knowledge in preservation management.....	199
4.5.2.5 Access to information	200
4.5.3 Digital/electronic materials	201
4.5.4 General comments and concerns.....	201

4.6 Summary	202
Chapter 5: Discussion of research findings	203
5.1 Introduction.....	203
5.2 Preservation	204
5.2.1 Preservation policy	204
5.2.2 Preservation means	207
5.2.3 The environmental conditions of the stack rooms	210
5.2.3.1 Temperature and relative humidity	210
5.2.3.2 Light.....	214
5.2.4 Pest management	215
5.2.5 Storage and handling	217
5.2.6 Disaster preparedness, management and security	219
5.2.7 The general condition and care of materials.....	222
5.2.8 Characteristics of staff and levels of skills and knowledge in preservation management	223
5.3 Access to information	224
5.4 Preservation of digital/electronic materials	227
5.5 Limitations of the study.....	230
5.6 Summary	230
Chapter 6: Summary of research findings, conclusions and recommendations	232
6.1 Introduction.....	232
6.2 Summary of findings and conclusions	232
6.2.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa	232
6.2.2 Activities and strategies used to preserve legal deposit materials.....	233
6.2.3 Measures used to ensure preservation of documents whilst being used	233
6.2.4 Levels of skills and knowledge in preservation management	234
6.2.5 Preservation challenges faced by legal deposit staff.....	234
6.2.6 Accessibility of depositories to the majority of the population.....	235
6.2.7 Means and processes used to help make materials accessible	235
6.2.8 Systems used to ensure electronic documents' accessibility in the long term	236
6.2.9 Physical security of the collections	236
6.3 Conclusions of the study	237
6.3.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa	237
6.3.2 Activities and strategies used to preserve legal deposit materials.....	238
6.3.3 Measures used to ensure preservation of documents whilst being used	239
6.3.4 Levels of skills and knowledge in preservation management.....	240

6.3.5 Preservation challenges faced by legal deposit staff.....	240
6.3.6 Accessibility of depositories to the majority of the population.....	241
6.3.7 Means and processes used to help make materials accessible.....	241
6.3.8 Systems used to ensure electronic documents' accessibility in the long term.....	242
6.3.9 Physical security of the collections.....	242
6.4 Conclusion regarding the research problem.....	243
6.5 Recommendations.....	244
6.5.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa.....	244
6.5.2 Activities and strategies used to preserve legal deposit materials.....	245
6.5.3 Measures used to ensure preservation of documents whilst being used.....	247
6.5.4 Levels of skills and knowledge in preservation management.....	247
6.5.5 Preservation challenges faced by legal deposit staff.....	249
6.5.6 Accessibility of depositories to the majority of the population.....	250
6.5.7 Means and processes used to help make materials accessible.....	251
6.5.8 Systems used to ensure electronic documents' accessibility in the long term.....	252
6.5.9 Physical security of the collections.....	253
6.6 Implications for theory, policy and practice.....	257
6.7 Further research and issues for consideration.....	258
6.8 Final summary.....	260
List of works cited.....	262
Appendices.....	295
Appendix 1: Letter to the Department of Arts and Culture.....	295
Appendix 2: Informed consent form and covering letter for survey instrument.....	296
Appendix 3: Questionnaire.....	298
Appendix 4: Interview schedule.....	311
Appendix 5: Letter to NLSA.....	320
Appendix 6: The South African Legal Deposit Act.....	321

List of tables

Table 1: Prescribed number of copies to deposit in South Africa	63
Table 2: Legal deposit in a number of countries.....	68
Table 3: Green construction for archival facilities	81
Table 4: Some recent natural disasters.....	105
Table 5: Life expectancy of media.....	123
Table 6: A cross tabulation of age of respondents and educational qualifications .	166
Table 7: Existence of library policies	167
Table 8: Age of heating, ventilation and air conditioning system.....	170
Table 9: Achievement of heating, ventilation and cooling.....	172
Table 10: How cooling conditions are achieved in the stack rooms	173
Table 11: Existence of separate environmental control systems from offices	173
Table 12: Average temperature of building, stack rooms and reading rooms	174
Table 13: Exposure of records to artificial light in hours	175
Table 14: Who decides what can be copied.....	178
Table 15: Preservation options.....	180
Table 16: General physical condition of materials.....	181
Table 17: Cause of deterioration	182
Table 18: Whether conservation treatments were implemented	183
Table 19: Types of finding aids	184
Table 20: Types of reprographic equipment available.....	186
Table 21: Priorities for improving the management of the legal deposit collections	187
Table 22: Digital holdings formats	191
Table 23: Storage methods	192
Table 24: Method of digital preservation	194
Table 25: Threats leading to loss of digital materials	194
Table 26: Matrix of research questions, constructs, authorities, findings and recommendations.....	255

List of figures

Figure 1: Silverfish.....	94
Figure 2: Silverfish damage.....	94
Figure 3: Booklouse	95
Figure 4: Termite damage to a book	96
Figure 5: Mouldy books	100
Figure 6: Trends in natural disasters	107
Figure 7: Heating, ventilation and air conditioning in stack rooms.....	169
Figure 8: HVAC system on at all times.....	171
Figure 9: Percentage of digital material in holdings.....	188
Figure 10: Dedicated hardware/software for long term preservation	190

List of acronyms and abbreviations

ANC	African National Congress
ASCII	American Standard Code for Information Interchange
CCTV	Closed Circuit Television
COP	United Nations Conference of Parties
CNR	Consiglio Nazionale delle Ricerche (Institute of Atmospheric Sciences and Climate of Italy)
DANS	Data Archiving and Networked Services
DPC	Digital Preservation Coalition
ERPANET	Electronic Resources Preservation and Access Network
ESARBICA	Eastern Southern Africa Regional Branch of the International Council on Archives
FAO	Food and Agricultural Organisation
HVAC	Heating, ventilation, and air conditioning
HRC	South African Human Rights Commission
ICA	International Council on Archives
InterPARES	International Research on Permanent Authentic Records in Electronic Systems
IFLA	International Federation of Library Associations and Institutions
IFLA/FAIFE	International Federation of Library Associations and Institutions - Freedom of Access to Information and Freedom of Expression
IFLA-PAC	International Federation of Library Associations and Institutions Preservation and Conservation
IIPC	International Internet Preservation Consortium
IPI	Image Permanence Institute
ISO	International Organisation for Standardisation
ISBN	International Standard Book Number

ISSN	International Standard Serial Number
LDAP	Legal Deposit Advisory Panel
LIASA	Library and Information Association of South Africa
LOCKSS	Lots of Copies Keep stuff Safe
NCDD	Netherlands Coalition for Digital Preservation
NCLIS	National Council for Library and Information Services
NDIIPP	National Digital Information Infrastructure and Preservation Programme
NESTOR	Network of Expertise in Long Term Storage
NLSA	National Library of South Africa
OPDs	Official publications depositories
PADI	Preserving Access to Digital Information
PAIA	Promotion of Access to Information Act
PANDORA	Preserving and Accessing Networked Documentary Resources of Australia
PDF/A	Portable Document Format Archive
RH	Relative humidity
RLG	Research Libraries Group
TIFF	Tagged Image File Format
TRC	Truth and Reconciliation Commission
UKZN	University of KwaZulu-Natal
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISIST	United Nations International Scientific Information System
URLs	Uniform Resource Locators
UV	Ultraviolet

WIPO World Intellectual Property Organisation

WIPO-WCT World Intellectual Property Organisation Copyright Treaty

Chapter 1: Introduction

1.1 Introduction - setting the scene

Legal deposit is a very old institution and is a legislative stipulation, widely used across the world, which places a legal requirement on creators of publications to deposit their works in designated institutions (Jaison, 1991:3; Larivière, 2000; Penzhorn, 2007:1). Penzhorn (2007: 1) states that legal deposit is “widely acknowledged as the main instrument for building up and preserving a nation’s published heritage”.

The South African Legal Deposit Act No. 54 of 1997 states that all publishers in the country must deposit free copies of their publications in selected legal depositories. In South Africa these legal depositories include the National Library (in both Pretoria and Cape Town), the Mangaung Library Services (formerly Bloemfontein Public Library), the Library of Parliament in Cape Town, Msunduzi Municipal Library (formerly the Natal Society Library) in Pietermaritzburg and the National Film, Video and Sound Archives in Pretoria (Tuckett, 2003; Butterworth’s Statues of South Africa, 2007:224; Fourie and Burger, 2007:3). In addition to legal depositories, official publications’ depositories (OPDs) were introduced in order to foster freedom of access to information and expression and democracy more widely (Lor, 1999; Butterworth’s Statues of South Africa, 2007:225). The Act made provision for at least the establishment of one OPD in each South African province (Lor, 1999). These OPDs are entitled to receive every official government publication including any parastatal or public body publication and provide access to government databases (Lor, 1999). According to Tuckett (2003: OPDs) —“the existing places of legal deposit may also serve as OPDs”. There are four official publications depositories, namely the Constitutional Court Library, R J R Masiea Public Library (Phuthaditjhaba) in the Free State which was officially launched on the 11 March 2006 (Jordan, 2006) and the North West Provincial Library Services (from 1 January 2009 and has only become operational in 2011). The Mpumalanga Provincial and Information Services (Nelspruit) was given OPD status in November 2009 and is presently preparing to become a fully functional and operational official depository in 2012 (Naidoo, 2010; Sibango, 2011). Legal depositories in South Africa are intended to ensure that the sources of the documentary sources are collected, controlled bibliographically,

preserved and made accessible for present and future generations (Behrens, 2000:132; Penzhorn, 2005).

1.2 The research problem

The objectives of this study were to address the research question which was: what is the present situation concerning preservation and access to legal deposit materials in South Africa? The research problem has a set of broader issues that need to be addressed including:

- Unlike archives that select materials to be preserved, legal depositories are required to collect all documents published in a given country according to the legislation. How possible is it to collect all? Smith (2004a:7) emphasises that:
New information technologies leave us with more information to sort through and less time to take appropriate action before information starts disappearing. This phenomenon did not begin with digital technology; it started with the appearance of cheap paper and an array of analog technologies.

Webb (2004:50) states that —while there is much room to argue whether all digital information should be preserved, some of it is undoubtedly of enduring value and needs to be kept”.

- Peterson (2002:29) states that in the archives —colonial and apartheid authorities consistently denied the existence of any legacy among Africans worth preserving, an attitude borne out in their insistence that Africans had no history”. One wonders what percentage of the legal deposit cultural heritage has been lost due to such prejudice. This prejudice and the obsessive secrecy of the apartheid state was served not only by legislation but with a range of judicial tools and the most effective device used was the selective destruction of public documents (Harris, 2002:138). Harris (2002:135), who represented the National Archives of South Africa in the Truth and Reconciliation Commission (TRC) between 1996 and 1998, states that:

This investigation exposed a large-scale and systematic sanitisation of official memory resources authorized at the highest levels of government. Between 1990 and 1994 huge volumes of public records

were destroyed in an attempt to keep the apartheid state's darkest secrets hidden.

The other factor is with regard to the influence apartheid had on the record keeping practices of anti-apartheid people and organisations, in particular the unwillingness to commit certain types of information to paper, as well as the readiness to destroy printed information before it fell into the wrong hands (Harris, 2002:138).

The role of publishers in preserving a country's heritage cannot be over accentuated because they are responsible for depositing materials. Ngoepe and Makhura (2008: 98) state that ~~the~~ "the biggest challenge is to encourage publishers to deposit their material in the legal deposit centres". According to Penzhorn, Snyman and Snyman (2008:112) issues surrounding the monitoring and enforcement of legal deposit legislation directly affect the implementation of legal deposit by depository institutions and the manner in which producers of publications will comply with legislation. An analysis of the interview data by Penzhorn (2005) in her study, 'Preserving our cultural heritage through legal deposit: are we doing it right?' showed that publishers do not seem to understand the importance and benefit of legal deposit in general. If publishers do not comply, due to a lack of cooperation between publishers and legal depositories, depositories cannot preserve those items and therefore the published heritage of South Africa is in great jeopardy and part of the cultural heritage may be lost (Ngoepe and Makhura, 2008:98). Ngoepe and Makhura (2008:104) emphasise that ~~if~~ "published heritage is not preserved, access to information in the form of publications could be denied". The members of the public and especially publishers need to understand and be convinced of the need to comply with the legislation and to understand its importance. Penzhorn, Snyman and Snyman (2008:112-113) state that:

Legal depositories, having been designated to preserve the published heritage of a nation, have to have effective systems in place to be able to efficiently manage and execute their functions and the people working with legal deposit have to be knowledgeable, skilled and dedicated to the cause.

Secondly, an unexpected matter that became visible is that there is a somewhat apathetic attitude on the part of some of the libraries towards legal deposit. A major

issue that has risen is the lack of communication between publishers and legal deposit libraries (Penzhorn, 2005:Communication). Publishers are also expected to deposit five copies in the different legal depositories at their own expense which affects all, especially the small publishers. Larivière (2000:15) stresses that although the obligation of a publisher to deposit a number of copies is widely acceptable, some publishers argue that legal deposit without compensation for the depositor is a discriminatory form of tax or confiscation of private goods. Therefore, the publishers really need to be convinced of the significance and value of legal deposit (Penzhorn, 2005). According to Ngoepe and Makhura (2008:105) deposit of publications by publishers leads to loss of income since readers especially students, will be able to read the publication at a depository and not purchase it for themselves. However, Penzhorn (2007:54) emphasises that:

Procedures for tracing non-compliant publishers, methods of enforcing compliance with legislation, and knowledge of the levels of compliance lie at the heart of the effective management of a legal deposit system.

Larivière (2000:17) notes that for legal deposit to be effective the law must be enforceable and must include a penalty if breached. A fine is the usual penalty and according to Larivière (2000:17):

The fine should be substantial enough to support the legal deposit requirements, it should not be unreasonable; otherwise, the law may be challenged in court as going against the principles of free expression.

Not only are the publishers the main role players in legal deposit, but legal deposit libraries and authors are too.

According to The School of Education, Training and Development, University of KwaZulu-Natal (UKZN) (2004:15) research is a process of investigations which are:

- Systematic and controlled (not haphazard);
- Empirical (based on the collection of data, or the collection of evidence); and
- Self-correcting (this means that procedures and results are open to public scrutiny by fellow professionals. Thus incorrect results will be found to be incorrect and will be duly changed or revised.)

The scope to which the information can be successfully gathered largely depends on the statement of the problem and the rationale for the study which help to formulate

the research questions. The following section is devoted to explaining the research issues and justification for the study.

1.2.1 Background to the statement of the problem

Regardless of the importance of legal deposit, according to Lor (2005:66) it is ineffective in the majority of African countries. This lack is due to the fact that legislation does not automatically assure compliance, preservation activities, adequate funding, skilled staff and access to the collections. However, not much has been written about the preservation and access problems that legal deposit libraries face in South Africa and how they are tackled, and a study by Nsibirwa (2007) showed clearly that they do experience problems and various constraints on action. Also, Penzhorn, Snyman and Snyman (2008:119), in their investigation of the implementation and management of legal deposit in South Africa, identified many weaknesses and problem areas. Penzhorn (2005:General remarks; 2007:176) in her studies Preserving our cultural heritage through legal deposit: are we doing it right? and Managing and implementing legal deposit in South Africa quoted verbatim remarks from librarians as follows:

- We have so much other work not enough time or staff to concentrate on legal deposit.
- Why does legal deposit have such low priority in South Africa?
- System does not work – perhaps new law is needed.
- How necessary is legal deposit really in the bigger picture in South Africa?

Penzhorn's studies (2005; 2007) presented a clear picture of the current state of legal deposit in South Africa and made recommendations to address uncertain interpretations of the Legal Deposit Act by publishers and libraries. They state, however, that the current Legal Deposit Act does not solve all the problems.

The Victorian Electronic Records Strategy of Australia (2007:5) states that “we know the past by records people have left us”. Feather (2004:1) emphasises that “everything we have inherited from the past has come down to us because it has been preserved”. Without preservation, people will not be able to access the publications for posterity and therefore future generations will lose part of their

national heritage. These issues and challenges have not been properly addressed in South Africa (Ngulube, 2002:18). Ngulube (2003:335) found that:

For South Africa to overcome the impending preservation crisis there is need for adequate funding, staff training, environmental control in records storage places, standards for preservation and access, research and development, and preservation planning.

Fenn and Muir (2003:205) affirm that —the purpose of a collection is a determining factor in its preservation needs”. The primary purpose of legal deposit collections is to provide access to materials published and produced years ago; these materials were deposited and need to be properly preserved for future generations. Feather (2004:1) states that —inheritance is the essence of heritage, but its custodians must concern themselves with what the future will inherit from the present as well as with what the present has inherited from the past”. To do this a preservation strategy which includes adequate disaster planning would be required. However, Nsibirwa (2007:3) found that such planning was not done at Msunduzi Municipal Library, where a number of disasters have occurred over the years. Although all materials are prone to disasters Ngulube and Magazi (2006:185) state that disasters are difficult to envisage or avoid except through disaster preparedness which is one of the components of a preservation strategy.

Africa has many challenges with regard to its library and information services and many libraries are not functioning properly due to lack of finance, lack of full support from the government and policy makers and lack of proper training of library staff (Rosenberg, 2001:13; Ngoepe and Makhura, 2008:113). Akussah (2005:295) states that —there is no doubt that any country that is plagued with deficiencies in preservation training and awareness may not be able to discharge its responsibility towards safeguarding its documentary heritage”. Olivier (1999:10) says that —the preservation of public records and archives in general and vulnerable records particularly in South Africa has been greatly neglected”. A study by Ngoepe and Makhura (2008:113) found that there is a need to raise consciousness amongst small publishers with regard to legal deposit issues. Non-compliance with legal deposit means materials are not deposited and therefore not preserved.

Access issues in the mid-1990s appeared to be straightforward in that those wishing to access materials had to visit the repository and were offered assistance as and when necessary. The preservation of tangible materials was simple (Forde, 2005:193). The greatest change has come as a result of opportunities for access motivated by human rights and freedom of information considerations. In the democratic South Africa, the Bill of Rights of the Constitution of the Republic of South Africa Act 108 of 1996 gives everyone the right of access to information, putting more demands on both the records, in whatever form, and their curators. Preservation thus becomes even more important.

Apart from the Bill of Rights, the Promotion of Access to Information Act (PAIA), 2000 (Act No. 2) arises from the constitutional right outlined above, and provides more detail with regard to the access of information (National Library of South Africa, 2004). The purpose of PAIA Act No. 2 of 2000 is:

To give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected herewith.

The impact of the PAIA Act No. 2 of 2000 is that all other legislation providing access provision is subordinate to it, but access can still be managed in terms of other laws as long as it does not conflict with the PAIA (Harris, 2000:25). For legal deposit this means unrestricted access to all materials even though the Legal Deposit Act No. 54 of 1997 section 7(5) (d) states that —~~the~~ head of a place of legal deposit may, on the recommendation of the Committee impose restrictions on certain categories of documents ...”. McKinley (2005:7) argues that this allows another type of censorship and classification of ‘sensitive’ information that is deposited with the legal deposit libraries. McKinley (2005:7) continues to stress that —~~the~~ access rights contained in PAIA are thus rendered less meaningful” given the clause in the Legal Deposit Act No. 54 of 1997 that can be potentially used to ‘hide’, and even dispose of, established records of information that have been deposited. However, the Constitutional Court of South Africa states that the South African Human Rights Commission (HRC) can help anyone assert their rights of access to information and make people aware of their rights to use this information (Constitutional Court of

South Africa, 2007).

Lor and Snyman (2005), however note that unlike other laws the PAIA does not enforce any specific obligation to preserve records for the holding institutions. Lor and Snyman (2005: Legal reasons) stress that —~~concealing~~, destroying, altering or falsifying records with intent to deny a right of access is an offence ([PAIA] section 90) but being unable to find a record is not”. Lor (2003: Introduction since 1990...) states that —~~the~~ two pillars of democracy are freedom of expression and freedom of access to information including, crucially, access to government information”. This recognition should help to foster access to government and other records which are essential in developing a democracy. However, the range of freedom of access to information, symbolic of liberation from apartheid, is under threat with the draft of the current Protection of Information Bill that has been put before parliament (Library and Information Association of South Africa (LIASA), 2010; Steward, 2010:9). In a statement about the Protection of Information Bill, LIASA (2010) emphasises that —~~this~~ draconian bill will have a major effect on media freedom and the democratic values of accountability [and] transparency” with regard to access of government information. LIASA (2010: Our association hereby...) states that —~~excessive~~ secrecy, classification and censorship of information are inherently anti-democratic” and, as a result deny citizens the right to exercise their basic human rights, as well as thwarting the aims of PAIA 2000. Amongst the other issues, with regard to the Protection of Information Bill, LIASA (2010) states that government documents are part of our cultural heritage and the danger is that the Bill could lead to strict classification or secret destruction of documents, thus permanently removing important information from public access.

The National Library of Australia (2003: Legal deposit legislation...) emphasises that —~~legal~~ deposit legislation in many countries predates the current information age and requires a new legal framework in order to encompass digital publications”. Mason (2007:201) notes that —~~social~~ change resulting from the emergence of digital culture is affecting the operational practices and procedures associated with collecting and preserving cultural heritage...”. Legal deposit was introduced in the mid-19th century in South Africa and the current Legal Deposit Act of 1997 includes the collection of

electronic materials. Legal deposit preserves a nation's cultural heritage and an important aspect of cultural heritage is that it is dynamic and is never complete but continuously growing and changing. The dynamic nature of these materials brings a variety of fresh challenges, some of a legal nature and others purely technical.

1.2.1.1 Digital preservation and access to legal deposit materials

Rapidly changing and developing technology offers many new opportunities in this digital environment. The National Archives of Australia (2006:5) state that:

Among these [opportunities] are easier access to records online and the creation of multiple copies of records for back-up and recovery in case of disaster. But with these opportunities comes risk: digital records are more vulnerable than records created in more traditional ways.

The main problem of digital preservation is the rapid development of technology resulting in the obsolescence of both equipment and also software (Webb, 2004:35; National Archives of Australia, 2006:5; Gorman, 2006:6). Unlike the preservation of print materials that was generally passive, the preservation of digital material needs to begin soon after it has been created because digital materials can be deleted, replaced or attacked by viruses before the preservationist can get to them (Besek, 2008:Copyright issues). Webb (2004:35) adds that —access to digital information depends on all components of an access system working together”.

There are many issues and problems with regard to digital preservation including the inability to easily differentiate between digital records, which are of value, and those that are not. In addition, millions of digital resources are not catalogued, because of the expense of creating digital archives and the volatility/fragility of the digital documents (Gorman, 2006:6). According to the International Federation of Library Associations and Institutions (IFLA) (2000a: With the advent...) —the advent of new information technologies and more specifically of the digital environment, the feasibility of maintaining legal deposit schemes has come into question”. However, the Legal Deposit Act (South Africa) states that there is a need to preserve the national documentary heritage and access to this heritage, including government publications. Besek (2008: How does digital...) notes that —the problem is that any contact with digital work – cataloging, maintenance, migrating the works to new formats – involves making copies”. Also, the South African Copyright Act No. 98 of

1978 has been amended from time to time since 1978, but has not kept pace with the revolutionary technological changes that are affecting the whole world (Nicholson, 2008:Copyright; Shuttleworth Foundation, 2008:5). The legal framework, relating to copyright, surrounding intangible cultural heritage is the same structure as for the print world, except the print world conducts its affairs with less enforcement than companies that control music, films, radio and television (Ivey, 2004:38). Webb (2004:49) stresses that society struggles with the right to reasonable access to information and protection of lawfully enforceable rights, such as copyright, especially with electronic materials. Copyright influences how digital information can be collected, what can be done with it and how it can be used (Webb, 2004:49). The volume of records created daily is another problem plus the different formats of which they consist. Even if the information carriers change, the need to preserve and make available the content of the materials deposited remains, whether in the digital or printed environment (IFLA, 2000b). It is important to have systems in place and resources made available to collect these digital records. Is South Africa ready to store and manage electronic documents while it is still experiencing problems with the storage and management of traditional ones?

1.2.1.2 Statement of the problem

Libraries in 21st century face many challenges including identity and purpose. Mason (2007:202) argues that —cultural institutions need to be robust enough to absorb the uncertain and complex aspects of social and cultural change, and yet fluid enough to evolve correspondingly to support and present this change”. However, the role of most of the legal deposit libraries in South Africa includes the function of a public library as well as a legal depository. This duality makes the precise role of the public library, with regard to legal deposit, unclear because the libraries often lack a clear focus for their activities and priorities (Kinnell and Sturges 1996:xiv; Brophy 2001:30). Although legal deposit libraries have plenty of work, Feather (2004:9) is of the opinion that:

Legal deposit libraries, with their obligation to take a copy of every item published in the jurisdiction in which they are located, can look forward to continuous and perhaps exponential growth as the output of books, journals, newspapers and other printed matter (to look no further) continues to grow

despite the even more rapid growth in the output of electronic and audio-visual media.

Current studies describe libraries as hybrid institutions, straddling the print world and the digital realm (Kenney, 2004:22). Yet, Leach (2006:123) stresses that —public libraries in South Africa and internationally are under financial pressure owing, in large part, to a decline in public (or government) funding”. As a result, the decline in funding affects multiple facets, for example, preservation activities, staffing, knowledge, skills, equipment, storage facilities and bibliographic tools for accessing legal deposit collections because preservation is not a priority. Forde (2005:199) however, warns that:

The combination of a cataloguing backlog of nightmare proportions, the demands of freedom of information, and the requirement to advertise and administer services and to develop electronic records' management and digital preservation strategies is too much for some organisations to take on all at the same time.

The large volume of different types of materials received in legal deposit libraries causes storage difficulties. Yet the Legal Deposit Act No. 54 of 1997 does not make provision for materials in formats other than the original copy (Legal Deposit Committee, 2007:19). The problems associated with the collection and control of electronic materials, with the lack of a comprehensive legal deposit model, have made the drafting of suitable legislation both problematic and extremely slow (National Library of Australia, 2003). The rate of change, the amount of digital material being published and the diversity of digital technology and culture overwhelm the possibility of applying the same level of human intervention as with analog materials (Feather, 2004:24; Smith, 2004a:2; Mason, 2007:202; Besek, 2008:Before the digital era...). Smith (2004a:2) asks —how are we expected to bound or fix an information object for preservation if it has no clear boundaries and is dynamic – appearing in many versions, often simultaneously, as it is on the Web?”.

These challenges can be solved partly by the continued development and improvement of preservation techniques, processes and workflows and by building and refining the technical infrastructure required for the long term retention of cultural

heritage (Lavioe, 2004:46; Webb, 2004:49). Libraries are facing new challenges that require different strategies in today's diverse information environment. Therefore in the light of the above delineation of the research problem the study will concentrate on determining the current situation of preservation of, and access to, legal deposit materials in South Africa.

1.2.2 Rationale for the study

As mentioned earlier the rapid development of technology has led to an increase in electronic publications, as well as no considerable decrease in the production of printed materials, making legal deposit a multifaceted and dynamic area of research. This study builds on and extends the candidate's investigation, carried out in her master's dissertation, into how legal deposit materials are kept and preserved. Nsibirwa (2007:111) found that —the preservation of, and access to, the legal deposit materials at the Msunduzi Municipal Library” required urgent attention. In order to get the attention of the policy-makers and make government aware of the challenges, problems and concerns relating to South African intellectual and cultural heritage, a broader investigation was required (Nsibirwa, 2007:114).

One of the main issues that need to be investigated, concerning the South African cultural heritage today, is electronic publication. A number of legal deposit schemes have been able to incorporate off-line electronic publications but have serious problems with the online holdings that are constantly updated in real time and are not available any longer as historical records (IFLA, 2000a). As technology develops, the risk of the possible loss of priceless material is growing. Feather (2004:11) states that:

Research suggests that the percentage of material not captured by the legal deposit system is alarmingly high unless special measures are taken to ensure that it is recorded and acquired.

The study expects to uncover information which will help to provide a way forward in the preservation of South Africa's cultural heritage, including electronic documents. According to IFLA (2000b: Legal deposit of electronic publications) —the advent of powerful new information technologies as a means of publishing and/or disseminating recorded knowledge makes it imperative for legal deposit legislation to

ensure that its original objectives are maintained". The Legal Deposit Act No. 54 of 1997 makes provision for a legal deposit committee with a broad representation of stakeholders to coordinate and promote it, but does not provide specific measures to manage legal deposit (Penzhorn, Snyman and Snyman, 2008:113).

Apart from trying to provide a way forward in the preservation of South Africa's cultural heritage, this study highlights the need to strike a balance between access to, and preservation of, legal deposit collections in South Africa. To balance both access and preservation successfully it is vital to draw up a long-term preservation policy with the aims of both preventing and slowing down the deterioration of the documents and improving the preservation conditions of collections or, at least, safeguarding the content by creating surrogate documents (Abid, 1998:123; Smith, 1999; Brandt-Grau, 2009:1). It is important to apply the principle of 'prevention is better than cure,' as access cannot be assured without preservation. Legal deposit materials can only serve as a country's memory if they are well preserved.

This study also examined the collection management policies and strategies with regard to preservation and access of legal deposit materials for posterity. The focus was on identifying the state of the deposited materials and how the different materials were preserved and stored. Every institution has unique needs, in particular with regard to the climatic conditions since the depositories are situated in different regions of South Africa. The study will assist in underscoring the importance of the preservation of legal deposit materials and the challenges faced by depositories. The researcher found in previous research that there was a lack of awareness amongst members of depository staff about preventative preservation methods, limited resources for conservation and lack of collection management strategies (Nsibirwa, 2007:108). The field of preservation in library institutions and archives continues to change which makes keeping abreast of developments in the field even more important.

1.3 The study

This section is about the research questions, the definition of terms and concepts including the scope of the study and a brief description of how data was systematically collected and analysed to answer the research questions. The section ends with a description of the structure of the thesis.

1.3.1 The research questions

From the rationale and the research problem above the following research questions were posed with regard to South Africa:

- What systems are in place to help collect print and electronic publications?
- What are the activities and strategies used to preserve legal deposit materials?
- What measures are in place to ensure preservation of documents whilst being used?
- How knowledgeable are the staff about the preservation of the legal deposit materials?
- What challenges are the staff faced with when preserving legal deposit materials?
- To what extent are the depositories accessible to the majority of the population in South Africa?
- What means and processes are used to help make materials accessible?
- What systems are in place to ensure electronic publications will be accessible especially in the long term?
- What security procedures are in place to safeguard the collection?

1.3.2 Definition of terms and concepts

In the context of this study:

- Access refers to the right to obtain or use materials including the way a document may be found. According to the *Online Dictionary for Library and Information Science* by Joan Reitz (2009) access is :

The right of entry to a library or its collections. All public libraries and most academic libraries in the United States are open to the general public, but access to certain areas such as closed stacks, rare books

and special collections may be restricted. In a more general sense, the right or opportunity to use a resource that may not be openly and freely available to everyone.

In this study, access will refer to access for posterity, that is use in the future or long term as well as current access.

- Censorship according to Reitz (2012:Censorship) is:
Prohibition of the production, distribution, circulation, or display of a work by a governing authority on grounds that it contains objectionable or dangerous material. The person who decides what is to be prohibited is called a censor. Commonly used methods include decree and confiscation, legislation, repressive taxation, and licensing to grant or restrict the right to publish.

In this study censorship refers to restricting access to publications.

- Copyright according to World Intellectual Property Organisation (WIPO) (2012:What is copyright?) is “a legal term describing rights given to creators for their literary and artistic works”. These rights are exclusively given by a government to an author, editor, compiler, composer, playwright, publisher, or distributor to publish, produce, sell, or distribute copies of a literary, musical, dramatic, artistic, or other work, within certain limitations (fair use)(Reitz, 2012:Copyright). Reitz (2012:Copyright) states that:

Copyright protects a work in the specific form in which it is created, not the idea, theme, or concept expressed in the work, which other writers are free to interpret in a different way. A work never copyrighted or no longer protected by copyright is said to be in the public domain.

Within this context it refers to the rights of all publishers related to all print and electronic publications.

- Disaster management as defined by *IFLA principles for care and handling library materials* by Adcock, Varlamoff and Kremp (1998:15) is the planning, policies and procedures developed to prevent, minimize or recover from the effects of a disaster to the organisation, staff and resources.
- An electronic publication is defined as information recorded in a manner that requires a computer or other electronic device to display, interpret, and

process it (UNESCO, 1999:2; Online Business Dictionary, 2011: electronic document). This includes documents (whether text, graphics, or spreadsheets) generated by software and stored on magnetic media (disks) or optical media (CDs, DVDs), as well as electronic mail and documents transmitted in electronic data interchange (UNESCO, 1999:2; Online Business Dictionary, 2011: electronic document). These publications can be categorized as off-line and on-line publications. All of these documents are hardware/software dependent because they exist in encoded form (in bits). To make these bit streams comprehensible and usable by humans, hardware and software are required. Examples of documents are e-mail, voicemail, instant messages, e-calendars, audio files, data on handheld devices, animation, metadata, graphics, photographs, spreadsheets, presentations, websites, drawings and other types of digital data.

- Electronic preservation also known as digital preservation is defined by the Research Libraries Group (RLG) (2002:3) as:

The managed activities necessary for ensuring both the long-term maintenance of a bytestream and continued accessibility of its contents.
- Legal deposit is the requirement, enforceable by law, to deposit with a specified institution a specific number of copies of publications produced within the limits of the jurisdiction (Lunn, 1978:1; Bazan, 2003:227). Legal deposit is applicable to all forms and media of publications (Lunn, 1978:1). According to Jaison (1991:7), legal deposit is —a government provision which compels producers of all types of publication to deposit a certain number of copies of each publication in designated libraries or similar institutions”.
- Legal deposit materials refer to printed and electronic materials including books, periodicals, newspapers, microform, maps, brochures, pamphlets including official government publications.
- Legal depository is a place of legal deposit that receives, accessions, retains, preserves for posterity and provides access to documentary heritage (Legal Deposit Act No. 54 of 1997 section 7(1)).

- Preservation according to Adcock, Varlamoff and Kremp (1998:5) in International Federation of Library Associations and Institutions (IFLA) *Principles for the care and handling of library material*:
Includes all the managerial and financial considerations, including storage and accommodation provisions, staffing levels, policies, techniques, and methods involved in preserving library and archival material and the information contained in them.
- A preservation policy is a set of procedures and principles of action that guides a library or archive. Adcock, Varlamoff and Kremp (1998: 9) state that a preservation policy is used:
To define whether, and to what extent, the library will acquire and retain material. There can be no general guidance for libraries on what material should be selected for acquisition and future preservation; this will depend on each individual library and its policy.

This differs for legal depositories as they have to collect all the country's documentary heritage and preserve for posterity. A preservation policy provides a framework for preservation related tasks and the preventative measures that must be taken to ensure their protection and survival.

- A trusted digital repository according to RLG (2002:5) is defined as "one whose mission is to provide reliable, long-term access to managed digital resources to its designated community, now and in the future".

1.3.3 Delimitation of the study

South Africa is amongst the first few countries that have made provision for the legal deposit of electronic publications. The Legal Deposit Act 54 of 1997 also includes audiovisual material (tapes and films); but these materials constitute a small fraction of what is being deposited. However, this study focused mainly on printed legal deposit materials and electronic publications. The study by Penzhorn, Snyman and Snyman (2008:113) also focused on printed publications because print materials are still the main focus of legal deposit in South Africa. The Library of Parliament was excluded as a unit of analysis since it does not keep or collect all legal deposit materials and is not open to the public due to security related issues (Jones, 2010;

Mpholefole, 2010a). Although, the Mpumalanga Provincial and Information Services (Nelspruit) became an OPD in 2009 it was excluded from the study as they were still in the preparation process and would only be fully functional from 2012 (Shibango, 2011), when the data for the study was already collected. The study population was limited to professional librarians who were members of the legal deposit committee, the heads of the libraries and departmental heads of legal deposit sections of each library, omitting heads of other departments who do not deal with legal deposit. The study also excluded members of the public who use the collection, who could have provided a different outlook on the access and preservation of legal deposit materials. Furthermore, the study excluded publishers as the study only includes the study components which are the legal depositories and OPDs. Secondly, publishers were included in a study by Penzhorn (2007) who addressed in great detail issues regarding publishers and implementation of legal deposit in South Africa.

1.3.4 Research methodology and methods

Social research methods revolve around two main approaches, quantitative and qualitative (Neuman, 1997:14; The School of Education, Training and Development, UKZN, 2004:59). Both approaches have different strengths and weaknesses, different types of researchers prefer to use one approach rather than the other. This study used both approaches to research, but mainly adopted a quantitative approach and included a review of the relevant literature.

The units of analysis in this study were four legal deposit libraries and three OPD's. In this study the population was a total of 17 members of staff: three heads of libraries and 14 librarians, thus sampling for the surveys was unnecessary. The study was descriptive and two different instruments were used to collect data from the population. A self-administered questionnaire was used to collect data from members of the legal deposit committee and departmental heads of legal deposit sections. A semi-structured interview was used to obtain in-depth information from the heads of legal deposit libraries.

Statistical analysis using SPSS was used to organise and analyse data collected from the self-administered questionnaire. Organising data included analysing the raw

data by checking for missing data, ambiguity and errors. The data collected was then coded and cleaned to identify any errors caused by incorrect coding (Babbie and Mouton 2001:417). Conceptual analysis was used to analyse the open-ended questions of the questionnaire and the interview schedule. With regard to research ethics the study followed the University of KwaZulu-Natal (UKZN) research ethics policy (UKZN, 2011:Human and social science ethics). The research methods and procedures are described in greater detail in Chapter three.

1.3.5 Structure of the study

The study problem is presented in this introductory chapter, including the objectives and the rationale for the study, the assumptions on which the study is based and its limits. Definitions of terms used in the study are provided.

Chapter two discusses the literature review. Various facets related to the preservation of, and access to, legal deposit materials are included in order to provide a conceptual framework. The core elements relevant to the purpose and role of legal deposit are discussed. Also the literature reviewed includes the history, nature and access to legal deposit; public libraries; and preservation and preservation challenges in South Africa and the world. In addition, the characteristics and qualities of South African legislation are compared with legal deposit systems in other countries to provide a conceptual framework. The relevant significant points in the literature review will be used to help interpret the results of the study.

The need to obtain significant information about the preservation, and access to, legal deposit at a public library requires a multifaceted design and method of data collection. In the current study this consisted of a literature search, questionnaires and interviews. The design of the study, data collection techniques and procedures will be described in Chapter three. A rationale for the use of each section of the instruments being used is provided.

The results of the study, conducted by a survey using a self-administered questionnaire and interviews, are presented in Chapter four.

In Chapter five, several findings of importance are discussed in light of the research problem. The results of the study are interpreted by comparing the similarities and differences of the relevant studies reviewed in the literature.

The conclusions, based on the findings of the study and on the literature reviewed are made in Chapter six. Recommendations are made based on the findings and literature review. Further topics for research are identified.

1.4 Summary

In setting the scene, the research problem is presented including the purpose of the study and its justification. Definitions of terms used in the study have been provided including the scope and limitations. The research methods and procedures used to collect data from the population of the study are briefly described and will be discussed in detail in Chapter three. The chapter ends with a description of the structure of the study.

The major themes that emerged from this chapter are that preservation and access are the key components for the continued existence of documentary heritage. The correct balance of the major components is crucial for the existence of documentary heritage for future generations. Various legislations affect the balance of preservation and access in South Africa. As well as the existing legal deposit legislation, ineffective policies and practices, lack of full government support, dwindling library budgets, the need for staff training and collection of dynamic electronic publications.

Chapter 2: Literature review

2.1 Introduction

This section reviews literature regarding the preservation of, and access to the principles related to legal deposit. A conceptual framework was used as the structure to shed light on the main views and clarifies why a theoretical framework was not used. Neuman (2003:42) defines a theory —as a system of interconnected abstractions and ideas that condense and organize knowledge”. Theories can be portrayed as a clear description of an event. The School of Education, Training and Development, UKZN (2010:117) state that —theories provide a possible explanation for why things happen”. However, theories are used in various ways by different researchers for their studies:

- To verify or prove whether a theory is true or false.
- To use as a framework for their studies including clearly linking the research purpose and questions.
- To explain the general rule or principle as well as describe something in a way that makes it clear (Neuman, 2003:42; The School of Education, Training and Development, UKZN, 2010:117).

The most common theories related to this study are the records management theories, namely the records life cycle and the records continuum theories. The records life cycle theory is based on the fact that records have a life similar to living organisms. This means records are born and eventually, after a period of time die, in that they are disposed of, except for those of permanent value that are archived. This theory is not completely relevant to legal deposit and preservation management as all materials received by depositories are preserved for posterity and all are considered to have permanent value as they are cultural documentary heritage. According to Pearce-Moses (2005:Life cycle) the records life cycle model involves the following people:

During the creation and active periods, the record creators have primary responsibility for managing the record, although records managers may well be involved to various degrees. In the semi-active stage, it is the records manager who takes center stage and assumes major responsibility for managing the

records. Finally, in the inactive stage, the archivist takes the lead in preserving, describing, and providing access to the archival record.

Legal deposit, however, involves the publisher and the depository staff acting jointly to preserve the materials. In addition, a record differs from a document or publication.

Pearce-Moses (2005:Record) defines a record as:

A written or printed work of a legal or official nature that may be used as evidence or proof; a document. Data or information that has been fixed on some medium; that has content, context, and structure; and that is used as an extension of human memory or to demonstrate accountability.

However, The South African Legal Deposit Act No. 54 of 1997 states:

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.

Yet, with the continuum records theory, records are 'fixed' in content and structure from the moment of their creation, but record-keeping carries them forward and enables their use for multiple purposes by delivering them to people living in different times and spaces (McKemmish, 2001:336; Pearce-Moses, 2005:Records continuum). This theory is also not really applicable to legal deposit and preservation management as the structure of electronic publications will change with the different preservation strategies, as well as print material needing possible technical intervention, depending on their condition. Therefore, the current study goes beyond the application of the records life cycle and continuum theory to contribute to a wider body of knowledge using a review of literature, conceptual framework as well as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Memory of the World and UNESCO Digital Preservation Charter guidelines.

2.1.1 UNESCO Memory of the World

Deterioration and loss of cultural and documentary heritage material results in the loss of memory, which can be graphically described as an amnesiac society (Sturges,

1990:25). To ensure that the world's documentary memory did not deteriorate at an alarming rate UNESCO initiated the 'Memory of the World' in 1992, to protect and promote the world's cultural heritage (Abid, 1998:122; Harvey and Howell, 2004:2). The original guidelines to the Memory of the World were first prepared with the support and help of IFLA and International Council on Archives (ICA) in 1995 and have since been revised in 2002 (UNESCO, 2002:1) and yet again in 2005 to include modern information carriers (UNESCO, 2005:3). The Memory of the World has brought together archivists, librarians, museologists and perspectives of their institutions to bring knowledge together (UNESCO, 2002:5). This programme was a result of the critical state of preservation and the bad conditions of access to cultural heritage in different parts of the world. The programme has three main objectives:

- To facilitate preservation, by the most appropriate techniques, of the world's documentary heritage.
- To assist universal access to documentary heritage.
- To increase awareness worldwide of the existence and significance of documentary heritage (UNESCO, 2002:3).

The programme has two co-dependent aims: preserving documentary heritage that has world significance, and ensuring lasting access to it. Harvey and Howell (2004:3) stated that:

UNESCO's strategies to achieve these aims include raising awareness of the need for and importance of significant documentary heritage, protecting documentary heritage at risk, and raising revenue to further these strategies.

2.1.1.1 UNESCO Digital Preservation Charter

UNESCO (2003:74) recognised that to ensure the preservation and universal accessibility of the world's documentary heritage, they needed to acknowledge that publications were increasingly produced, distributed, accessed and maintained in digital form. Compelling them to create a new legacy the UNESCO Digital Preservation Charter. The mandate of the Charter includes the following principles:

- The digital heritage consists of unique resources of human knowledge and expression. It embraces cultural, educational, scientific and administrative

resources, as well as technical, legal, medical and other kinds of information created digitally, or converted into digital form from existing analogue resources.

- Access to the digital heritage as a purpose of preserving.
- The threat of loss as a result of the rapid obsolescence of the hardware and software which brings it to life, uncertainties about resources, responsibility and methods for maintenance and preservation, and the lack of supportive legislation.
- Need for action because the loss of the digital heritage will be rapid and inevitable and the need for digital continuity.
- Developing strategies and policies.
- Creation of partnerships and cooperation to sustain efforts on the part of governments, creators, publishers, relevant industries and heritage institutions. (UNESCO, 2003:75).

Although the adoption of the UNESCO Charter on the Preservation of Digital Heritage in 2003, UNESCO (2012: The Memory...) states ~~there~~ "there is still insufficient awareness of the risks of loss of digital heritage, even though knowledge is today primarily created and accessed through digital media". UNESCO (2012: About the conference) provided a platform at the —Memory of the World in the Digital Age: Digitization and Preservation" held in Canada on the 26 – 28 September 2012, to connect people and institutions, private and public, from all over the world. This conference was held to form new strategic coalitions to safeguard knowledge. In addition, to strengthen UNESCO's action to promote knowledge and share experiences on digital heritage preservation. The UNESCO Memory of the World guidelines emphasise the concepts of preservation and access which are discussed in more detail in the next section.

2.2 Conceptual framework

A conceptual framework is an effective tool to structure research and assist a researcher to make meaning of subsequent findings (Smyth, 2004:2). Smyth (2004:2) emphasises that —~~such~~ a framework should be intended as a starting point for reflection about the research and its context". In this study, the concepts of preservation, access and purpose of legal deposit are covered in the literature review, and are used throughout the project. Concepts are the principles or building blocks of theory. Conceptualisation is

the process of specifying what we mean by a term (Schutt, 1996:69). Concepts need to be clarified to draw meaningful conclusions about them (Babbie and Mouton, 2001:99). Clarification of concepts helps shed light and helps others understand the research better by revealing the various elements that have a bearing upon it. The review of literature places the research report in the context of the general body of scientific enquiry pertaining to the field (Babbie and Mouton, 2001:565; Smyth, 2004:2). Apart from putting the study in context, a literature review has many purposes including:

- providing a framework for establishing the importance of the study;
- establishing tools for comparing the results of the study with other findings;
- ensuring that one's research would contribute to a better understanding of the phenomenon under study;
- identifying the main methods and research techniques that have been used in similar studies; thereby justifying the choice of approach;
- providing an opportunity to discuss relevant research carried out on the same or similar topics; and
- helping to avoid pitfalls and mistakes made by others (Babbie and Mouton, 2001:565-566; Ngulube, 2003:32; Smyth, 2004:2; Schutt, 2006:57-58).

Schutt (1996:69) emphasises that “we can't develop measures until we have defined the concepts on which the measures are based”. The core elements relevant to the purpose and role of legal deposit are explored here, that is preservation and access and the role of legal deposit in ensuring a balance is provided between the two concepts.

2.3 What is legal deposit?

Legal deposit, also known as ‘dépôt légal’ or ‘mandatory deposit’, is a legitimate provision which compels publishers to deposit copies of their publications in libraries or places of deposit in the country in which they are published (Jasion, 1991:7; Larivière, 2000:3; National Library of Australia, 2003: Legal deposit; The British Library, 2005:1).

Larivière (2000:3) adds that:

It is important to make sure that legal deposit legislation covers all kinds of published material, that is, material generally produced in multiple copies and

—offered to the public regardless of the means of transmission,” in order to differentiate from —archival” which refers to records, either governmental, corporate or personal and which are usually unique items, not available for public distribution and more of a private or personal nature.

2.4 History of legal deposit

Many authors have defined legal deposit and made available descriptions and analysis of the term legal deposit and its purpose from which core components can be derived (Penzhorn, 2007:15). By collecting, recording and preserving all published materials, legal deposit assures society access to the published heritage without making any judgment on the basic value of materials whether the item is of moral, political, artistic, or literary nature (Larivière, 2000:22).

The concept of legal deposit emerged soon after the invention of the printing press. It originated in 1537 in France when King Francois I issued the —Ordonnance de Montpellier” (Willemse, 1963a:9; Davinson, 1965:19; Larivière, 2000:11; International Federation of Library Associations and Institutions (IFLA), 2000f:History of legal deposit; *New world encyclopedia*, 2008: History; Rabina, 2009:174). Larivière (2000:11) and IFLA (2000f: The principle of...) state that:

The king wanted to collect and gather the current and the future production of all editions of the books which deserve to be seen in order to ensure that it would always be possible to refer to the original work as first published and not modified.

However, the *New world encyclopedia* (2008: History) states:

In ancient history, kings of Alexandria required all visitors who held books to deposit them to the Library of Alexandria. Copies were made and books were made and books were returned (often the original was kept at the library and the copy was returned) to visitors.

This practice and similar regulations across the world could be an example of deposit in ancient times.

2.5 Evolvement of legal deposit

King Francois 1 was the first to put into practice a system of deposit with the definite aim of collecting original material for his royal collection and personal gain. Larivière (2000:11) states that “despite its official and royal character, the decree was not well respected” but the principle was established and spread to other countries. Legal deposit then became a means of enriching the collections of national libraries at no cost at all or at a minimal cost (Davinson, 1965:19; Partridge, 2008:3). The original objects of deposit were books from 16th century to the 18th century (Larivière, 2000:11). Deposit requirements changed over time and legal content was amended to include new means and types of publishing, in the 19th century sound recording and in the 20th century microfilm, audio-visual material and electronic publications (Larivière, 2000:13).

2.5.1 Legal deposit, censorship and copyright

King Francois 1’s original idea evolved over time due to a couple of factors. The art of printing which was invented in 1450 gave rise to a number of problems which required urgent attention, causing great changes in legal deposit. According to Willemse (1963a:6) the art of printing created:

- The rapid dissemination of heretical and revolutionary ideas.
- The sometimes severe losses of printers (who were then publishers as well) whose books, in no way [were] protected against piracy [and] were freely reprinted by others in cheaper editions.

In France legal deposit was seen as the legislation of dictatorship and during the French Revolution, which began in 1789, legal deposit was abolished in the name of liberty (Larivière, 2000:11). The legislation was reinstated in 1793 in France as a way of obtaining copyright (Larivière, 2000:11).

2.5.2 Copyright and printing privileges

With the advent of printing there were no legal measures to protect intellectual property as printers at the time were also publishers, and no legislation existed to protect books from being reprinted (Willemse, 1963a:13). Prior to the advent of legal deposit the reprinting of books was done on inferior paper leading to the production of a cheaper

edition and in addition the original writer was not paid (Willemse, 1963a:13). The cheaper reprinting of books in the 18th century led to the development of legal deposit becoming a formality to obtain legal protection of a publication (Willemse, 1963a:13; Larivière, 2000:12; Partridge, 2008:3). Penzhorn (2007:19) states that:

Printers thus began to negotiate with the ruler of the state, presenting him with a free copy of the publication in exchange for the sole rights of publishing the product for a certain period in a specific area.

However, Willemse (1963a:13) emphasises that this type of copyright was called ‘printers privileges’ and it differs in many ways from copyright today. Today the mere fact of publishing establishes copyright. Legal deposit remained a condition to obtaining copyright until the Berne Convention was implemented in 1886. As a result many countries modified their legislation (Willemse, 1963a:13; Larivière, 2000:13). The Berne Convention states that:

For the period of copyright, the copyright owner has the following exclusive rights. None of the actions below can be carried out without permission:

- The right to authorise translations of the work.
- The exclusive right to reproduce the work, though some provisions are made under national laws which typically allow limited private and educational use without infringement.
- The right to authorise public performance or broadcast, and the communication of broadcasts and public performances.
- The right to authorise arrangements or other types of adaptation to the work.
- Recitation of the work, (or of a translation of the work).
- The exclusive right to adapt or alter the work.
- The author also has the following moral rights:
 - The right to claim authorship
 - The right to object to any treatment of the work which would be ‘prejudicial to his honour or reputation’ (The United Kingdom Copyright Service, 2010: The convention also sets...).

2.5.3 Censorship

Legal deposit was first used for controlling the activities of printing and publishing. Although it was understood that the legislation was put in place to collect a permanent and tangible record of the literary output of the nation, there were other underlying motives (Willemse, 1963a:10). The French king had secondary motives including suppressing Protestant writings by the censorship of theological books introduced in 1520 (Willemse, 1963a:10).

Two types of censorship emerged, namely repressive and preventative censorship. The first type, that is repressive censorship, was practiced with hand written books. When a church or university regarded a book as dangerous it was confiscated (Willemse, 1963a:6). However, with the invention of printing and the ease of book distribution a new method had to be found, that is preventative censorship. Publishers had to get their books approved by government officials before having the publications printed (Willemse, 1963a:7). This method could not suppress all undesirable publications so the Roman Catholic Church authorities reverted back to repressive censorship by issuing a black list (Willemse, 1963a:7). In France in 1617 legal deposit became a precondition to obtain trade privileges and has also been used as a surveillance tool to impose censorship (Davinson, 1965:19; Larivière, 2000:12).

As legal deposit spread to various parts of the world, law makers realised that legal deposit could be used as an effective method of curbing blasphemous and seditious literature (Partridge, 2008:3). Legal deposit became linked with press censorship and, for example, in England legal deposit was the responsibility of the police department (Partridge, 2008:3). In some countries today legal deposit is still used as a publications' control tool, for example, in Chile lawyers are entitled to a copy of every book published (Partridge, 2008:3).

2.6 Nature and role of legal deposit

Various authors and institutions have provided different descriptions and interpretations of legal deposit and its functions over the years from which certain core facets relevant

to the nature and role of legal deposit can be derived (Penzhorn, 2007:15). The principle of legal deposit is found in international convention and in the national laws of many countries and underpins the preservation of a nation's published cultural heritage and guarantees access to it (Jasion, 1991:7; Larivière, 2000:4; National Library of Australia, 2003: Legal deposit). The main functions of an effective legal deposit system are to:

- Ensure the development of a national collection of published material in a range of formats.
- Guarantee access to a research collection of the country's published material by collecting publications, properly preserving them and making them accessible.
- Support the compilation and the publication of a national bibliography in order to ensure bibliographic control over a comprehensive deposit collection (Larivière, 2000:5).

Legal deposit has a number of other functions, these include:

- Copyright protection.
- Censorship.
- Provision of exchange material.
- Provision of statistical information.
- Provision of library stock.
- Provision of government and legal publications (Lor, 1995:96; Larivière, 2000:10).

2.7 Legislation

For King Francois 1, the original aim of instituting legal deposit was to acquire books for himself which later developed into preservation for future generations. In the 20th century fresh objectives were added such as the formation of a national bibliography and making the collection available for research purposes (Larivière, 2000:13). Fenerci (2008:23) says that legal deposit has three main political, legal and cultural functions, which are:

- Monitoring the printing of publications.
- Securing intellectual property and control of copyrights.
- Multiplication of national collections, preservation of literary heritage and all works likely to be forgotten in the future.

However, Behrens (2000:132) emphasises that the main function of legal deposit is to guarantee that a country's intellectual and cultural heritage is collected, controlled bibliographically, preserved and made accessible for present and future generations.

Although the concept and statutory arrangements of legal deposit have evolved over time and become widespread there are a few countries that do not have legislation to govern legal deposit (Larivière, 2000:16; Penzhorn, 2007:13). For example, in the Netherlands and Switzerland there are no legal deposit laws and they rely on voluntary deposit arrangements (Larivière, 2000:6; IFLA, 2000c: Except for the Netherlands...; Library Association, 2001; National Library of Australia, 2003: Netherlands; Penzhorn, 2007:21). However, IFLA (2000d: In most countries...) notes that:

Whenever a voluntary instead of legislative route is chosen, it is necessary to ensure that the voluntary deposit system is based on the traditional objectives, including free and unconditional access to the material.

In addition, Larivière (2000:4) says:

To be taken seriously by depositors, the legislation has to be enforceable. While it is necessary to have legal deposit based in legal statute, it is much more desirable for publishers to be involved because they are convinced that it is ultimately to their own advantage to systematically send copies of their published material to a national institution which will record and preserve their production for future generations.

Larivière (2000:51) stresses that even when a voluntary deposit system is feasible it is not recommended and he emphasises that legal deposit should be a statutory requirement.

Guidelines for the establishment of national legal deposit legislation have also been produced in the last few decades by Jean Lunn in 1981 for the United Nations International Scientific Information System (UNISIST) (Lunn, 1981). Lunn's publication was revised, enlarged and updated by Jules Larivière, Director of the Law Library, University of Ottawa, Canada in 2000 (Larivière, 2000: vii). This updated version by Larivière is currently accepted as the benchmark for guidelines and recommendations in this field (Penzhorn, 2007:13). Penzhorn (2007:13) states that:

Larivière's work discusses a wide range of jurisdictions covering all aspects of legal deposit, and incorporates new forms of publishing such as electronic publications, with the aim of assisting countries in the development and implementation of new legal deposit legislation or the revision of legislation already in place. Observance to these guidelines is advocated to all countries.

The legal instrument used depends on the legal system in place in that country. Legal deposit can be stand-alone legislation (Belgium, France, South Africa and Zimbabwe) or regulations included in other legislations, for example, copyright acts (Australia, Great Britain, Ireland and Denmark) or national library acts (Canada, China, Japan, New Zealand, Namibia and Nigeria) or intellectual property law (Argentina) (Larivière, 2000:15; National Library of Australia, 2003:Legal deposit; Bazan, 2003:227; National Library of Nigeria, 2009:Legal deposit division). In countries with a federal structure there can be more than one law associated to legal deposit, for example, in Australia and United States of America (USA) (Larivière, 2000:16; National Library of Australia, 2003:Legal deposit). Although the aim of legal deposit may differ slightly from country to country, a copy or two of a country's publications have to be deposited in the national library of that country.

In some countries deposit of publications is still a prerequisite for receiving copyright protection (*New world encyclopedia*, 2008: Legal deposit). For example, in the USA copyright registration gives authors advantage in case of copyright infringement but is not as such a prerequisite for deposit (Larivière, 2000:17; *New world encyclopedia*, 2008:United States). Gibby and Green (2008:57) state that in Britain —“the act gives legal protection to publishers in case of copyright infringement and to publishers and librarians in the case of defamation”. In other countries the government as a prolific publisher of materials is also required to deposit copies of government publications at depositories, for example, the USA, Japan, Philippines, Nigeria and South Africa (Jasion, 1991:14). Jasion (1991:14) emphasises that:

The legal deposit of publications produced by various government and quasi-government agencies and departments ...is very important if the aims of legal deposit to exhaustiveness of information is to be achieved.

In view of the fact that the primary purpose of legal deposit is dual, to preserve a nation's cultural heritage and to provide access to it, this is especially significant. Jasion (1991:16) insists that the public needs to know the following about legal deposit:

- How exhaustive is the collection in breadth?
- What has been collected?
- What has been excluded?
- How exhaustive is it in time?
- Where is it?
- Who may use it?
- Who, owns, regulates and preserves the collection?

2.7.1 Legal deposit in Britain

In this subsection legal deposit in Britain is discussed because Britain introduced legal deposit to South Africa. This happened in 1842 when the British Copyright Act was applied to all British colonies (Willemse, 1963b:59).

2.7.1.1 History of legal deposit in Britain

Britain was one of the first countries to establish some sort of legal deposit arrangement (Gibby and Green, 2008:55). In 1610 Sir Thomas Bodley made an arrangement with the Stationers' Company to deposit free copies of all newly printed books at Oxford University Library known as the Bodleian Library (Willemse, 1963a:12; Larivière, 2000:11; Partridge, 2006:17; Penzhorn, 2007:21). At the time only members of the Stationers' Company had permission to do any kind of printing in Britain (Willemse, 1963a:12). This gave the Stationers' Company control over all publications and therefore materials were easily censored. Bodley took advantage of this by arranging privately with the Stationers' Company to get a copy of registered works (Willemse, 1963a:12; Davinson, 1965:19; Larivière, 2000:11; Partridge, 2006:17). This was a purely personal arrangement to get Oxford University free books. Apart from this private arrangement there was no actual legal deposit law until 1662 (Partridge, 2006:17). The Bodleian Library at Oxford University had enjoyed receiving new books for over 50 years by the time the Press Licensing Act came into being (Partridge, 2006:17).

In 1662 the —~~Press~~ Licensing Act” legislation was introduced to enforce censorship and this legislation was the first to grant some sort of legal copyright (Willemse, 1963a:18). The passing of the Act made great changes to the legal deposit history of Britain (Willemse, 1963a:19). Printers who registered with the Stationers’ Company and delivered three copies were entitled to the copyright of the work (Willemse, 1963a:19). According to Penzhorn (2007:23) printers were compelled to deposit copies of books with the libraries of Oxford, Cambridge and with the Royal Library (later named the British Museum, now the British Library). This gave the printers trading privileges. Nearly five decades after the Press Licensing Act legislation was introduced authors were entitled to the copyright of their work. This happened when the first copyright law was introduced namely, the Great Britain Copyright Act of 1709 (*New World Encyclopedia*, 2008: Legal deposit was...). Larivière (2000:12) states:

It all started with the Statute of Anne, the Great Britain Copyright Act of 1709, which was the first law aimed at protecting authors from piracy of their works. The law required that nine copies of works be deposited and distributed to several libraries in order to obtain copyright protection.

The deposit of nine copies according to the Copyright Act of 1709 gave rise to recurrent confusion between copyright protection and legal deposit (Davinson, 1965:19). Nevertheless, legal deposit became a condition of copyright until Britain joined the Berne Convention and amended its legislation (Willemse, 1963a:20; Larivière, 2000:13). This led to legal deposit not being a requirement to obtain copyright in Britain (Willemse, 1963a:20; Larivière, 2000:13). However, Willemse (1963a:20) emphasises that in Britain —legal deposit was still provided for in the Copyright Act”.

2.7.1.2 Current legal deposit legislation in Britain

Legal deposit legislation in the United Kingdom today is based on the Legal Deposit Libraries Act 2003 but in Ireland it is still part of the Copyright and Related Act 2000 (British Library, 2010a: Deposit of printed publications). The Legal Deposit Libraries (excluding the British Library) have a joint funded agency to manage their legal deposit claiming and receipting activities on their behalf (British Library, 2010b:6). According to Penzhorn (2007:22):

Publishers must submit one copy of each of their publications directly to the British Library, but the Agency claims copies on behalf of the other five deposit libraries within twelve months of the date of publication. These publications are distributed to the libraries by the Agency.

Due to a tremendous increase in electronic publications many countries are revising or have revised their legislations including Britain. The Legal Deposit Libraries Act 2003 was introduced to reaffirm with minor changes the existing law on print materials and to include legal deposit of non-print materials, that is electronic publications (Gibby and Green, 2008:56; British Library, 2010a:Deposit of online and other electronic publications). The Legal Deposit Libraries Act of 2003 restates the Copyright Act of 1911 and a copy of a publication sent to six libraries, namely the British Library, Bodleian Library (University of Oxford), Cambridge University Library, National Library of Scotland, the Library of Trinity College (Dublin) and the National Library of Wales (*New world encyclopedia*, 2008:United Kingdom; Gibby and Green, 2008:55; British Library, 2010b:5).

Although the new Act does not stipulate how legal deposit of electronic publications will operate it leaves the details of how these materials will be deposited to secondary legislation through regulations (Gibby and Green, 2008:56; Milne and Tuck, 2008:In his *Alexandria* article...). A Legal Deposit Advisory Panel (LDAP) was set up in September 2005 to create regulations mainly with regard to the deposit of non-print materials (Gibby and Green, 2008:57; Milne and Tuck, 2008: Legal deposit advisory panel). The LDAP, which includes five librarians, five publishers and five independent members, have created —Draft statutory instruments: The Legal Deposit Libraries (Non-print Publications) Regulations 2011” which came into force on the 6 April 2011 (Legal Deposit Advisory Panel, 2010: Part I).

2.7.2 Legal deposit in South Africa

This sub section discusses the history of legal deposit in South Africa as well as the current legal deposit legislation.

2.7.2.1 History of legal deposit in South Africa

In South Africa, the Legal Deposit Act was introduced in 1842, when parliament implemented the British Copyright Act with slight amendments (Tuckett, 2003: Legal deposit commenced...; Fourie and Burger, 2007:2). The history of legal deposit in South Africa stems from South Africa being a British colony in the mid-19th century when the British Copyright Act of 1842 was applicable to the whole British Empire (Willemse, 1963b:59). According to Partridge (2008:3) the Imperial Copyright Act of 1842 and the International Copyright Act of 1886 applied to the South African colonies. Different pieces of legislation applied to the different areas of South Africa (Cape colony, Natal, Transvaal and Orange River Colony). One stipulation was that a copy of each publication had to be delivered to the British Museum within twelve months of publication (Willemse, 1963b:60).

However the implementation of the Act was very difficult for the following reasons:

- The British Museum had no bibliographical apparatus for ascertaining what publications were issued in the colonies.
- Publishers, through ignorance or unwillingness did not meet their obligations.
- The cost and difficulties of dispatch from overseas countries to Great Britain were significant (Willemse, 1963b:61).

The history of legal deposit in the Orange River Colony was not discussed as there was hardly any documented literature about the area.

2.7.2.1.1 Cape Colony

The first Copyright Act of 1873 and the Act of the Colony of Foreign Reprints of Books of 1854 were the earliest acts in the Cape (Partridge, 2008:185). These acts related to copyright and had no provision for deposit. Willemse (1963b:62) states that the Copyright Act 3 of 1873 included a clause that stated that delivery of books to libraries was compulsory but registration was not. All books had to be delivered within three months of being published to the South African Public Library and Grahamstown Public Library (Willemse, 1963b:62). At the time a publisher who failed to deliver books was liable for a fine of £5 which was collected by the librarians (Willemse, 1963b:62). Due to

the fact that registration was not compulsory the British Empire did not compile a complete historical record of all books at the time. Only by 1888 was an appropriate act, namely the Books Registration Act of 1888, developed to register and preserve books in the colony (Willemse, 1963b:68).

2.7.2.1.2 Natal

Natal was also subject to the British Copyright Act of 1842 but the British Museum did not make an effort to enforce the legislation and there is no record of books received from Natal in the archives of the British Museum (Willemse, 1963b:68). Several copyright provisions were made over the years but the most important ones in Natal were the Act of 1896 and 1897 that made provision for registration for copyright purposes and the compulsory deposit of books (Willemse, 1963b:68; Partridge, 2008:187). Willemse (1963b:69) states that —in the Natal archives receipts acknowledging the legal deposit were found, but there appeared no indication of how the deposit was used”. At the time these books were not collected to benefit the Natal Society Library because no indication of receipt of these books were found amongst the annual reports of the library (Willemse, 1963b:69).

2.7.2.1.3 Transvaal

In Transvaal the compulsory registration and deposit of books (three copies) was enacted in an Act of 1887 (Willemse, 1963b:69; Partridge, 2008:188). The copies of books were sent to the Registrar of Deeds, the State Library and a further unnamed government department (Partridge, 2008:188). However, according to Willemse (1963b:70):

Neither the register nor the books which should have been delivered to the Register of Deeds could be traced. There are indications that, due to lack of space and on the recommendation of departmental O and E officials, ended up at the paper-mills.

2.7.2.1.4 South Africa after 1910

After 1910 a union was established, this led to unified laws but the legislation relating to the various provinces remained in place (Willemse, 1963b:70). The various laws were replaced by uniform legislation for the whole union namely the Copyright Act No. 9 of 1916 (Willemse, 1963b:70; Partridge, 2008:188). The Act led to a copy of a book delivered to each province's public library, that is the South African Public Library, Natal Society Library, State Library and Bloemfontein Library, and included the British Museum (Willemse, 1963b:72; Partridge, 2008:190). The books had to be delivered within a month of publication and on failing to do so a fine of not more than £5 and the value of the book was paid to the libraries that did not receive the publication (Willemse, 1963b:73; Partridge, 2008:190).

Legal deposit laws evolved further with the Copyright Act of 1965 and the Legal Deposit of Publication Act of 1982 culminating in the Legal Deposit Act of 1997 (Tuckett, 2003: Legal deposit commenced...).

2.7.2.2 Current legal deposit legislation in South Africa

New legislation became essential for South Africa when major government structures changed in 1994 to create a democratic and non-racial country (Lor, 2003:Introduction). As a result, in 1996 a new constitution came into being and a range of legislative acts were formulated and passed to protect human rights, including enforcing the preservation of, and access to information. The legislation includes, amongst others, the National Archives and Records Service Act No. 43 of 1996, the Promotion of Access to Information Act No. 2 of 2000, the National Library of South Africa Act No. 92 of 1998 and the Legal Deposit Act No. 54 of 1997 (Ngoepe and Makhura, 2008:102). The Legal Deposit Act No. 54 of 1997 was transformed and replaced the Legal deposit of Publications Act No.17 of 1982 (Ngoepe and Makhura, 2008:102).

One of the main considerations that led to the Legal Deposit Act No. 54 of 1997 was the goal of collecting a steadily declining proportion of the country's published output (Lor and Geustyn, 2003:102). As the use of information communication technologies

increased so did the number of publications, including a huge increase in electronic and audio-visual materials. Penzhorn (2005:Legal deposit in South Africa) stresses that one of the goals of the South African Legal Deposit Act No. 54 of 1997 was to extend the Act to cover audiovisual, broadcast and electronic media which had become major information carriers. Behrens (2000:133) states that —this law inter alia provides for the preservation of the national documentary heritage, ensures the preservation and cataloguing of documents published in the country, ensures access to such documents, and provides access to government information”. According to Lor and Geustyn (2003:102) the new act was strongly influenced by the Norwegian law that provides for all types of media by using generic terms like ‘document’, ‘medium’ and ‘published’. However, Lor and Letshela (2002:South African and Namibian Legal Deposit Acts) state that the new act was built using the Namibian legislation that borrowed heavily from the Norwegian Act which is considered to be modern and comprehensive.

Behrens (2000:133) states that:

The Act uses the term —document” to describe an information source, and notes that a document is any object which is intended to store or convey information in textual, graphic, visual, auditory or other intelligible form.

The broad definition of terms like 'document' and interpretation of the term 'medium' permits the Act to apply to electronic publications available in physical format and including offline and online ones (Lor and Geustyn, 2003:102; National Library of Australia, 2003:South Africa; Chisita, 2010:Challenges of enforcing...). According to Lunn (1981:8) deposit laws are subject to alteration with the change of circumstances. Thus with specific definition of terms the legislation would have to be constantly updated or amended to accommodate new types of publications. Larivière (2000:40) says —the best definition of material to be deposited is undoubtedly the South African one” because the legislation uses broad terms that cover a wide range of publications. In the Legal Deposit Act No. 54 of 1997 legislation ‘document’ is described as ‘any object which is intended to store or convey information in textual, graphic, visual, auditory or other intelligible format through any medium ...’. A ‘medium’ is interpreted as ‘any means of recording or transmitting information intended for subsequent reading, listening or viewing’. According to the National Library of Australia (2003:South Africa):

Due to the technical and administrative challenges associated with the deposit of dynamic electronic publications, online electronic materials are presently only subject to deposit when specifically requested by the National Library of South Africa.

Muir (2004:69) argues that although a number of countries including South Africa have extended their legal deposit laws to include digital publications, they only collect digital information on physical carriers like DVDs and CD-ROMs.

The generic term ‘places of legal deposit’ makes provision for places other than a legal deposit library, for example, the National Film, Video and Sound Archives the depository for audio-visual publications and the Official Publications Depositories (OPD) for deposit of government publications. The use of these non-specific terms means that the legislation does not need to be amended to accommodate change or when new media comes on to the market.

The Act is implemented and coordinated by the Legal Deposit Committee (Behrens, 2000:133). The Legal Deposit Committee under section 8 (5) (b) is supposed to coordinate and implement the Act by “making recommendations to the Minister concerning any regulations which the Minister may make under this Act”. The position of the legal deposit coordinator at the National Library of South Africa in Pretoria was created to manage and coordinate systems at legal depositories including training of OPD frontline staff (Ngoepe and Makhura, 2008:102). The legal deposit regulations are not up to date and bits and pieces are found in different government gazettes. The Legal Deposit Committee has not made any recommendations to the Minister recently, however, it responded to a call for help with the Cultural Laws Third Amendment Bill with regard to legal deposit (Mpholefole, 2012:Regulations for legal deposit).

The Department of Arts and Culture has submitted the Cultural Laws Third Amendment Bill to Parliament. Amongst other cultural affairs the Bill includes an amendment to the Legal Deposit Act No. 54 of 1997. According to the Department of Arts and Culture (2010: DAC 2010 Legislation Programme):

The Bill's aim was to align existing legislation with the constitution and the Public Finance Management Act 1999 thereby to improve the efficiency of the cultural institutions to which more than 70% of the Department's budget was directed.

The aim of the Bill with regard to the Legal Deposit Act No. 54 of 1997 is to:

Provide that the South African Library for the Blind should be declared a place of Legal Deposit for alternative format publications and to delete references to outdated institutions and for the inclusion of the Director of the Library for the Blind as a member of the Legal Deposit Committee. Amendments would take account of changes in place names in so far as they affected places of legal deposit.

In the final report of the review of heritage legislation recommendations for legislative amendments, a public interest copyright exception is included, as follows:

- To allow places of legal deposit to make copies (including digital copies) of works in their lawful possession for purposes of preservation, replacement or security;
- To prohibit the making of copies for commercial advantage;
- In respect of works subject to copyright, copies must contain an appropriate copyright warning and digital copies may not be made available to the public in that format outside the premises of the place of legal deposit;
- Places of legal deposit should be allowed to circumvent digital rights' management features of works, where copyright owners refuse or fail to provide them with copies of works in a format that ensures effective implementation of the exemptions, on terms determined by the National Council for Library and Information Services (NCLIS) (Department of Arts and Culture, 2012:202).

Although the current Legal Deposit Act No. 54 of 1997 was amongst the first few acts that made provision for the deposit of electronic material it still has its main focus on printed materials (Penzhorn, Snyman and Snyman, 2008:113). Department of Arts and Culture (2012:199) emphasise that:

Attention should also be given to the particular constraints that apply to the legal deposit of alternative format publications, which are not easily manageable by places of legal deposit designed specifically to deal with paper-based materials.

2.7.3 Elements of legal deposit legislation

A legal deposit scheme is made up of different components to ensure that the system will meet its objectives for the present and the future.

2.7.3.1 Origin of the publication

According to the currently accepted guidelines and recommendations for legal deposit legislation by Larivière (2000:22), the origin or place of publication of documents is crucial to forming a national collection. Therefore there is a need to state the origin or place of publication of documents within the legislation. Larivière (2000:22) emphasises that the basic publication details are crucial and are the deciding factor to whether a document should be a deposit item in that country. However, he points out that deposit laws can only apply within the borders of that country, since it is a national law. Though, Larivière (2000:22) states, that in order for a country to collect documents from residents publishing abroad the legislation needs to state that all residents are subjected to the law.

2.7.3.2 Objects of deposit and comprehensiveness of collection

The nature of the object of deposit depends on the jurisdiction of the particular country; however, books were the original object of deposit and are included in all jurisdictions (IFLA, 2000e:Books). It is important that the legislation is very clear making a distinction between archival material which is of a private nature and not for general distribution, for example, photographs (Larivière, 2000:41). Some photographs may also be for wider distribution and may fall into the public domain as opposed to personal photographs which are considered private. According to Jasion (1991:9) legal deposit legislation can be very general or extremely specific in describing the types of materials to be deposited. Some use general terms like publication and define what is meant by the term, others state a term and do not give a definition. The items of deposit included any

type of library material (books, periodicals, newspapers, maps, brochures, microforms, pamphlets, and so on), audio-visual materials (videos, CDs, DVDs, videos, cassettes, films, and so on), broadcast materials and electronic publications. *New world encyclopedia* (2008:Objects of legal deposit) emphasises that —objects of legal deposit are generally distinguished from records for archives”. To differentiate deposit materials from archival materials Larivière (2000:29) and *New world encyclopedia* (2008:Objects of legal deposit) state the object should be produced in multiple copies and made available to the general public, unlike archival materials that are not made in multiple copies. With many countries revising their legal deposit legislation, the scope of media has been extended to include audiovisual, broadcast and electronic media (Lor, 1997:Legal Deposit). Often legislation for electronic publications is divided into offline and online publications and first legislative amendments are usually concerned with offline publications (Verheul, 2006:26). This may be due to the fact that offline publications are easier to deal with and have a couple of characteristics similar to print materials. Although a number of countries have updated their legislation to collect electronic publications only a few are collecting some online publications namely Sweden, Denmark, France, Australia, Netherlands and USA. Lor (1997:Legal Deposit) emphasises that —legal deposit of such media raises complex problems of acquisition, preservation, bibliographic control and access”.

As explained above in the legislation, government is a big producer of documents and publications, with some countries including government publications, also known as official publications, in their legislation. Larivière (2000:37) notes that government is the most prolific publisher of print materials (maps, books, law and statistical reports, pamphlets, parliamentary papers, and so on) but also a variety of other materials including audio-visual material, e-journals and electronic publications. It is assumed by Jasion (1991:14) and Larivière (2000:36) that the majority of countries have some kind of arrangement for the deposit of government publications. For example, Japan, Philippines, Nigeria and South Africa all have laws regulating the deposit of government publications (Jasion, 1991:14; Larivière, 2000:36). Other countries cover the deposit of

government publications in separate legislation and these include USA, Canada and Poland (Jasion, 1991:14; Larivière, 2000:36).

Today a number of countries have amended their legislation and others are re-examining legal deposit to include the major multifaceted challenge of collecting electronic publications (Larivière, 2000:13). New technology has made publishing easier and faster, creating a massive increase in electronic publications. This is a major concern in the world, including Africa, where extremely important documents are being lost due to outdated deposit laws, the volatile nature of the materials and insufficient knowledge on methods of collection and preservation. In order to have a comprehensive collection which includes new types of information carriers, general terms such as document instead of book or publication; producer in place of publisher are used in legislation (Lor and Letshela, 2002:South African and Namibian Legal Deposit Acts; Larivière, 2000:23). Although some countries may define the terms used, others may simply use undefined terms thereby creating confusion. Apart from legislative terms affecting comprehensiveness of a national collection, other factors include space, staff available, technical and technological capabilities (Larivière, 2000:23).

2.7.4 Role players

The preservation and access of legal deposit is not a simple issue or procedure, it involves implementation and the enforcement of the relevant legislation in a country. Legal deposit law does not always assure proper implementation unless there is proper coordination between the stakeholders (Fenerci, 2007:491). Penzhorn (2007:76) emphasises that right legislation and fully working processes form a firm foundation for a legal deposit system.

In legal deposit there are a number of role players, namely the government of the country, the depositor and the depositories. Penzhorn (2007:76) points out that the “goodwill and trust and a working consensus between role players are also crucial if the arrangement is to be successfully implemented”. There are different stakeholders in the legal deposit function and they each play a different role in the process. Each

stakeholder's role directly impacts on the effective and efficient management of the legal deposit system, as well as the extent to which legislation is adhered to (Penzhorn, 2007:76).

2.7.4.1 The government

The government of a country is responsible for producing the laws in its jurisdiction. In most countries a specific legal (standalone) instrument is created to ensure the comprehensiveness of their national deposit (Larivière, 2000:8). Lor (1997: Legal Deposit) states that:

Legal deposit legislation is important to national libraries because legal deposit can provide the basis for the collection and conservation of information materials published in the country, and further, for their bibliographic description and physical availability. It is therefore very relevant to the exercise of heritage-related functions. In addition, legal deposit may assist the national library in compiling national publishing statistics. In cases where the national library is also the national agency administering international standard numbers such as ISBN (international standard book number) and ISSN (international standard serial number), the legal deposit and publication numbering activities usefully complement each other.

He continues to say that this makes one think that maybe legal deposit should be part of national library acts or legislation. However, in some countries it is part of other legislation namely copyright acts, national library acts and intellectual property law (Larivière, 2000:8). Other legislation, such as that contained in a country's constitution (discussed in Chapter 1 section 1.2.1), affect the legal deposit laws. The constitution is the primary law that determines the principles of a country's government and therefore affects any other law created in the jurisdiction. Legal Resources Centre (1997:4) states —~~its~~ is the most important – or supreme – law of the land and no other law may differ from it”.

The government, as mentioned earlier, is a large producer of publications which are usually known as government publications or official publications and therefore the

government is also a publisher and in most countries is required to deposit these publications (Jasion, 1991:14; Larivière, 2000:26). However, Jasion (1991:4) states that “government publishers are not always included, and sometimes deliberately excluded”.

2.7.4.1.1 The South African Government

Other legislation created by the South African government and linked to the library and information sector may impinge on, or affect legal deposit legislation. For example, the South African Constitution (access to and freedom of information clauses in the Bill of Rights), the Protection of Information Bill if passed by parliament as well as others mentioned earlier in section 2.7.2.2. According to Steward (2010:9), on the one hand the bill recognises the need for the free flow of information but also establishes the need for extreme and arbitrary restriction of public access to government information.

The government of South Africa makes provision for a Legal Deposit Committee which consists of:

- (a) The heads of the places of legal deposit;
- (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.

The object of the Committee is to coordinate and promote the implementation of the Act (The South African Legal Deposit Act No. 54 of 1997).

2.7.4.2 The Depositor

The legal deposit set of laws can be very broad or very specific in describing who is required to deposit media. Larivière (2000:26) says “current legal deposit laws generally require that all producers of materials subject to legal deposit should deliver copies to the national institution responsible for the implementation of the law”. In a few countries like France the legislation requires that documents should be deposited by publishers, producers, printers or distributors (Jasion, 1991:133; Larivière, 2000:26). Unlike France, Botswana's legal deposit law has a narrow scope. Radiporo (2009:Section 10) highlights

that the term ‘publisher’ in the Botswana legislation does not include printers, resulting in a lot of materials not being collected. In addition, Radiporo (2009:Section 10) argues that “the law also excludes materials produced by other means rather than publishing” that is non-print documents. Larivière (2000:26) emphasises that it is very important to use broad terms to describe who is responsible for depositing materials to ensure that all materials published are deposited.

2.7.4.2.1 The Depositor in South Africa

The publisher of a document in South Africa is responsible for depositing materials subject to legal deposit. The publisher in the South African Legal Deposit Act No. 54 of 1997 is defined as:

Publisher’ means the person or body, whether public or private which:

- publishes and distributes a document;
- 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;
- imports a document produced abroad for a South African publisher; or document specially adapted for the South African market to make it generally available.

2.7.4.3 The Depository

In the majority of countries the national library is the main institution responsible for legal deposit but other types of libraries and institutions are also used as depositories, for example, public libraries, university libraries, parliamentary libraries, law libraries, regional libraries, libraries of government ministries and archives (Jasion, 1991:12; Larivière, 2000:27). The national library is not always responsible for legal deposit, for example in the USA and Japan the parliamentary libraries are responsible, that is, the Library of Congress and the National Diet Library respectively (Jasion, 1991:12; Larivière, 2000:27). Within the guidelines to legal deposit Larivière (2000:51) states that the national deposit collection is owned by the country and depository should keep all documents received and make sure they are preserved properly and made accessible.

In a number of countries several institutions receive deposit material and in some countries audiovisual materials are deposited with institutions other than the national library, such as a national film and sound archive (Lor, 1997:Legal Deposit). Most countries studied do not use public libraries as depositories. In the review of literature no new developments with regard to issues about legal deposit and public libraries in South Africa were found apart from Nsibirwa's (2007:18-21) study.

2.7.4.3.1 The National Library

A national library is an institution, primarily financed by the state, which is responsible for the effective and efficient functioning of the country's libraries through the management of nationally significant collections, the provision of infrastructure, and the coordination of activities in the country's library (Lor, 1997:National Libraries). A national library is responsible for collecting, bibliographically recording, preserving and making available the documentary heritage (primarily published materials of all types) emanating from or relating to its country (Al-Nahari, 1984:19; Lor, 1997:National Libraries; Behrens, 2000:105; NLSA, 2011>About us). The national library's functions are stated in a country's legislation. In the majority of countries one of the main functions of the national library is to collect the published information sources of the country and incorporate these sources in the catalogue and national bibliography (Behrens, 2000:105). Most national libraries have a dual purpose, being both a national library and a public library.

2.7.4.3.2 South African Depositories

In South Africa the national library has the main responsibility for legal deposit which has two branches based in different geographic locations namely Pretoria and Cape Town. The other depositories are public libraries namely, Mangaung Library Services (formerly Bloemfontein Public Library) and Msunduzi Municipal Library (formerly the Natal Society Library) in Pietermaritzburg. Other sites are a parliamentary library, namely the Library of Parliament in Cape Town, and an archive, namely the National Film, Video and Sounds Archives in Pretoria.

2.7.4.3.2.1 The National Library of South Africa (NLSA)

Before 1 November 1999, South Africa had two national libraries, the South African Library founded in Cape Town in 1818 and the State Library founded in 1887 in Pretoria (NLSA, 2010:History). With the passing of the National Library of South Africa Act, No 92 of 1998 the two libraries were merged to form the NLSA (Behrens, 2000:80). The NLSA has dual sites occupying premises in both Cape Town and Pretoria.

The core functions of the NLSA relating to legal deposit as outlined in the NLSA Act are:

- To build up a complete collection of published documents from or related to South Africa.
- To act as the national preservation library and provide conservation services nationally.
- To list the national resources and act as the national bibliographic agency and provide a national bibliographic service.
- To promote access to published documents, both nationally and internationally,
- To promote awareness and appreciation of the national bibliographic agency (Behrens, 2000:80; NLSA, 2011:What we do).

2.7.4.3.2.2 Official Publications Depositories (OPDs)

Although in South Africa a depository can also be an OPD and receive official government publications there are designated Official Publications Depositories. Official publications are government publications and are described by the Legal Deposit Act No. 54 of 1997 as —...a document published by an organ of national, provincial or local government, a parastatal organisation or any other institution listed as a public entity....”

The OPDs are permitted to receive a copy of all official publications. In South Africa the provision for OPDs was first made in the current legislation; the Legal Deposit Act No. 54 of 1997 (Lor, 1999:The Legal Deposit Act...). This was done to foster the democratic process by making official publications accessible to people (Lor, 1999:Information is the lifeblood...). There are currently four OPDs namely, Constitutional Court Library designated OPD on 17 March 2004, RJR Masiea Public Library (1 February 2006),

North West Provincial Library (1 January 2009), and the Mpumalanga Provincial Library Services (1 November 2009) (Government Gazette, 2004:47; Government Gazette, 2006:50; Government Gazette, 2009:62; Government Gazette, 2010:70). The National Library of South Africa created a manual specifically for OPDs in 2004. The OPD manual has guidelines for best practice and encourages OPDs to set their own policies based on the generic guidelines (Baker, 2004:7).

2.7.5 Deposit requirements

The deposit requirements vary from country to country and depend on what is stipulated in the legislation of a particular country. The deposit requirements include the number of copies required and the stipulated time frame in which the publisher has to deposit the documents.

2.7.5.1 Number of copies to deposit

Most countries require copies delivered to the national library plus all the other institutions that are depositories. Larivière (2000:27) emphasises that:

In order to ensure that copies are available for preservation and for use by researchers having access to the national collection of legal deposit material, a minimum of two copies should be deposited.

The number of copies deposited varies depending on the legislation of each country, these range from one copy to 19 copies (Larivière, 2000:27; *New world encyclopedia*, 2008:Legal deposit). Poland has the largest number of copies requested - 19, Britain six copies, South Africa, France and China five copies, Botswana three copies, Sweden and Norway seven copies and one copy in Japan (Jasion, 1991:12; Larivière, 2000:27; *New world encyclopedia*, 2008:Legal deposit by country). In some countries there are various categories of publishers specified in the law that deposit a different number of copies depending on who they are. In Nigeria the number of copies deposited depends on who the publisher is, private publishers deposit three copies, the federal government including its agencies 25 copies and the state government plus its agencies 10 copies (National Library of Nigeria, 2009:National Library Decree). In other countries, such as Canada, the number of copies deposited depends on the format and number of printed

copies made for example:

- Two copies must be deposited if 100 or more copies are made;
- One copy if more than three but less than 100 are made; and
- Legal deposit does not apply if less than three copies are made (Jasion, 1991:12; Larivière, 2000:28; Library and Archives Canada, 2007: Changes in Legal Deposit).

Similarly, in South Africa only one copy is deposited if more than 20 but less than 100 are printed but five copies must be deposited if more than 100 copies are printed (Mpholefole, 2010b: Prescribed number of copies) (Refer to Table1 below). In addition, Jasion (1991:12) says the cost of a publication in Canada and Quebec affects the number of copies deposited. According to Larivière (2000:28) –such a measure is a means of avoiding undue financial burden on the publishers”. However, the Library Association (Britain) (1997: Issues arising from legal deposit...) stresses that –there is a danger in relying on single copies of anything, as there is in concentrating an entire archive in a single location”.

Table 1: Prescribed number of copies to deposit in South Africa

Version and type of document	Total number of copies per print run			Number of copies to each place of legal deposit					
	0-20	20-99	100+	NLSA PTA	NLSA CT	MLS	MML	LP	NFA
Books: standard edition	0	1	5	1	1	1	1	1	
Books: luxury ed.	0	1	1		1				
Books: reprints	0	1	1	1					
Microforms	0	1	5	1	1	1	1	1	1
Musical texts	0	1	5						
Maps	0	1	5	1	1	1	1	1	
Posters	0	1	1	1					
Serial documents	0	1	5	1	1	1	1	1	
Electronic documents (static)	0	1	5	1	1	1	1	1	
Multimedia	0	1	5	1	1	1	1		1

(Mpholefole, 2010b: Prescribed number of copies)

NLSA PTA - National Library of South Africa, Pretoria

NLSA CT - National Library of South Africa, Cape Town

MLS - Mangaung Library Services

MML - Msunduzi Municipal Library

LP - Library of Parliament

NFA - National Film, Video and Sound Archives

2.7.5.2 Time period and costs incurred

Just as the number of copies to be deposited varies depending on legislation so does the time period for deposit. However, deposit times vary extremely from country to country. They range from twice a year in Denmark, one month (United Kingdom, Israel,

Singapore and Botswana), within 14 days of publication (South Africa and Namibia), within one week in Canada and immediately after printing in France (Larivière, 2000:29; Library and Archives Canada, 2007:Changes in Legal Deposit; *New world encyclopedia*, 2008: Legal deposit by country; Rabina, 2009:178). However, in the UK apart from the British Library (one month) the five other libraries are entitled to request a deposit copy within one year of publication (*New world encyclopedia*, 2008:Legal deposit by country; British Government, 2009:Legal Deposit Libraries Act 2003).

In general, the costs involved in the deposit of documents are borne by the depositor who could be the publisher, printer or author of the publication. Larivière, (2000:29) says:

As a matter of principle, legal deposit should be free since its objectives are to serve the public interest, mainly to ensure the preservation and the availability for future generations of the intellectual record of the nation's economic, social, scientific and educational activities.

Ngoepe and Makuhura (2008:105) say that legal deposit imposes a financial burden on publishers and involves public expenditure. The publishers lose the cost of publication and delivery and the government spends money on preservation and access of the documents.

Most publishers who are producing very small print runs of high cost materials usually have problems and are affected by deposit. Some countries such as Japan and Israel compensate publishers wholly or partially for the cost of the book. Rabina (2009:177) says in Israel, a publisher is compensated for the total cost of the book or newspaper including valued added tax and the cost of registered mail. In Japan the publishers are compensated for the printing and postage (National Library of Australia, 2003:Japan). Other countries, for example, Belgium, France and Canada acknowledge publishers' concerns by limiting the number of copies for luxury/limited editions (Larivière, 2000:29; Library and Archives Canada, 2007: Changes in Legal Deposit). In addition in Canada, legal deposit is not deductible from income tax but a publisher can deduct it as a business expense (labour costs and materials used) (Library and Archives Canada,

2007:Tax deduction). This can only be done by countries that are financially and economically stable.

In South Africa a publisher can be exempt from depositing a book due to the high cost of publishing a particular document (South Africa Legal Deposit Act No. 54 of 1997). The publisher is required to apply to the Minister of Arts and Culture who consults with the legal deposit committee about the exemption (South Africa Legal Deposit Act No. 54 of 1997). A useful guideline is given by the Library Association (Britain) (1997:Costs to those who deposit) which states that “the burden of legal deposit should not be so great as to jeopardise the viability of publishers or of particular publications”.

2.7.5.3 Enforcement of legal deposit legislation

Legal deposit is a statutory obligation in most countries and in order to be effectively implemented it needs to be enforceable and must include a consequence if breached (Larivière, 2000:16; Penzhorn, 2007:68). A fine for non-compliance is the most common enforcement mechanism used though it should be substantial but not unreasonable (Larivière, 2000:16). Chisita (2010:Factors affecting compliance...) points out that:

There are various reasons why people comply or fail to comply with a specific piece of legislation, for example people will comply because the law is legitimate and fair and that there are economic benefits to be derived. On the other hand failure to comply might result from the fact that it is not deterrent enough, it lacks legitimacy and those bound by the act do not see any benefits arising from compliance.

Generally the prevailing opinion according to Penzhorn (2007:68) is that enforcing penalties should be a last resort as the cost of legal fees would end up being more than the cost of the item in question.

Court cases relating to legal deposit are rare, although, in South Africa there has been one well known lawsuit (Pippa Skotnes versus South African National Library) relating to the issues of enforcement of legal deposit in which the graphic artist, Skotnes, refused to deposit five copies of her work on the grounds that it was a work of art and very costly

to reproduce, however, the Supreme Court ruled in favour of the library (P.E.W., 1997:128; Penzhorn, 2007:70; Rabina, 2009:175). P.E.W. (1997:128) says that:

to eliminate all misunderstanding the Committee of Legal Deposit Libraries decided to exclude from the provisions of legal deposit editions of less than 20 copies, and of those with between 20 and 100 copies only one copy needs to be deposited, this going to the South African Library [National Library of South Africa].

Fines in different countries can either be a deterrent to compliance because they are appropriate or a non-deterrent because they are so low. In Zimbabwe, the Printed Publications Act states a publisher who fails to comply with the act will be liable to pay a fine of not more than Z\$500 (Chista, 2010:Fines as a deter[r]ent measure). With the current economic situation in Zimbabwe with high inflation rates, publishers are unlikely to be worried about non-compliance with a fine as little as Z\$500, however, they may also be sent to prison for six months (Chista, 2010:Fines as a deter[r]ent measure). In Nigeria penalties for non-compliance are stated in the legislation, however the amounts are stated in both local and international currency, for example, N6,500 or \$50 (National Library of Nigeria, 2009:Penalty for non-compliance). The penalty stated in international currency helps, especially with an economy facing fluctuations in inflation. Likewise in Israel a penalty is paid for non-compliance, however the amount to be fined is not stated in the Books Act but refers to the Penal Code thereby making it less effective (Rabina, 2009:178).

Where a producer does not comply in Namibia, the National Library of Namibia gives the producer written notice requiring delivery within 30 days of receipt (Zulu, 2003:The Namibia Library and Information Service Act, No. 4 of 2000). According to Zulu (2003:The Namibia Library and Information Service Act, No. 4 of 2000) the National Library of Namibia may acquire the document and recover the cost from the producer. He emphasises that the legal deposit provisions are fairly effective in Namibia.

In South Africa the Legal Deposit Act 54 of 1997 states that if a publisher fails to deposit documents (Section 2), deposits the documents late (Section 4) or if the publisher is

exempt from deposit but does not furnish the National Library with the information with regard to the document (Section 5(3) and 2(2), a fine is liable of not more than R20,000. In addition in Section 10 of the Legal Deposit Act, to deter non-compliance the documents have to be supplied by the publisher to the places of legal deposit within 30 days. If copies of the document are no longer available, reproductions are made, or copies may be bought by the places of legal deposit, and costs recovered from the publisher. If all else fails, the Department of Arts and Culture consults with the Legal Deposit Committee and may institute civil proceedings against the publisher. However, apart from trying to enforce compliance with penalties, there is the need to have proper procedures for tracing non-compliant publishers in order to have an effective control system in place. Table 2 shows various aspects on legal deposit in a number of developed and developing countries enabling one to make comparisons between South Africa and other nations.

Table 2: Legal deposit in a number of countries

Country	Botswana	Nigeria	Namibia	South Africa	Israel	Britain	Canada
Legislation Specific Act	No	No	No	Legal Deposit Act 54 of 1997	Book Act 2000	Legal Deposit Act 2003	No
Part of another Act	National Library Act section 10 of 1967	National Library Decree 29 of 1970	National Library and Information Service Act 4 of 2000	No	No	No	Library and Archives of Canada Act
Type of depositories	National library and university library	National library and university library		National library, public libraries, parliamentary library, archive	National library and university library, parliamentary library	National libraries and university libraries	
Objects of deposit	Very narrow scope	Wide scope	Wide scope	Wide scope	Narrow scope	Wide scope	Wide scope
Print materials	Books only	Yes	Yes	Yes	Yes	Yes	Yes
Govt. Publications	No	Yes	Yes	Yes	?	Yes	Yes
Electronic materials (offline)	No	Yes	Yes(not yet collected)	Yes	No	Yes	Yes
Electronic materials (online/dynamic)	No	Yes	Yes(not yet collected)	Yes(not yet collected)	No	Yes - not yet collected regulations come into effect April 2011	Yes
Audio-visual materials	No	Yes	Yes	Yes	Yes	Yes	Yes
No. of copies to deposit	3 (2 National library and 1 university library)	3 private publishers 10 commercial publishers 25 state and federal agencies	5	5	3	6	2
Time	1 month	1 month	14 days	14 days	1 month	1 month	7 days

Table 2: Legal deposit in a number of countries (cont.)

Country	Botswana	Nigeria	Namibia	South Africa	Israel	Britain	Canada
costs	Publishers	Publishers	Publishers	Publishers	Publishers are responsible for 2 copies and Knesset Library compensates publishers for 1 copy	Publishers	Publishers
Penalties		Fine 50\$ (N6,500)		Fine not exceeding R20000		Publisher will pay the library an amount not more than the cost of making the publication	Maximum fine is C\$25,000
Miscellaneous		Have legal deposit awards to encourage depositors			The parliamentary library compensates for the copy they receive	Apart from the British Library (1 month) the other libraries receive their deposit within a time frame of 1 year.	Number of copies decreases with print run
Sources consulted	(Radiporo, 2009: section 10...)	(National Library of Nigeria, 2009: National Library Decree...)	(Zulu, 2003)	(SA Legal Deposit Act 54 of 1997)	(Rabina, 2009: 177-178)	(Gibby and Green, 2008:55-69)	(Library and Archives Canada, 2007)

Apart from legal deposit stipulating that a country's literary heritage needs to be collected, it also needs to be preserved so that people will be able to access it in the future.

2.8 Preservation

The meaning of preservation has evolved over the years. Cloonan (2007:134) says:

- In the 12th century it referred to collecting, the act of acquiring and putting materials in an institution.
- There, after restoration and physical treatment of items by artists and craftsmen, the material was considered as being preserved.

- After World War II the term conservation emerged and the focus was not only on individual items but on external hazards affecting collections like the environment and disaster alleviation.
- By the 1980s the term preservation became the umbrella term for the total care of collections.

There are several reasons for this change including:

- Increased use of depositories and archival materials;
- The volume of publications has increased incredibly;
- The quality of materials has deteriorated since 1850;
- The growing threat and loss of huge quantities of documents and information; and
- The publication of documents on new carriers that require different preservation techniques (Varlamoff, 2004a:159).

Preservation is an umbrella term which includes all the strategies and methods of action, including managerial, financial considerations, storage provisions, staffing levels, policies, and techniques, in preserving library and archival material and the information contained in them (Adcock, Varlamoff and Kremp, 1998:5).

Preservation is based on the concept that, because people learn from the past, facts of the past therefore have considerable importance for the human race and are worth saving (Harvey, 1993: 6; Ngulube, 2002:27; Feather, 2004:7). Preservation in cultural heritage terms refers to permanence and is a vital principle in retaining a cultural heritage and building up the resources that enrich culture, facilitate research and bring wider social and economic benefits to society (Mason, 2007:201). Mason (2007:201) states that “cultural collecting, permanence applies to why cultural material is collected”. However, Conway (2010:64) notes that actions preventing and slowing down deterioration of organic materials and restoration of the usefulness of an information source is the heart of traditional preservation. Cloonan (2001:235) stresses that:

The paradox of preservation is that it is impossible to keep things the same forever. To conserve, preserve, or restore is to alter. Even if an object survives untouched, it will have changed just by virtue of aging or by change in its surroundings.

Harvey and Howell (2004:1) suggest that:

As well as this evidential dimension, preservation also has other dimensions – the intellectual substance of what we preserve, the pleasure, enjoyment or aesthetic reward we get from our cultural heritage, and the utility and economic sense of preserving some materials.

Kahn (2004:40) and Conway (2010:68) stress that today in addition to preserving the physical object one has to preserve the intellectual content of the electronic publication or materials.

Preservation is an act of responsible custody and refers to maintaining material's original structure or until they deteriorate to the point that their content needs to be transferred to some more durable form (Cloonan, 2007:136; Conway, 2010:64).

Conway (2010:64) states that:

Preservation specialists in libraries, archives and museums share a commitment to protect the stuff of culture in all forms and formats, perhaps even including the built environment that houses the raw material of history and the evidence that feeds our memories.

Preservation is not just about the curative care of single documents, which is conservation, but is a much wider concept which involves taking care of a collection of materials as a whole (Varlamoff, 2005a: The International Federation of Library Associations and Institutions Preservation and Conservation (IFLA-PAC) Director; Cloonan, 2001:235, Millar, 2010:74). Preservation is not just about collections' preservation, it also includes preservation management, staff training and preservation curricula and identification of priorities and new technologies (Varlamoff, 2004a:159). Kalusopa and Zulu (2009:98) state that —preservation is an umbrella term under which most librarians and archivists cluster all the policies and options for action, including conservation treatments of different formats of information materials”. Conway (2010:62) emphasises that today preservation specialists have learnt to look at the technical details of materials science and at the same time cost effective action. However, Cloonan (2001:231) argues that —preservation must be approached not only as a set of technical solutions to technical problems but also as a more complex concept that includes social dimensions”. Varlamoff (2005a:Marie...) agrees with Cloonan (2001) and says that

preservation is more of an attitude or philosophy than just a set of procedural measures. She continues to emphasise that technical measures exist but they need to be adapted to each individual situation. She compares it to raising children in that there is no single way to raise children.

Most legal deposit libraries and archives seek to keep materials in the collection in a usable condition but are faced with diverse materials and variations in chemical and physical structure (Webb, 2004:34; Morrow, 2000:1). Smith (2004a:6) and Lavoie (2004:45) argue that librarians have always struggled with preservation issues since the advent of recorded information and these old preservation challenges will remain, bigger and seemingly more intractable than ever. Webb (2004:27) maintains that:

the preservation of digital information takes that process a step further, into a world where there are only symbols of symbols, only understandable ‘in any civilized nation’, or anywhere else, via the mediation of machines and the programs that run them.

The digital age has come with great changes on the preservation landscape, with the traditional paradigm of preservation through crisis management or ‘rescue ex post facto’ being inadequate for the 21st century (Lavoie, 2004:47; Conway, 2010:63).

Mason (2007:201) emphasises that:

Anticipating and meeting the needs of researchers, developing digital collections and addressing issues of digital preservation remain a considerable challenge; there are many unknowns in establishing new practices for collecting electronic publications.

The field of preservation in libraries and archives continues to change especially with the rapid development of technology. The rapid development of technology has led to an increase in electronic materials as well as no considerable decrease in the production of printed materials.

Yet, preservation of library collections is also often a challenge due to the constant obstacles of limited funding, insufficient staffing and training, dependency on donor agencies, lack of expertise and preservation facilities, particularly in South Africa.

These issues were discussed in detail by Nsibirwa (2007:42- 48) and there have been no significant change with regard to these challenges.

2.8.1 Preservation and access

Preservation and access go hand in hand and are complementary, not contradictory (Ivey, 2004:37; Varlamoff, 2005a:Marie...). UNESCO (2002:3) explains that —preservation and access, of themselves, not only complement each other – but also raises awareness, as access demand stimulates preservation work”. Legal deposit libraries preserve their collections, not for preservation’s sake but to facilitate access to these resources for future use. Preservation is nullified if access is prevented (Feather, 2004:8) because as Ngulube (2003:1) explains —preservation as a collection management strategy is key to long-term access to records and archives”. Preventative measures should be carried out to safeguard the materials while considering accessibility, operability and architecture which depends on the geographic location of the depository, however preservation is fundamental for all (Varlamoff, 2005a:This was followed...). Ngulube (2007:45) also emphasises that —the aim of preservation is to prolong the usable life of archives in order to ensure indefinite access to them”. According to Sahoo (2007:110) —preservation is the process in which all actions are taken to check retardation and deterioration”. Yet, Van Garderen (2007: Preservation implies that...) states that —preservation implies that the long term value of the information object has been recognised and that steps, however minimal, have been taken to maintain and protect the information object”. This includes preventative measures (good housekeeping) and curative measures (reversing the effects of time). Preservation in the past was shaped around the notion of permanence. According to Harvey and Howell (2004:1), —the enemies of books‘ come in many guises”. No matter how well protected and cared for, materials cannot last forever because of internal processes of decay that defy the most sophisticated intervention (Harris, 2000:46; Harvey and Howell, 2004:1; Forde, 2005:196). Smith (2007:5) emphasises that —in recent years preservation professionals have taken to characterising their work as provision of —persistent access, life-cycle management of information assets, sustainability, or stewardship in the hope of under-scoring the societal value of preservation”.

A study by Ngulube (2007:45) on preserving public records and archives in general in South Africa revealed that inadequate housing, environmental conditions, lack of preventative preservation, weak organisational structures and limited funding will lead to a loss of documentary heritage unless reversed. Lavoie (2004:46) argues that —partly as a consequence of its significant cost, preservation has frequently been characterised by procrastination”. Current preservation strategies in South Africa make use of a combination of some or all of the four elements namely restoration, media conversion or preservation reprography, preventative preservation and pre-archival intervention (Harris, 2000:48). Smith (2004a:7) states that:

The proximate goals of preservation have changed. They are no longer to fix, to stabilize, to conserve, or to reformat onto an archival medium. We speak now of ensuring continued access through maintaining collections that are fit for use.

The challenge is achieving equilibrium between the conflicting requirements of the preservation of, and access to, legal deposit materials.

2.8.2 Factors of deterioration

Most of humankind’s cultural heritage is recorded on materials subject to the ravages of an unstable environment including biological factors, careless handling, natural and man-made disasters, inferior paper, impermanent and acidic ink and technological obsolescence resulting from outdated hardware/software that make information inaccessible (Ngulube, 2007:46). In order to minimise risk to the collections and prevent deterioration in the future the following factors, namely environmental, biological and human factors need to be addressed

2.8.2.1 Environmental factors

The security and preservation of documents begins with the buildings in which they are stored. Ngulube (2007:54) states that —storage conditions offer many opportunities to prolong the life span of documents because they contribute to their physical well-being”. The proper preservation environment for different cultural materials, such as paper, photographs, audio-visual materials, electronic publications is important, requiring a high level of protection against various factors including air pollution, humidity, sunlight, insects, animals, fire, flooding, thieves,

vandalism, improper storage and handling. Secondly, over the last decade there has been an increase in temperatures which may be linked to global warming. South African Weather Service (2011:Climate change) state it is natural for climate to change or vary from one decade to another but human industry and development have led to changes over and above the natural variation. Henry (2008:1) and the United Nations Conference of Parties 17 (COP17) (2011:Effects of climate change on South Africa) emphasises that among the projected climate trends are:

- Virtual certainty of an increase in average temperatures and high temperature excursions;
- Very likely increase in frequency of extraordinary rainfall events; and
- Likely certainty of rising sea levels and coastal flooding.

The current climate change and effects of global warming can affect the buildings and the materials stored in the buildings if they are not taken care of properly. The Environmental Affairs Department, South Africa (2010:Recent temperature trends) state that:

- Most of the models used to look at temperature trends indicate a net drying on the western two-thirds of the subcontinent, south of about 10 °S.
- East coast regions, where topography plays a significant role in the formation of rainfall, are likely to become wetter. The extent to which this wetting will extend into the interior is uncertain.
- The Western Cape is predicted to face a shorter rainfall season, with the eastern interior portions of the province likely to experience increased late summer rainfall.
- Ambient air temperature is predicted to increase across the country, with the interior experiencing the greatest increases. Maximum warming for the interior is likely to be in the 3–4 °C range.
- Other potential changes include more floods and droughts and stronger, more frequent temperature inversions, exacerbating air pollution problems.

Thus climate change and global warming are making preservation of materials even more important because they also affect the building in which materials are stored.

2.8.2.1.1 The building

The building is the collection's most important source of security; it is fundamental and affects preservation and access in different ways (Ngulube, 2007:55; Nsibirwa, 2007:33). Depositories are similar to archives and Membe (2002:19) states that —~~the~~ archive has neither status nor power without an architectural dimension, which encompasses the physical space of the site of the building...". A building that has been specifically designed to store and preserve library and archival materials can be called custom made or a purpose built building. The custom made building will have the proper architectural properties for storage of materials to prolong the life span of the materials (Ngulube, 2003:102). Acker and O'Connell (2010:Building attributes) stress that the important design issues for depositories and archives are:

- Storage of archived material to maximise efficiency and utilise the building's cubic space.
- Flexibility for change of mission, new materials to be stored, and archival technologies.
- Provision for archives expansion—vertically and horizontally.
- Protection of the archived materials is a principal design driver for this building type.
- Compartmentalisation of storage areas to limit involved area of catastrophic loss in case of fire or system failure.
- Fire protection of the stored materials.
- Safety of staff and visitor occupants.
- Temperature and humidity requirements that might vary for different types of materials stored in archival areas and in the archival/preservation office areas.
- Daylighting for employee amenity, but not that which would harm archival materials or adversely affect sensitive indoor environmental conditions.
- Controlled access to archive storage areas.
- Secure and safe loading and receiving areas.
- Secure and controlled public/researcher access.

However, Banks (2000:121) stresses that although there are building standards, these standards vary due to the fact that different geographic locations have different climatic conditions and also when they were built. The study by Nsibirwa (2007:98)

revealed that the library building of Msunduzi Municipal Library was custom-designed and built in 1975. However, it was built during the time when many institutions all over the world had just identified mass embrittlement of books and had just started to understand that preservation does not entail conservation only. The Msunduzi Municipal Library building was not designed for the preventative preservation of materials but has since been renovated to improve environmental conditions.

Many libraries have been adapted from non-purpose made buildings (especially old ones) and converted into libraries. These adapted buildings usually do not have the appropriate facilities for preservation and access of materials and many are faced with electrical problems and leaking pipes. The poor environmental conditions are due to poor design, construction, maintenance, changing personnel and deterioration of systems and equipment (Banks, 2000:136). Higginbotham and Wild (2001:20) argue that people need to know the history of the adapted buildings because knowledge of past disasters equip management to prevent and control these disasters from happening again. Some of these historic buildings, that have been converted into libraries, have limitations because they are protected by a statute and cannot be changed (Fenn and Muir, 2003; Feather, 2004:6).

The influence of the environment on the materials and records is very complicated including controlling that environment (Banks, 2000:114). The International Organisation for Standardization (ISO) (2003:2) in the ISO 11799 state that —if these requirements cannot be met, special provision shall be made in the construction of the building to defend against these threats”. Therefore, whether a building is purpose built or adapted, effort needs to be put into defending the building against environmental elements. The ISO in their standard for “Information and documentation — Document storage requirements for archive and library materials” (ISO 11799) (2003:2) states that the site for an archive and/or library repository building should not be:

- Liable to subsidence or flooding;
- Especially at risk from earthquakes, tidal waves or landslides;
- At risk from fire or explosions in adjacent sites;

- Near a place or a building which attracts rodents, insects and other pests;
- Near a plant or installation emitting harmful gases, smoke, dust, and so on;
- In an especially polluted area, nor
- Near a strategic installation which could be a target in an armed conflict.

James Reilly (AMG, 2009:37) also informs us that before determining what sustainable protective procedures are needed for legal deposit materials, more data needs to be collected on variables such as local climate and building structures. The degrees of vulnerability of the buildings according to the strength of the winds need to be considered especially in areas prone to hurricanes, tornadoes and tsunamis. These issues will be discussed in more detail under disaster preparedness.

However, Banks (2000:125) states that there are a number of strategies that can be employed to reduce the effects of outdoor temperature on the internal temperature and humidity including:

- A mass of older buildings that envelope the depository or archive provides a measure of thermal inertia although in approximate inverse ratio to the number of windows in a building (fenestration).
- Creating a double wall structure around the building.
- Storing collections in internal spaces with staff and other functions around the perimeter of the building.
- Storing underground if ground water can be effectively controlled.

Sahoo (2007:110) emphasises that even the soil on which the building is constructed has an impact on the environmental condition inside the library building. There are a great many considerations to be made in achieving a sound building for preservation including the following points for stack rooms. Avoid having:

- Windows in stack areas.
- Piping in stack rooms or over stack rooms.
- Shelving against exterior walls, which can lead to condensation, insect infestation and mildew.
- Carpeting, which can emit pollutants, disguise infestations and hold water in a flood.

- Dropping ceilings which hide leaks and make maintenance difficult (Banks, 2000:126-127).

Minico (2007:13) agrees with Reilly, Director of the Image Permanence Institute at the Rochester Institute of Technology, about the local climate and states that even the environment of the area surrounding the building matters, for example, the University of Lausanne, Switzerland have:

Built into the hillside, the library is an arc-shaped building of five floors, including two underground levels: there is no denying that it is a complete architectural success in terms of integration in the landscape and comfort for users. The open-air floors end with grassy terraces and from spring to autumn we have the privilege to see charming sheep graze the grass when it goes to seed. If this environment is magnificent in an esthetical perspective, it is much less favorable to the preservation and consultation of documents... When grass goes to seed, the slightest gust of wind scatters the seeds which penetrate into the library by vents whose filters are not thin enough to prevent them from propagating in the air.

The proximity of the building to a big water body needs to be considered because the water body will lead to high moisture content in the air and in countries affected by natural disasters the buildings will be affected badly. For example, Sakamoto (2005:18) says that on 26 December 2004 when the tsunami struck Aceh, Indonesia, —the buildings of the provincial government, library and archives, which were in the area nearest the seashore, were washed away completely, leaving nothing but a vast open field”. The Msunduzi Municipal Library was built on top of a stream and a water pump is used to control the flow of the stream water. Sahoo (2007:110 -111) states that the building should not be built in the centre of cities and towns and should be built away from the traffic to avoid dust and dirt.

With the current problems of global warming and climate change, preservationists have begun to think about the application of green construction to depositories and archival facilities. With climate change, collections’ stewards, architects and engineers (interdisciplinary collaboration) are faced with design challenges, that were not considered a few decades ago, to reduce greenhouse gas emissions and develop an adaptive response to climate trends and their implications (Henry,

2008:3). Meeting these challenges will provide an interior environment beneficial to the longevity of collections and does not lend itself to recipes, prescriptive solutions or naïve application of scoring systems (Henry, 2008:3). Lull (2008:1) a consultant in preservation and special buildings disagrees with Henry (2008) and emphasises that most of the green construction movement to reduce energy use in buildings is simply a rediscovery of techniques that were used over 20 years ago. Some of the green construction techniques like daylighting to save energy are not suitable for preservation, as the buildings gain more heat and the light damages materials, as for example at the Miami University Art Museum, which was built in the mid-1970s (Lull, 2008:4). Not all green techniques are bad and preservationists are currently still looking at the pros and cons of green construction and what is suitable for their own archival facilities with the hope of reducing energy consumption and greenhouse gas emissions (please refer to the Table 3). Different regions should use different green building approaches that reflect the particular region's climate, availability of materials, and building methods. Kim (2008:Examples of green construction...) emphasises that —as technology is developed and social demands increase, diverse cutting edge sustainable approaches to improve the green elements of buildings are under examination”.

Table 3: Green construction for archival facilities

Green application	Benefits for archives	Risks to archives
Utilize renewable energy resources (solar/wind/hydro/biomass energy)	Save on energy bill. Support sustainable energy supply, especially for increasing demand on electronic equipment.	
Utilize natural daylight for office and lobby areas	Save on energy bill.	Can cause UV exposure to holdings.
Use automatic lighting controls	Save on energy bill. Reduce unnecessary light exposure to holdings.	Greater initial cost of construction.
Use renewable construction materials	Less direct benefit for archives, but will be helpful to reduce solid waste disposal fees	
Utilize natural air conditioning	Save on energy bill. Can prevent damage in case of technological failure of high tech climate control system.	Can bring air pollutant and humidity from outside. Can cause regular significant changes in humidity levels.
Berm ¹ against the building	Reduce gain and loss of heat. Support sustainable temperature control.	Can cause water leaking problem. Can increase humidity.
Plant trees around the building	Can help reduce gain of heat by mitigating urban heat island effects.	Can cause insects and animal problems.
Plant local, drought resistant and pest resistant plants in the landscaping	Reduce water consumption and toxic insect control material. Can help reduce gain of heat by mitigating urban heat island effects.	
Use green roof technique	Reduce gain of heat through a roof. Can be helpful for fire suppression.	Can cause roof leakage, roof collapse, insects, animal and fungi problems.
Use of a storm water management and rainwater catch system	Reduce storm water utility fees. Support sustainable water supply can be helpful for fire suppression.	Can cause water leaking problem especially for an underground level of an archival facility.

(Kim, 2007:1)

Germany is building a new archive in phases, the Berlin Federal Archive (Bundesarchiv) in Berlin-Lichterfelde that has ecological requirements (low energy building), ecological power generation and sustainable construction (Barteleit, 2007:8). Barteleit (2007:8) highlighted the importance of climatic conditions for stored archives and explained that:

Following the concept of passive climatisation, the new repository will reach optimal climatic storage conditions with temperatures between 18 and 21°C

¹ A berm is a raised barrier separating two areas.

and a relative humidity of 45 to 55% as a result of architectural measures. However, a small air-conditioning unit is also planned in order to manage extraordinary variations in temperature.

The first phase of construction was completed in April 2009, the second phase is underway and a third phase is planned to be completed by 2018 (Bundersarchiv, 2012:Technical information). Various historical buildings have adapted natural environmental systems, including the Imperial Palace Archives in Tokyo, Japan, which has controlled relative humidity by lining the walls with cedar planks. Cologne City Archives in Germany has increased natural air-conditioning and use of land mass around the Library and Archives Canada building as thermal inertia (Kim, 2008:There are historical...). In a review of the literature the researcher, at the time of the study, did not find any new developments with regard to issues of storage equipment apart from those mentioned by Nsibirwa (2007:34-35).

2.8.2.1.2 Environmental control

Apart from the external factors affecting the building, library and archival materials are affected by internal factors namely temperature, humidity, light, air pollution and biological factors which need to be controlled. Peters (1998:41) emphasises that:

Environmental control is an acknowledged and well established preventive conservation strategy in collections management programmes, and is aimed at decreasing the rate of deterioration of entire collections of materials, thereby reducing the need for costly and invasive restoration treatment of individual items.

The proper basis for setting environmental specifications is a shared understanding that all parties to the specification process should have, as well as a basic knowledge of how collections deteriorate (Reilly, 2008:3). Therefore, one must know the nature of the collection and act accordingly. Deterioration occurs through three basic processes: chemical change caused by light, temperature, relative humidity and air quality; biological processes caused by mould, fungi, insects; and physical damage (Reilly, 2008:3). AMG (2009:37) quotes Reilly, who states:

the idea that the collections environment should be steady and unwavering' is now considered outmoded. The shift has been toward looking at what poses

the greatest environmental threat to a collection rather than creating an ideal situation.

Reilly (AMG, 2009:37) argues that before determining what sustainable protective actions are needed more facts need to be collected on variables such as local climate and building structures. AMG (2009:37) also quotes Cristina Sabbioni, Research Director at Consiglio Nazionale delle Ricerche (CNR) Institute of Atmospheric Sciences and Climate of Italy, who states that “it is very important to identify climatic factors that affect buildings on a longer time scale”. A study conducted by Lyall (1996:15) showed that a majority of libraries and national libraries in the world only conduct basic preventive preservation procedures and regional breakdowns showed some disturbing features with regard to the level of environmental monitoring carried out in Africa and the Pacific. When preservation is seen narrowly it gets separated from the day to day functions of a library and can be considered as a luxury when budget cuts are made (Kenney, 2004:27). Lyall (1996:28) found that:

Only 47% of national libraries report having all of their nationally significant collections stored in a clean environment. On a regional basis, conditions in African libraries are serious to say the least.

2.8.2.1.2.1 Light

Light is the energy that can accelerate deterioration in materials. In depositories and archives the sources of light include sunlight, incandescent or fluorescent light from light bulbs. Banks (2000:117) states that “light is energy that also can accelerate deterioration on the molecular level”.

Exposing materials to natural light (sunlight) is undesirable because of its intensity and high ultraviolet (UV) content which is detrimental to paper and other materials (Banks, 2000:118; Higginbotham and Wild, 2001:23; Ngulube, 2003:91; Nsibirwa, 2007:26; Sahoo, 2007:106). Incandescent lighting emits small amounts of UV but emits infrared (IR) heating. Fluorescent tubes on the other hand emit little IR but produce a varying amount of UV. Although some have built-in UV filters most produce damaging levels of UV (Banks, 2000:118).

Light is measured with a light meter, the shorter the wavelength of radiation the greater the damage to collections therefore UV light is more damaging than violet light (Banks, 2000:118). The UV light is mainly responsible for photochemical degradation which happens rapidly when paper is exposed to sunlight in the presence of air (oxygen) (Ngulube, 2003:91; Sahoo, 2007:106). The oxidation of paper causes:

- Brittle and weak paper;
- Fading of ink on paper;
- Fading of coloured papers dye; and
- White paper to become yellowish/brown (Hunter, 1997:144; Ngulube, 2003:91; Akussah, 2006:5-7; Sahoo, 2007:106;).

The mechanisms of light are rather complex but the result is that damage is irreversible (Banks, 2000:118). However, Sahoo (2007:106) and Banks (2000:118) emphasise that the amount of damage by light depends on:

- Intensity of light – the more intense the light the more damage.
- Duration of exposure – the duration of exposure is directly proportional to the deterioration.
- Distance from the source of light – more distance equals less damage.

Eliminating UV reduces the most serious potential for light damage but “eliminating UV alone does not eliminate light damage” (Banks, 2000:118). The logical action is to have no light at all in depositories but that is not possible so the less exposure of light to materials the better.

Visible light is measured with a light meter which is a relatively simple and inexpensive meter that measures visible light (Banks, 2000:141; Ngulube, 2003:91). It is easy to measure artificial light but this all depends on the intensity of the daylight, time of day, weather conditions and seasons of the year, so individual spot readings have little meaning (Banks, 2000:141). Banks (2000:142) states that it is difficult to monitor UV radiation and the practical instrument available has a number of limitations. Any light source with a higher UV emission must be filtered by using UV filters on artificial lights and UV glazes or films should be used on windows (Hunter, 1997:144; Higginbotham and Wild, 2001:23; Ngulube, 2003:91; Sahoo, 2007:106). The purpose built depository should have very small windows or no

windows at all in the stack rooms. However, blinds and curtains can also be used to stop the light from windows coming into the depository or archive, but also lights should be turned off whenever staff leave the stack rooms. If possible Higginbotham and Wild (2001:23) suggest motion detectors that turn off lights when they sense no human movement.

2.8.2.1.2.2 Temperature and relative humidity

In depositories and archives storage, maintaining temperature and relative humidity is very important because they contribute significantly to the deterioration of materials. Reitz (2010: Relative humidity) defines relative humidity (RH) as:

The ratio of the amount of water vapor present in a given volume of air to the amount required to reach saturation (condensation into droplets) at the same temperature, expressed as a percentage. Relative humidity varies with temperature and air pressure - warm air can hold more water vapor than cooler air.

On the other hand, temperature is the degree of hotness or coldness of an object or environment and is measured in degrees Celsius (°C) or Fahrenheit (°F).

Heat and high humidity speed up chemical reactions (Hunter, 1997:140; Peters, 1998:41; Porck and Teygeler, 2000:23; Baird, 2003:1; Ngulube, 2003:84; Akussah, 2006:5; Ogden, 2007:Control of temperature..., Reilly, 2008:3). Years of research done by the Image Permanence Institute (2008: Decades of preservation...) and other institutions have found that:

Data from years of accelerated-aging tests on a variety of materials provide strong scientific evidence that heat and moisture are the primary rate-controlling factors in almost every form of decay.

Fluctuations in temperature and humidity speed up deterioration and lead to dimensional changes such as cockling paper, flaking ink, warped covers on books, and cracked emulsion on photographs (Ogden, 2007:Control of temperature...).

Reitz (2010: Relative humidity) states that:

Relative humidity is the most important factor in providing a suitable environment for books and other items made of paper, with 40 to 45 percent RH considered ideal for permanent storage of library and archival materials.

Though, Banks (2000:116) and Ogden (2007:Authorities disagree...) state that it has been widely claimed that the most favorable relative humidity for books and manuscripts is 50% of 55%, although lower humidity can significantly increase the longevity, not only of paper, but also of photographic and magnetic materials. The balance of relative humidity and temperature for storage needs to be right because:

- High temperatures with low humidity causes dehydration of cellulose fibers and paper becomes brittle.
- High temperature and high humidity creates a condition for the growth of moulds and mildew (Peters, 1998:43; Banks, 2000;116; Sahoo, 2007:106, Millar, 2010:75).

Therefore one needs to strike a balance and make sure that stack rooms are not affected by extreme fluctuations in temperature and humidity causing materials to expand and shrink.

Relative humidity affects the preservation of objects in many ways and influences the physical, chemical, and structural properties of the materials (Porck and Teygeler, 2000:23). However, Adcock, Varlamoff and Kremp (1998:23) state that the following statements need to be kept in mind whenever temperature and relative humidity are an issue:

There is no one ideal level for temperature and relative humidity for different types of library materials. The level of temperature or humidity that is acceptable for one object may be disastrous for another.

Research has also shown that no single environmental condition can ever be ideal for the different components of a composite object (Image Permanence Institute, 2008: Decades of preservation...). Therefore it is difficult to determine the specific environmental needs of particular collections of materials plus the needs of a particular document. Preservationists should not just assume standard requirements but need to look at various factors.

There is extensive scientific evidence to imply that paper will maintain its chemical stability and physical appearance for longer at a constant, low storage temperature (below 10 °C/50 °F) and relative humidity (30 – 40%) (Adcock, Varlamoff and Kremp, 1998:23). Banks (2000:115) states that:

It has been estimated that a reduction of temperature from 77°F to 68°F, for example, will increase by 2.4 times the time required for “good-quality” paper to lose half its useful properties, and the benefit of reduced temperature for acidic paper may be even greater.

The effect of RH in the deterioration of materials is extremely complex and not really understood. Banks (2000:115) states that:

In fact, it is not the humidity in the surrounding air that affects the chemical, mechanical, or biological deterioration of materials, but the moisture content (“equilibrium moisture content” or EMC) of the book or other record itself.

However, Adcock, Varlamoff and Kremp (1998:23) emphasise that “while the paper text-block in a leather or vellum binding may benefit from being kept at a low RH, the binding itself will inevitably suffer”. The temperature and RH need to be monitored constantly and Ogden (2007:Control of temperature...) says that “extremely low relative humidity, which can occur in winter in centrally heated buildings, may lead to desiccation and embrittlement of some materials”. As mentioned earlier there is no one ideal level for different types of materials and even for books, due to the different paper quality, cover and type of binding, require variations in temperature and relative humidity. Ogden (2007:Control of temperature...) adds that:

Fluctuations in temperature and relative humidity are also damaging. Library and archival materials are hygroscopic, readily absorbing and releasing moisture. They respond to diurnal and seasonal changes in temperature and relative humidity by expanding and contracting.

An increased awareness of the different materials requiring different temperature and RH has led to a proliferation of conflicting recommendations (Peters, 1998:42; Porck and Teygeler, 2000:24; Reilly, 2008:3). Reilly (2008:3) argues that marked temperature and RH cannot help establish the degree of risk or benefit that the conditions present to collections. However, Banks (2000:116) says that “the conclusion that seems increasingly inescapable is that records should be stored at lower humidity than has previously almost universally been recommended”.

Installation of adequate climate controls and operation of them to maintain preservation standards for temperature and RH will retard the deterioration of materials significantly (Ogden, 2007: Installation of adequate...). It is important to

monitor the environment because a change in temperature affects RH and vice versa. This is especially evident today with the effects of global warming that are clearly visible with harsh conditions that include fluctuating temperatures from heat waves to cool temperatures. Ngulube (2003:85) states that:

Controlling climate conditions, such as temperature and relative humidity, is a much more difficult task. Installing heating, ventilation, and air conditioning (HVAC) systems and monitoring the weather can aid in controlling the climate.

Climate control equipment ranges in complexity from a simple thermometer to measure temperature to heating, ventilation, and air conditioning (HVAC) systems, humidifiers, and/or dehumidifiers to sophisticated electronic instruments. The range of equipment to monitor temperature and RH may be recording or non-recording and Banks (2000:139) emphasises it is essential to have recording instruments like a hygrothermograph that has sensors connected to pens that records to a chart. Examples of other instruments that can be used are psychrometers, and data loggers (Higginbotham and Wild, 2001:22). Banks (2000:139) states that such instruments are useful in giving a picture of the environmental conditions of the stack rooms even at night and over weekends. Instruments like a high-low thermometer that are non-recording can be used to check temperature at the same time each day for an extended period of time (Reitz, 2010: Temperature). However, staff need to take readings regularly at certain intervals. However, the case study by Nsibirwa (2007:100) at a South African legal depository, found the depository did not have RH monitoring equipment and HVAC was set at 26°C in one of the stack rooms to accommodate the staff who used the upper area as an office. Apart from equipment, additional measures can be taken to control temperature and relative humidity.

Ogden (2007: Installation of adequate...) states that:

- Buildings should be kept well maintained.
- Cracks should be sealed as soon as they occur.
- External doors and windows should have weather-stripping and should be kept closed to prevent exchange of unconditioned outside air.
- In areas of a country that experience cold winter weather, windows can be sealed on the inside with plastic sheets and tape. In storage areas windows can be sealed using both wallboard and plastic.

There is an increase in knowledge of the importance of environmental control within depositories and archives, however, dependence on HVACs may have given rise to the fixation that without air-conditioning, materials will rapidly deteriorate. Air-conditioning cannot be depended on as it can break down, uses a lot of electricity, and is expensive to install and maintain (Ngulube, 2003:85). It is very important to have a stable environment for the collection but this can be achieved by careful building designs that consider various factors including the use of specific building materials, climate, soil and surroundings of the area. Pfeiffer (2008:4) emphasises that “proper sizing of the air-conditioning system is critical”. As the appropriate size and capacity of the HVAC depends on the size of the stack room, the room’s design as well as the size of the windows. Overloading of HVACs can cause mould growth within the ducts and other places within the building leading to poor indoor air quality (Pfeiffer, 2008:4; Green Building Council of South Africa, 2008:123). The HVAC system design should include dehumidifying desiccants, and the internal ducts should also be constructed from a material that is not susceptible to mould (Green Building Council of South Africa, 2008:123). The 24 hour use of HVACs for preservation increases the use of energy, therefore adding to the global warming effects which are causing fluctuating climatic conditions. Applying green or sustainable construction to depositories is one way to decrease the use of energy, for example, by using renewable energy one can use solar panels instead of electricity to run the HVACs. Although, different materials requiring different temperature and RH has led to a proliferation of conflicting recommendations, one needs to look at the existing limitations of the depository and attend to those factors first. Varlamoff (2004a:165) notes that “the recommended levels of temperature and relative humidity are difficult to maintain in certain climates”. One helpful aspect of these circumstances with environmental factors is that all the modalities of decay can now be modeled and measured (Reilly, 2008:4).

Libraries and archives have long been without adequate tools and procedures for reviewing and managing collection storage (Image Permanence Institute (IPI), 2011:Overview statement). The IPI have developed and tested innovative tools for environmental monitoring and data analysis. Reilly (2008:4) states that:

The Image Permanence Institute has developed algorithms that can start with temperature and RH data (either real or simulated) and calculate the risks and benefits to collections posed by chemical, mechanical, and biological decay. These algorithms, referred to as *decay metrics*, have been used successfully in many institutions to manage and plan storage environments.

IPI has produced both hardware (Preservation Environment Monitor® datalogger) and software (Climate Notebook®) for this purpose (IPI, 2011:Description of the preservation metrics, Reilly, 2008:4). Metrics allow authentic risk assessment and mitigation approaches to be used with preservation environments because they yield quantitative estimates of the rate of the major forms of decay (Reilly, 2008:4).

2.8.2.1.2.3 Air quality and chemical factors

Atmospheric and particulate pollution causes damage to archival and library materials. Airborne or atmospheric pollutants are classified as particles, minute droplets or gases in the air (Banks, 2000:116; Reitz, 2009: Air pollution). The most commonly cited are fine dry particles in the air commonly known as dust, and gaseous contaminants namely sulfur dioxide, ozone, nitrogen dioxide, and chlorides especially in urban areas where industry and transportation are heaviest (Banks, 2000:117; Reitz, 2009: Air pollution). In the past the major pollutants were external, however today indoor pollution is caused by equipment including computers, printers, photocopying machines as well as HVACs systems that are old and are not properly serviced on a regular basis. The machines produce aggressive gases such as ozone (O₃) (Banks, 2000:117; Arbach, 2010: Origin of pollutants in libraries). However, this equipment has filters capable of counteracting these fumes but once the filters are saturated, ozone is released (Arbach, 2010: Origin of pollutants in libraries). The collections also emit volatiles as a consequence of ill-suited purification systems which also should be considered seriously like air pollutants. Nguyen (2007:15) states that “indoor pollution should not be underestimated: it’s evident [that it has a] bad effect on some construction materials, as observed at the BnF [French National Library], foreshadows its potential harmfulness on the documents”. Researchers observed that the sulphur pollution from acidic

newspapers stored in a box at the French National Library exceeded the amount outside in the atmosphere (Nguyen, 2007:16).

Particulates lead to soiling of materials, which depending on the type of particles such as soil, tar, metallic substances and fungus spores, incur varying levels of wear and tear. Particulates such as dust are hygroscopic. They readily absorb and retain moisture from the air, causing them to form and change leading to chemical degradation of materials by forming acids and the growth of fungus (Ngulube, 2003:92; Sahoo, 2007:107; Ogden, 2007:Air quality). Ogden (2007:Air quality) states that —particulates — especially soot — abrade, soil, and disfigure materials”. Accumulated dust in storerooms leads to the accumulation of bacteria and mites.

Gaseous pollutants namely sulfur dioxide, ozone, nitrogen dioxide, peroxides and chlorides cause far more damage than particulates (Banks, 2000:117; Ogden, 2007:Air Quality; Arbach, 2010:Origin of pollutants in libraries). Gaseous pollutants cause damage to paper and leather, which are particularly vulnerable to damage caused by acid. Paper becomes discoloured and brittle, and leather becomes weak and powdery (Ngulube, 2003:92; Ogden, 2007: Air quality). Pollutant gases are particularly dangerous because they cannot be easily detected by people but damage materials over time.

Arbach (2010: Origin of pollutants in libraries) states that:

Library heritage is also a major source of indoor pollution... the odour of old books and paper. This odour is a sign of the presence of volatile organic acids derived from degradation of lignin and cellulose, major constituents of paper.

Controlling air quality is difficult and multifaceted and depends upon several inter-related factors. Various standards for air quality have been suggested. However, until more experience is gained, the most reasonable recommendation is that the amount of pollutants in the air be reduced as much as practicable.

2.8.2.2 Biological factors

The fact that collections are installed in a recent building responding to preservation standards, that is purpose built in a good environment, does not mean that a close watch of the building and collections is not needed (Basset, 2007:9). Even recently

constructed buildings for libraries and depositories can be contaminated with biological factors, namely insects, rodents and micro-organisms (Basset, 2007:9; Sahoo, 2007:107; Ngulube, 2003:93). Maravilla (2008:Biological factors) emphasises that:

Where there is condensation or moisture due to high humidity, there is always the presence of biological growths such [as] moulds or fungi, insects and rodents causing infestation. Biological agents attack paper and other organic materials when both temperature and humidity are uncontrolled.

The biological agents can be grouped into macro-organisms and micro-organisms (Kademani, Kalyane, and Kumar, 2003:69; Bankole, 2010:417). Macro-organisms include silverfish, booklice, book worm, cockroaches, white ants (termites), rodents and people; micro-organisms include fungus, moulds, mildew and bacteria. The deterioration caused by biological factors is generally known as bio-deterioration (Sahoo, 2007:107).

Biological agents of deterioration (mould, insects and rodents) feed on the organic layers they find in materials and are the major cause of damage to collections. Africa has mainly tropical and sub-tropical climates with hot and humid conditions that accelerate the growth and multiplication of living organisms and encourage bio-deterioration. Archives, libraries and depositories have been affected by these organisms which can be grouped as follows:

2.8.2.2.1 Macro-organisms

Macro-organisms are organisms which can be seen easily with one's eyes and they include silverfish, booklice, book worm, cockroaches, white ants (termites), rodents and people.

2.8.2.2.2 Silverfish

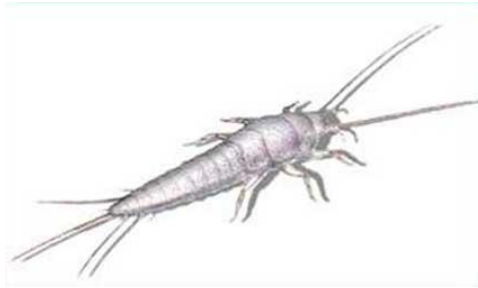
The silverfish, also known as *Lepisma saccharina*, is a small insect without wings with long slender antennae, scaled bodies and three long, antennae like feelers at the tapered end of the body (Silverfishbugs.net,2010: What is a Silverfish Bug?; Sloderbeck, 2004;1) (please see Figure 1). Its name, silverfish, comes from its silvery color and the fish-like appearance and adult silverfish are ½ to ¾ inch long

(Silverfishbugs.net, 2010:What is a Silverfish Bug?; Sloderbeck, 2004:1). The term silverfish is used for all species in the *Thysanura* order (Ngulube, 2003:93). There are three common species of silverfish which infest buildings, namely the common silverfish (*Lepisma saccharina*), the gray silverfish (*Ctenolepisma longicudata*) and the fourlined silverfish (*Ctenolepisma lineata*).

Silverfish love damp, warm places, and are found on bookshelves and in basements. The temperature ranges and humidity in some towns in South Africa favour silverfish and it is evident that most collections are susceptible to silverfish invasions (Ngulube, 2003:93). Silverfish can damage books and papers by eating small holes in them or by leaving light yellow stains. Silverfish feed also on human foods, especially those containing starch or flour, as well as on paper, especially sizing on paper, as well as glue and paste (Ngulube, 2003:94, Sloderbeck, 2004:1, Sahoo, 2007:108). The damage is completely irreversible and is compounded over the years (please see Figure 2).

Silverfish are believed to be among the most damaging of pests because of their ability to rapidly multiply and destroy materials (Silverfishbugs.net, 2010: What is a Silverfish Bug?). These insects also have a long life span and may live as long as seven years they also can withstand long periods of starvation. Some species of silverfish have been reported to live 307 days without food (Sloderbeck, 2004:1).

Figure 1: Silverfish



(Silverfish bugs.net, 2010:What is a silverfish Bug?)

Figure 2: Silverfish damage



(Bulwark Pest Library, 2010:Silverfish)

2.8.2.2.3 Booklice

Booklice (*Psocids*) are almost microscopic insects ranging from transparent to a grayish colour that are grouped together with insects of the order *psocoptera* (Day, 1996:description; Varmint Guard Pest Library, 2007:Booklice). Most species, which are found indoors, are typically wingless or with reduced wings whereas outdoor booklice are fully winged (Varmint Guard Pest Library, 2007:Booklice). Booklice are found worldwide. They cause insignificant damage to materials by feeding on microscopic moulds that grow on paper stored in damp conditions (Ngulube, 2003:96; Varmint Guard Pest Library, 2007:Booklice). They cause tiny superficial erosions that are uneven to the outline of paper, leather, gelatin of photographic plates, watercolors, parchment, glue and gum of bookbinding (Maravilla, 2008:Biological factors). Booklice are typically found in areas of high RH. High humidity conditions are also essential for the growth of mould, their primary food. When the humidity drops below their comfort level, they migrate to areas of higher RH or die (Varmint Guard Pest Library, 2007:Habitat).

Figure 3: Booklouse



(Varmet Guard Library, 2007:habitat)

2.8.2.2.4 Cockroaches

Cockroaches are nocturnal insects which are very active at night but can be seen during the day and are reddish brown/black in colour and have a fetid odour. They are found all over the world and thrive in different climates though they thrive better in hot humid climates. They love warm damp places and hide in crevices, under sinks, near water pipes and cupboards. They eat all sorts of organic materials including paper and fabrics. Their watery faeces are brownish/black in colour, causing stains which are not easily removed from paper (Sahoo, 2007:108).

2.8.2.2.5. Termites (white ants)

Termites are small whitish/yellow insects that live in wood and under the ground in colonies. Like most of the other insects described, they thrive in warm humid conditions. They eat wood and paper and materials that contain cellulose (Sahoo, 2007:108). Sahoo (2007:108) stresses that “once they start destroying the books they can do irreparable damage in no time”. They leave deep crater shaped or irregular shaped holes in materials and can destroy a volume in a short time causing irreparable loss or damage (Maravilla, 2008:Termites). Termites are capable of devouring a whole section of a stack room and can do so rapidly before preservation specialists are aware of what is happening. Termites always leave an encrusted layer of soil in the form of a tunnel on materials attacked, walls, book cases and furniture (Sahoo, 2007:108; Bankole, 2010:421). Termites can also attack the structure of the building, especially wooden beams and floors (Ngulube, 2003:97).

Figure 4: Termite damage to a book



(Termite Web, 2010:Termite damage)

2.8.2.2.6 Rodents

Rodents are amongst the worst enemies of books (Maravilla, 2008:Biological factors). There are various types of rodents including mice, rats and many other species like squirrels. Rats and mice are the most common rodents that are known to destroy materials especially books and paper. They strip paper and use it to build nests for their young and pare their teeth on library furniture and fittings. They also urinate and leave their corrosive droppings on materials. They can cause fires by nibbling through electrical insulation. The house mouse is one of the most common pests in archives and depositories and they find their way through drains, open windows and doors (Ngulube, 2003:96; Sahoo, 2007:109). Sahoo (2007:109) emphasises that rodents, especially rats and mice, are —sift to move and hide in dark places”. The nature and extent of the damage depends on how promptly the infestation is discovered and controlled (Maravilla, 2008:Biological factors).

2.8.2.2.7 Humans

In addition to being responsible for the building, high temperatures and humidity, human carelessness also leads to the growth and increase in insects in the stack rooms. Maravilla (2008:Biological factors) emphasises that humans are responsible for the following :

- Accumulations of dirt and dust from poor or careless housekeeping practices;
- Introduction of foodstuff to storage and exhibit areas;
- Entry of insect-infested items into the collection;
- Open windows, air vents or poorly sealed windows and doors;

- Unattended roof leaks and cracks in a deteriorated museum building; and
- poor ventilation.

Handling by staff and users also directly impinges on the useful life of library and archival materials. Damage to books is cumulative and repeated poor handling can easily lead to a new book becoming a worn one, making it unusable and requiring costly repair, rebinding, or replacement. Adcock, Varlamoff and Kremp (1998:39) emphasise that by following the guidelines presented below, the library can make significant strides towards improving the welfare of the collection when shelving books.

- Shelving should be designed to provide smooth, secure, clean, and convenient support. Any protrusions and sharp edges should be attended to. Ideally, book cases should be constructed of steel with a baked enamel finish.
- Volumes should be shelved a minimum of 10 cm off the floor to reduce the risk of damage from flooding or passers-by. When possible, use shelving units that have a 'canopy' on top, as this will deflect water, dust, and some damaging light.
- Good air circulation should be maintained in storage areas and around shelving.
- Book cases should be at least 5 cm away from walls and the books another 5cm away from the back of the book case. This is especially important when book cases are positioned against the outside walls of a building.
- When books are stored in steel cabinets, ensure the cabinets are adequately ventilated. Holes should be in the sides and not on the top of the cabinets to avoid dust and debris falling on the books.
- Books kept on mobile shelving must be shelved carefully to avoid any possibility of them falling off or being crushed when the shelves are moved.

Staff training is also crucial as well as training users to treat materials well. Signs, posters and book marks can be used to promote preservation efforts as well as informing staff and users about the dangers of food and drink in the library (Baird, 2003:95). Reading rooms should provide readers with:

- Guidelines on how to handle library material.
- Book supports and guidelines on how to use them.
- Adequate space for the viewing of large items.

- Cotton gloves for handling valuable material.
- Clean work surfaces.
- Polyester sheets for tracing maps.
- Assistance with handling large items.
- Clean, smooth weights to restrain unrolled plans.
- Assistance with the photocopy of materials (Adcock, Varlamoff and Kremp, 1998:38).

Humans are also responsible for the loss of materials, especially when people steal, mutilate and vandalise items that are being preserved for posterity. Kademani, Kalyane, and Kumar (2003:71) say that in order to prevent loss, libraries and depositories should:

- Tag materials with magnetic strips. These strips will trigger alarms if users try to carry the materials through electronic gates at library exits without properly checking out the items at the circulation desk.
- Install closed circuit TV to monitor the users' movements.
- Use wire mesh to cover windows.
- Deploy security guards at the library entrance.

Reading rooms should have adequate numbers of staff to ensure security against theft, mutilation, and vandalism. Points to consider with regard to security of materials:

- How are loose items issued and how are they checked on return?
- How well are reading areas invigilated?
- Are security devices in place?
- Are bags allowed in these areas and are they checked on exit?

In addition to the above mentioned issues, other concerns created by humans include the creation of documents using sub-standard materials including poor quality paper. As well as using sub-standard glue, cellotape, staples and many other substances that are harmful to documentary heritage as result of being amateur restorers. These concerns especially with regard to paper quality were deliberated in detail in Nsibirwa (2007:47).

2.8.2.2.8. Micro-organisms

A micro-organism is an organism that is microscopic or submicroscopic, which means it is too small to be seen by the unaided human eye. These organisms include fungus (moulds and mildew) and bacteria.

2.8.2.2.8.1 Fungus

Fungi belong to a large family of a variety of heterogenous plant organisms (Sahoo, 2007:107). The spores of fungi that become mould or mildew (another type of fungus) are always present in the air, earth, water and on objects and can remain in a dormant state for a long time (Adcock, Varlamoff and Kremp, 1998:28; Sahoo, 2007:107; Danitigny, 2007:19; Adcock, Bankole, 2010:417). They await only suitable conditions of moisture (RH of 63-100%), temperature (15-35° C), darkness and poor air circulation to germinate, grow, and reproduce (Adcock, Varlamoff and Kremp, 1998:28; Sahoo, 2007:107; Danitigny, 2007:20). The rate of growth depends on the different environmental factors, with the highest growth rate occurring when RH and temperature are extremely high (Danitigny, 2007:20). However, Adcock, Varlamoff and Kremp (1998:28) and Ngulube (2003:95) emphasise that although temperature (warmth) is a main factor, certain moulds and bacteria will also thrive in cold temperatures. Mould growth on paper, leather, textiles, walls and ceilings results in the profuse production of spores, appearing to be visible as blackish-brown, greenish or bluish growth on the surfaces of deteriorating materials, depending on the colour of the asexual fruiting structures (spores) (Bankole, 2010:417). Mould consumes the cellulose of materials it grows upon and causes staining, disfiguring and weakening of most library material (Adcock, Varlamoff and Kremp, 1998:28; Sahoo, 2007:108).

Figure 5: Mouldy books



(Basset, 2007:1)

2.8.2.3 Control of biological agents

A different range of approaches have been tried and tested by preservation professionals to eliminate biological agents such as rodents, termites, silverfish, cockroaches and booklice. Fumigation in the past was recommended for the control of biological agents but is used on a smaller scale today because fumigants are toxic to people and furthermore to materials. For example, the use of ethylene oxide, methy bromide and sulfuryl fluoride have been curtailed because they have been identified and linked with health problems in humans (Chicora Foundation, 2010:Fumigation and freezing; United States Environmental Protection Agency, 2011:What is methyl bromide?). The residue remains on the materials and may also cause chemical instability, and do not necessarily prevent the biological agent from returning. A lot of funds are spent on professional pest services, chemicals and pesticides and are in the long run creating super pests, with increasing resistance to chemicals and pesticides (Chicora Foundation, 2010:Different approaches to pest management). Apart from creating super pests, with increasing resistance to new pesticides there are increasing concerns about indoor air quality and the effect of the chemicals on the ozone layer. Some fumigants are very toxic and deplete the ozone layer. According to Adcock, Varlamoff and Kremp (1998:31) ~~there~~ there is no one fumigant which is known to be safe for all collections. Collections may be damaged through contact with the water or oil-based spray". Today there is a need to use an Integrated Pest Management programme which will concentrate on least toxic approaches to pest control by integrating a variety of mechanical, cultural, biological,

and (as a last resort) chemical controls (Chicora Foundation, 2010:Integrated Pest Management).

Silverfish and other insects can be controlled by lowering temperature and relative humidity, since they thrive in damp, warm places. A lower temperature results in high mortalities, especially among nymphs and also slows population growth by reducing rates of development and reproduction in silverfish (Ngulube, 2003:94; Reichmuth, Binker and Faulde, 2007:Abstract). Sealing cracks, crevices and loose joints in the floors where silverfish and other insects hide and breed also reduces populations by reducing suitable habitat (Ngulube, 2003:94; Sahoo, 2007:112). Good housekeeping practices are key to reducing silverfish infestations although there are circumstances where immediate and thorough control is required.

However, Reichmuth, Binker and Faulde, (2007:Abstract) state that:

Only very few chemicals are suitable for silverfish control in museums and libraries, because most substances react with the dyes or other parts of the artefacts. Methyl bromide was one of the most important fumigants to be used for this purpose.

Today, methyl bromide is considered a very toxic material. It is a colorless and odorless gas at normal temperatures and pressures and can be liquefied under moderate pressure (United States Environmental Protection Agency, 2011:What is methyl bromide?). United States Environmental Protection Agency (2011:What about the science...) state that —Methyl bromide is considered to be a significant ozone depleting substance (ODS) by atmospheric scientists”.

Chemicals are toxic and they affect the ozone layer which in turn leads to global warming creating harsh climatic changes. Chicora Foundation (2010:Different approaches to pest management) stresses that:

The simple truth is that we need to change our way of dealing with pest problems. We need to use less chemicals, make sure the ones we do use are appropriate and that their application is correct, and select the least toxic of the various pesticides available.

Therefore, Sahoo (2007:112) suggests that libraries should use natural substances like neem (*Azadirachta indica*) leaves, neem seed powder and camphor tablets tied in muslin bags which are insect repellents and should be placed strategically in the depositories and stack rooms to keep insects away. Adcock, Varlamoff and Kremp (1998:31) agree with Sahoo (2007:112) and suggest that the least toxic alternative is always the best. They suggest that:

When faced with a box of books with silverfish, avoid chemical treatments and simply hand-clean the volumes using a vacuum cleaner and a soft brush.

When uncertain if pests are active, clean the item, bag it, and examine it later for signs of fresh activity. Be sure to segregate collections from new accessions or items with possible pest problems.

Preventing macro-organisms and pest infestations is an accepted approach to pest management. Adcock, Varlamoff and Kremp (1998:31) and Bankole (2010:423) suggest the following ways to prevent pest infestations:

- Monitoring the building regularly for the presence of insects and pests.
- Ensuring all staff are vigilant and report any signs of fresh damage and activity.
- Checking all material which is to be accessioned before it enters the library using sticky traps. Traps have the advantage of catching insects before they can be found visually; they catch a wide range of species; they can be placed in areas which are difficult to inspect; trapped insects can be identified and counted; traps are good indicators of an increase in insect numbers in one area and they also highlight any failure of control treatment.
- The library buildings should regularly be inspected all round, and if necessary traps could be used to kill rodents. There are also glue boards which could be used to control rodents within library premises. Rodent baits could also be used to control rats, but the use should be restricted to the exterior of library buildings because carcasses of rats, if not detected early inside library buildings, will breed large insect populations.
- Understanding the biology and life cycles of insects and pests helps to know when and where they are likely to breed, what they are likely to eat and where they are likely to live.
- Eliminating or containing all sources of likely infestation – ideally food and

drink should not be consumed on the premises; flowers and plants should not be allowed in the building.

- Maintaining an environment not conducive to pests and insects; one which is clean, cool, dry, and well-ventilated.
- Preventing pests and insects from entering the building – making sure doors close properly, installing mesh screens for windows and doors, and so on.
- Using appropriate exterior lighting, such as sodium vapor, which is less attractive to insects.
- Implementing a cleaning and hygiene programme – rubbish should be safely and properly disposed of, attics and basements regularly checked and cleaned.

Climate control is very necessary to control moulds, therefore preservationists should make sure conditions are not suitable for its growth. In addition, the stack room should have good air circulation to prevent its germination, growth, and reproduction. Although most moulds prefer a moist air RH of 63 – 100% and temperatures between 15 – 35 ° C, Ngulube (2003:95) notes that certain moulds thrive in cold temperatures. Unfortunately, there is a lack of knowledge on the effect of short-lived environmental conditions and physiological states of the spores of mould and the effects on germination and research should be directed towards these bottlenecks of knowledge (Dantigny, 2007:21).

2.8.3 Disaster preparedness and security

It is very important for any library, archive or depository, no matter what its size, to take preventative measures to avoid the occurrence of an unnecessary disaster. Disasters are unexpected events and no library, archive or depository is free from devastation that can happen as the result of either human-made or natural disasters. Human-made disasters include acts of war and terrorism, fires, broken pipes, leaking roofs and chemical spills. Natural disasters include hurricanes, floods, earthquakes, volcanic eruptions, sandstorms and tsunamis. Examples of recent natural disasters are shown in Table 4. The potential risks and hazards from natural disasters to documentary materials depends on the geographical location of the library, archive or depository; in other words its proximity to physical features such as oceans, seas,

mountains, rivers, lakes, deserts and geographic fault lines. The most common emergency in libraries and archives involves water.

Table 4: Some recent natural disasters

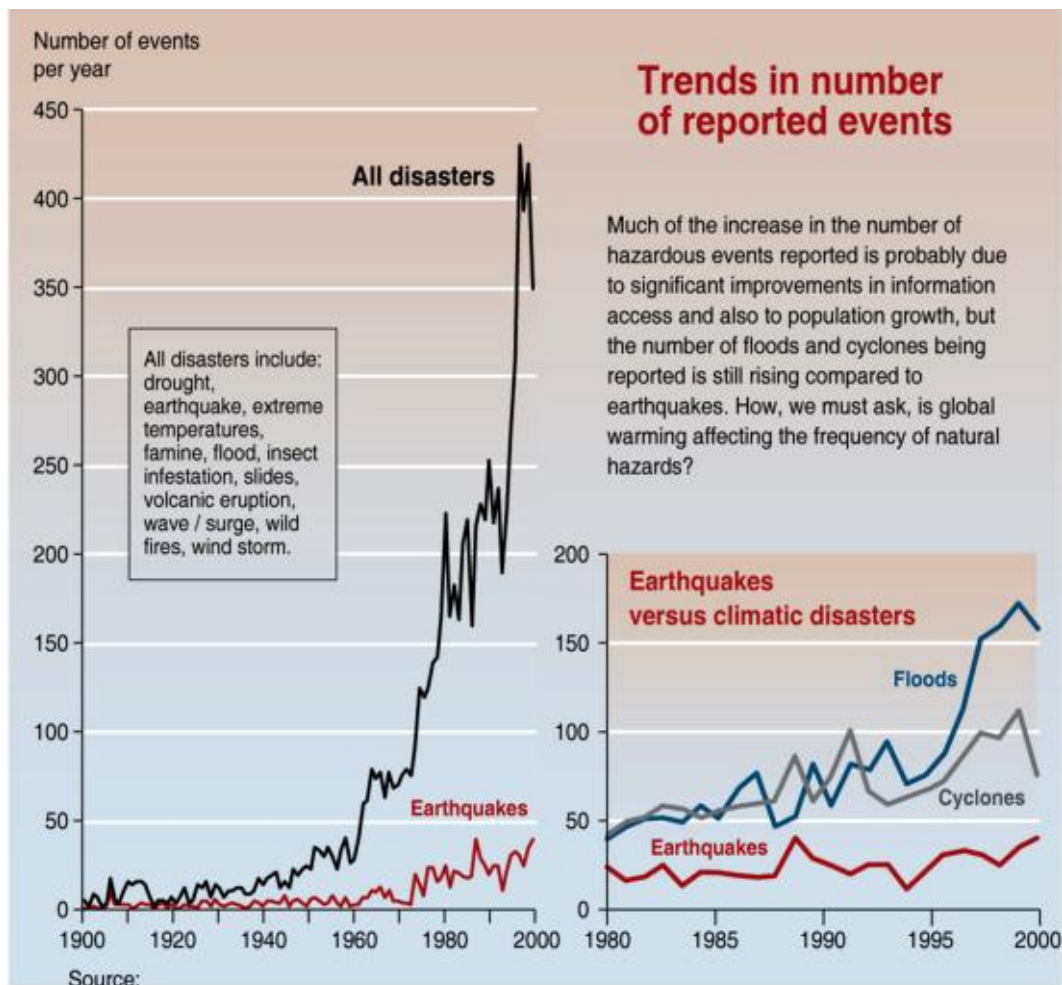
Type of disaster	Earthquakes	Tsunamis	Floods	Volcanic eruptions
Location	Haiti -12/1/2010 Chile- 27/2/2010	Indonesia, Sri Lanka, Malaysia – 26/12/2004	USA(New Orleans) – 2005 a result of hurricane Katrina	Eyjafjallajökul (Iceland) – April 2010, May 2011
	New Zealand – 15/2/2011	Chile – 27/2/2010	South Africa – December 2010 - March 2011	Mt Merapi (Ecuador) – December 2010
	Japan – 11/3/2011	Japan – 11/3/2011	Australia – January – March 2011, March 2012 (Irina)	Paccaya (Gutemala) – May 2010
	Turkey – 23/10/2011		Bangkok – October – November 2011	

(Source:Field data)

A considerable number of collections world-wide have suffered a variety of disasters, for example, the New Orleans Public Library and its branches were affected by storm waters and floods as a result of Hurricane Katrina in 2005; the library and archives of Aceh, Sumatra in Indonesia were washed away during the earthquake and tsunami on 26 December 2004. The American Library Association (ALA) (2006:Hurricane update) states that the Martin Luther branch of the New Orleans Public Library was completely destroyed during Hurricane Katrina. According to Lyall (1996:1) potential disasters include — damage from war and civil unrest, looting and dispersal, illegal trading, destruction, inadequate housing and preservation, and financial stringency and all have played their part in endangering documentary heritage”. Civil unrest and war have also affect libraries in Iraq (2003-4) and recently in Egypt (2011) (American

Library Association, 2011:1). Shifting weather patterns increase the risk of catastrophic flooding, and a warming atmosphere aids the pole-ward spread of pests and diseases once mainly limited to the tropics (United Nations Environment Programme (UNEP), 2009:Climate change). As well as change in the type of weather in various regions for example, a tornado struck certain areas in South Africa in September 2011. Adcock, Varlamoff and Kremp (1998:15) emphasise that —of equal importance is having measures in place to cope with the consequences of disasters, whether they be natural or man-made”. This is a necessary requirement today, especially with the harsh weather conditions resulting from climate change, and the possibility of increases in incidence and intensity of disasters (refer to Figure 6). Chagutah (2009:113) states that —typically, climate models predict that the occurrence of major ‘wet’ events, such as floods and cyclones will increase in frequency against the background of a changing climate,” although scientists do not currently have scientific evidence to link global warming (climate change) to the increase in disasters. However, Buchanan (2000:160) and UNEP (2005:Trends in natural disasters) argue that the knowledge of more disasters may be simply due to an improvement in documentation and communication. Figure 6 shows that the approximate total of all disasters reported in 1960 was 50; this has risen to 400 in 2000. Incidences of climatic disasters like floods and cyclones have increased more than earthquakes, although certain earthquakes do create tsunamis.

Figure 6: Trends in natural disasters



(UNEP, 2005:Trends in natural disasters)

South Africa has frequently been struck by damaging climate hazards which increasingly continue to threaten preservation of cultural heritage. South Africa experienced exceptional flooding during the summer 2010 – 2011, when many areas across the country, especially in Gauteng and KwaZulu-Natal, experienced flooding as a result of heavy rain caused by La Niña (Samuhel, 2011: La Niña influenced...). Other nations besides South Africa have also been hit by heavy rain and La Niña has been blamed for flooding across Australia and the Philippines (Samuhel, 2011: La Niña influenced...). La Niña is defined by National Oceanic and Atmospheric Administration (NOAA) (1998: What is La Niña?):

La Niña is a cooler than normal sea-surface temperatures in the central and eastern tropical Pacific Ocean that impact global weather patterns. La Niña conditions recur every few years and can persist for as long as two years.

Throughout history libraries, museums and archives have been subject to disasters, both natural and human-made. Yet, disaster or emergency preparedness is an element of preservation management that is often overlooked by librarians and archivists (Buchanan, 2000:159). A survey of 177 national libraries carried out by Varlamoff and Plassard (2004:23) for IFLA-PAC to determine how many libraries have disaster plans found that only 39 institutions out of 73 had a disaster plan. The study found that 28 intended to write and implement a disaster plan but six intended not to write one. The reasons for not having a plan were mostly related to lack of human and financial resources as well as lack of a suitable model and guidelines to follow and the belief that their institution is in a low risk area. Likewise, Debra Hess Norris, Lecturer in Preservation of Cultural Property at the University of Delaware says that most historical societies, archives and libraries in the USA do not have an emergency plan or staff trained to carry it out if a disaster strikes (AMG, 2009:37). In addition Ngulube (2003b:58) says the lack of disaster plans is complicated by the fact that:

- There is limited training about disaster preparedness.
- There are insufficient resources to preserve the national documentary heritage.
- Many buildings housing records and documents do not have adequate space for the collection as well as facilities to protect files from environmental factors.

A disaster plan is a plan that helps ensure the safety and rescue of collections in the event of a disaster including the safety of the building (Varlamoff and Plassard, 2004:27; Higginbotham and Wild, 2001:9). It should be mandatory for every library to have a disaster plan in which all these elements are fully developed. The need to prepare for disasters is recognised by a number of organisations including Eastern Southern Africa Regional Branch of the International Council on Archives (ESARBICA), ICA, IFLA and UNESCO (Ngulube, 2003a:109), as well as, the Blue Shield, that is the cultural heritage equivalent of the Red Cross that protects cultural institutions threatened by armed conflict, natural and man-made disasters (Varlamoff, 2005b:5). In addition, Varlamoff (2004b:2) emphasises that:

...having a solid disaster plan may prevent small disasters [from turning] into a major catastrophe. So [to] those who retort that they cannot afford to spend time, money and staff on the elaboration of a disaster plan, I would simply answer that the initial expenses are nothing compared to the cost of response and recovery after a disaster and that protecting our memory is the only way, and our duty, to decently prepare the future of our children and grandchildren.

Similarly, Ngulube and Magazi (2006:110) also stress the cliché —“a stitch in time saves nine”. In addition Higginbotham and Wild (2001:9) emphasise the Girl Scout motto —“be prepared” in order to survive a disaster and ensure a smooth recovery.

Disaster planning usually involves five phases and one must make sure the plan is written clearly. The plan should be understood by everyone likely to be involved and it should be updated regularly and copies stored on and off-site. The five phases of a disaster plan should include:

- Risk assessment – ascertaining the dangers to the building and its collections.
- Prevention implementing measures – to remove or reduce any danger.
- Preparedness – developing a written preparedness, response, and recovery plan.
- Response procedures to follow when disaster strikes.
- Recovery – restoring the disaster site and damaged material to a stable and usable condition (Adcock, Varlamoff and Kremp, 1998:15).

The plan should be reviewed with staff on a regular basis and at least once a year. Ngulube (2003a:111) adds that

The plan should also include a list of steps to follow if a disaster strikes; a list of the names, addresses and telephone numbers of key salvage staff and the disaster team and sources of assistance and supplies that may be needed.

However, disaster preparedness requires flexibility and responsiveness as not all possible circumstances can be foreseen beforehand but a plan can help guide action during a disaster. More details with regard to disaster plans and preparedness are elaborated in Nsibirwa (2007:35-38).

2.8.4 Conservation and restoration

The terms conservation and restoration describe the range of technical interventions used in the physical treatment of archival objects or materials and are components of a preservation programme (Cloonan, 2001:232). Varlamoff (2005:IFLA-PAC Director) notes that “in the past, all efforts have been concentrated on the curative care of single documents, that is ‘conservation’, but conservation is part of the wider concept of preservation”. However, Stewart (2000:288) says there is no precise definition of conservation, it is vague but involves the integrity of the object and appreciation of its role as cultural heritage. Conservation involves prolonging the life of a material through physical or chemical intervention using stable materials and appropriate techniques of treatment (Hunter, 1997:146; Stewart, 2000:288; Reitz, 2010:Conservation; Millar, 2010:74). Reitz (2010:Conservation) emphasises that in conservation “non-invasive techniques are preferred as a means of preserving items in their original condition”. Stewart (2000:288) agrees with Reitz (2010:Conservation) and says it is limited intervention and entails touching up or resupplying aesthetic detail. Although, Millar (2010:74) defines conservation as:

The active protection of archival material often by the use of physical and chemical treatments in order to resist further deterioration but without adversely affecting the integrity of the original.

Yet, Ngulube (2003a:50) argues that:

Conservation can be further characterized as both preventive and remedial. Preventive conservation consists of indirect action to retard deterioration and prevent damage by creating conditions optimal for the preservation of materials. On the other side of the coin, there is remedial conservation, which consists mainly of direct action carried out on documents in order to retard further deterioration. It is akin to restoration.

In general conservation involves any measures taken to protect archival or library materials from damage or deterioration, including initial examination, documentation, treatment, and preventive care. A conservator is highly trained and skilled professional who knows the history of methods used to produce various materials and understands the chemical nature and deterioration processes of materials as well as the limits and risks of the treatments used to attend to them

(Stewart,2000:288; Reitz,2010:Conservation). Restoration involves specific measures undertaken to return records and archives as closely as possible to their original condition (Reitz, 2010:Restoration; Millar, 2010:75). Reitz (2010:Restoration) explains that:

Before restoration can begin, deterioration must be stabilized by whatever method is most appropriate. To preserve the evidential value of an item in its altered condition, care is taken to make repairs both visible and reversible, if possible. For very rare and valuable items, a record may be made of the measures taken.

Conservation involves stabilising material but restoration involves the repair of material. Millar (2010:75) notes that –restoration is often undertaken when the look of an item is important and there is no danger of altering the authenticity of the original”. The cost and time involved to treat one item means that conservation and restoration are at the bottom of the preservation activities list in depositories. Conservation and restoration depend on diagnostic examination which involves identification of the composition and condition of materials. Conservation and restoration entails identifying the extent and nature of alterations; evaluating the causes of deterioration; and determining the type and extent of treatment needed (Stewart, 2000:290). The major conservation-restoration processes include deacidification, leaf casting, encapsulation, lamination and providing microenvironments (Ngulube, 2003a:50). However, Stewart (2000:290) stresses that:

The history of conservation is filled with examples of materials or treatments originally thought to be safe that resulted in later damage to the artifacts and in the necessity for committing untold resources to undo that damage.

The methods used to reinforce weak or damaged paper and photographs include lamination which has been discontinued because of unforeseen aging problems (Stewart, 2000:290).

In South Africa a mass de-acidification facility was built in 2009 as part of the new National Library facility in Pretoria. The National Library of South Africa (2011: De-acidification) notes that:

The significant part that acidity plays in the rapid deterioration of paper has long been recognised. Over time acids cause paper to become brittle resulting

in loss of valuable heritage resources. The Library's book collection contains more than 500 000 original South African publications. It is estimated that as much as 60% (300 000) are in danger of future loss due to paper deterioration.

By the 8 November 2011, 40,000 legal deposit books had been de-acidified at the NLSA (Nkadimeng, 2011). According to the National Library of South Africa (2011: De-acidification) "the NLSA is considering offering de-acidification services to other cultural institutions and clients in South and Southern Africa". Deacidification and restoration are not deliberated in this study since there have been no significant change with regard to these challenges. These issues were discussed in detail by Nsibirwa (2007:40- 42; 46-48) including the preservation challenges of South Africa related to paper, environmental control and preservation facilities.

2.8.5 Preservation of electronic publications

The preservation of electronic documents is usually referred to as digital preservation. Van der Merwe and van Deventer (2009:2) define digital preservation as:

The processes and actions that will help to ensure the continued and indefinite access to information and records that exist in a digital format even when the digital files are taken out of their creation context.

In other words Harvey (2005:15) defines digital preservation as "long-term preservation [that] aims to provide indefinite access to digital materials, or at least to the information contained in them". To add to van der Merwe and van Deventer's (2009:2) definition of digital preservation, Drijfhout (2006:2) emphasises that it is an organised series of actions to make sure these materials are not lost and can be found and always be understood. In order to organise these processes, a country requires a digital preservation policy. Drijfhout (2006:2) states that "a digital preservation policy would state the principles and long-term direction that would guide preservation strategies and action". A number of developed countries have digital preservation policies. However, South Africa, according to Drijfhout (2006:3), still has a long way to go, although research indicates some building blocks exist. Mpholefole (2011:Personal communication) says that a policy for the preservation of digital publications is in the process of being created and is still at the draft stage.

Among the current National Library of Australia's Digital Preservation Policy, 3rd edition, (2008:The challenges of keeping...) the current challenges of digital preservation and accessibility include:

- The volume of materials to be maintained.
- The diverse and frequently changing range of file formats and standards, and the changing availability of hardware, software and other technology required for access.
- Widespread use of relatively unstable carriers, subject to short-term media deterioration and data corruption or loss.
- The need to maintain relationships between objects, between parts of complex objects which may be in different formats, and between objects and the metadata that describes them.
- The recurring nature of many of the threats and the short replacement cycles for the Library's infrastructure for managing digital collections.
- The likely high costs of taking action, and the likely high costs of delaying or not taking action (including the likelihood of loss of access).
- Intellectual property and other rights-based constraints on preservation processes and on the provision of access.

Harvey (2005:45) agrees with the National Library of Australia (2008) and states that there are still too many unknowns and challenges with regard to digital preservation.

The development of technology has led to a drastic increase in the number of electronic records published per day. The greatest challenges that come with the preservation of electronically published material are the complex issues that are related to the technology used to create, store and access these records, in comparison with stable paper. Wilson (2004:9) emphasises that —preservation of digital information is the retention of the electronic information, while access to digital information is the ability to retrieve, comprehend, and use digital resources". The concerns surrounding the preservation and access is that as technology changes, software and hardware become obsolete and are replaced. Harvey (2005:46) states that there is a need to store the digital publications' bit streams, the means to process them, the devices that allow us to access them as well as the contextual

information to ensure integrity and authenticity. This includes the fact that there is a lack of standard hardware and software combined with the fast pace of technological obsolescence and the many points in an electronic document's life where its integrity can be compromised. Whatis.com (2011: bit stream) defines a bit stream as —a contiguous sequence of bits, representing a stream of data, transmitted continuously over a communications path, serially (one at a time)”. Even if the bit stream of the electronic publication remains intact, the possibility is that the drive, software driver or the computer will no longer be obtainable to access it (Harvey, 2005:47). As a result, resources need to be migrated, or transferred, into data readable by current technology (Wilson, 2004:9). Technology has led to the change of the record formats that libraries and institutions have to deal with, including how users access documents and the way documents are preserved. Libraries were accustomed to tangible copies and now have to deal with electronic documents that are not tangible. Muir (2004:67) argues that —...the way in which digital information is created, published and distributed makes it more difficult for libraries to preserve material”. In addition Duranti (2010:81) states that:

The fundamental difference from traditional records is that the components of electronic records may reside in different parts of the medium or even of the system and may not physically exist if not purposely generated. This means that a complete record is one whose components have been inextricably and irreversibly linked to each other and have been made explicit by transforming them in an element of form, for example, by expressing the archival bond in a classification code.

Electronic resources have become a significant part of our cultural and intellectual heritage. There is no time for procrastination as thousands of electronic documents have already been lost and more are lost daily. Proactive preservation should be implemented at an early stage of electronic publication to prevent loss (Harvey, 2005:37). Yet, there is no quick fix because the challenges of preserving digital materials over time are technological as well as social and institutional (Harvey, 2005:xii). There is a need to act fast enough to preserve electronic resources in a rapidly changing technological environment. These include materials which are —born digital” or electronic where there has never been an analog equivalent, and others

that have been converted from analogue to digital form as a way of preserving them (digitisation) (Ngulube, 2003a:59; Kalusopa and Zulu, 2009:98; Mnjama, 2011:32). The National Library of Australia (2003:Legal deposit) states that —Major issues to be considered include copyright, preservation requirements, public access, scope of coverage, method of collection, protection of publishers' rights, penalties, and implementation of revised legislation”. Apart from these major issues a digital repository/e-Depot is required for long term storage and permanent access of electronic materials (Verheul, 2006:35; Keakopa, 2008:11). RLG (2002:5) suggests that a trusted repository can operate as:

...part of a legal deposit environment and is mandated to provide secure, long-term access to materials it accepts as a part of legal deposit. The producer/creator community may include almost anyone: large commercial publishers that already supply print-based resources to the library; new commercial publishers; individuals engaged in vanity publishing; research networks establishing scholarly journals; government agencies; digitization contractors; the institution's own staff; writers depositing papers, including computer files; etc.

However, Moore, Rajasekar and Marciano (2007:1) state that Trusted Digital Repositories can be measured using assessment principles that evaluate trustworthiness and therefore be a reasonable environment for the long term preservation of data. This is managed through numerous generations of technology. A review by the Digital Preservation Office of the Library and Archives Canada Trusted Digital Repository, found that two key facets of the project were identified as the building component (of the necessary infrastructure) and the business component (the workflow and efficiencies associated with it) (Bronk, 2009:Pam Armstrong). Moore, Rajasekar and Marciano (2007:1) emphasize that the assessment criteria to define management policies of a Trusted Digital Repository by RLG (2002) are based on traditional preservation principles:

- Authenticity, assertions about the provenance of the records.
- Respect des fonds, assertions about the arrangement of the records.
- Chain of custody, assertions about the ownership of the records.
- Integrity, assertions about the management of the records.

According to Bronk (2009:Pam Armstrong) more recent projects with the Trusted Digital Repository include creating a digital format registry, establishing threat risk assessment, establishing effective communications strategies and establishing a storage policy for data. The Library and Archives of Canada point out to collaboration as the key to facing the challenges of preserving the digital heritage given the amount of collaborators involved is fundamental in guaranteeing the integrity of preservation.

2.8.5.1 Issues related to the preservation of electronic records

Electronic preservation, which is also referred to as digital preservation, is still in its infancy since there is no definite way forward yet. Digital preservation is defined by Day (2006:178) as “the range of activities required to ensure that digital objects remain accessible for as long as they are needed”. Materials should remain accessible and usable over time, in spite of technological changes (Millar, 2010:216). The processes and procedures used to preserve paper do not apply also to electronic records (Hoorens et al, 2007:ix; Kemoni, 2009:193). Hoorens et al. (2007:x) emphasise that electronic publications are characterised by dynamism, interactivity and complex behaviour that cannot be compared to print materials and also cannot be preserved by static techniques. In addition, Strodl et al. (2007:1) state that the wide and constantly growing variety of file formats range from simple formats like plain text, consisting of simple American Standard Code for Information Interchange (ASCII) or unicode characters, to more complex file types. For example, Microsoft PowerPoint files that can have objects like images, videos or audio files embedded within them. All the elements that make up the file, especially the user interaction elements, create difficulties because they need to be considered when preserving the file (Strodl et al, 2007:1). Duranti (2010:79) emphasises that:

The fact that the majority of them are less reliable, retrievable or accessible than ever before is one of the ironies of the modern information age.

Idiosyncratic software systems generate, manage and store digital data using proprietary technologies and media that are not developed to segregate records from other types of information, to prevent manipulation or tampering, or to establish and maintain an intellectual order, and that are subject to the dynamism of the computer industry.

In addition, the temporary nature of online electronic material is such that resources are updated, added to, deleted and moved, often without warning (Muir, 2004:68). The Web identifiers change, that is, the Uniform Resource Locators (URLs) change (linkrot) and therefore there are no persistent identifiers like International Standard Book Numbers (ISBN) or International Standard Serial Numbers (ISSN) for print materials. However, the Internet Engineering Task Force, a large open international community of network designers, operators, vendors, and researchers are working towards standardisation of the Internet architecture and its smooth operation (Muir, 2004:70). To date, the Internet Engineering Task Force (2012:Standards process) state that:

The process is more complicated, due to (1) the difficulty of creating specifications of high technical quality; (2) the need to consider the interests of all of the affected parties; (3) the importance of establishing widespread community consensus; and (4) the difficulty of evaluating the utility of a particular specification for the Internet community.

In addition the rapid development of technology makes it difficult to develop standards in a timely manner. As the Internet Engineering Task Force (2012:Standards process) emphasises:

A specification undergoes a period of development and several iterations of review by the Internet community and a revision based upon experience, is adopted as a Standard by the appropriate body... and is published.

Unlike the preservation of paper-based documents, preservationists and archivists can no longer work alone, they need to work with computer specialists and other stakeholders. There is a lack of skills and expertise to further the digital preservation agenda. New skills are required to implement new policies and to develop new procedures (Harvey, 2005:189). A new profession is required for digital preservation where digital knowledge needs to be added to analogue knowledge (Harvey, 2005:190). In addition the technological skills need to be at a level where bit streams can be extracted from corrupted files (Harvey, 2005:190). This new professional needs to be able to work with a team and also with constant change as technology develops. In essence, there are three main challenges according to Harvey (2005:35):

- The nature of the media that are used to store digital materials;
- The technologies required to create, store and access digital materials; and
- The integrity of digital materials.

These issues are interrelated and complex and require the help of other stakeholders who are not in the library science field. The computer specialist should be responsible for the continuance of the technology including the software and hardware, and the preservationist is responsible for the data's reliability and validity (Day, 2006:179; Van der Merwe and van Deventer, 2009:2). Van der Merwe and van Deventer (2009:1) emphasise that —~~the~~ cooperation between role-players will ensure cost effectiveness, system efficiency and applicable selection criteria". Apart from computer specialists other stakeholders are becoming significant players whose legal and moral rights must be considered (Harvey, 2005:21). These stakeholders include information providers, creators and owners, certified digital archives, government agencies, commercial services, right holders and funding agencies (Harvey, 2005:22). Preservationists need to be familiar with the different methods currently used for digital preservation in order to select an appropriate approach. For example, one could look at the Library and Archives of Canada's approach since they are already collecting electronic publications or the British Library approach. However, the British Library preservation strategy to avoid an ineffective or flawed approach will employ multiple preservation strategies to provide greater security (British Library, 2010c:3).

2.8.5.1.1 Legislation

Legislation issues associated with preserving electronic information also present obstacles. There are already well established legally recognised frameworks for print materials, for example, copyright permits a level of copying for preservation purposes (Harvey, 2005:63). According to Kavcic-Colic (2003:203) —~~technological~~ developments have changed the concepts of publication, reproduction and distribution". Yet, legislation has not changed at the rate technology is developing. Although a number of countries have included digital materials in their legal deposit legislation, it can take several years for it to be fully effective. Verheul (2006:25) states that:

Increasingly, material is being published in digital form: this material also needs to be collected and preserved to ensure a complete record of a nation's published material. Legal deposit legislation therefore requires a new legal framework in order to encompass digital publications. The complications associated with the collection and control of electronic materials, together with the lack of a comprehensive model, have made drafting appropriate legislation problematic and slow.

Besek et al. (2008:109) agree with Verheul (2006:25) and state that in their study no country has yet implemented a comprehensive system (voluntary or compulsory) for collection and preservation of digital materials.

Depending on the preservation strategy adopted, the acquisition, storage and preservation of electronic documents over time involves repeated acts of copying (Muir, 2004:67). Yet, generally the current legal deposit and copyright law is unclear regarding preservation roles and methods for electronic materials. Muir (2004:67) emphasises that:

The copyright issues that arise depend on the scope of copyright legislation and the nature of the material. There may be conflicts between what copyright allows preserving institutions to do and what library and archive laws require them to do.

Valberg (2008:6) states that —it is important that the wording of the Act is in accordance with the authorities' policy and the rapid changes in society". Selections made on what to preserve need to be outlined in the legislation clearly and amended regularly according to the developments in technology. On the other hand legislation (Intellectual property rights - copyright) involving restrictive mechanisms can bar the preservationists from collecting and preserving electronic documents (Wilson, 2004:17; Day, 2006:181). These issues may be overcome by carefully structuring the legal deposit laws allowing depositories rights to software licenses. This will be discussed in greater detail in the section on access.

A couple of developed countries in Europe and America have developed copyright laws for digital materials. In North America the Digital Millennium Copyright Act permits certain institutions to make a maximum of three digital preservation copies

(Muir, 2004:72; Harvey, 2005:63). However, Besek et al. (2008:108) state that the three copies are inadequate for digital preservation for posterity. The legislation may need a depository to wait until there is definite degradation before making replacements but in digital preservation this might be too late (Besek, 2008:Copyright issues). Other initiatives include the Canadian Copyright Act, European Union Directives on the aspects of Copyright and World Intellectual Property Organisation (Muir, 2004:72; Moorthy, 2006:Copyright legislations in developed countries). Some countries have data protection rights (Harvey, 2005:63). The rights to preservation of digital materials are complicated and are time consuming in that currently libraries and archives have to ask the rights' holders for permission to preserve digital documents. This is due to the fact that deposit for digital publications is not yet fully implemented and arrangements of this nature have been made for Web material in Australia; e-theses/research papers in Austria and Germany; in Switzerland online material and university output; and in America on dissertations (Verheul, 2006:39; Harvey, 2005:63). Besek et al. (2008:108) found another barrier to digital preservation is the dilemma with 'orphan works,' that is the works of owners who cannot be identified. This includes digital materials created collectively using Web 2.0 tools like Wikis. A few countries are thinking of including orphan works in their legislation as it is a big issue (Besek et al, 2008:110). Muir (2004:73) emphasises that complex digital material, for example, multimedia depends on particular software to work and different software to search and retrieve and therefore contains different elements belonging to different individuals/organisations.

Electronic documents and publications are created in a range of media and formats. It is usual to find records relevant to the same issue existing in print format, as well as e-mail, a spreadsheet application or in a relational database (Duranti, 2010:79). Duranti (2010:79) emphasises it is important to preserve such links among records that are preserved, —that, several decades from now, researchers will be able to see the entire dossier relating to the matter they are exploring”. However, numbers of other strategies exist at the moment but no one size fits all and a need to use a combination of strategies might be the solution.

2.8.5.1.2 Technological obsolescence

Technological obsolescence is another major concern because electronic documents are created in various software programmes and depend on hardware to access them. Ngulube (2003a:59) states technological obsolescence occurs ~~when~~ technological changes cause technology to be outdated. Newer versions of software and hardware usually render older versions obsolete". According to Harvey (2005:47), this happens

Even if the digital media on which the bit-stream is stored remains in usable condition and the bit-stream stored on it is intact, the almost certain likelihood is that the drive, software driver or computer will no longer be available to access it.

New media for storing digital information, for example, flash drives have replaced older media, for example, floppy disks or diskettes. The reading devices for these older media are no longer available. All data is stored as code on computer systems and requires software to interpret it and Harvey (2005:48) states that ~~—~~ meaning is preserved only by preserving the ability to reconstruct streams of bits in a meaningful way". The advance of technology which transforms software programmes and hardware poses a threat to the access of documents (Ngulube, 2003a:60; Keakopa, 2008:10). The information profession has no control over the rapid rate of technological obsolescence that is driven by changing economic demands in the market place (Harvey, 2005:48). However, archivists have been and still are looking at the role of metadata in preservation. Metadata that is data about data contains information about bibliographical, structural, administrative and technical aspects of an electronic publication (Harvey, 2005:49; Verheul, 2006:46). Muir (2004:77) states that ~~—~~ the dependence of digital information on hardware and software and the need for documentation of technical requirements for decision-making" makes metadata crucial in digital preservation.

2.8.5.1.3 Media stability

A fundamental problem is the stability of the media on which the electronic documents are stored (Day, 2006:179). It is difficult to tell whether new storage media, for example, CD's, DVD and flash drives are more robust than the old magnetic tapes and diskettes. This is due to the fact that there are other factors that

affect the longevity of media including materials used to manufacture the different products. Van der Merwe and van Deventer (2009:6) point out that all the different types of storage media are threatened by external elements like dust, magnets, excessive heat, direct sunlight, moisture and many others. There are no standards that govern the manufacture of removable media and one will not know what temperature and humidity has affected the media during storage in the warehouses and transportation of these media. In the ideal world the life expectancy of the different media (traditional and modern) is illustrated in Table 5.

Table 5: Life expectancy of media

Medium	Life expectancy	Stability	Comments
Parchment	1000 years	Very good	-
Microfilm	500 years	Good	Requires equipment to read.
Paper	50 -200 years	Average	High levels of acidity can cause paper to disintegrate faster.
Magnetic Tape	100 years	Average	Decomposition of the binder can cause the tape to stick together.
CD-ROM	5 - 10 years	Poor	Depending on the materials used to manufacture – ones made with reflective aluminum layer oxides more easily than the ones with a gold layer.
USB/memory stick	5 years to 10 years depending on the make and data storing capacity	Poor	Depends on plugging/unplugging – data can be corrupted.

Adapted from Johnson (2010:slide 32)

Table 5 above shows that in an ideal world the traditional storage medium is more robust and its life span is longer than the new media. Without the knowledge of media longevity and physical damage incurred, the periodic transfer of data to new media called ‘refreshing’ would be necessary (Harvey, 2005:36; Day, 2006:179; van der Merwe and van Deventer, 2009:6). Harvey (2005:36) emphasises that most digital publications exist only in encoded form and require specific software to bring their bit streams to life and be usable. The new media are dependent on hardware and software to access them, making access complex when the hardware and software becomes obsolete.

2.8.5.1.4 Authenticity and integrity

There are a number of challenges with regard to electronic publications. These relate to the difficulties of ensuring the authenticity and integrity of electronic publications

over time. Digital information is easy to manipulate and can easily be, intentionally or unintentionally, corrupted. This is a big issue because the publication can be changed easily and no traces of the changes found. UNESCO (2003:108) guidelines to preservation of digital materials defines authenticity as the quality of genuineness and trustworthiness of some digital materials, as being what they purport to be.

UNESCO (2003:108) states that:

Authenticity derives from being able to trust both the identity of an object – that it is what it says it is, and has not been confused with some other object – and the integrity of the object – that it has not been changed in ways that change its meaning.

Various issues with regard to authenticity and integrity are discussed in the sections below about preservation strategies.

2.8.5.2 Preservation strategies

Currently there is no definite strategy to long term preservation of the different electronic publications since digital preservation is still in its infancy. Verheul (2006:51) encourages the development of different strategies with research on evaluating the strategies and methods for preservation planning. The two main facets of digital preservation are hardware, which stores electronic publications, and software that provides us with the ability to access them. Amongst the current strategies developed to preserve and make accessible digital publications in the long run, migration and emulation are the most prominent ones (Strodl et al., 2007:2). A study by Verheul (2006:51), of current practice in 15 national libraries in developed countries found that the current basis for long-term preservation requires proper procedures for media refreshment and backup. With the preservation of electronic publication for legal deposit, thousands of files will require emulation, migration, refreshing or backing up therefore a lot of issues need to be considered. This highly complex task requires depositories to include financial costs, staff skills, hardware and software in their plans. Making preservation planning a crucial aspect, Strodl et al. (2007:2) add that:

Preservation planning also means to take into account unavoidable losses that will, up to a certain extent, always be part of preservation processes, be it

loss of document characteristics during migration or loss of certain ways of user interaction in emulation scenarios.

2.8.5.2.1 Refreshing and migration

Refreshing brings another aspect of electronic documents namely authenticity. Electronic documents are not always authentic and can be easily changed without one noticing the change easily. To maintain these documents means the preservationist is faced with challenges of integrity and authenticity. Printed documents are kept authentic by maintaining them in the same form or state, unlike electronic documents that are kept by continuous refreshing and periodic migration (Hoorens et al, 2007:x; Duranti, 2010:83). According to Millar (2010:216) “refreshing is the process of copying data from one storage medium to another such as from floppy to CD-ROM”. This is done because storage medium becomes obsolete or is damaged over time. Whereas migration is defined as the transfer of files format from one software/hardware configuration to another (Strodl et al, 2007:2; van der Merwe and van Deventer, 2009:1; Millar, 2010:217). This is done so that the document can be accessed using current software or hardware. Strodl et al. (2007:2) argue that apart from making the files easier to access they become easier to handle. Migration constantly entails a degree of loss from the original format, that is, change of format or component of the document, for example, the colour is a meaningful part of a physical geography map and its loss would change the map (Muir, 2004:68; Wilson, 2004:9; Hoorens et al, 2007:x; Keakopa, 2008:10; Duranti, 2010:83; Millar, 2010:217). Therefore migration entails an emphasis on the preservation of the intellectual rather than the media characteristics of the document. Can one consider the document to be authentic and reliable? Wilson (2004:9) points out that “as time passes, technology, hardware, and software change, and access to original work is compromised”. However, Day (2006:187) states that “data migration is currently the most tried-and-tested preservation approach, often combined with some kind of format standardization undertaken on ingest”.

A good example of migration, and the format adopted by many, is the Portable Document Format Archive (PDF/A). The PDF/A file format is the standard (the International Organisation for Standardization (ISO) 9005-2:2011) for electronic

documents' preservation (International Organisation for Standardization (ISO), 2011: 9005-2:2011). The PDF format is an open source tool that allows users to view, print and at the same time preserves the visual appearance. Noonan, McCroy and Black (2010:PDF/A Defined) say that:

The key element for success is the requirement for PDF/A documents to be wholly self-contained — that all of the information (including all visible content like text, raster images, vector graphics, fonts, color information, [and others] necessary for displaying the document in the same manner every time is embedded in the file.

However PDF files are static representations of electronic documents and cannot be used to preserve multimedia because it omits the embedded scripts. Noonan, McCroy and Black (2010:PDF/A Defined) state this is due to the fact that:

A PDF/A document is not permitted to be reliant on any information from direct or indirect external sources, for example links to external image files or fonts that are not embedded.

Constant migration requires lots of resources and is intensive as it involves recurring work to convert electronic materials in obsolete formats to current formats. As the digital collection grows and the amount of work increases, it becomes time consuming and repetitive. Mnjama (2011:19) wonders whether:

African national archives [are] in a position to sustain the rapidly changing technologies or will some of these projects remain white elephants after capturing the information into machine dependable systems.

2.8.5.2.2 Emulation

In order to bypass the issue of authenticity and reliability another digital preservation approach can be used called emulation. Emulation is when a computer device or software mimics the behaviour of another device or programme (Wilson, 2004:17; Day, 2006:186; Millar, 2010:218). It eliminates the need to keep old hardware working. Strodl et al. (2007:2) explain that –in the preservation context, this most often means emulating a certain (version of) a software system needed to access a file in an outdated version or format". This involves acquiring software or hardware (emulator) that recreates the operations of an older system (Millar, 2010:218).

Emulation allows users to see electronic documents in their original state. There are

lots of emulator software applications available but limited hardware options (Wilson, 2004:17). Research is ongoing to create an emulator suitable for digital preservation. The National Library and National Archives of Netherlands are working together to create a suitable digital preservation emulator called Dioscuri (current version 0.7.0) which is open source (Koninklijke Bibliotheek, 2010:Latest news). A lot of work still has to be done because Dioscuri is not yet able to run modern operating systems (MS Windows 95/98/2000/ME/XP/Vista, Linux Fedora/Ubuntu/and others) (Koninklijke Bibliotheek, 2010:Frequently asked questions). Day (2006:186) states that —emulation would, in principle, seem to represent an appropriate preservation approach for at least some Web content”. Is emulation the way to go because of authenticity and reliability? However, there are lots of technical difficulties associated with developing emulation technology (Harvey, 2005:130; Millar, 2010:218). In addition Strodl et al. (2007:2) state that:

Every scenario has its own requirements and problems, calling for different solutions to the problem at hand. Preservation strategies and specific software tools for emulation or migration must always be chosen according to requirements of individual institutions.

2.8.5.2.3 Replication (backups)

In other instances since there is no off the shelf solution, available preservationists resort to backups which are also called replication. Millar (2010:216) defines replication as —the process of copying data from one storage medium to another”. This backing up process is also called bit stream copying, involving making an exact duplicate of the digital publication (Harvey, 2005:137). Apart from just making copies it involves making multiple copies as a safeguard against loss and is demonstrated in the project Lots of Copies Keep stuff Safe (LOCKSS) (Harvey, 2005:138). However, van der Merwe and van Deventer (2009:2) as well as Harvey (2005:137) argue that preservation exceeds backups which in reality only copies files in case of data loss or hardware failure but does not cater for technological obsolescence.

2.8.6 What should be preserved?

As already mentioned earlier electronic documents have increased rapidly with the growth and development of technology, including the Internet. Apart from the

masses of digital information there are documents of all different formats and sizes. Valberg (2008:6) stresses that —this is a major challenge with respect to harvesting such documents on the basis of legal deposit”. An entire country’s published heritage should be collected according to legal deposit legislation. Harvey (2005:64) states —legal deposit is conceptually antithetical to selection”. Yet, van der Merwe and van Deventer (2009:2) as well as Drijfhout (2006:3) point out that digital preservation involves selection and state it is not possible to collect all electronic documents in an organisation. Therefore they imply it is even harder to collect all of a country’s electronic publications. In Denmark in 2007 over a billion documents were harvested and in Norway 905 million URLs, which also included an uncertain amount of non-relevant documents (Valberg, 2008:6). Should social network pages on the Web, like Twitter and Facebook, be preserved? Social networks reflect ongoing debates regarding social and cultural issues, for example, President Obama’s tweet about winning the American elections. The Library of Congress (2010:84) has acquired the entire Twitter archive since March 2006 which numbers billions. The Twitter digital archive will help people understand the use of social media in ongoing debates regarding social and cultural issues (Library of Congress, 2010:84). Anybody today can be an author on the Web. Muir (2004:70) emphasises that:

Legal deposit libraries face some special problems in preserving digital information. In order to acquire all the information they are entitled to, depositories have to discover its existence. They cannot rely on publishers sending them their material...they may not know that they have to [...] Organisations publishing material may not consider themselves to be publishers, while new players may not even be aware of legal deposit obligations.

Decisions made to select and preserve digital information need to be informed, consistent and accountable (Drijfhout, 2006:3). This is due to the fact that there are many websites with discriminating content, pornography and others that contain slander/libel and can wrongfully damage a person’s reputation.

2.8.7 Funding

In addition to the question ‘what should be preserved?’ Wilson (2004:12) poses the question ‘who should pay for it?’ Wilson (2004:12) argues that for any digital

preservation project to succeed libraries need unwavering support especially with regard to financial resources. Digital preservation is open to fail unless its funding becomes one of the core expenses of libraries and archives (Harvey, 2005:187). The National Library of Australia's project Preserving and Accessing Networked Documentary Resources of Australia (PANDORA) have found that capturing the Web is five times more expensive than buying a printed book (Kavcic-Colic, 2003:204). Jones and Beagrie (2003:21) argue that —digital preservation is essentially about preserving access over time”. Digital preservation is costly according to (Jones and Beagrie, 2003:21) because:

- The need to actively manage inevitable changes in technology at regular intervals and over an infinite timeframe.
- The lack of standardisation in both the resources themselves and the licensing agreements with publishers and other data producers, making economies of scale difficult to achieve.
- The unresolved problem of digital publications' integrity and authenticity after changes of technology.

In addition Harvey (2005:187) argues that —repositories continue to grow in size, so the funding requirements also continue to grow”. The other factor, Harvey (2005:187) points out, is that it is difficult to secure ongoing funding due to the lack of concrete knowledge of how much the project will cost over a period of time. Yet, legislation states that all documentary heritage should be collected but libraries and archival institutions already face issues of dwindling resources. There is also a need for continuous updating of legislation and policies to keep up with the developments in society.

2.8.8 Training and research

The fast changes and developments of technology and lack of expertise in digital preservation calls for investment of considerable financial resources in equipment, computers and computer servers as well as training of library staff. With the ever-changing technology, there is a need for ongoing training. However, with regard to preservation education and training in general there is no new empirical studies since Nsibirwa (2007:42-43) section 2.4.

Due to the complex nature of electronic materials and the size of the problem various organisations have formed international and national coalitions to work together to find solutions to digital preservation. There is still need for research to identify strategies and solutions. These coalitions were formed to fund research as well as to bring experts together to collaborate and share information. Librarians and archivists have found that they cannot work on this issue in isolation but require expertise in other fields like information technology, media and science. Harvey (2005:158) states that:

Collaboration is seen increasingly as one of the keys to effective confrontation of what seem at times to be overwhelming threats posed to digital preservation.

UNESCO (2003:63) in their guidelines to digital preservation states that benefits driving a cooperative effort could include:

- Access to a wider range of expertise.
- Shared development costs.
- Access to tools and systems that might otherwise be unavailable.
- Shared learning opportunities.
- Increased coverage of preserved materials.
- Better planning to reduce wasted effort.
- Encouragement for other influential stakeholders to take preservation seriously.
- Shared influence on agreements with producers.
- Shared influence on research and development of standards and practices.
- Attraction of resources and other support for well-coordinated programmes at a regional, national or sectoral level.

There are a number of concerns with collaboration. The main concern is that due to various stakeholders' involvement, attention can be diverted from the main objectives (Harvey, 2005:158-159). However, the benefits outweigh the disadvantages. The first two collaborations are different from the others as they are primarily to educate, inform and lobby rather than to establish services to carry out digital preservation (Harvey, 2005:166). A number of these coalitions include:

- I. United Nations Educational Scientific Cultural Organisation (UNESCO)

agreed they need to take rapid action to prevent the loss of digital heritage in 2001. UNESCO is working with government departments, policy makers, publishers, heritage institutions and standard setting organisations from different countries (UNESCO, 2011:Background). International Internet Preservation Consortium (IIPC) is a Web consortium connecting Australia, Canada, Denmark, France, New Zealand, Switzerland, United Kingdom and United States of America. These countries acknowledged the importance of international collaboration for preserving Internet content for future generations creating the IIPC in July 2003 (Verheul, 2006:59; International Internet Preservation Consortium, 2011: about the consortium).

- II. Preserving Access to Digital Information (PADI) an initiative started by the Australian Library community in 1993. Apart from working together with various information specialists and scientists, PADI has an international advisory group which includes people from Finland, Sweden, Canada, America, Britain, Netherlands and Norway (National Library of Australia, 2003: Introduction).

National coalitions:

- III. Netherlands Coalition for Digital Preservation (NCDD) formed in 2008 by the National Library of Netherlands and the Royal Netherlands Academy of Arts and Sciences with members from National Institute for Sound and Vision, EYE Film Institute, Data Archiving and Networked Services (DANS) and National Archives of Netherlands (NCDD, 2011:History).
- IV. Digital Preservation Coalition (DPC) - was established in 2001 to foster joint action to address the urgent challenges of securing the preservation of digital resources in the UK and to work with others internationally to secure a global digital memory and knowledge base. Members of this coalition include the British Library, universities, museums and archives in the United Kingdom (Digital Preservation Coalition, 2009>About).
- V. Network of Expertise in Long Term Storage (NESTOR) – established in 2003 and sponsored by the German Ministry of Education and Research is a partnership of the German National Library, university libraries and the German State Archives (Dobratz and Neuroth, 2004:Digital preservation as a cooperative task).

VI. The National Digital Information Infrastructure and Preservation programme (NDIIPP) led by the Library of Congress to develop a national strategy for America and to collect, preserve and make available the growing volume of digital content (Besek et al., 2008:107).

International coalitions:

VII. Electronic Resources Preservation and Access Network (ERPANET). The European Commission and Swiss government realised the need and funded the project in 2001 to make viable and visible information, best practice and skills' development in the area of digital preservation of cultural heritage and scientific objects. It is led by the Humanities Advanced Technology and Information Institute (HATII) at the University of Glasgow (United Kingdom), and its partners the Schweizerisches Bundesarchiv (Switzerland), Nationaal Archief van Nederland (Netherlands) and PADI (Australia) (ERPANET, 2004: About ERPANET).

VIII. International Research on Permanent Authentic Records in Electronic Systems is focusing on a range of strategies to assert the authenticity of digital materials (Muir, 2004:75).

IX. International Research on Permanent Authentic Records in Electronic Systems (InterPARES) is developing knowledge fundamental for the long-term preservation of authentic records by developing standards, policies and strategies to digital preservation (InterPARES,n.d.:InterPARES project).

A number of coalitions have been developed and literature about digital preservation studies is now being reported with relation to developments in the world. Future preservation strategies need to be flexible from both a technical and a financial point of view (Verheul, 2006:54).

2.9 Access

One of the major aims of a legal deposit system is to ensure the availability of and access to a country's published heritage (Lor, 1995:97; IFLA, 2000c:Legal deposit legislation...; Larivière, 2000:10). An effective system guarantees society access to a research collection of a country's published material (IFLA, 2000c:Legal deposit legislation...). It is an element of a country's cultural policy and is considered as the

foundation of freedom of expression and access to information (IFLA, 2000c: Legal deposit legislation...).

Legal deposit ensures accessibility if works produced are deposited and become part of a well maintained legal deposit collection that is made available to society. Forde (2005:195) emphasises that there is a need to facilitate access to museums, libraries and archives through developing the workforce and by disseminating good practice. Access to legal deposit is about access for posterity, that is use in the future or long term. Smith (2004b:60) stresses that —use drives access, which in turn drives preservation”. Legal deposit materials are preserved with the intention of providing access for future use (Lor, 1995:97; Larivière, 2000:10). However, Smith (2004b:56) emphasises that —...without the promise of near term access, preservation will not find the widespread public support – financial, regulatory, and otherwise – that it needs”. With no preservation there is no access, for example, one cannot access a newspaper if it was not preserved properly and has disintegrated. According to de Stefano (2000:317) preservation and access have a correlative relationship and affect each other. In that, the need for access to information necessitates the need for preserving materials, making the two reciprocal. Smith (2004b:57) stresses that —greater access can drive increased use”. The balance between preservation and access has always been uncertain in those items that rely on the stability of the carrier. According to Forde (2005:199) —preservation still has to precede and support access - but there is a change in the way in which developing access is opening up avenues for preservation”. There is a need in practice for a balance to be made between preservation for the future and availability for current use (Feather, 2004:8).

A number of international organisations also support access to information apart from legal deposit legislation namely:

- The United Nations under their Universal Declaration - Article 19
Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers (United Nations, 2011:Article 19).

- The Commonwealth in their human rights initiative

The right to information holds within it the right to seek information, as well as the duty to give information, to store, organise, and make it easily available, and to withhold it only when it is proven that this is in the best public interest. The duty to enable access to information rests with government and encompasses two key aspects: enabling citizens to access information upon request; and proactively disseminating important information (Commonwealth, 2011:The right to information...).

- IFLA-Freedom of Access to Information and Freedom of Expression (FAIFE) have made statements encouraging access to information:
 - I. Libraries provide access to information, ideas and works of imagination. They serve as gateways to knowledge, thought and culture.
 - II. Libraries have a responsibility both to guarantee and to facilitate access to expressions of knowledge and intellectual activity. To this end, libraries shall acquire, preserve and make available the widest variety of materials, reflecting the plurality and diversity of society (IFLA/FAIFE, 2011:Gateways to knowledge).

According to Darch and Underwood (2005:85), in any country significant factions are likely to be reluctant to allow any substantial implementation of access to government publications. For legal deposit this means that government departments will not deposit all the necessary publications.

2.9.1 Access using technology

The advent of new information technologies brings a different aspect of access. Technology has changed the way information professionals, acquire, process, store and provide access to electronic documents from various geographical locations (Keakopa, 2008:10). The demand for access to these resources has risen greatly including the means to deliver them. Smith (2004b:56) argues that the increased demand comes with the clear preference for direct access that is unmediated both physically and intellectually. Forde (2005:194) states that —online access to documents has much to do with this explosion of interest, both for the able bodied and those less able to travel to an archive”. Though, Forde (2005:194) argues that it is not only the delivery of information that has changed but physical access to

publicly funded archives for the less mobile has improved a lot. As the nature of some materials change, some are no longer printed but made available on networks where some require paid subscriptions to access materials (IFLA, 2000a:With the advent...). IFLA argues that:

Most legal deposit schemes have been able to integrate offline electronic publications without any major problem, mainly because of their physical support and the fact that their handling is quite similar to that of print material. But the online environment, and more particularly the case of dynamic electronic publications is creating serious legal deposit problems IFLA (2000a:With the advent...).

Unlike print materials, electronic documents can have many versions over time with decisions made on what to select and preserve being based on the old model of fixing information to an archival medium (Smith:2004b:60). For example, should those wishing to preserve and maintain access to constantly changing Web publications decide on a sampling strategy to best reflect this site or should the different versions be preserved?

With the ability to make more information accessible, the corresponding need to expand the scale and scope of processes to preserve it has increased, but the capacity to produce information has surpassed the capacity to preserve it (Lavoie, 2004:46). This relates to information being constantly updated in real time, with access to these documents being lost and therefore not preserved for future generations. Lor and Snyman (2005:Data are not lost...) state that though the digital age has barely begun, we have already lost tremendous amounts of data including electronic documents stored in COBOL, D-Base, Ms Dos to name a few which have become inaccessible to most computer users. Information stored on floppy disks has also been lost due to a lack of hardware to view this information. The rapid development of technology has caused many countries to reexamine their legal deposit laws and revise them to include electronic and different forms of publications as well as print materials (Muir, 2001:652). All factors affecting the preservation of digital material affect access and are discussed in section 2.8.5 under preservation of electronic documents including media stability, technological obsolescence, legislation and preservation strategies.

2.9.1.1 Legislation affecting access to digital materials

Some legislation affecting the preservation of digital publications, also affects the access to these publications – one such act is copyright (IFLA, 2000b: Before legal deposit...; Larivière, 2000:17; Penzhorn: 2007:85; Besek et al, 2008:108). (See section 2.8.5.1.1 above). This is due to the fact that technology has changed the way information is produced, distributed and reproduced. All digital materials are subject to copyright including information on the World Wide Web. Kavcic-Colic (2003:206) stresses that anyone collecting these materials, without the author's permission, is breaking the copyright law, with the exception of documents in the public domain. Other exceptions include all publications clearly marked that duplication is permitted, as well as when digital preservation is done with the permission of the owner (Besek et al., 2008:105). Publishers on the Web also use technological protection measures such as login procedures to control access to digital material. Masango (2007:84) states that —digital content is increasingly protected by multiple layers of intertwined legal and technological devices – copyright law, licensing agreements, software and hardware management systems and criminalizing anti-circumvention laws”. However, Besek et al. (2008:109) state these measures can be barred by law. Although Besek et al. (2008:109) and Masango (2007:85) say that a number of countries, including USA, Australia and the UK, have clauses protecting these contractual agreements and overriding legislative provisions in most circumstances. Wilson (2004:18) emphasises that —one of the foremost pieces of legislation barring libraries from actively archiving digital resources, especially electronic journals, is copyright”. With off-line electronic material, procedures to deposit are similar to print material, but with on-line material the publisher may send direct to the depository or the depository will have to download causing serious copyright questions, since downloading is reproduction (IFLA, 2000b:Before legal deposit...; Darch, 2010:2). IFLA (2000b:Before legal deposit...) insists that —with copyright legislation, legal deposit legislation within the electronic environment should be the result of a compromise based on the balance of rights between citizens and publishers”. However, Larivière (2000:17) states that before rights are compromised, there is a need to verify the main copyright instruments (Berne Convention or the Universal Copyright Convention) that a country is signatory to. The Protection of Literary and Artistic Works in the Berne Convention provides the foundation for the control of

copyright law internationally (Besek et al., 2008:105). The Berne Convention entails copyright protection with no rules and regulations and therefore deposit of copies cannot be enforced (IFLA, 2000d:The —copyright deposit”...; Larivière, 2000:17). Countries need to also support treaties like the World Intellectual Property Organisation Copyright Treaty (WIPO-WCT) that provides modern updates to the Berne Convention (Besek et al., 2008:105).

Most copyright laws that provide exceptions for preservation institutions were created in the analog era, and often have limitations with regard to digital preservation (Besek, 2008:Copyright issues; WIPO, 2011:3). WIPO (2011:3) gives an example:

Libraries and archives now provide access to large quantities of ‘born digital’ works that are not available in print format. Without the legal certainty to preserve this material for future access, the world faces a digital ‘black hole’ of 21st century material.

Yet digital preservation entails greater and more complicated copyright issues than the preservation of the traditional print material. Besek et al. (2008:105) note that:

Many of the activities involved in digital preservation, such as making multiple copies of a work, distributing copies among multiple institutions, and migrating works to new technological formats and media, involve the exercise of exclusive rights, including but not limited to the reproduction right.

A study by Besek et al. (2008:107) of the impact of copyright on digital preservation in four countries (Australia, Netherlands, the United Kingdom and USA), found that some of the countries had amended their laws. For example, as mentioned earlier, in the USA three copies are allowed for preservation and replacement which is inadequate for long-term preservation of digital publications. However, IFLA (2011b:What is IFLA doing?) holds the position that the current system of copyright limitations and exceptions for libraries is not fit for the digital age”. WIPO (2011:5) and IFLA (2011a:Legal framework) are working together and have called for a new copyright framework for libraries and archives and proposed limitations and exceptions. In the treaty proposal that applies to non-commercial uses, limited

exceptions are created for the exclusive rights of authors under copyright, in order to enable amongst others:

- Preservation of materials for posterity, with the flexibility to access cultural works in copy-protected formats;
- Making or receiving of copies of works lawfully acquired by a library or archive for personal and private purposes;
- Supply of copies of works in response to requests from individual users;
- Provision or lending of lawfully acquired content on a not-for-profit basis;
- Circumvention of technological protection measures for the purpose of permitting a non-infringing use of a work (WIPO, 2011:5).

2.9.2 Access to legal deposit in South Africa

In this subsection factors affecting access to legal deposit in South Africa are discussed. However, with regard to direct access to materials, bibliographic lists and the Bill of Rights there are no new developments in the literature reviewed since Nsibirwa (2007:16-18) subsection 2.1.4.2.

2.9.2.1 Legislation affecting access to legal deposit in South Africa

Apart from the Bill of Rights that supports the Universal Declaration of Human Rights Article 19 mentioned earlier, the Promotion of Access to Information Act (PAIA) of 2000 (Act No. 2), arises from the constitutional right outlined above, and provides more detail with regard to the access of information (National Library of South Africa, 2004:Access). The purpose of PAIA Act No. 2, of 2000 is:

To give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected herewith.

The impact of PAIA Act No. 2, of 2000 is that all other legislation providing access provision is subordinate to it, but access can still be managed in terms of other laws as long as it does not conflict with PAIA (Harris, 2000:25). For legal deposit this means unrestricted access to all materials even though the Legal Deposit Act No. 54 of 1997 section 7(5) (d) states that —the head of a place of legal deposit may, on the recommendation of the Committee impose restrictions on certain categories of

documents ...". However, the Constitutional Court of South Africa states that the South African Human Rights Commission (HRC) can help anyone assert their rights of access to information and the HRC is to make people aware of their rights to use this information (Constitutional Court of South Africa, 2007:New legislation). Yet, Lor and Snyman (2005) state that unlike other laws the PAIA does not enforce any specific obligation to preserve records for the holding institutions. However, Lor and Snyman (2005:Legal reasons) stress that —concealing, destroying, altering or falsifying records with intent to deny the right of access is an offence ([PAIA] section 90) but being unable to find a record is not". Lor (2003:Introduction since 1990...) states that —the two pillars of democracy are freedom of expression and freedom of access to information including, crucially, access to government information". This recognition should help to foster access to government and other records which are essential in developing a democracy. However, the range of freedom of access to information, representative of liberation from apartheid as discussed earlier in section 1.2.1, is under threat. Darch and Underwood (2005:78) state that:

It is hardly surprising that in many countries FOI [freedom of information] has been the object of political struggle, has often been realised only in the most enfeebled fashion, and has continued to come under attack even after implementation.

The African National Congress (ANC) on Friday, 2 September 2011 used its majority strength in a parliamentary committee to accept a final version of the Protection of State Information Bill which critics immediately vowed to challenge in court.

According to the *Mail and Guardian* (2011a: ANC steamrolls info Bill...) dated 2 September 2011:

The ANC agreed to narrow the definition of national security in the Bill and to limit the power to classify information to the intelligence and security services, with other departments having to seek special permission to keep secret files.

With protests from civil society organisations, media and members of the public, the Bill was put on ice for a while. However, the African National Congress's majority was used to force through the National Assembly, the so-called secrecy bill on Tuesday afternoon (22 November 2011) despite a nationwide protest, appeals to MPs and to Deputy President Kgalema Motlanthe to delay voting on the legislation (*Business Day*, 2011:Secrecy bill...). However, according to the *Mail and Guardian*

(2011b: Secrecy Bill: black Tuesday...) –the Protection of State Information Bill will be challenged in the Constitutional Court if the National Council of Provinces (NCOP) and President Jacob Zuma fail to add a public interest defense clause”. According to an article by Makoni (2011:The bill...) in *Research Africa* researchers should be careful with information they may collect from respondents who may be whistle blowers revealing classified information. Makoni (2011:Duncan said any research...) says Jane Duncan of the School of Journalism at Rhodes University states that:

Any research that is in public interest, but is based on leaked classified information, will be criminalized and the researcher could be arrested for failing to report possession of classified information.

Unlike the USA and Ireland the South African Legal Deposit Act is not part of the country's Copyright Act. Copyright law, however, has not changed as quickly as the radical technological changes of recent decades (Shuttleworth Foundation, 2008:5). As noted earlier the South African Copyright Act No. 98 of 1978 has been amended from time to time, but section 13 that makes provisions for libraries and education has not been amended to date (Nicholson, 2008:The South African...; Shuttleworth Foundation, 2008:28). Nicholson (2008:The South African...) states that:

The Act and its regulations are outdated and they do not address the digital environment, nor do they take advantage of appropriate limitations and exceptions ("legal flexibilities") allowed in international intellectual property agreements.

Darch (2010:23) emphasizes that –the copyright and intellectual property system has slowly been corrupted and co-opted by cynical vested interests who manipulate it against the best interests of the citizenry”. The copyright act does not address issues related to the digital environment. If the South African Copyright Act was up-to-date concerning the ongoing problem of Google digitising Nelson Mandela's archives for example, it would be easy to point out who has the right to these materials. Mnjama (2011:27) emphasises that:

There are certainly merits in undertaking donor funded digitisation programmes, but caution must be exercise to ensure that the interests of the country holding the original materials are securely protected.

According to the Shuttleworth Foundation (2008:5) ~~the~~ "the difference in pace of change generates uncertainties about creativity using new media and copyright". There are no specific provisions in South African copyright law to address libraries/archives and if copying takes place in terms of section 12(1) of the Copyright Act it must be in accordance with undefined ~~fair dealing~~ "fair dealing" (Shuttleworth Foundation, 2008:28). That means only parts of the document can be copied and complete documents are not covered. Darch (2010:8) notes that recent studies in developing countries have shown that copyright restrictions have negative effects on information flows. With the new issues that the digital environment has brought along, Smith (2004b:68) argues that —~~access~~ "access will be driving preservation, and to succeed in their preservation mission, libraries must therefore stake out a public right of access".

2.9.2.2 Access via Official Publications Depositories

As already mentioned earlier the Legal Deposit Act of 1997 makes provision for OPDs as set out in section 7(4):

An official publications depository shall:

- (a) serve as a center 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 No. 93 of 1992); and
- (b) provide public access to databases and other information sources to which the public may gain access under any law.

This means that OPDs are not just scaled down depositories that receive official publications but are required to be actively promoting awareness of the different types of these publications and promote access to them. Lor and Van As (2002:115) stress that —OPDs ~~sh~~ "ould serve as centers which will assist the public to find their way through the bureaucratic maze to gain access to information" including online databases, the Websites of government departments and public entities. Lor and van As (2002:110) state that changes include initiatives regarding reorganising government printing, restructuring the government's public information services, making government information accessible on the Internet, and extending Internet access and telephony to poor communities. However, in South Africa, while there is rapid development in information technology, general telecommunication costs,

although decreasing, are still high compared to other countries, preventing online access for many.

According to the current legal deposit act The Minister will designate at least one OPD in each of the nine South African provinces. So far there are only four OPDs as mentioned earlier, the Constitutional Court Library (Gauteng), R J R Masiea Public Library (Free State), the North West Provincial Library Services (North West) and the Mpumalanga Provincial Library Services (Mpumalanga), although legal depositories can also receive government materials. The slow development of OPDs may be due to a lack of funding and necessary resources required to promote and guide their development. This slow development affects accessibility of government information to people in some areas, especially those affected by the digital divide.

Publishing done by government departments is one of the sources of major problems. Lor and van As (2002:116) say that individual departments do not always follow the procedure of notifying the Government Printer and do not always deliver legal deposit copies due to the high costs involved. Other factors affecting access to government information include:

- Irregular publishing of serials;
- Inadequate print runs for significant reports;
- Difficulties in obtaining missing copies from the departments;
- Incomplete Government Printer's monthly lists of official publications;
- Inadequate promotion and marketing of documents; and
- Inefficient distribution of publications by departments (Lor and van As, 2002:116-117).

2.10 Summary

This chapter reviews literature and places the research report in context with the general body of scientific enquiry. It provides an overall picture of legal deposit, especially legislation relevant to South Africa; the preservation and access of legal deposit material; the history, nature and role of legal deposit; the different instruments used in various countries and the preservation and access of both print and electronic documents.

Legal deposit has evolved overtime initially used for personal gain of print materials in France, to the collection, preservation and access of a range of formats worldwide. Though the South African Legal Deposit Act covers the collection of the various forms of publications, it lacks regulations to help implement the legislation. Apart from implementation challenges, South African depositories have additional challenges including limited funding, lack of expertise, insufficient staff and training. Other factors affecting preservation include climate change, greenhouse gas emissions and the soaring energy costs.

In addition, the preservation and access of legal deposit is changing with the fast development of new technologies that have made publishing easier. Technological developments are examined including how they affect operational practices and procedures associated with collecting, preserving and accessing cultural heritage. Due to the fact that online documents are not currently being collected and preserved, South Africa, like many other countries, is losing access to many electronic documents.

Chapter 3: Research methodology

3.1 Introduction

There are various ways of collecting, understanding and finding answers to an inquiry. This chapter deals with the practical part of the research, which aims at investigating issues identified as the core problem areas of the study. Kumar (2005:16) states that “The path to finding answers to your research questions constitutes research methodology”.

3.1.1 Research paradigms

There are various definitions of the term ‘paradigm’ and different authors use it differently. However, according to The School of Education, Training and Development, UKZN (2010:20) “a research paradigm represents a particular worldview that defines, for the researchers who carry this view, what is acceptable to research and how”. Further Neuman (2003:541) defines a paradigm as “a general organising framework for social theory and empirical research”. A paradigm defines the boundaries of how research is carried out, including:

- The kind of questions asked.
- What can be observed or investigated.
- How data is collected.
- How to interpret the findings (Neuman, 2003:541; The School of Education, Training and Development, UKZN, 2010:20).

Apart from specifying the methodology, Terre Blanche and Durrheim (2002:6) state that paradigms encompass ontology and epistemology as well. Terre Blanche and Durrheim (2002:6) define these systems as:

- I. Ontology – the nature of reality that is studied, and what can be known about it.
- II. Epistemology – the nature of the relationship between the researcher (knower) and what can be known.

Understanding these terms in relation to the study helps to place it in a broader context. There are various paradigms, however, but two main paradigms form the foundation for the social sciences namely the positivist and interpretivist paradigms. Positivism is based on the belief that the world exists but objectivity requires a

distance between the researcher and the respondents and the relationships between things can be measured (The School of Education, Training and Development, UKZN, 2004:40; Babbie and Mouton, 2006:645). On the other hand interpretivists believe that human nature is distinct from natural events and requires different methods of investigation. Interpretivist research philosophy believes in interpreting, learning and understanding human behaviour (The School of Education, Training and Development, UKZN, 2004:40; Babbie and Mouton, 2006:643; Schutt, 2006:43). All paradigms are based on assumptions and none can be unquestionably right. However, Terre Blanche and Durrheim (2002:37) emphasise that it is important that researchers recognise that their findings are rooted in paradigms, and that they employ research designs that are consistent with the paradigm chosen. Kumar (2005:14) believes that:

No matter what paradigm the researcher works within, s/he should adhere to certain values regarding the control of bias, and the maintenance of objectivity in terms of both the research process itself and the conclusions drawn.

Broadly speaking this study is not based on pure theory but on concepts that are the building blocks to theory. The study is shaped by the researcher's assumption about how the world can be investigated. In this study it is based on how other experts in the field investigated their studies successfully. Babbie and Mouton (2006:48) and Schutt (2006:40) link paradigms of social science and the methodological approaches, that is collection of data and the techniques used. The different paradigms are linked to research philosophies. The quantitative approach is linked to positivism/post-positivism and the qualitative approach is linked to interpretivism (Babbie and Mouton, 2006:49; Schutt, 2006:41-43). Generally social science studies take an interpretivist approach. This study has a quantitative slant that describes variables and therefore broadly speaking is within the positivist philosophy. Although the study is within the positivist philosophy it is post-positivist in nature. The goals of the researcher are to describe the preservation of, and access to legal deposit and can only approximate the truth, unlike the positivists who are mainly scientific researchers who claim that the world can be completely known (The School of Education, Training and Development, UKZN, 2010:21).

3.2 Review of literature

To acquaint oneself with the available body of knowledge in the field, a literature review is done. Neuman (2003:96) states that —“a literature review is based on the assumption that knowledge accumulates and that people learn from and build on what others have done”. In other words, researchers should rather find out what already has been done in a particular field rather than ‘reinvent the wheel’. Babbie and Mouton (2003:565) emphasise that —“every research report should be placed in the context of the general body of scientific knowledge, so you must indicate where your report fits into the picture”. According to Kumar (2005:30) a literature review has a number of functions by helping the researcher to:

- Bring clarity and focus to your research problem;
- Broaden the knowledge base in your research area;
- Improve your methodology; and
- Contextualise findings.

The review of literature reveals methodologies employed by other researchers with similar projects (Kumar, 2005:31; Terre Blanche, 2002:20). Terre Blanche and Durrheim (2002:20) point out —“the more a method has been tested and adjusted for use in studying a specific problem, the more reliable it will be”. However, Kumar (2005:31) and Neuman (2003:97) point out that although a method is used often, the researcher needs to evaluate its strengths and weaknesses.

3.3 Study population

The units of analysis in this study are the legal deposit libraries namely the National Library of South Africa (Pretoria and Cape Town), Mangaung Library Services, the Msunduzi Municipal Library including official publications’ depositories at the Constitutional Court Library, R J R Masiea Public Library (Phuthaditjhaba) and North West Provincial Library services.

Babbie and Mouton (2003:173) state that —“a population is the theoretically specified aggregation of study elements”. The size of the population depends on the style of research, which in a descriptive study could involve an individual, group of people or an institution. According to the Neuman (2003:231) —“a large sample size alone does not guarantee a representative sample”. In this study the total population was 17

which was small making sampling for the questionnaire unnecessary. The study population consisted of 14 professional library staff (principal librarians and librarians) working in the OPDs and legal deposit sections of the libraries, and the three heads (National Librarian and Library Managers) of the libraries. An earlier study conducted by the researcher (Nsibirwa, 2007:109) found that the non-professional library staff lacked knowledge about preservation of materials and therefore were left out of the current study. The 14 professional staff were studied using a self-administered questionnaire and a semi-structured interview was used to study the three library heads. Non-probability sampling in the form of purposive sampling was used to select a sample of the population to be interviewed based on the researcher's knowledge of the population. Schutt (1996:164) maintains that —a purposive sample is one in which each sample element is selected for a purpose, usually because of the unique position of the sample element”. Purposive sampling will help the researcher gain insight into issues with regard to finance and policies of the units of analysis (Burns, 2000:464; Schutt, 1996:164; Kumar, 2011:207). Kumar (2011:207) notes that —this sampling strategy is more common in qualitative research, but when you use it in quantitative research you select a predetermined number of people who, in your judgment, are best positioned to provide you with the needed information for your study”. Therefore the sample that was selected for interviews were the two heads of legal deposit libraries and the head of both branches (Pretoria and CapeTown) of the National Library of South Africa.

3.4 Research design

A research design is a plan of how the researcher will systematically collect and analyse data to answer the research question (The School of Education, Training and Development, UKZN, 2010:35; Terre Blanche and Durrheim, 2002:29). A research design can be compared to designing and building a house. There is a need for a solid foundation and plan to structure the way forward in order to achieve the best results.

3.5 Research method

Social research methods revolve around the two main approaches already mentioned, that is quantitative and qualitative research (The School of Education,

Training and Development, UKZN, 2010:36; Neuman, 1997:14). Both approaches have different strengths and weaknesses, and different types of research are suited to the one approach rather than the other. This study will use both approaches but will mainly adopt a quantitative approach. According to Bryman (2006:97) the combining of both approaches has become increasingly common. Researchers realise the advantages of using more than one research method in that the problems of one strategy will be compensated for by the strengths of another (Hall and Hall, 1996:45; Schutt, 1996:355; Burns, 2000:419; Burton, 2000:298; Babbie and Mouton, 2003:275). This combination is called mixed methods by various authors (Bazeley, 2006; Bryman, 2006; Spratt, Walker and Robinson, 2004), however Creswell and Clark (2011:5) and Ngulube, Mokwatlo and Ndwandwe (2009:107) argue that it is not really mixed methods. These authors have reviewed and looked critically at how researchers use both qualitative and quantitative methods in their studies. Ngulube, Mokwatlo and Ndwandwe (2009:107) emphasise that:

All along researchers have been combining research approaches but the emphasis was not on using both qualitative and quantitative paradigms across all the stages of the research process. Hitherto the combining of the two approaches was confined to two-phase and dominant/less dominant designs without attempting to integrate them fully into all the phases of the research cycle.

Creswell and Clark (2011:5) agree with Ngulube, Mokwatlo and Ndwandwe (2009:107) and state that in mixed methods, the researcher:

- collects and analyses persuasively and rigorously both qualitative and quantitative data (based on research questions);
- mixes (or integrates or links) the two forms of data concurrently by combining them (or merging them), sequentially by having one build on the other, or embedding one within the other;
- gives priority to one or to both forms of data (in terms of what the research emphasises);
- uses these procedures in a single study or in multiple phases of a programme of study;
- frames these procedures within philosophical worldviews and theoretical lenses; and

- combines the procedures into specific research designs that direct the plan for conducting the study.

Although this study employed both qualitative and quantitative research approaches to shed light on the concepts, it was partially mixed because the instruments used were predominantly quantitative and therefore employed methodological triangulation.

3.5.1 Methodological triangulation

Triangulation is recurrently referred to as a useful technique for strengthening research rigor by combining multiple methods, measures, researchers, theories and perspectives (Terre Blanche and Durrheim, 2002:128; Neuman, 2003:138; Babbie and Mouton, 2003:275; Schutt, 2006:18). There are four possible types of triangulation:

- Data triangulation - the use of a variety of data sources;
- Investigator triangulation - the use of more than one researcher;
- Theory triangulation - using multiple theoretical perspectives to interpret a single data set; and
- Methodological triangulation - the use of multiple research methods to study the one problem (Neuman, 2003:138; Babbie and Mouton, 2003:275).

The different types of triangulation are proposed for different research problems and designs, various justifications accompany the use of this research strategy.

Triangulation has been used to look at a problem from different angles in order to get a more accurate result. In this study triangulation of method was used by collecting data using both quantitative and qualitative data collection methods. Triangulation is considered to increase the concurrent validity of research (Babbie and Mouton, 2003:275; Schutt, 2006:109; Ma and Norwich, 2007:211). This is stated when similar results with different measures of variables are achieved. Yet, if the results diverge it indicates that one or more measures are influenced by more measurement error (Schutt, 2006:109). Ma and Norwich (2007:211) state that —~~the~~ assumption of validation as convergent agreement, which is central to this earlier interpretation of triangulation, has been challenged”. Terre Blanche and Durrheim (2002:128), Neuman (2003:138) and Schutt (2006:18) argue that it gives the researcher a clearer

picture of the social reality being studied and helps the researcher to understand the phenomenon better. Neuman (2003:139) states that:

Most researchers develop an expertise in one style, but the methods or styles have different complementary strengths. Since there is a partial overlap a study using both is fuller or more comprehensive.

Ma and Norwich (2007:212) emphasise that “triangulation is an alternative to validation but not a validation strategy”.

3.5.2 Data collection techniques

Survey research is a method of gathering data from a selected group of people using questionnaires and/or interviews (Terre Blanche and Durrheim, 2002:483). Questionnaires and interviews are the two main forms of data collection methods used but there are many variations within each form (de Leeuw, 2008:313). In this study a self-administered questionnaire and semi-structured interview schedule are used to collect data. The choice of using both methods rather than one method is to increase the validity of the findings because the weaknesses of one method will be compensated for by the strengths of the other, and vice versa. Similar studies have been conducted using surveys to establish the condition of materials in archival and library institutions. These studies, including that by Ngulube (2003), Bankole and Abioye (2005), and Akussah (2006), used quantitative methods. Other studies on legal deposit, such as that of Tibane (2005), Penzhorn (2005), and Ngoepe and Makhura (2008), have also relied on the quantitative research approach. Penzhorn (2007), however, used both approaches, but mainly used the qualitative one to interpret the implementation and managing of legal deposit in South Africa. Survey research is the most frequently used method in the social sciences and is the best method for collecting data that describes an issue (Babbie and Mouton, 2003:230-232).

The study is descriptive and a survey helped gather data, especially important as a number of facets needed to be analysed concurrently. Burns (2000:43) states that “the descriptive aspect of statistics allows researchers to summarise large quantities of data using measures that are easily understood by an observer”. Surveys vary in terms of their scope; there are large scale surveys like a national census and smaller

scale surveys that look at a particular community (The School of Education, Training and Development, UKZN, 2004:60). A descriptive survey describing the nature of the existing conditions was used in this study. The survey describes what is prevalent with the preservation of, and access to legal deposit in South Africa. The researcher conducted a survey study because a number of related studies (Ngulube, 2003; Astle and Muir, 2002; Ayre and Muir, 2004) used the survey design successfully to gather their data. The other reason is that a survey gathers data on a once-off basis, is convenient in terms of time, and is economical. At the same time the interviews provided an opportunity to probe some of the issues more deeply.

3.5.3 The survey instruments

The choice of instruments is important, the strengths or weaknesses of a method can affect the validity of findings (Kumar, 2011:148). Two different instruments (self-administered questionnaire and interview schedule) were used to collect data from members of the legal deposit committee and departmental heads of legal deposit sections.

3.5.3.1 The questionnaire

A questionnaire is a list of questions made to be answered by the respondent. In order to encourage the respondents to answer, the questionnaire should be written in a particular sequence making it easy to follow, read and understand as well as making it look attractive (Kumar, 2011:145). De Leeuw (2008:316) states that —a questionnaire is more than a collection of questions; it contains instructions and texts to keep the flow of information going and to keep the respondents motivated”. The questionnaire included both closed and open-ended questions. However, the majority of the questions are closed-ended (80%) and therefore it is a semi-structured questionnaire and the data collected is quantifiable. Kumar (2011:154) stresses that:

Closed questions, because they provide ‘ready-made’ categories within which respondents reply to the questions asked by the researcher, help to ensure that the information needed by the researcher is obtained and the responses are also easier to analyse.

A self-administered questionnaire (see Appendix 3) was used to collect data from all the heads of legal deposit departments. A sound questionnaire is crucial for data collection since questionnaires often have too many irrelevant questions. Schutt (2006:253) emphasises that:

One way to ensure that possibly relevant questions are asked is to use questions suggested by prior research, theory, experience, or experts who are knowledgeable about the setting under investigation.

Kumar (2011:156) agrees with Schutt (2006) and says construction of a research instrument is very important because the data you collect are based on the questions asked, and therefore if possible, adapted from the experts in the field of study. Schutt (2006:250) notes that “a good rule of thumb is to use a previously designed instrument if it measures the concept of concern...”. The researcher therefore adapted the questionnaire from two studies, that is Feather and Eden’s instrument for the ‘National preservation policy: policies and practices in archives and records offices’ of the UK and Ngulube’s instrument for the ‘Preservation and access to public records and archives of South Africa’ (Feather and Eden, 1997:101-107; Ngulube, 2003:445-461). The researcher (Nsibirwa, 2007) used these instruments for a similar study of a smaller scale. The questionnaire was quite long due to the broad issues related to the research question, that is the preservation of, and access to legal deposit materials. However, the majority of the questions were closed questions that provided possible answers making it easier to complete and less time consuming. The questionnaire was divided into three main sections in order to collect the different categories of information. These were:

1. Demographic data -This section was used to solicit background information from respondents regarding their age, gender and education.
2. Print materials - This section was used to collect information with regard to the research questions:
 - What systems are in place to help collect print and electronic documents?
 - What are the activities and strategies used to preserve legal deposit materials?
 - What measures are in place to ensure preservation of documents whilst being used?

- How knowledgeable are staff about the preservation of the legal deposit materials?
- What challenges are the staff faced with when preserving legal deposit materials?

The answers to these questions were found in the following subsections:

- Preservation policies and means;
- The environmental conditions of stack rooms;
- Storage and handling;
- Disaster preparedness and management; and
- Condition and care of materials in general.

An exception was the subsection including:

- Access to information – this subsection was used to answer the research questions ‘Are the depositories accessible to the majority of the population in South Africa?’ and ‘What means and processes are used to help make materials accessible?’

3. Preservation of digital/electronic materials - This section was used to answer the following research questions within the subsections indicated below:

- What systems are in place to help collect electronic documents?
- What are the activities and strategies used to preserve electronic materials?
- Digital/electronic materials’ policy;
- Current holdings; and
- Storage methods and formats.

The closed questions included dichotomous questions, multiple-choice questions, checklists, ranking formats and scaled questions (using a Likert scale).

The last question was an open-ended question and the respondent was given the chance to voice any additional comments or concerns related to the management, care and use of both print and electronic legal deposit materials. The study population was adequately literate and was able to answer a self-administered

questionnaire (Babbie and Mouton 2003:258; The School of Education, Training and Development, UKZN, 2010:64; Kumar, 2011:148).

3.5.3.2 Interview schedule

There are various types of interviews, namely in-depth interviews, closed quantitative, structured interviews, exploratory interviews and many others (Ngulube, 2003:222). A semi-structured interview was used to obtain in-depth information from the heads of legal deposit libraries. The interview schedule was also adapted from the same two studies that the questionnaire was adapted from (mentioned above). The semi-structured interview schedule had a set of predetermined questions that included both open-ended and closed questions to get an in-depth description of legal deposit in South Africa. The method is structured to increase the reliability and validity of measurement of key concepts in quantitative research (Neuman, 2006:300). Concurrent mixed methods of data collection were used. The questionnaire was used to obtain general information about the preservation practices and access to print and electronic publications. The interviews were used to supplement the questionnaire to get in-depth information with regard to preservation policies, budgets/alternate funding, disaster preparedness strategies, policies and practices with regard to electronic publications.

3.5.3.3 Validity and reliability of the instruments

Validity is the ability or the extent to which an instrument measures what it is intended to measure including whether it is an appropriate instrument (Schutt, 2006:117; Kumar, 2011:178). As a researcher it is important to establish the suitability, quality and accuracy of measures for answering the research questions. Kumar (2011:178) raises two key questions with regard to validity:

1. Who decides whether an instrument is measuring what it is supposed to measure?
2. How can it be established that an instrument is measuring what it is supposed to measure?

The answers to these questions for this study are that the instruments were adapted from two well-known experts (Feather and Eden, United Kingdom; Ngulube, Southern Africa) in the field of preservation mentioned earlier. These instruments

were used for similar archival studies and have also been used by the researcher (Nsibirwa, 2007) for a similar study of a smaller scale. Schutt (2006:250) emphasises that:

If another researcher already has designed a set of questions to measure a key concept, and evidence from previous surveys indicates that this measure is reliable and valid, then by all means, use that instrument.

The researcher also established a link between the research questions of her study and these earlier studies. The questions asked in the questionnaire and interview schedule were derived from the study's research questions. Kumar (2011:179) argues that it is easy to establish a logical link between the survey questions and the research questions when the questions relate to tangible matters. Thirdly, the researcher pre-tested the instruments to increase the validity and reliability of the instruments by clarifying concepts as well as correcting errors.

Reliability in relation to the research instrument measures consistency and stability of the instrument. An instrument can be said to be reliable if applied repeatedly to the same conditions and yields the same result (Babbie and Mouton, 2003:119; Kumar, 2011:181). Kumar (2011:181) states –reliability is the degree of accuracy or precision in the measurement made by a research instrument". Errors resulting from instruments may yield misleading results therefore it is important to have a reliable instrument that produces valid results. However, it must be noted that it is impossible to have a research tool that is 100 percent accurate, even if the tool has been tried and tested by many experts in the field, because of various factors affecting reliability (Babbie and Mouton, 2003:276; Schutt, 2006:123; Kumar, 2011:182). Some of these factors include:

- The wording of questions – different respondents may interpret the question differently depending on their language skills, mindset and many other factors.
- The physical setting where the interview is held or where the questionnaire is answered.
- The interviewer's mood and/or the respondent's mood.
- The nature of interaction during an interview (Kumar, 2011:182).

However, Babbie and Mouton (2003:276) emphasise we should strive to do truly valid, reliable and objective studies but in reality this is impossible to completely achieve, rather strive towards this goal although it can never be fully attainable.

3.5.3.3.1 Pre-testing the instruments

Pre-testing is the administration of the survey instruments to similar respondents to help identify weaknesses with the tools before the actual data collection takes place, as well as soliciting the opinions of other researchers before finalising the questionnaire (Schutt, 2006:250). The designing of a perfect survey questionnaire is impossible. Yet, the aim in research is to provide results that are valid, reliable, sensitive, unbiased and complete (Collins, 2003:229). This is done by identifying unclear and unambiguous questions, and by re-wording these questions to make them clear. However, it is impossible to achieve success without a well-designed questionnaire. The Food and Agricultural Organisation (FAO) (2011: Questionnaire design) argues that:

Unfortunately, questionnaire design has no theoretical base to guide the marketing researcher in developing a flawless questionnaire. All the researcher has to guide him/her is a lengthy list of do's and don'ts born out of the experience of other researchers past and present. Hence, questionnaire design is more of an art than a science.

However, that does not mean researchers cannot create effective surveys. To establish the effectiveness of a survey questionnaire, it is essential to pretest it before actually using it (Collins, 2003:229; Schutt, 2006:251; Colorado State University, 2011: Pretesting the questionnaire; Kumar, 2011:158). Kumar (2005:126) states that:

In the case of a questionnaire, as there is no one to explain the meaning of questions to the respondents, it is important that questions are clear and easy to understand.

A good questionnaire helps and encourages respondents to provide precise, impartial and complete information that can be used to answer the research questions of the study. Therefore there is a need to pretest the questionnaire to determine the strengths and weaknesses of the survey concerning question format, wording and order (Colorado State University, 2011: Pretesting the questionnaire;

FAO, 2011: Questionnaire design), as well as enabling researchers to establish whether:

- Respondents can understand the question, concept or task;
- They do so in a consistent way; and
- In a way the researcher intended (Collins, 2003:231).

The researcher sent the instruments to experts in the field of preservation in archives based at the Campbell Collections (UKZN) and the University of KwaZulu-Natal archives to test the suitability of the survey instruments and to an expert in the field of methodology in the School of Sociology and Social Studies. The researcher purposively chose four experts based on expertise, convenience and availability. The following changes were made based on the findings. However, it must be noted that the concept of validity can be applied to any aspect of the research process.

3.5.3.4 Changes made to the questionnaire

An attractive questionnaire is more likely to be completed as well as increase the possibility that different respondents interpret the same questions in a similar way (Schutt, 2006:255). The following changes were made to the questionnaire to make it more attractive, clear and understandable:

- Question 13 an extra option was added – c) reading room?
- Question 18 and 19 were similar so question 19 was changed to “~~Is the~~ artificial lighting in the stack rooms controlled by sensors?”
- Questions 19, 20, 23 and 26 the terms stack area, stack rooms, storage place and storage rooms were used interchangeably and was confusing and therefore changed to stack rooms for consistency and to avoid confusion.
- Question 53 was made clearer by adding the words ‘finding aids’.
- Question 69 was rephrased from ‘What is their current storage medium and format?’ to ‘What format do you store electronic records received, please provide examples of storage media and formats?’
- Questions 73 and 75 needed more clarity - with regard to the technical terms used about refreshing and migration.

- All the closed-ended questions possible answers were reformatted, the selection of answers were put in tables to make the questionnaire look neat and more appealing.

3.5.3.5 Changes made to the interview schedule

As with the questionnaire, the following changes were made to the interview schedule to make it clear and understandable:

- Question 9 possible answers were improved by using the Likert scale by adding options of extremely successful', moderately successful' and not successful at all'.
- Question 10 was rephrased from What factors influenced your answer to the previous question?' to Please explain what factors influenced your answer to the previous question about your current preservation policy/strategy'
- Question 13 was rephrased from What is the current total budget for the library?' to What is the current annual budget for the library?'
- Question 14 was rephrased from How much money is allocated to the legal deposit function of the library?' to What percentage of the annual budget is allocated to the legal deposit function of the library?'
- Question 22 was rephrased from Choose from the list the natural disasters covered by your plan' to Please name all the natural disasters covered by your plan'.
- All the closed-ended questions possible answers were reformatted, the selection of answers were put in tables to make it easier for the researcher to complete during the interview.

3.5.3.6 Administering the instruments

Once the relevant changes had been made to the instruments, the researcher collected data. A copy of the covering letter (see Appendix 2) together with the self-administered questionnaire were sent by e-mail to departmental heads of legal deposit sections of legal depositories. The covering letter is critical to the success of a questionnaire and sets the tone for the whole survey (Schutt, 2006:259). The covering letter explained the objectives and the ways in which the legal depositories can benefit from the study. Due to the small size of the population and to overcome

the possible low response rate, prior to data collection the researcher contacted the population through the official in charge of legal deposit in the Department of Arts and Culture (see Appendix 1). This was done to encourage respondents to respond to the instruments. The respondents were given four weeks and reminded by telephone after two weeks and those who were unavailable were reminded via e-mail.

After adapting the interview schedule, pre-testing it and having it peer reviewed and altering it accordingly, appointments were made for the interviews. The legal deposit committee members who are the heads of the legal depositories were interviewed telephonically to get their opinion on the preservation of and access to legal deposit materials. Prior to the interview, a covering letter was sent to the respondents by e-mail, followed by a telephone call inviting them to participate in the survey. Also prior to the interview a copy of the interview schedule was sent by e-mail to the respondents because a number of questions contained lists and a number of options had to be chosen. It was also essential to send the respondents a copy of the interview schedule because they needed to find out information with regard to staff skills and qualifications (Question 26) prior to the interview. During the interviews the respondents were encouraged to have a copy of the e-mailed interview schedule at hand due to the fact that there were several closed questions, with ready-made categories from which the respondents had to choose their answers. The interview schedule helps the interviewer control the sequence of questions (Neuman, 2006:301). The heads of the legal deposit libraries were interviewed on the 14 November and 15 November, 2011. One face to face interview was held as the respondent was in the same municipality as the researcher. Since one of the respondents was very far away from the researcher, a telephone interview was held as it is a flexible method with most of the tenacity of face to face interviews at half the cost (Neuman, 2006:301).

3.5.4 Data presentation and analysis

As noted, mainly quantitative techniques were employed in this study. Statistical analysis using SPSS was used to organise and analyse data collected from the self-administered questionnaire. Mainly univariate analysis was used, as the main

purpose of the study was to describe the current situation concerning preservation and access to legal deposit materials in South Africa (Babbie and Mouton 2003:430). Kumar (2011:255) emphasises that —~~the~~ first step in processing your data is to ensure that the data is clean – that is free from inconsistencies and incompleteness”. This process is called editing and involves looking at the completed instruments for errors, incompleteness, misclassifications and gaps in information (Kumar, 2011:255).

After editing the data, it needs to be coded in order for the computer to be able to understand the data. Schutt (2006:446) emphasises that —~~whatever~~ data entry method is used, the data must be checked carefully for errors – a process called data cleaning”. The data collected was then coded and cleaned to identify any errors from incorrect coding (Babbie and Mouton 2003:417). The research methodologist who was used in the pre-testing of the instruments was also used to check the coding. This was done to verify the reliability of the coding process.

Conceptual content analysis was used to analyse the open-ended questions of the questionnaire and the interview schedule. According to Neuman (2006:44) —content analysis is a technique for examining the content, or information and symbols, contained in written documents or other communication medium”. This involves analysis of occurrences of words, themes and phrases (Schutt, 2006:431). According to Kumar (2011:277) —how you process and analyse data in a qualitative study depends upon how you plan to communicate the findings”. There are two types of content analysis namely relational analysis and conceptual analysis (Colorado State University, 2007:Types of content analysis); the latter was used to analyse the interviews for this study. In conceptual analysis, a concept is chosen for examination and analysis, which involves quantifying and tallying its presence (Hall and Hall, 1996:133; Colorado State University, 2007:An introduction to content analysis; Kumar, 2011:277). This type of analysis was used to organise, describe and analyse data collected from the interviews.

Descriptive statistics were used to summarise the data into a visual overview of graphs, tables and pie charts.

3.5.5 Research ethics

Ethical issues arise from the interaction of people with other people, animals and the environment. Babbie and Mouton (2003:520) state that “the right thing to do is not always self-evident”. Babbie and Mouton (2003:534) emphasise that research ethics is important but ambiguous. What is right for one person may not necessarily be right for other people. Ethics in lay person’s language is about what is morally right and wrong. According to Hornby (1995:393) in the *Oxford Advanced Learner’s Dictionary*, ethics is defined as “moral principles that govern or influence a person’s behaviour”. Neuman (1997:443) emphasises that in social research

The ethical issues are concerns, dilemmas, and conflicts that arise over the proper way to conduct research. Ethics define what is or is not legitimate to do, or what “moral” research procedure involves.

As social researchers, there is a need to know what is proper and improper in carrying out social research. However, in many countries social science ethical approaches have been drawn from biomedical science, unsuitable political authority and research funding agencies who are not moral experts (Israel and Hay, 2006:58; Babbie and Mouton, 2003:535).

According to Israel and Hay (2006:53) “before 2004 there was no statutory national requirement in South Africa that social science research be subject to ethics review”. However, the Medical Research Council of South Africa was one of the first to create guidelines for medical research (Israel and Hay, 2006:53). The Health Act of 2003 was created and section 72(6) (c) implies that all research involving humans could be in the Act’s purview (Israel and Hay, 2006:53). Louw and Delport (2006:39) emphasise that in many countries in the world, including Canada, all research work involving individuals operates under a single ethics policy, with a strong biomedical emphasis. With the current uncertainty about the implications of the South African Health Act, and in the absence of an alternative policy, Israel and Hay (2006:53) maintain that ethics for social science research remain in the hands of individual universities and professional organisations. Louw and Delport (2006:39) agree and state that “the institution of research ethics committees for humanities and social sciences in South Africa are relatively recent, posing unique challenges to researchers and academicians”. According to The School of Education, Training

and Development, UKZN (2004:72) research studies follow three main ethical principles: autonomy (control over one's decisions); non-maleficence (do no harm); and beneficence (study must be beneficial).

- **Autonomy**

Kent (2000:63) states that —the term autonomy comes from the Greek autos (meaning self) and nomos (rule, or governance). The researcher must respect all participants in the research project and participation should be voluntary. Participants must understand the nature and the purpose of the study and therefore the researcher is required to get informed consent from every participant, who must be able to withdraw from the study at any time.

- **Non-maleficence**

The research should do no harm to the research participants or other people. This includes not revealing information that might embarrass or endanger research participants' lives. This concerns anonymity and confidentiality in protecting participants' responses, if revealing their identity together with their responses will injure them in any way. This also involves proper analysis and reporting of results found, including appropriate reference to contributions made by all participants, acknowledging sources of publications in the report and not submitting an identical report to more than one publisher at a time.

- **Beneficence**

The study should be of some benefit to either the research participants, other researchers or the society at large (Israel and Hay, 2006:35-36; The School of Education, Training and Development, UKZN, 2004:72; Babbie and Mouton, 2003:521-527; Burns, 2000:18-22; Kent, 2000:63-64).

Questions with regard to informed consent, confidentiality, trust, harm, access, power, deception and secrecy are all issues that the researcher has to consider before conducting and during the research project. The researcher adhered to the above-named ethical principles and:

1. Made sure participants received a clear explanation about the nature and purpose of the study, so that they could make an informed choice to participate voluntarily.
2. Respected all participants involved in the research project.

3. Did not harm the research participants or other people in any way. Responses were treated in a confidential manner. All individual information remained confidential. In addition data analysis, reports and publications reflected common themes and did not reflect individual submissions.
4. Made recommendations based on the findings to help make a way forward with legal deposit in South Africa in this extremely fast developing technological age.

3.6 Summary

The research methods used to collect data are presented in this chapter. The research design, methods and data collection techniques are justified and presented. The study used both quantitative and qualitative methods involving self-administered questionnaires and interview schedules to collect data. Statistical analysis using SPSS was used to organise data and analyse data collected from the self-administered questionnaires and interview schedules. Content analysis was used to analyse qualitative data. Reliability and validity of the results were ensured through adapting an existing data collection instrument, pre-testing it as well as adhering to the ethical principles named above.

Chapter 4: Research findings

4.1 Introduction

This chapter presents the findings of the study from the data collected by using self-administered questionnaires and semi-structured interview schedules. It provides summaries of basic occurrences of responses as well as the respondents' demographic profiles, including age, gender and educational level. To encourage respondents to participate fully and frankly, they were assured in the covering letters for the questionnaire and interviews (Appendix 2) that:

All replies will be treated in the strictest confidence and will not be attributed to particular respondents, organisations, or departments.

The findings are described in writing as well as presented graphically to further enhance the presentation of the nature of the findings. All the percentages presented were rounded off to one decimal point.

4.2 Response rate

Of the fourteen copies of the questionnaire distributed on 31 October 2011, eleven copies were returned by 30 November 2011, yielding a response rate of 78.6%.

According to Babbie and Mouton (2003:261):

Overall response rate is a guide to the representativeness of the sample respondents. If a high response rate is achieved, there is less chance of significant response bias than in a low rate.

As a rule of thumb the results of a study can only be generalised if the rate of non-response is below 30% (Schutt, 2006:142). However, Babbie and Mouton (2003:261) state that from a review of survey literature a response rate of 50% is adequate for analysis and reporting, 60% is good and 70% is very good.

The relatively high response rate for the e-mailed questionnaire is possibly due to the measures taken prior to data collection, to overcome the possible low response rate explained in Chapter 3 section 3.5.3.6. Another factor is possibly the researcher meeting most of the respondents at a copyright seminar held at the National Library of South Africa on 8 November 2011.

Of the three interviewees, two heads of legal depositories were interviewed on the 14 and 15 November 2011 yielding a response rate of 66.7%.

4.3 The results

The results of the self-administered questionnaire are presented according to the main sections namely:

- Demographic data
- Print materials
 - Preservation policies
 - Environmental conditions of stack rooms
 - Pest management
 - Storage and handling
 - Disaster preparedness and management
 - Condition and care of materials in general
 - Access to information
- Preservation of digital/electronic materials
 - Digital/electronic materials policy
 - Current holdings
- General comments and concerns

The data from the interviews is used to supplement the questionnaire, to get in-depth information with regard to preservation policies, budgets and alternate funding, disaster preparedness strategies, and policies and practices with regard to electronic publications.

4.4 The questionnaire results

The data collected using a self-administered questionnaire is presented in this section.

4.4.1 The demographic profile of the population

Information regarding the respondents' demographic profile was requested to find out whether their background had an influence on the way they answered questions. The information was essential to gauge the respondents' understanding of preservation and access to legal deposit. The majority of the respondents were female, eight (72.7%), and three (27.3%) were male respondents. The majority of the respondents, nine (81.8%) were within the age range of 41-50 years, followed by one respondent in the age range of 51-60 and another respondent over 60 years.

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 staff skills was essential. Although all the respondents had university qualifications, this did not automatically indicate that they had training in the preservation of library materials, especially digital preservation that calls for on-going training. Two (18.2%) respondents had a Master's degree in Information Science. A majority of six (54.5%) had an Honours degree in Information Science and just three (27.3%) had a Bachelor's degree in Library and Information Science. Table 6 shows a comparison of the age of respondents and their highest educational level. Table 6 also shows that a majority of the respondents, four (36.4%) were within the age bracket of 41-50, and had an Honours degree in Information Science.

Table 6: A cross tabulation of age of respondents and educational qualifications

N=11

Educational qualifications	Age of respondents						Total	
	41-50		51-60		over 60			
	Count	%	Count	%	Count	%	Count	%
BA Higher Diploma LIS	1	9.1	0	0	0	0	1	9.1
BA Information Education	1	9.1	0	0	0	0	1	9.1
BA Library & Information Science (B.Bibl [Bibliothecologiae])	1	9.1	0	0	0	0	1	9.1
Hons Library & Information Science (B.Bibl[Bibliothecologiae] Honours)	4	36.4	1	9.1	1	9.1	6	54.5
MIS	2	18.2	0	0	0	0	2	18.2
Total	9	81.2	1	9.1	1	9.1	11	100

(Source:Field data)

4.4.2 Print materials

This section presents findings of the study on the various elements that affect the preservation of and access to print materials. Questions asked included factors related to preservation policies, environmental conditions of stack rooms, pest

management, storage and handling, disaster preparedness and management, condition and care of materials in general and access to information.

4.4.2.1 Preservation policies

Question four was asked to determine whether the library had policies to improve preservation conditions, develop conservation facilities as well as train and recruit qualified staff. Preservation policies are important because they help to set standards that are required to achieve the vital goals of the organisation. They also define the responsibilities as well as guide staff to make decisions that are fundamental for legal deposit collections. Table 7 shows 10 (90.9%) respondents mentioned that their libraries do not have a policy to improve preservation conditions and one (9.1%) respondent said that they have a policy. Nine (81.8%) respondents said they do not have a policy to develop conservation facilities and only two (18.2%) respondents said they have a policy. Four (36.4%) have a policy to recruit and train staff, six (54.5%) do not have a policy and one (9.1%) was unsure whether their library had a policy or not. Yet, preservation policies provide frameworks for the present as well as the future and ensure that access to information is guaranteed.

Table 7: Existence of library policies

N=11

Policy	No	Yes	Unsure	Non-response	Total
	%	%	%	%	%
To improve preservation conditions	90.9	9.1	0	0	100
To develop conservation facilities	81.8	18.2	0	0	100
To train & recruit staff	54.5	36.4	9.1	0	100

(Source:Field data)

4.4.2.2 The environmental conditions of the stack rooms

Proper buildings and storage provide security and conditions that prolong the life span of various deposit materials. The proper preservation environment for different cultural materials is crucial especially with the current climate change and effects of global warming. The materials require a high level of protection from fluctuating

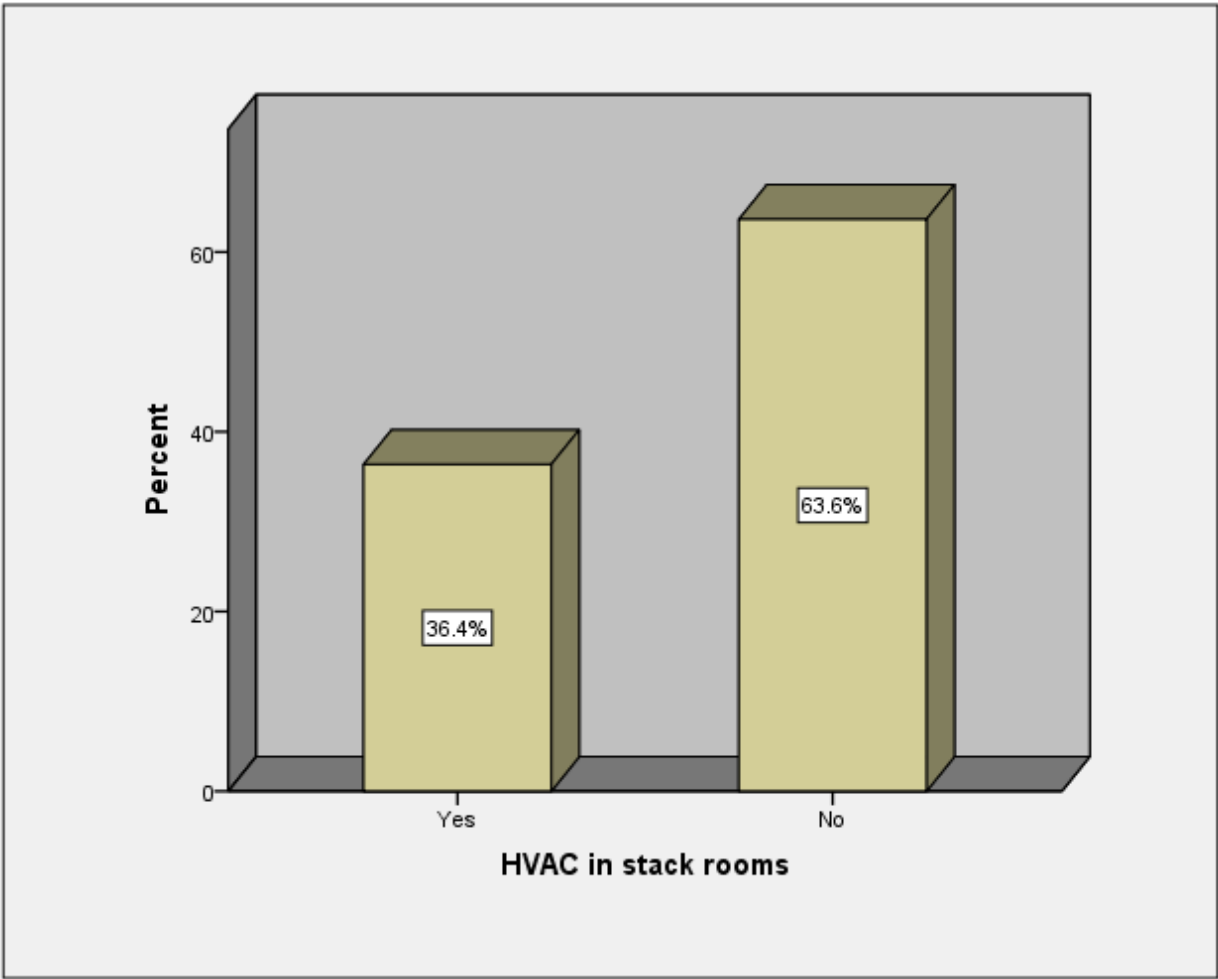
temperatures, relative humidity, light and improper storage and handling. Environmental conditions of the stack rooms are presented in this sub-section. Questions 6 to 16 solicited information with regard to the temperature and relative humidity; questions 17 to 19 about light; questions 20 to 22 pest management and the general cleanliness as well as the storage and handling factors in questions 23 to 31.

4.4.2.2.1 Temperature and relative humidity

Fluctuating temperatures and relative humidity cause deterioration as a result of chemical changes in materials. It is therefore crucial to maintain ideal temperatures and relative humidity in the stack areas. To establish this, respondents were asked whether their libraries have heating, ventilation and air conditioning (HVAC) in their stack rooms. Four (36.4%) of the 11 respondents confirmed they have HVAC in the stack rooms and seven (63.6%) do not have HVAC in the stack rooms. This indicates that most do not have any control over the stack environmental climate and one can infer that materials are subject to the climatic conditions of the geographical area. This is presented in Figure 7.

Figure 7: Heating, ventilation and air conditioning in stack rooms

N=11



(Source:Field data)

The respondents who confirmed their stack rooms have HVAC were asked how old the HVAC system was, and whether it was on all the time and provided a constant climate control throughout the year (questions 7 to 9). Question 10, an open-ended question, solicited information with regard to how often the HVAC system was serviced.

Question 7, which was about the age of the HVAC, applied to only four (36.4%) respondents of whom one (9.1%) stated the HVAC system was between one to three years old, another respondent was unsure and two (18.2%) respondents said the HVAC was more than ten years old. The results are shown in Table 8 .

Table 8: Age of heating, ventilation and air conditioning system

N=11

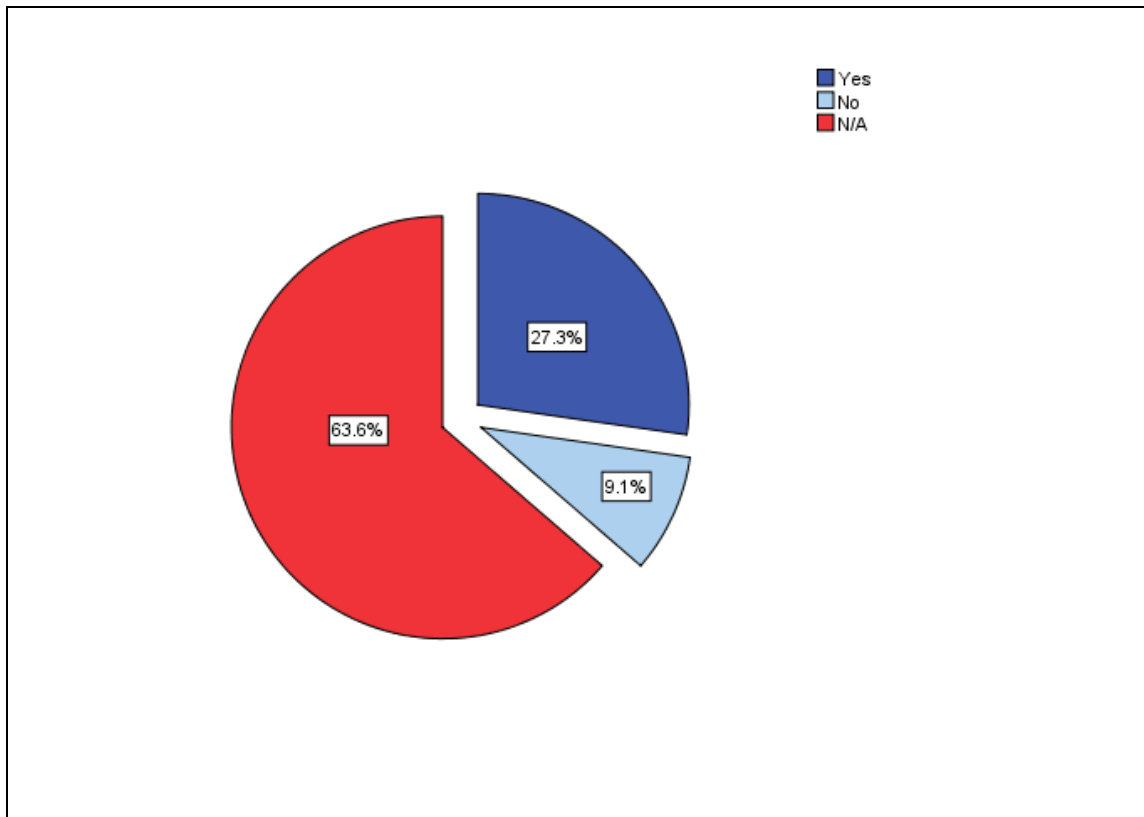
Age of HVAC	Count	%
Less than 1 year	0	0
1 to 3 years	1	9.1
4 to 10 years	0	0
More than 10 years	2	18.2
Unsure	1	9.1
N/A	7	63.6
Total	11	100

(Source:Field data)

Question 8 and 9 solicited information on whether the HVAC was kept on all the time and provided constant temperature control throughout the year. Only three (27.3%) respondents stated that it was kept on all the time, one (9.1%) respondent said the HVAC was not kept on consistently and these questions were not applicable to seven (63.3%) respondents who did not have HVACs in their stack rooms(NB the cooler colours used to indicate lower temperatures).

Figure 8: HVAC system on at all times

N=11



(Source:Field data)

An open-ended question was used to establish how often the HVAC system was serviced. It is important that HVAC systems are serviced and maintained regularly because as they age their ducts get full of particles and they emit dust and gaseous components that create poor air quality in the stack rooms. One (9.1%) respondent stated that it was only serviced when it was not working, implying that the HVAC was not serviced regularly but repaired when it malfunctioned. Three (27.3%) respondents stated that it was serviced after every six months and this question was not applicable to the seven (63.6%) who did not have HVACs in their stack rooms.

The respondents who did not have HVACs in their stack rooms were then asked how they achieved optimum levels of heating, ventilation and cooling in their stack rooms. This is especially important today with the effects of global warming causing harsh conditions, including fluctuating temperatures from heat waves to cool temperatures, affecting the depository building and stack rooms. This question was not applicable

to the four (36.4%) respondents who had HVACs. Of the seven (63.6%) respondents shown in Table 9 , a majority of five (45.4%) reported that optimum levels of heating, ventilation and cooling in their stack rooms were not achieved, one (9.1%) respondent stated it was achieved using a rock and water system² and one (9.1%) respondent did not respond to this question.

Table 9: Achievement of heating, ventilation and cooling

N=11

Achievement of heating, ventilation and cooling	Count	%
Not achieved	5	45.4
N/A	4	36.4
No response	1	9.1
Using rock and water system	1	9.1
Total	11	100

(Source:Field data)

Six (54.5%) respondents achieved ventilation of the stack rooms by opening their windows. One (9.1%) respondent did not respond to the question and the question was not applicable to the four (36.4%) respondents who had HVACs.

Cooling of the stack rooms for those respondents who did not have an HVAC system was 27.3% - (three respondents) and achieved by opening windows, a further three (27.3%) respondents specified that cooling was not achieved. The three respondents who achieved cooling by opening windows were definitely not aware that they were doing more harm than good by exposing materials to outside climatic conditions as well as dust and gaseous components of the air. One (9.1%) respondent stated that cooling was achieved using a rock and water system as indicated in Table 10 .

² A rock and water system is a central heating/cooling system that uses the ground to heat or cool a building.

Table 10: How cooling conditions are achieved in the stack rooms

N=11

Achievement of cooling	Count	%
N/A	4	36.4
Not achieved	3	27.3
Open windows	3	27.3
Using rock and water system	1	9.1
Total	11	100

(Source:Field data)

The respondents who had a HVAC or another environmental control system, were asked to specify whether their systems for the stack rooms were separate from the offices. If the HVAC system was not separate from the staff offices and reading room the temperature would be set to suit people’s needs rather than the needs of the legal deposit materials. Shown in Table 11 , of the four (36.4%) respondents, only one (9.1%) respondent’s environmental control system was separate from the offices, one (9.1%) respondent said it was not separate and another two (18.2%) were not sure whether the system was separate from the offices or not. This question was not applicable to seven (63.6%) respondents.

Table 11: Existence of separate environmental control systems from offices

N=11

Separate environmental control systems	Count	%
Yes	1	9.1
No	1	9.1
Unsure	2	18.2
N/A	7	63.6
Total	11	100

(Source:Field data)

The respondents were then further asked to specify whether the environmental control systems for the stack rooms were separate from the reading rooms. This question was not applicable to the seven (63.6%) respondents that did not have a

HVAC. Two (18.2%) respondents stated that they were unsure whether the environmental control systems were separate from the reading rooms. Another respondent (9.1%) said they were, yet another respondent said they were not separate from the reading rooms. Question 14 was an open-ended question that was asked to establish the average temperature of the building, stack rooms and reading rooms (shown in Table 12). Most respondents, six (54.5%), specified that the average temperature in the building was 22°C, five (45.5%) were not sure. A majority of the respondents, seven (63.6%), were not sure what the temperature in the stack rooms was. Therefore indicating that the temperature in the stack rooms is not monitored at all. Three (27.3%) stated it was 18°C and one (9.1%) respondent stated it was 27°C. Six (54.5%) respondents specified that the average temperature in the reading rooms was between 20°C to 25°C, yet five (45.5%) were unsure about the temperature.

Table 12: Average temperature of building, stack rooms and reading rooms

N=11

Temperature	<20	20<25	25<	Unsure	Total
	%	%	%	%	%
Building	0	54.5	0	45.5	100
Stack room	27.3	0	9.1	63.6	100
Reading room	0	54.5	0	45.5	100

(Source:Field data)

Questions 15 and 16 were asked to solicit information about monitoring of temperature and relative humidity level of the stack rooms. All respondents, 11 (100%), identified that monitoring of temperature and relative humidity level of the stack rooms is not done.

4.4.2.2.2 Light

To investigate the environmental conditions of the stack rooms further, a number of questions were asked with regard to light. Light is the energy that accelerates deterioration in materials. Question 17, an open-ended question, was asked to determine for how many hours materials were exposed to artificial light. Results,

presented in Table 13 , show that four (36.4%) were unsure how many hours the materials were exposed to light, three (27.3%) stated eight hours, another three specified 10 hours with varying conditions for different venues or stack rooms and one (9.1%) stated 24 hours, due to the fact that emergency lights were left on.

Table 13: Exposure of records to artificial light in hours

N=11

Number of hours	Count	%
Unsure	4	36.4
8 hours	3	27.3
10 hours every day in 1 stack room, others vary according to the different venues	2	18.2
10 hours in other stack rooms lights are only turned on when in use	1	9.1
24 hours - emergency lights are left on	1	9.1
Total	11	100

(Source:Field data)

Further, information was solicited to find out whether lights are turned off in the stack rooms when not in use. Seven (63.6%) respondents said they are turned off, two (18.2%) stated they were not turned off and one (9.1%) respondent was unsure. One respondent (9.1%) did not respond to the question. The respondents were asked for more information with regard to lighting, specifically as to whether the lighting in the storage areas was controlled by sensors. A majority of the respondents, eight (72.7%), specified it was not controlled by sensors and only two (18.2%) said their stack room lights were controlled by sensors and one (9.1%) was not sure.

4.4.2.2.3 Pest management

Since the environment of the stack room, if not optimum, can encourage pests the respondents were asked questions relating to pest management. Biological agents including both macro and micro organisms cause bio-deterioration by feeding or growing on the different layers of materials. Question 20 asked whether materials are checked for insects/vermin before they are stored in the stack rooms. Seven (63.6%) respondents stated materials are not checked for insects/vermin, three

(27.3%) respondents reported materials are checked and one (9.1%) said they are unsure.

Questions 21 and 22 questioned further to find out whether depositories had experienced an insect invasion or vermin infestation. Seven (63.6%) respondents agreed that they have experienced pest invasions or infestations, three (27.3%) stated that they had not and one (9.1%) was unsure. It is not surprising that a large number had experienced an infestation, as a majority had not checked incoming materials for pests. In addition three respondents mentioned that they cool their stack rooms by opening windows, which would expose stack rooms to various organisms. In response to question 22, an open-ended question, five (45.5%) respondents reported that rats were found in their stack rooms, four (36.4%) reported mice, three (27.3%) reported cockroaches, another three (27.3%) doves, one (9.1%) cats and another one (9.1%) bookworms.

4.4.2.2.4 Storage and handling

This section is based on questions that asked for information with regard to the cleanliness of the stack rooms, whether the depository had adequate storage space, handling of materials and who had access to the materials. Six (54.5%) respondents stated the stacks were clean while five (45.5%) respondents specified they were not clean. Question 24, a follow-up question, then asked how the stack rooms were cleaned.

Three (27.3%) respondents stated their stack rooms were cleaned irregularly by contract cleaners, while another three respondents did not answer the question. Two (18.2%) respondents specified that the stacks were vacuum cleaned and dusted while one (9.1%) vacuum cleaned only. One (9.1%) respondent stated that their stack room was cleaned by cleaning contractors and another one (9.1%) respondent by sweeping of floors and dusting of items. The private contract cleaners are probably unaware that they may be harming materials by using cleaning chemicals and handling documents.

Question 25 required the respondents to state whether they have adequate space for shelving and storage. Seven (63.6%) respondents stated that they had adequate

storage space and four (36.4%) specified that it was inadequate. The respondents were questioned further to find out who accesses the stack rooms and nearly all the respondents, 10 (90.9%), stated staff only, and one (9.1%) stated both staff and users. In addition, the study investigated the handling of materials by staff and users. The way people handle materials directly impinges on the useful life of library and archival material. Poor handling leads to wear and tear of materials, making it unusable and requiring costly repair, rebinding, or replacement for print materials. A majority of the respondents, nine (81.8%), indicated that users are not trained to handle materials and only two (18.2%) said users are trained. Seven (63.6%) respondents state that staff are also not trained to handle materials, two (18.2%) indicate that staff are trained and two respondents were unsure. This was demonstrated further with questions 29 and 30 where respondents were asked about their written guidelines for staff and users, when handling material. Handling guidelines are key to preservation as they help to improve the welfare of the material. Most respondents, nine (81.8%), indicated that there were no staff guidelines for handling material, only one (9.1%) respondent stated they had guidelines and one (9.1%) was unsure about this. Almost all respondents, ten (90.9%), indicated they did not have written guidelines for users and one (9.1%) respondent was unsure.

The following question 31, an open-ended question, investigated who determines what can be safely copied as photocopying can damage materials. Table 14 clearly indicates that staff or librarians (72.7% - eight respondents) had made decisions about what could be safely copied. Two (18.2%) respondents did not respond to the question and one (9.1%) respondent stated there was no need to determine what was safe to copy.

Table 14: Who decides what can be copied

N =11

Decision maker	Count	%
Librarians in charge [1](of OPD material [1])	2	18.2
The staff [2](according to the library policy[2] on photocopying of legal deposit material [1])	5	45.4
Librarians and staff working on the copiers	1	9.1
There is no need to determine because materials kept are easy to copy and we do not store delicate materials	1	9.1
Non-response	2	18.2
Total	11	100

(Source:Field data)

4.4.2.2.5 Disaster preparedness and management

In this section (questions 32 to 41) information with regard to disaster preparedness was solicited. Data about disaster planning, emergency recovery procedures including issues with regard to fire detection and suppression were investigated. It is very important to take preventative measures to avoid unnecessary human-disasters like fires, leakages from broken pipes or roofs, and security issues. In addition, it is necessary to be prepared in the event of a natural disaster.

Nine (81.8%) respondents stated that they had no disaster planning team in place at their depositories. Only two (18.2%) respondents stated they had a disaster planning team in place. Eight (72.7%) did not respond to question 33 that inquired whether staff had been instructed in emergency planning. Two (18.2%) respondents stated they had a disaster plan and one (9.1%) respondent was unsure. Question 34, an open-ended question, applied only to those two (18.2%) respondents who in question 33 had been instructed in emergency planning and therefore was not applicable to nine (81.8%) respondents. The two respondents both stated they had been instructed in fire fighting, floods and evacuation procedures.

The respondents were then questioned further to find out if they had been instructed in emergency recovery procedures. However, three (27.2%) respondents were

unsure about this and eight (72.7%) respondents indicated they had not been instructed in emergency recovery procedures. Therefore question 36 was not applicable to any of the respondents because the question solicited details about emergency recovery procedures. The next question sought data on fire detection systems in the stack rooms. Seven (63.6%) had fire detection systems in their stack rooms and four (36.4%) respondents did not have fire detection systems. The respondents were questioned further with question 38, an open-ended question, to find out how often the fire detection system was serviced. This question was not applicable to four (36.4%) respondents who did not have fire detection systems. Four (36.4%) other respondents were unsure about the service, two (18.2%) respondents said “seldom” and one (9.1%) respondent stated that the system was serviced twice a year.

The next subsection within disaster management and preparedness concerned security. Question 39, a multiple response question, inquired about the different types of security systems the depositories had. Respondents were encouraged to select all the applicable options hence the total number of responses are more than 11 and the total percentage is not 100. Eight (72.7%) respondents state they employ security guards, seven (63.6%) respondents, an intruder alarm system, six (54.5%) an electronic security system and three (27.2%) closed circuit television cameras. However, a respondent stated that “the intruder alarm system is only for the main building and not for other venues” and another respondent said the alarm system was “only in some venues” of the building.

The respondents were questioned further with a closed question using a Likert scale to find out the effectiveness of the security system in question 40. Three (27.3%) respondents indicated that the security system is effective, a further three (27.3%) said it was moderately effective and yet another three (27.3%) alleged that their system was not effective at all. Only two (18.2%) specified that their system was very effective.

As a follow up, question 41, an open-ended one was asked of respondents who specified that their security system was ‘not effective’ or ‘not effective at all’ in

question 40. This question was not applicable to eight (72.7%) respondents. The three (27.3%) respondents for which the question was applicable each provided the following reasons — “there is no security system in place for the legal deposit materials. Material got stolen from the library”, “no security system for material (material[s] are stolen)” and — “no security system for some of the library material and it gets stolen by the users”.

4.4.2.3 Condition and care of materials in general

In order to establish the condition and care of materials, various questions were asked including preservation options, physical condition of materials as well as factors of deterioration. A multiple response question was asked to find out the preservation options used by the depositories. Respondents had to select all the applicable options hence the total number of responses are more than 11 and the total percentage is not 100. In Table 15, eight (72.7%) respondents indicated boxing is one of the preservation options used. Five (45.5%) used microfilming, two (18.2%) digitisation and a further two (18.2%) de-acidification. None of the respondents indicated that that they use encapsulation, lamination or leaf casting. Respondents were given an option to specify any other preservation options used. Three (27.3%) respondents stated that serials are bound to preserve them.

Table 15: Preservation options

N=11

Options	Responses	
	Count	%
Protective enclosure (boxing)	8	72.7
Microfilming	5	45.5
Digitisation	2	18.2
De-acidification	2	18.2

(Source:Field data)

Respondents were further asked, using a Likert scale, their general opinion of the overall condition of the legal deposit materials. Six (54.5%) respondents indicated that they are in good condition, yet three (27.3%) said they were in poor condition and only two (18.2%) said they were average. None of the respondents specified

that the condition of the materials was in very good or very poor state. Question 44, a follow up question, enquired which types of materials were in particularly poor or very poor condition. This question applied to only three (27.3%) respondents and was not applicable to eight (72.7%) respondents. The three respondents stated that the following categories of books were in poor condition namely school text books, law, education, public administration and business management as well as newspapers and their career supplements.

The researcher investigated further using a Likert scale again in question 45 to determine the extent of agreement or disagreement about the general physical condition of materials.

Table 16: General physical condition of materials

N=11

Physical condition	Strongly agree	Agree	Disagree	Strongly disagree	Unsure	Non-response	Total
	%	%	%	%	%	%	%
Dirty (soiled, stained)	36.4	0	36.4	27.3	0	0	100
Deteriorating through wear and tear	9.1	54.5	18.2	9.1	0	9.1	100
Condition of paper is poor (acidic and brittle)	0	54.5	18.2	18.2	0	9.1	100
Condition of materials generally poor because of mould attack	0	9.1	18.2	72.7	0	0	100

(Source:Field data)

In Table 16 above, four (36.4%) respondents strongly agreed that materials in general are dirty, that is, soiled and stained, another four (36.4%) disagreed and three (27.3%) strongly disagreed. Six (54.5%) respondents agreed that materials had deteriorated due to wear and tear, two (18.2%) disagreed, yet one (9.1%) strongly disagreed and another respondent did not respond. Six (54.5%) respondents agreed the condition of paper was poor (acidic and brittle), two (18.2%) disagreed, another two strongly disagreed and one (9.1%) did not respond to the inquiry. Eight (72.7%) respondents strongly disagreed that the condition of materials

is generally poor because of mould attack, two (18.2%) respondents disagreed and one (9.1%) respondent agreed.

The respondents were questioned further to find out the state of materials by asking them whether they have observed any deterioration resulting from the use of documents by users in question 46. Handling by staff and users also directly impinges on the useful life of materials and repeated poor handling can easily lead to wear and tear on materials, making them unusable or requiring costly repair, rebinding, or replacement. Seven (63.6%) respondents indicated yes they had noticed deterioration, and only four (36.4%) respondents specified they had not. The seven respondents were then asked a multiple response question as to whether they ascribe the deterioration to frequent use, inadequate supervision, photocopying, microfilming, scanning or other causes.

Table 17: Cause of deterioration

N=11

Cause	Responses	
	Yes	%
Frequent use	6	54.5
Inadequate supervision	6	54.5
Photocopying	6	54.5

(Source:Field data)

Six (54.5%) respondents indicated that deterioration of materials was a result of frequent use (shown in Table 17 above). Another six (54.5%) respondents specified deterioration was due to inadequate supervision, yet another six (54.5%) respondents stated it was a result of photocopying. No respondents indicated that deterioration was due to microfilming or scanning materials. However, three (27.3%) respondents stated other ways in which materials deteriorated, including removing pages, cutting out pictures and theft.

The last question in the section on condition and care of materials investigated who was responsible for conservation treatment. Respondents were asked in question 48 to select all applicable options.

Table 18: Whether conservation treatments were implemented

N=11

Site	Responses	
	Count	%
Not done	6	54.5
Done commercially (outsourced)	3	27.3
Done in-house	2	18.2
Total	11	100

(Source:Field data)

A majority of the respondents, six (54.5%), specified that conservation was not done, three (27.3%) indicated it was done commercially and two (18.2%) stated it was done in-house. None of the respondents stated that it was done at the National Archives and Records Services of South Africa, Pretoria office.

4.4.2.4 Access to information

The study also sought to establish how information is accessed. As mentioned earlier, the main reason for the preservation of legal deposit material is so it can be accessed. Apart from legal deposit, the Promotion of Access to Information Act (PAIA), of 2000 (Act No. 2) that stems from the Bill of Rights that supports the Universal Declaration of Human Rights, gives individuals the constitutional right of access to any information held by the State, organisation or person. In this regard the following questions were asked:

Question 49 asked the respondents to indicate if legal deposit materials were open to use at present. Six (54.5%) indicated that their materials are open to use at present and five (45.5%) respondents said they were not open to use. The five respondents were questioned further to find out why access was limited in question 50, an open-ended question. This question was not applicable to the six (54.5%) respondents who indicated their materials were open to use. Three (27.3%) respondents stated that due to the upgrading of stack rooms all legal deposit materials were removed and stored temporarily in boxes, and therefore not accessible. Also, the legal deposit materials were being stored at different venues, making them not easily accessible. One (9.1%) respondent stated that —~~the~~ OPD has

just become functional in 2011, and at the moment just lends materials to community libraries” and another (9.1%) respondent noted there is limited use by outsiders because it is a court and there are security concerns.

Question 51 asked respondents to indicate if users are made aware of their access rights and their responsibility to comply with the policies and regulations of their institutions. Seven (63.6%), said users were made aware; three (27.3%), respondents were unsure and one (9.1%) respondent did not answer the question.

The respondents who specified that users were made aware of their access rights were examined further in question 52, an open-ended question, to find out how this is done. Users are made aware of access rights:

- By putting notices and posters on the notice board, distributing pamphlets/leaflets and user education by staff (five [45.4%] respondents).
- Through workshops held as well as users’ rights are explained clearly through government information services (one [9.1%] respondent).
- When an item is given to the user their responsibility to comply with regulations and policies is explained by staff (one [9.1%] respondent).

Question 52 was not applicable to four (36.4%) respondents as they did not answer question 51.

In addition a multi-response list was used to indicate what finding aids are used to help users locate materials. Respondents were encouraged to select all applicable options and therefore the total number of responses does not equal the total number of respondents, making the percentage exceed 100%.

Table 19: Types of finding aids

N=11

Types	Responses	
	Yes	%
Computer catalogue accessed remotely	8	72.7
In-house computer catalogue	6	54.5
Website	5	45.4
Card catalogue	3	27.3
Total	22	199.9

(Source:Field data)

In Table 19 above, eight (72.7%) respondents indicated that users were able to access legal deposit material remotely using a computer catalogue, six (54.5%) respondents specified an in-house computer catalogue, five (45.4%) respondents via a website and three (27.3%) respondents, by using a card catalogue. The respondents were also given leeway to state other finding aids not listed, and a respondent stated that an “~~ast~~ register” is used to locate materials. No respondent indicated that they use a printed guide to the whole collection.

The respondents were questioned further to find out significant impediments to the use of materials. Respondents were encouraged to select all applicable options from a multiple-response list. Four (36.4%) indicated the significant impediment was that some records had deteriorated beyond use, another four (36.4%) stated processing backlogs as an impediment and three (27.3%) stated they “~~cannot~~ physically locate them”. Another three (27.3%) indicated that it was due to a lack of finding aids and yet another three (27.3%) stated that the necessary play back equipment was not available. Two (18.2%) respondents stated other impediments, such as “~~some~~ of the print versions of newspapers cannot be handled due to age – crumbling” and “~~since~~ the OPD started functioning at the beginning of 2011 not that much has been received therefore the little received is processed immediately”.

The respondents were then asked in question 55 to specify what reprographic equipment the depositories had to make materials available. Respondents were encouraged to select all applicable options as well as specify other options not listed. The total number of responses does not equal the total number of respondents, making the percentage exceed 100%.

Table 20: Types of reprographic equipment available

N=11

Type of equipment	Responses	
	Yes	%
Photocopiers	10	90.9
Computers	10	90.9
Document scanners	9	81.8
Total	29	263.6

(Source:Field data)

A majority of respondents 10 (90.9%), specified in Table 20 that they had photocopiers to help make materials accessible, another 10 (90.9%) indicated computers and nine (81.8%) respondents had document scanners.

In order to find out whether users are made aware of their obligation to comply with copyright legislation and access conditions when using legal deposit materials question 56 was asked. Ten (90.9%) respondents stated that users are made aware, while one (9.1%) indicated they were not. In question 57 they were then asked how this was done. Seven (63.6%) respondents specified that staff educate and inform users, six (54.5%) respondents state it is done using notices as well as displaying copyright posters and two (18.2%) respondents indicated that they only allow 10% of the material to be photocopied. The respondents were then asked when users are made aware of the copyright legislation; six (54.5%) respondents stated both before and during use, three (27.3%) before use, one (9.1%) during use and this question was not applicable to one (9.1%) respondent.

The respondents were then asked to rank priorities for improving the management of the legal deposit collection. In terms of priorities for improving management it is clearly indicated that the major priorities are increasing funding, developing disaster plans followed by the preservation/conservation of collections (shown in Table 21). The other main priorities include increased capacity of storage space and also improved staff training and expertise, followed by improved storage conditions and

the development of policies and procedures for handling new media. Moderate priorities indicated include improving finding aids and reformatting collections.

Table 21: Priorities for improving the management of the legal deposit collections

N=11

Priorities	Major priority	Moderate	Minor	Not a priority	Undecided	Non-response
	Count	Count	Count	Count	Count	Count
Increase funding	10	0	0	0	0	1
Increase capacity of storage space	7	3	0	0	0	1
Improve storage conditions (temperature & humidity controls, security)	6	3	0	0	0	2
Improve staff training or expertise	7	3	0	0	0	1
Improve finding aids	3	5	2	0	0	1
Automate description systems	1	4	2	1	1	1
Reformat collections (microfilm, imaging)	1	5	1	1	1	2
Develop policies/procedures for handling new media	6	0	2	2	0	1
Preservation/conservation of collections	9	1	0	0	0	1
Develop disaster plan	10	0	0	0	0	1

(Source:Field data)

4.4.3 Digital/electronic materials

As the South African Legal Deposit Act covers electronic materials, the researcher investigated whether depositories have digital materials. The researcher looked at the written policies to manage these materials as well as the storage methods and formats.

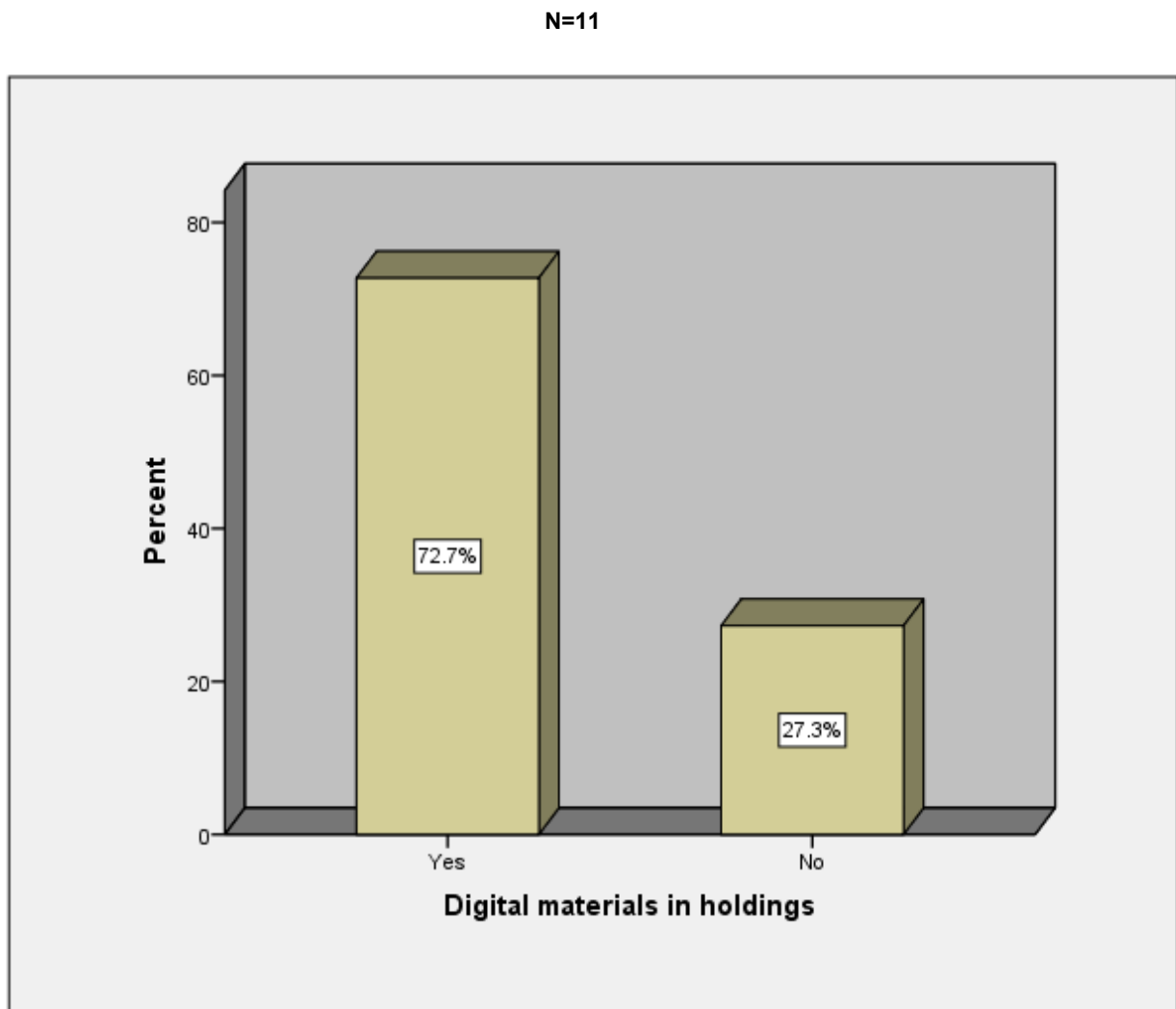
4.4.3.1 Digital/electronic materials policy

Respondents were asked whether they have any written policies for managing digital materials. Three (27.3%) respondents said they have policies and eight (72.7%) said they did not have any policies.

4.4.3.2 Current holdings

The study revealed, shown in Figure 8 , that eight (72.7%) respondents indicated that their depositories had digital materials for which it assumed responsibility, only three (27.3%) respondents stated their depositories did not have digital materials.

Figure 9: Percentage of digital material in holdings



(Source:Field data)

In addition, respondents were asked if the depositories accept or acquire electronic materials for which it assumes preservation responsibility. Six (54.5%) respondents specified that they do and five (45.4%) respondents indicated they do not. The six respondents whose depository accepts and acquires electronic materials were

questioned further to find out what types of electronic records they accept. The six respondents stated that they accept any electronic materials.

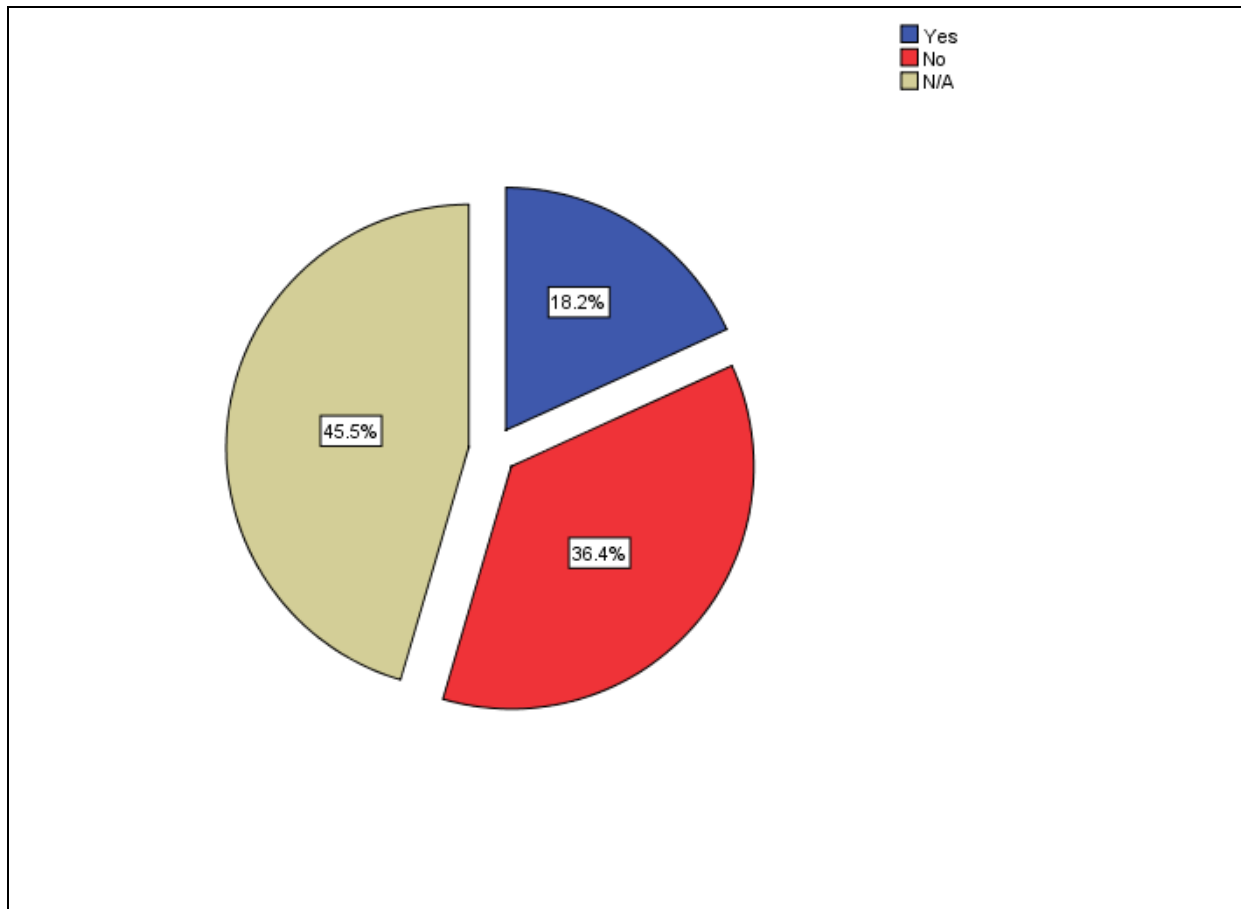
In terms of whether depositories create digital material as a result of digital conversion projects, the study revealed that nine (81.8%) respondents said they do not and two (18.2%) were unsure.

4.4.3.3 Storage methods and formats

To find out more information about the preservation of electronic material, several questions were asked with regard to storage methods and formats. Respondents not having electronic records in their holdings were asked to skip questions 65 to 77. These questions were not applicable to five (45.5%) who indicated earlier that they do not accept or acquire electronic material. Shown in Figure 10, four (36.4%) respondents specified they did not have dedicated hardware/software for long term preservation and only two (18.2%) respondents stated they did.

Figure 10: Dedicated hardware/software for long term preservation

N=11



(Source:Field data)

The two respondents who stated they had dedicated hardware/software for long term preservation were asked to specify what systems are used. They both stated they had a scanner: Zeutschel AO.

Respondents were then asked to select the formats present in their digital holdings. They were provided with a list and were required to select all applicable options. Table 22 shows five (45.4%) respondents had videos/moving images and another five had magnetic tapes, four (36.4%) respondents each had plain text files, spreadsheets, databases, word processing and text with markup language formats.

Table 22: Digital holdings formats

N=11

Formats	Yes	No	Non-response	Not applicable	Total
	Count	Count	Count	Count	Count
Video/Moving Images	5	0	1	5	11
Magnetic tape (open reel) (e.g., cassettes, and so on)	5	0	1	5	11
Flat ASCII files (e.g., Text file with the file extension .TXT)	4	1	1	5	11
Spreadsheet format (e.g., Excel, and so on)	4	1	1	5	11
Text files with markup (e.g., SGML, HTML, XML, and so on)	4	1	1	5	11
Word processing format (e.g., MS Word, and so on)	4	1	1	5	11
Database format (e.g., Access, FoxPro, and so on)	4	1	1	5	11
Image format (e.g., TIFF, GIF, etc.)	4	1	1	5	11

(Source:Field data)

In addition, question 68 was used to establish how digital material received was stored. A list of applicable options was provided and respondents were encouraged to select all applicable options. Shown in Table 23, five (45.4%) respondents stated that electronic records were stored as received, one (9.1%) respondent did not respond to the question.

Table 23: Storage methods

N=11

Methods	Yes	No	Non-response	Not applicable	Total
	Count	Count	Count	Count	Count
Store as received	5	0	1	5	11
Hard drive	2	3	1	5	11
Optical Disc (Rewritable)	2	3	1	5	11
Magnetic tape (cassette or cartridge)	0	5	1	5	11
CD-ROM	0	5	1	5	11
WORM Optical Disk (Write-once-read-many)	0	5	1	5	11
Contract with third party for storage	0	5	1	5	11

(Source:Field data)

Respondents were asked to provide further examples of storage media and format in question 69, an open-ended question. Of the six respondents this question was applicable to three (27.3%) who indicated that all were stored as received, two (18.2%) stated that they stored all old newspapers as TIFF and one respondent did not respond to the question.

The fast development of technology causes existing technology to become rapidly out-dated causing technological obsolescence. To find out more information with regard to technological obsolescence, respondents were asked in question 70 whether their depositories had any digital material which could not be mounted, read or accessed.

Only two (18.2%) respondents indicated that they had electronic material that lacked the operational and technical capacity to mount, read and access. Both respondents were then asked to give brief details of the material, in question 71, an open-ended question. They stated that they had microfilm, floppy disks and diskettes that could not be read.

Five (45.5%) respondents stated that their institution did not have an established method for preserving digital materials. One (9.1%) respondent did not respond to the question and it was not applicable to five (45.5%) respondents.

Respondents were questioned further about digital preservation and were asked if their institution refreshed or migrated their digital materials. These questions were not applicable to five respondents. As shown in Table 24, five (45.4%) respondents specified that their institution did not refresh materials, and one (9.1%) respondent did not respond. Three (27.3%) respondents indicated that their institution did not migrate, that is, transfer file formats from one software/hardware configuration to another. Two (18.2%) were unsure about migration and one (9.1%) did not respond.

Table 24: Method of digital preservation

N=11

Method	Yes	No	Unsure	Non-response	Not applicable	Total
	%	%	%	%	%	%
Refreshing	0	45.5	0	9.1	45.5	100
Migration	0	27.3	18.2	9.1	45.5	100

(Source:Field data)

Questions 74 to 76 asked respondents to describe the frequency and method of refreshing and migration, respectively, and were not applicable to all respondents.

The following question 77 asked the respondents to rank threats to the loss of digital materials.

Table 25: Threats leading to loss of digital materials

N=11

Threats	Greatest threat	Moderate threat	Minor threat	No threat	Undecided	Non-response	N/A	Total
	%	%	%	%	%	%	%	%
Technological obsolescence	27.3	0	0	18.2	0	9.1	45.5	100
Insufficient policy or plan for preservation	18.2	9.1	0	18.2	0	9.1	45.5	100
Insufficient resources for preservation	9.1	9.1	0	27.3	0	9.1	45.5	100
Physical condition	9.1	0	0	36.4	0	9.1	45.5	100

(Source:Field data)

In Table 25 it is shown that only three (27.3%) respondents specified that technological obsolescence was seen as the greatest threat, two (18.2%) indicated insufficient policy or plan for preservation, one (9.1%) respondent stated insufficient resources for preservation and another for the physical condition of materials. Four

(36.4%) respondents showed that the physical condition was not a threat, three (27.3%) specified insufficient resources for preservation were not a threat.

4.4.4 General comments and concerns

The last question was an open-ended question which gave respondents leeway to state any additional comments or concerns related to management, care, or use of their institution's legal deposit materials. Seven (63.6%) respondents made the following comments:

- —“Currently the legal deposit function is an unfunded mandate - libraries do not receive government funding for such an important responsibility”.
- —“A lot of these questions are not really applicable to our situation as an official publications deposit library. As a new institution, we do not have old materials that need restoration etc”.
- —“Fumigation occurs quarterly therefore prevents insect invasion/vermin infestation”.
- —“Legal deposit institutions need to be standardized as they are different from each other. The preservation and disaster management plan should be developed by legal deposit committee and they should monitor compliance of the institutions”.
- —“Municipal decision-makers do not realise the importance of legal deposit materials”.
- —“Staff need training on how to manage and care for legal deposit material. Municipal managers should also be made aware about the importance of conservation and preservation of legal deposit material for the history of South Africa”.
- —“Staff improvement (skills development), lack of conservators in the country, training on pest control management”.
- —“We do not get enough support from the NLSA they make promises to come help train staff but so far have not kept these promises. Provincial departments and municipalities do not comply with the regulations and do not send their materials to OPDs”.

4.5 Interview results

The results of the interviews held are presented in this section. They are presented in a similar manner to the questionnaire results. As already mentioned, the interviews were used to supplement the questionnaire and obtain in-depth information regarding preservation policies, budgets/alternate funding, disaster preparedness strategies, level of skills and knowledge in preservation management, and access to information, policies and practices regarding electronic publications. Of the three interviews only two respondents were available to be interviewed. The results of the interviews are discussed as follows:

4.5.1 Demographic data

Information about the respondents' demographic profile was asked to discover whether their background had an influence on the way they answered questions. This included finding out their gender, age and highest level of education.

Both respondents were female, with university qualifications. One respondent had Honours in Library and Information Science (B.Bibl (Bibliothecologiae) Honours) and the other had a Bachelor's degree. One respondent was within the age range of 41-50 and the other was over 60 years.

4.5.2 Print materials

Information with regard to print materials was solicited in this section including preservation policies, preservation means, disaster preparedness and management, access to information as well as level of skills and knowledge in preservation management.

4.5.2.1 Preservation policies

A mission statement is a summary of an institution's purpose, values and beliefs. This policy helps to set goals as well as guidelines to achieve the goals. The respondents were asked if they had mission statements for their organisations. Both specified they did, however, one respondent did not answer the follow-up question 5 which asked for the mission statement to be stated. The one respondent stated that their mission statement was —to improve the quality of life of the people of region

by anticipating and meeting their informational needs and providing an appropriately substantial and supportive contribution towards their educational, cultural and recreational needs”.

The respondents were then asked whether their libraries had policies to improve preservation conditions, develop conservation facilities as well as train and recruit staff. Both respondents specified that they did not have policies to improve preservation conditions or develop conservation facilities. However, one respondent stated they had a policy to train and recruit qualified personnel.

The respondents were then questioned to find out if their institution was involved in co-operative preservation activities with libraries, art galleries, museums or research laboratories. The two respondents indicated that they are involved in co-operative preservation activities with libraries only.

The following question solicited information about whether the institutions had preservation policies and both respondents stated that they did not. They therefore did not respond to the two follow-up questions 9 and 10 that sought information about the overall success of the institution’s preservation policy/strategy in achieving its preservation goals.

Information with regard to foreseeing the emphasis of the preservation policy/strategy shifting over the next five years was sought. One respondent maintained the question was not applicable since the respondent’s institution did not have a policy. However, the other respondent agreed that preservation policies will change over the next five years. The respondent elaborated on why he/she believes it will change:

Currently Part II (2) of the Regulations of the Legal Deposit Act No. 54 of 1997 states –The format and quality of any document shall be the format and quality in which the producer originally made any edition, re-edition, or reprint generally available, unless otherwise authorised by the (Legal Deposit) Committee.” If the Act is not amended, then it means that all the places of Legal Deposit will still have the space problems that they currently experience. In this age of electronic preservation of data, the places of legal deposit will have to adapt.

4.5.2.2 Preservation means

This section sought information about the types of finance the institutions have to use for preservation. The institutions overall annual budgets were solicited. The results showed a great difference due to the fact that the libraries were under different local government authorities. One institution has an overall budget of approximately R22,400,000 per annum and another shares a budget of R18,140,000 per annum with nine other libraries. One respondent was unsure about what percentage of the budget was allocated to the legal deposit function of the library. The other respondent did not respond to the question regarding budget allocation to the legal deposit function. However, both respondents indicated that the allocation was not sufficient. A follow-up question was asked to clarify why the allocation was not sufficient. One respondent indicated —“only covers staff salaries”. The second respondent indicated that:

The function of the operation of the legal deposit libraries is a national function given to the local authorities without the funds from the national budget to carry it, in other words, it is an unfunded mandate by the national government to the local authorities. This forces the local authorities to absorb the costs of this function into its responsibilities because no one wants to lose the privilege of having a place of legal deposit in its area of responsibility.

To find out more about the institutions financial situation respondents were asked about any alternative funding they received. Both respondents indicated they did receive alternative funding. They also both specified that it was a conditional grant³. However, one respondent stated that the grant was a result of a policy from the National Library of South Africa provided by the national government. Yet the second respondent stated it was provided by the provincial government. The first respondent stated that this grant was used to buy books, for information communication technologies, capacity building and in 2012 a portion will be used for salaries. The second respondent specified that it has been of assistance in the past three years. The respondent continued to say that it was used to appoint professional and non-professional staff to carry out any library functions including appointment of legal

³ Conditional grants are those grants where the government specifies the purpose, conditions, or both, under which the recipient should use the grants.

deposit staff. The first respondent stated they have also received a grant from the Carnegie Corporation.

4.5.2.3 Disaster preparedness and management

Heads of legal deposit libraries were asked whether their institutions were ready in case they were faced with a disaster. It is essential, as mentioned earlier in section 2.8.3, to take preventative measures to avoid unnecessary human-made disasters, as well as being prepared for natural disasters. Information about recovery plans were also solicited from them. One respondent stated they had a disaster plan and another indicated that they did not have one and therefore the section was not applicable to the respondent.

The respondent that specified they had a disaster plan indicated that it was concerned with the safety of people as well as the building only. The disaster plan was a municipal one that did not cover library issues and mainly lists contact details of individuals who could be contacted in case of an emergency. The plan did not specify natural or human-made disasters. The plan had never been tested and the respondent did not respond to the question about when it had last been reviewed. Although the second respondent stated they did not have a disaster plan, the respondent indicated that they had alarm systems and book security systems in place to prevent theft and vandalism that are human-made disasters.

4.5.2.4 Levels of skills and knowledge in preservation management

In order to be able to carry out a task it is important to have the appropriate skills and knowledge. A table was presented to the respondents indicating some of the features of the staff employed in the preservation and conservation of legal deposit materials. The total number employed in one institution was 71 with 15 members of staff directly involved in preservation and conservation activities. Six staff members had a Bachelor's degree but without archival studies. The other institution had 77 members of staff, with 15 directly involved in preservation and conservation activities. One member of staff had a grade 10, and 11 had a grade 12 high school qualification, two with a certificate in archives or records' management. In addition, 10 staff had a Bachelor's degree without archival studies, plus five staff who had

training in developing and implementing preventative and handling procedures. However, both respondents reported that none of the personnel responsible for preservation activities had been trained in those techniques.

4.5.2.5 Access to information

One of the main aims of a legal deposit is not only to preserve but to ensure availability and access to a country's published heritage. In order to find out how accessible legal deposit materials are, various questions were asked.

The first question in this section, question 28, sought information about users' interests and needs. The respondents were asked whether users' interests and needs are analysed at regular intervals as well as whether policies and practices are adjusted accordingly. One respondent specified that they did not analyse users' interests and needs. The other respondent stated they did analyse users' interests and needs by keeping monthly statistics of what users accessed.

The respondents were then asked if their institutions had sufficient physical and technical equipment to facilitate access to all legal deposit material held. Both respondents indicated that they did not have sufficient physical and technical equipment to facilitate access. In addition, in one institution, legal deposit material was stored in a separate building, making it necessary for staff to collect the item requested. At the other institution, signage was required after new shelves were built. The other reason provided was that the new compact shelving did not move smoothly requiring two male staff to move the shelving. In addition, insufficient space was left to take out bound copies of newspapers.

Question 32 asked whether the institutions had adequate facilities for the physically challenged and both respondents indicated they do.

To establish standards governing the quality of service provided by the institutions, question 33 was asked. The two respondents stated they had established standards governing the quality of service.

To support the results of the access to information section of the questionnaire, the respondents were asked their current priorities, in terms of the users' access to the collection. The respondents indicated that they need to do the following:

- Improve on the turnaround time for services.
- Patrons should be given the correct information that they are looking for.
- The legal deposit electronic equipment (such as photocopy and micro-film machines) needs to be maintained in good condition, to ensure copies can be made to minimise theft and vandalism.
- The legal deposit material collection needs to be up dated constantly.
- Ensure that the publishers send complete sets of serials and government publications.
- Report non-compliance of publishers to the Legal Deposit Committee for further action.
- Improve on signage and acquire more shelving to create storage for the next 20 years.
- Acquire storage outside the main building.

4.5.3 Digital/electronic materials

To support the preservation of digital/electronic material section of the questionnaire, various questions about digital policy and digital preservation expertise were asked. However, as neither respondent had any written digital policies, this section was omitted, moving on to answer the final question, which was a general one.

4.5.4 General comments and concerns

The last interview question was a general one to cover any important questions that may have been left out by the researcher. The question asked the respondent for additional comments or concerns related to the management, care, or use of legal deposit materials at their respective institutions. Only one interviewee responded with the following comments:

- The legal deposit committee are working on a digital preservation policy.
- The last bit of Carnegie money will be used to bind newspapers.

The concerns were:

- They required funding for HVAC system for three stack rooms that do not have HVACs.
- There is a need to train staff.
- A section of one stack room has a leaking roof after the removal of an HVAC.
- The pump that removes water flowing from under the building is not covered and is therefore a safety issue.

4.6 Summary

The research findings indicate that preservation is not carried out properly due to the lack of preservation policies, funding, staff training and expertise. The study revealed that a majority of legal deposit libraries did not have preservation policies to improve preservation conditions, develop conservation facilities and to train and recruit staff. The study also revealed that a majority did not have disaster plans in place, or sufficient funds to carry out preservation activities.

However, despite the problems mentioned above, the study also revealed that a majority of the depositories employ security guards and have intruder alarm systems as well as electronic security systems. This helps to curb the loss of material as well as help prevent vandalism. Posters, user education and explanations of regulations and policies help make users aware of their access rights. Material can be accessed using in-house computer catalogues and a website. Although most depositories assume responsibility for digital material, there are numerous challenges surrounding digital preservation that need to be addressed. All these findings are discussed further in the following chapter.

Chapter 5: Discussion of research findings

5.1 Introduction

This chapter goes beyond the presentation of data presented in the previous chapter. Babbie and Mouton (2006:101) state that “~~w~~ interpret the collected data for the purpose of drawing conclusions that reflect on the interests, ideas, and theories that initiated the inquiry”. Social research may have its limitations or faults, but its vital objective is to discover knowledge, expand understanding and seek the truth (Neuman, 2003:469). This chapter presents and discusses the knowledge and understandings derived from the major findings presented in Chapter 4 with regard to the research problem, the literature reviewed and rationale of the study. The purpose of the study was to determine the current situation of preservation of, and access to legal deposit in South Africa by answering the following research questions:

- What systems are in place to help collect print and electronic documents?
- What are the activities and strategies used to preserve legal deposit material?
- What measures are in place to ensure preservation of documents whilst being used?
- How knowledgeable are staff about the preservation of the legal deposit material?
- What challenges are the staff faced with when preserving legal deposit material?
- Are the depositories accessible to the majority of the population in South Africa?
- What means and processes are used to help make material accessible?
- What systems are in place to ensure electronic documents will be accessible, especially in the long term?
- What security procedures are in place to safeguard the collection?

The discussion first addresses the main concepts of the study namely preservation and access within the context of legal deposit, and then goes on to discuss the findings presented as themes and categories in Chapter 4. The discussion of results begins with issues related to the preservation and access of print materials (section 5.2-5.3) then proceeds to digital materials (section 5.4).

5.2 Preservation

The findings relating to preservation are discussed within the themes of the survey instruments used, namely preservation policy, means of preservation, the environmental conditions of the stack rooms, storage and handling, disaster preparedness and management, condition and care of the materials as well as the level of staff skills and knowledge in preservation management.

5.2.1 Preservation policy

The regulation of legal deposit originates from international conventions and the national legislation of many countries, including South Africa. This regulation underpins the preservation of a nation's published cultural heritage and guarantees access to it. The Legal Deposit Act No. 54 of 1997 was amended to address a situation in which a steadily declining proportion of the country's published output was being collected (Lor and Geustyn, 2003:102) because of a tendency by authors and publishers to favour output forms other than print. The Act made provision for new information carriers, such as electronic and audio-visual material. This was done by following the example of countries such as Namibia and Norway who have adopted generic terms, such as 'document' (Lor and Letshela, 2002:South African and Namibian Legal Deposit Acts), making it unnecessary to constantly update or amend legislation to accommodate new types of publication. The Act makes provision for a Legal Deposit Committee which is responsible for the implementation of the Act. One of the duties of the Legal Deposit Committee is to make recommendations to the Minister with regard to regulations. These regulations help develop policies which set frameworks and standards that are vital in achieving the goal of preservation.

Currently South African depositories do not have policies to guide preservation, develop conservation facilities or train and recruit staff. This is a major flaw that was confirmed by the heads of depositories during the interviews. The interviewees confirmed that they have mission statements but not preservation policies.

The mission statements provided by one depository clearly show that the purpose, values and beliefs of the institution have nothing to do with preserving our cultural heritage but support the vision and goals of a public library. Morrow (2000:25) emphasises that:

The preservation of the library collection will be found within the mission statements of most libraries in recognition of the fact that libraries preserve their collections not for preservation's sake, but to enable access and facilitate use and research.

The mission statement provided was not in line with section 7 of the Legal Deposit Act No. 54 of 1997 that stipulates the duties of places of legal deposit. A similar study by Ngulube (2003:286) highlighted the fact that archival repositories did not have clearly articulated mission statements, and nor did archival institutions in South Africa have preservation policies. This lack was and still is an obstacle to preservation activities. This gap in policy and documentation was also pointed out by Penzhorn (2007:202) who found that there was a lack of policies to pursue non-compliant publishers as well as a lack of selection and disposal policies for legal deposit materials.

The Act makes provision for a Legal Deposit Committee whose duties, as already mentioned in section 2.7.2.2 of Chapter 2, include making recommendations to the Minister to improve and implement the Act. No current recommendations have been made to the Minister by the Legal Deposit Committee, however, they responded to a call for help with the Cultural Laws Third Amendment Bill (Mpholefole, 2012:Regulations for legal deposit). The Bill was drafted to amend sections of a number of acts including Legal Deposit Act No. 54 of 1997. The section of the Bill concerning legal deposit aims to:

- Assert that the South African Library for the Blind should be declared a place of Legal Deposit for alternative format publications.

- Amend the outdated legal depository names.
- Change the OPD status from being listed as a public entity under the Public Entity Act, 1992 (Act No. 93 of 1992) to being under the Public Finance Management Act 1999 (Act 1 of 1999).
- Include a representative of the South African Library for the Blind to the Legal Deposit Committee.
- Change the need for the Legal Deposit Committee reporting to parliament in accordance to the Public Entity Act, 1992 (Act No. 93 of 1992).
- Enable members of the Legal Deposit Committee to be paid allowances and reimbursement for reasonable expenses.
- Create a Legal Deposit Committee Secretariat that will support the Legal Deposit Committee with administrative, communication and secretarial services.

The lack of revised deposit legislation results in the loss of crucial documents due to the volatile nature of the material as well as a lack of knowledge on how to collect and preserve documents. This Bill does not include any content with regard to regulations and policies for the legal depositories.

A strong institution with sufficient human and financial resources is required to implement the legal deposit act properly and effectively. Penzhorn (2007:169) found that legal deposit libraries were unhappy with the communication they had with the Legal Deposit Committee. Some of the issues raised in this regard included:

- The committee communicated only with top management.
- Hardly any feedback was received by ordinary staff with regard to problems.
- No directions or guidelines were given on problem issues.
- Top management who attended the legal deposit meetings did not know what was really happening with legal deposit (Penzhorn, 2007:169).

The Legal Deposit Committee has, however, through the National Library of South Africa, created a manual specifically for OPDs in 2004. The OPD manual has guidelines for best practice and encourages OPDs to set their own policies based on generic guidelines (Baker, 2004:7). Yet, all the OPDs involved in the study did not

have any policies in place. The need for change or revision of legislation was mentioned when a legal depository head expressed concern that regulations stated that they had to preserve materials in the original format received. This meant that depositories would always be faced with space problems.

Without preservation, conservation, training and recruitment policies that create frameworks and standards the following areas are affected:

- Means of preservation;
- The environmental conditions of the stack rooms;
- Pest management;
- Storage and handling;
- Disaster preparedness and management;
- Condition and care of materials in general
- Levels of skills and knowledge in preservation management;
- Access to information; and
- Preservation of digital/electronic materials.

These are discussed in detail in the following sections.

5.2.2 Preservation means

The preservation of legal deposit collections is a challenge due to the endless impediments caused by inadequate funding. However, one of the obstacles to funding is a lack of formal policy. Ngulube (2003:287) emphasises this by stating:

How does one measure performance without an established yardstick? How could funds be allocated to a programme that is not clearly defined?

As revealed in a study by Nsibirwa (2007:20) libraries in South Africa in the past were supported financially from municipal and provincial grants that came from government taxes as well as municipal rates. However, Nsibirwa (2007:97) found that these funds dwindled over the years leading to a situation in which, for example, Msunduzi Municipal Library was dependent on donors.

Kenney (2004:27) points out that when preservation is seen narrowly it gets separated from the day to day functions of a library and can be considered as a luxury when budget cuts are made. The current study revealed that the annual

budgets of the libraries were insufficient. These budgets varied greatly and their size depended on the province in which the legal depository was located. The budgets did not cover any preservation related activities and only covered staff salaries. The study revealed that an increase in funding was at the top of the priority list for improving the management of legal deposit. Ngulube (2003:288) also found this in his earlier study and emphasised —~~that~~ preservation activities were given a low priority”.

The Act in section 6(3), however, under the phrase —~~places~~ of legal deposit” states that:

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.

A respondent in the current study pointed out that a national/provincial function is passed on to local authorities forcing them to absorb costs. Some of the local authorities operate from a very low rates base (Stilwell, 2011:51). One can argue that this responsibility was not intended to be theirs in terms of the drafting of the original Act. One consequence is that they resort to paying for staff salaries only and do not address the full range of tasks and functions entailed in ensuring legal deposit. The other reason could be that they might believe paying for staff salaries is sufficient because they do not understand the importance of legal deposit and lack knowledge about preservation and access. The local authorities end up not considering legal deposit as a priority per se.

The depositories receive alternative funding in the form of a conditional grant. This grant, as already mentioned in Chapter 4 section 4.5.2.2, is a grant from the government who specifies what it should be used for. One head of a depository was confused about who provided the grants and stated the grant was from the provincial government who is the transferring agent and not the provider of the grant. These funds are used for buying books, information communication technologies, capacity building and salaries. Such funds are not allocated to be used for legal deposit

purposes per se except for partly subsidising salaries and enabling the appointment of staff. The government could use these grants for preservation and access of legal deposit since it has the authority to specify how the funds should be used.

Although the Act in section 6(3) states depositories will be funded through votes in parliament or provincial legislature, the Act in section 7(4) (a) contradicts itself in that an OPD serves in terms of the Public Entities Act No. 93 of 1992. A public entity means:

An institution that operates a system of financial administration separate from the national, provincial, and local spheres of government and in which the State has a material financial interest (South Africa, Public Entities Act No. 93 of 1992).

This could be the reason why the OPDs are not funded effectively by the national, provincial, or local governments. However, with the Cultural Laws Third Amendment Bill an effort is being made to amend this situation. If the Bill is passed OPDs will serve in terms of the Public Finance Management Act 1 of 1999. This Act makes the OPDs a national public entity meaning the OPDs will be:

Fully or substantially funded from the National Revenue Fund, or by way of a tax, levy or other money imposed in terms of national legislation; and accountable to Parliament (South Africa, Public Finance Management Act 1 of 1999).

By removing the public entities statement the OPDs may be able to finally get financial support.

Although a legal depository can act as an OPD the legislation states that ‘The Minister’ will designate at least one OPD in each of the nine South African provinces. Currently there are four OPDs as mentioned earlier in Chapter 2 section 2.9.2.2, which is a positive sign of development, as in an earlier study, Nsibirwa (2007:2) stated that there were only two. However, the progress and development of OPDs is slow and this could be due to a lack of funding and support to stimulate and guide their development. Penzhorn (2007:213) found that issues raised by staff “suggest that insufficient support and funding from the state has impacted negatively not only on the procedures for the execution of tasks” but also the negative attitude towards

legal deposit in general. Mpholefole (2012) points out that there are plans and efforts being made to open OPDs in Limpopo, Durban in KwaZulu-Natal and the Northern Cape.

5.2.3 The environmental conditions of the stack rooms

Environmental conditions have a significant impact on the life of legal deposit material. Appropriate buildings and suitable conditions include factors such as temperature, relative humidity, light and the control of pests, all of which require managing to prolong the life of these materials. Although it is said security and preservation of documents begins with the buildings in which they are stored, today there is also a need to consider the geographical area and the external environment of the building. There is a greater need for preservation than ever before since there is a prediction that temperatures, rainfall and flooding will increase due to climate change (COP17, 2011:Effects of climate change on South Africa). The effects of climate change and global warming will increasingly affect the buildings as well as the material stored in the buildings, making preservation vital.

The correct basis for setting environmental specifications and the solution is the shared understanding that all parties within the specification process should have a basic understanding of how collections deteriorate (Reilly, 2008:3). Therefore whether a building is purpose built or adapted, efforts need to be made to protect it against environmental elements. As discussed in Chapter 2 section 2.8.2.1.1, the development of green building technology and other more sustainable approaches, all aim to offset the effects of climate change and help preserve archival documents. One can anticipate that there is going to be a shift from looking at the ideal environmental conditions to looking at what poses the greatest threat to the collections especially with regard to climate change and global warming.

5.2.3.1 Temperature and relative humidity

It is extremely important to maintain a constant temperature and RH in stack rooms as variations hasten deterioration. These variations cause material to expand and shrink. For print material this can lead to dimensional changes such as cockling paper, flaking ink, warped covers on books, and cracked emulsion on photographs

(Ogden, 2007:Control of temperature...). Apart from maintaining constant temperature and RH the balance of the two factors needs to be right because:

- High temperatures with low humidity causes dehydration of cellulose fibers and paper becomes brittle.
- High temperature and high humidity creates a condition for the growth of moulds and mildew (Peters, 1998:43; Banks, 2000;116; Sahoo, 2007:106, Millar, 2010:75).

Maintaining this delicate balance requires the appropriate equipment and constant monitoring. Although, different materials requiring different temperature and RH has led to a profusion of conflicting recommendations, one needs to examine the existing limitations of the depository in question and attend to those factors first. The 63.3% of the depositories do not have control over the stack room conditions as they do not have HVACs in their stack rooms. HVAC systems can assist with controlling temperature and RH. However, preservationists are moving away from the fixation that air-conditioning is the only way of controlling environmental conditions of the stack rooms.

As noted above the current complications of global warming and climate change have made preservationists think about the application of green construction to depositories and archival facilities. Some of the green construction applications for sustainable temperature control include berm being placed against the wall and planting trees around buildings. However, these bring other risks to the collections, for example berm can cause water leakage and therefore increase humidity and trees may attract insects and animals. Preservationists are at present looking at the pros and cons of green construction to identify what is suitable for their own archival facilities with the hope of reducing energy consumption and greenhouse gas emissions.

Germany is building the Berlin Federal Archive (Bundesarchiv) that has ecological requirements and sustainable construction (Barteleit, 2007:8). The architectural measures taken will result in the archive having optimal climatic storage conditions with temperatures between 18 and 21°C and a relative humidity of 45 to 55% (Barteleit, 2007:8). The Berlin Federal Archive has planned to have a small air-

conditioning unit installed in order to manage extraordinary variations in temperature. The first phase of construction of the 110,000m archive space was completed in April 2009, the second phase is underway and a third phase is planned to be completed by 2018 (Bundersarchiv, 2012:Technical information). The Cologne City Archives in Germany have increased natural air-conditioning (Kim, 2008:There are historical...). Apart from using green construction more information needs to be collected about the variables relating to the local climate and building structures (AMG, 2009:37).

The Imperial Palace Archives in Tokyo, Japan have controlled relative humidity by lining the walls with cedar planks (Kim, 2008:There are historical...). The ISO (2003:2) in the ISO 11799, as already mentioned earlier, requires depositories and archives to construct or renovate buildings to defend against external threats. Nearly all the depositories in South Africa are adapted buildings for preservation except for the National Library; hence efforts need to be made in defending the buildings against the harsh environmental elements. For example, the use of land mass around the Library and Archives Canada building has created thermal inertia (Kim, 2008:There are historical...). There are various ways and means of reducing the effects of outdoor temperature on the internal temperature and humidity like using thermal inertia, a double wall structure, underground storage and use of internal spaces for stack rooms. All these strategies are discussed in detail in Chapter 2 section 2.8.2.1.1.

Depositories should plan to upgrade or replace their HVAC systems as equipment usually becomes out-of-date after 10 or so years. Of the few respondents who have HVACs, two stated that their HVACs were more than ten years old. However, Ngulube's study (2003:291) revealed that most of the archival institutions in South Africa had HVAC systems. The depositories that have HVACs kept them on to provide constant climate control throughout the year.

The constant use and infrequent servicing of HVACs can lead to mould growth and dust as well as the production of aggressive gases from the ducts, leading to poor indoor air quality, especially if the equipment is old (Pfeiffer, 2008:4; Green Building

Council of South Africa, 2008:123). The materials used to design the HVAC system should be made of material not susceptible to mould (Green Building Council of South Africa, 2008:123). The HVAC system should be serviced regularly to make sure it is working optimally and to prevent mould growth, accumulation of dust and production of aggressive gases such as ozone (O₃) (Banks, 2000:117; Arbach, 2010: Origin of pollutants in libraries). In the current study two depositories serviced their HVAC system regularly and at one depository the HVAC was repaired whenever it broke down. This implies that the HVAC was not working optimally and could be doing more harm than good.

The 24 hour use of HVACs for preservation increases the use of energy and therefore adds to the global warming effects which are causing harsh fluctuating conditions. One depository revealed that they used a sustainable resource to heat and cool their building. The rock and water system is a central heating/cooling system that uses the ground to heat or cool a building. This system is a good way of reducing operational costs. However, for depositories and archives a decentralised system would be more suitable for the purposes of preservation. Nsibirwa (2007:100) found that a centralised HVAC system was set to accommodate the staff rather than preserve materials. This problem tends to occur in buildings that are either not purpose built or have been poorly designed for the function. Another way to reduce energy costs is to apply green or sustainable construction to depositories by using renewable energy sources like solar energy to run the HVACs. This is important because in 2008 South Africa was faced with load shedding and therefore depositories were faced with power shortages. In addition, South Africa is experiencing increasing electricity costs due to the need to build additional power stations to meet the increasing demand for electricity. As a result the power service provider, Eskom, is constantly asking people to reduce their power consumption. In the archival world the use of sustainable energy sources could be one of the solutions.

The study revealed that the staff of the 63.3% of the depositories which did not have environmental control systems thought that they achieved cooling and ventilation by opening the windows of the stack rooms. This response shows that they lacked

knowledge of preservation by actions that did more harm than good. Opening windows actually exposes materials to the external climatic conditions, sunlight, dust, gaseous components and pests. In addition, collections naturally emit volatiles which can be considered a form of air pollution. These emissions increase with high temperatures and without HVACs or with ill-suited air purification systems worsen the environment. Researchers found that the sulphur pollution from acidic newspapers stored in a box at the French National Library exceeded the amount found outside in the atmosphere (Nguyen, 2007:16).

In addition to having suitable tools or using the various methods of green construction to control storage conditions, monitoring the storage environment is very important. Ngulube (2003:292) emphasised that —monitoring is the most dependable tool for decision-making and it holds the most promise for providing conditions favourable to the long-term survival of records and archives”. In the current study none of the legal depositories monitored the temperature and relative humidity. This finding is not surprising given the statement by the Image Permanence Institute (IPI) (2011:Overview statement) which states that libraries and archives have long been without adequate tools and procedures for reviewing and managing collection storage. The IPI have developed advanced tools for environmental monitoring and data analysis including both hardware and software. These were discussed earlier in Chapter 2 section 2.8.2.1.2.2.

5.2.3.2 Light

All forms of light source, including sunlight, incandescent or fluorescent light from light bulbs, produces energy that accelerates deterioration in materials. The mechanisms of light are complex and the level of damage by light to materials depends on its intensity, duration of exposure and the distance from the source of light (Banks, 2000:118; Sahoo, 2007:106). In order to keep materials from being exposed to light, the levels of light should be kept as low as possible in the stack rooms as well as the reading rooms. The study found that most of materials at legal depositories in South Africa were exposed to approximately eight to ten hours of light daily. One case indicated that the materials were exposed to light for 24 hours a day because emergency lights were left on after hours. Materials for depositories that did

not have HVAC systems were also exposed to sunlight when the staff opened windows to achieved cooling and ventilation. Exposing material to natural light (sunlight) is detrimental because of its intensity and high ultraviolet (UV) content that causes irreversible damage (Banks, 2000:118; Higginbotham and Wild, 2001:23; Ngulube, 2003:91; Nsibirwa, 2007:26; Sahoo, 2007:106).

The inexpensive old fashioned way of using blinds and curtains on windows can still be used to stop sunlight coming into the depository. The lights should be turned off whenever staff leave the stack rooms or motion detectors (automatic lighting controls) can be used that turn on lights only when they sense human movement. In addition, light bulbs must be fitted with UV filters, UV glazes or films should be used on windows (Hunter, 1997:144; Higginbotham and Wild, 2001:23; Ngulube, 2003:91; Sahoo, 2007:106). Another alternative for protecting material from light is to renovate the stack rooms and avoid having huge windows.

5.2.4 Pest management

A close watch of the building, stack rooms and materials is needed to prevent biological agents, grouped as macro-organisms and micro-organisms, from entering the building and stack rooms. These biological agents are discussed earlier in great detail in Chapter 2 section 2.8.2.2. The extreme climate fluctuations arising from climate change and global warming create hot and humid conditions that accelerate the growth and multiplication of living organisms including both macro-organisms and micro-organisms. Depositories need to be vigilant with checking incoming materials for biological agents which cause bio-deterioration by growing and feeding on the materials. The stack rooms need to be well maintained as cracks, open windows and doors may provide easy entry points for insects/vermin.

A third of the institutions in the current study should be congratulated for checking incoming materials for vermin/insects. However, most should be reprimanded as they did not check incoming materials, yet they have experienced invasions of bookworms and cockroaches, as well as the presence of rats, mice, doves and cats. Yet, Ngulube (2003:294) found the opposite in his study where —most archival repositories recognised the fact that pests either came into the holdings on their own

or as part of incoming records” which were checked. The invasion of doves and cats could be definitely related to the fact that some depositories open windows to cool their stack rooms creating an easy entry point for them as well as insects and vermin.

An oversight on the part of the researcher was that there was no follow up question with regard to how the extermination of insects/vermin was carried out. Although, amongst the general comments one of the depositories stated that they never had an infestation of vermin/insects because they fumigated quarterly. However, the researcher contacted the interviewees telephonically (27 February 2012) to correct the oversight and ask what methods were used to control infestations of vermin/insects. One respondent stated that they had not faced an invasion of pests as contracted cleaners regularly clean the stack rooms and would have informed the respondent. However, the staff at that depository stated that their stack rooms have been infested with cockroaches, rats, mice and doves. They also confirmed that cleaning was done irregularly by the contract staff and consequently a breeding ground for pests was being created. This could be an indication of lack of communication between the staff and management or lack of interest in legal deposit by management.

Yet another respondent at a different depository stated they have to fumigate every six months because they always have infestations of large cockroaches. The fumigation was done by outside companies contracted by the municipality who are unaware of the current recommendations for preservation. The respondents did not know which chemicals were used. Nsibirwa (2007:101) also found that a depository had infestations and extermination was done by fumigation with chemicals not known by the respondents. This was also found by Ngulube (2003:295) who points out that:

If archivists and records managers are ignorant of the processes involved in treating their holdings, then effective management of pests in archival holdings will remain an unfulfilled dream in South Africa.

According to Adcock, Varlamoff and Kremp (1998:31) "there is no one fumigant which is known to be safe for all collections". This means that different materials are affected by different chemicals. Currently libraries and archives are encouraged to use an Integrated Pest Management Programme which focuses on minimal use of chemicals by combining a diverse mechanical, cultural and biological methods (Chicora Foundation, 2010:Integrated Pest Management). Chemicals are toxic and they affect the materials as residue remains on the materials and may cause chemical instability yet they do not prevent the biological agents from returning. Apart from creating super pests, with increasing resistance to new pesticides there are increasing concerns about indoor air quality and the cost of professional pest services is high. Chemicals also affect human beings as well as the ozone layer which in turn leads to global warming creating harsh climatic changes. The Integrated Pest Management requires depositories to be:

- Informed about pest habits and life cycles.
- Identify and monitor infestation levels and be vigilant.
- Develop strategies of mechanical, cultural and biological (and possibly chemical) control.
- Implement the strategies including traps, glue traps including good housekeeping habits.
- Eliminate or contain all sources of likely infestation – ideally food and drink should not be consumed on the premises; flowers and plants should not be allowed in the building (Adcock, Varlamoff and Kremp, 1998:31; Bankole, 2010:423; Chicora Foundation, 2010:Integrated Pest Management).

The other suggestion is to use inexpensive natural substances obtainable locally like neem leaves and seeds or camphor tablets that are insect repellents (Sahoo, 2007:112). It is also suggested that depositories should rather prevent organisms from finding comfortable homes in the stack rooms with environmental control, good housekeeping habits as well as regular cleaning of the depositories as discussed in Chapter 2 section 2.8.2.3.

5.2.5 Storage and handling

The adequate space, general cleanliness of the storage and the way people handle materials affects the life of legal deposit materials. Storage is an overarching

preservation activity as improper storage can damage depository materials. The study found a fairly large number of depositories were clean and this indicated that significant strides being made towards improving the well-being of the collection as dust and other particles soil and damage materials. Cleanliness also helps with pest control. A somewhat smaller number of depositories were not clean as cleaning was not done on a regular basis.

The study found that nearly all depositories in South Africa were cleaned using contract cleaning services of which the 54.7% vacuum cleaned. One case indicated that cleaning was done by the sweeping and dusting of items. These cleaners are ignorant about preservation and most probably not trained to handle materials properly while they clean, causing damage as a result of the poor handling. The study found that 81.8% of the depositories did not train users to handle materials. Nor did 63.3% of the depositories train their staff in handling skills. There was a clear indication of this since 81.8% did not have any guidelines for handling materials, for staff and 90.9% for users. However, the situation for archival institutions, as opposed to the depositories in South Africa, was found to be satisfactory in that area, as users and staff were trained in the handling of records (Ngulube, 2003:297).

Although, the study clearly indicates that South African depositories are not doing well with handling materials, staff are concerned about what materials can be safely copied. Most depositories in South Africa determine what can be safely photocopied as nearly all depositories have photocopiers to help make materials available to users. Being vigilant is important as constant handling of materials and photocopying can be detrimental to materials, causing damage to the pages and spines of books. In addition, conservation and restoration is costly and time consuming. The respondents revealed there was a great need for conservation as it was ranked second of the priorities for improving management of legal deposit collections in South Africa. Conservation and restoration require specialist skills and necessitate identifying the extent and nature of alterations and determining the kind and level of treatment required (Stewart, 2000:290). South Africa lacks people with these skills. A study by Ngulube (2003:315) regarding public records and archives also confirmed that most members of staff were not trained in conservation activities.

5.2.6 Disaster preparedness, management and security

It is vital for any library, archive or depository, no matter what size, to take precautionary measures to avoid an incident or preventable disaster. Disasters are unexpected events with destructive consequences to library, archive or depository collections as a result of human-made or natural disasters. Disaster plans help institutions prevent certain disasters especially human-made, to be prepared if faced with one, how to respond and how to recover from the disaster. Disaster preparedness and management is a major component of preservation and should be given priority as a considerable number of collections world-wide have suffered a variety of natural or human-made disasters. For example, New Orleans Public Library was affected by hurricane Katrina in 2005, the Aceh Library and archives of Sumatra were washed away during a tsunami caused by an earthquake on 26 December 2004. Tohoku district, Japan was also affected by an earthquake and tsunami on 11 March 2011 (ALA, 2006:Hurricane update; Izart, 2011:Report on the support for preservation...).

Table 4 in section 2.8.3 lists recent natural disasters that have happened in various countries including earthquakes, tsunamis, floods and volcanic eruptions. The potential risk of natural disaster depends on the geographical location and the proximity of the depository to physical features like rivers, lakes, oceans, mountains, deserts and geographical fault lines. In addition, shifting weather and climate patterns have led to increased rainfall, which in turn increases the risk of flooding and high temperatures which in the past were limited to the tropics only (UNEP, 2009:Climate change). Figure 6 shows a rising trend of these disasters, although Buchanan (2000:160) and UNEP (2005:Trends in natural disasters) argue that a knowledge of an increasing trend of disasters is only due to improved information systems. However, South Africa, like many other countries, has been affected by increased temperatures as well extremely heavy rainfall, causing floods that threaten the preservation of our cultural heritage. Yet, legal depositories and OPDs in South Africa do not have disaster plans that would help salvage collections in case of a disaster. However, as mentioned earlier in section 5.2.1, the NLSA created a manual specifically for OPDs in 2004. The OPD manual has guidelines for the development of a disaster plan and therefore all the OPDs should have a plan in place. The

disaster preparedness guidelines suggest OPDs should consult with local experts or NLSA staff, as well as keeping a disaster recovery box with the recommended contents (Baker, 2004:28). It is clear that the OPDs still need more support as the first OPD was opened in 2004 and the latest one at the end of 2009.

As mentioned earlier, throughout history archival institutions and libraries have been faced with both natural and human-made disasters. Human-made disasters include acts of war and terrorism, fires, broken pipes, leaking roofs, explosions, chemical spills, building deficiencies and power failures. A disaster plan helps contain the situation preventing the situation worsening, especially with human-made disasters such as leaking roofs and pipes. A disaster plan helps ensure the safety and rescue of materials (Higginbotham and Wild, 2001:9; Varlamoff and Plassard, 2004:27). The disaster plan presented by one depository had nothing to do with the collection. The plan created by the municipality only dealt with the evacuation of people from the building and lists emergency contact numbers. A proper plan should also include a list of supplies needed and sources of assistance. What do municipal managers know about disaster preparedness and management for the protection of cultural heritage materials? One respondent suggested that the disaster management plan should be developed by the Legal Deposit Committee who should monitor compliance by the institutions. The respondents clearly specified that there was a great need to develop disaster plans for South African depositories as it was ranked a number one priority, together with the need to increase funding (Table 16).

A survey of 177 national libraries carried out for IFLA-PAC in 2004 found that only 39 (53%) institutions of 73 (41%) had a disaster plan (Varlamoff and Plassard, 2004:23). The reasons given were lack of human and financial resources as well as lack of benchmarked models and guidelines to follow. Similarly in archival institutions in South Africa, Ngulube (2003:299) found disaster preparedness, as a document preservation strategy, was also neglected. Ngulube (2003b:58) states that there are insufficient resources as well as limited training about disaster preparedness. Varlamoff (2004b:2) emphasises that the initial cost spent on resources in creating a disaster plan is nothing compared to the resources required to recover the collection when a small disaster turns into a catastrophe due to lack of planning. Prevention is

the best shield however in the real world one cannot predict what will happen therefore —“be prepared,” the Girl Guide Motto, helps emphasise the cliché —“a stitch in time saves nine”.

Legal depositories are also susceptible to fires from adjacent sites as well as fires caused by electrical faults or rodents nibbling through electrical wires. Damage from fire is usually permanent and irreversible as materials are turned to ash. Therefore it is essential to prevent a fire through fire detection and suppression equipment. In addition, the maintenance of a good fire prevention programme should be part of a disaster management programme. Staff also need continuous training and clear fire prevention procedure needs to be established. The study revealed that 63.6% of the depositories had fire detection systems, although some did not have any systems at all. A fire detection system would help to suppress and detect fires quickly with the help of staff trained in emergency recovery procedures, as most smoke detection systems discharge water. Few of the depository staff were trained in emergency recovery procedures. Apart from a fire detection system, the design of the building can help with fire spreading through the whole building (Acker and O’Connell, 2010:Building attributes). Acker and O’Connell (2010:Building attributes) suggest compartmentalisation of the collection by dividing stack rooms into compartments to limit the spread of fire. Other current ways of fire suppression include the use of green roofing techniques which reduce the heat gained (Kim, 2007:1). However, the risks to archives are noted and can include roof leakages, and in addition attract insects, animals and fungi.

Apart from protecting collections from natural disasters, the collection needs to be protected from theft, mutilation and vandalism. The security of most depositories in South Africa can be guaranteed, within reasonable limits, as depositories have intruder alarms, electronic security systems, employ security guards and a few have closed circuit television cameras (CCTV). Only a few respondents stated that their systems were not effective as the depository in question did not have an electronic security system, employ security guards or have CCTV. One depository only had an intruder alarm system for the main building, yet materials were stored at different venues.

Most of these systems rely on electricity to function. With the constant increase in the cost of electricity, which is also at times in short supply, depositories need to use sustainable energy resources. With the increasing demand on electricity, renewable energy resources like solar/wind/hydro/biomass energy can be utilised (Kim, 2007:1). Solar energy is most probably the easiest to harness in South Africa as there is lots of sunshine throughout the year. This would help reduce costs of electricity and also the greenhouse gas emissions contributing to global warming.

5.2.7 The general condition and care of materials

Besides environmental controls, disaster preparedness and security, other technical interventions are used to help preserve collections. The study revealed that the most common preservation option used by depositories in South Africa is boxing, followed by microfilming and at the National Library of South Africa digitisation and de-acidification. Ngulube (2003:245) also found that boxing was the most common preservation option used in South African archives, followed by encapsulation and microfilming. Boxing creates microenvironments that helps protect materials from relative humidity to a certain degree, atmospheric pollutants including various gases as well as dust particles. However, a study at the French National Library found very high amounts of sulphur in the air caused by boxing acidic newspapers (Nguyen, 2007:16). Volatiles caused by collections need to be taken into account when selecting an option for long term preservation as the choice of boxing is key. On the other hand the choice of boxes is critical as most boxes contain acid and chlorine, chemicals that are detrimental to materials. Depositories also need to consider volatiles as an important parameter when selecting HVACs or air purification systems.

The overall condition of legal deposit materials is generally good. Although, 54.4% indicated that deterioration was due to wear and tear as well as the acidic and brittle condition of paper. Wear and tear of materials was due to frequent use, inadequate supervision and photocopying. The frequent use of materials could be a positive sign of being the result of the Bill of Rights and the Promotion of Access to Information Act (PAIA), of 2000 (Act No. 2) that gives South Africans the right of access to information, but it does enhance preservation problems if not properly managed.

Increased deterioration due to wear and tear especially photocopying was no surprise as staff and users did not have guidelines for handling materials and were not trained to do so. Yet, the situation was clearly very different from archival institutions in South Africa where users and staff of approximately two thirds of archival institutions were trained in the handling of records (Ngulube, 2003:297).

Prolonging the life of material through physical or chemical intervention using stable materials and appropriate techniques of treatment is crucial (Hunter, 1997:146; Stewart, 2000:288; Reitz, 2010:Conservation; Millar, 2010:74). It is disappointing to note that most of the depositories in South Africa do not carry out any conservation treatment. A few stated it was done commercially, however it is only done in-house at the National Library of South Africa (NLSA) where they had a de-acidification facility built in 2009. On a positive note the NLSA is considering providing de-acidification services to other cultural institutions in Southern Africa (National Library of South Africa, 2011: De-acidification). This service will be of use to depositories considering legal deposit begun in the mid-19th century and lots of documents, especially newspapers, were created on acidic paper. The fact that legal deposit materials need various interventions to prolong their life poses a big responsibility for those who care for them and requires them to have a certain level of skill and knowledge.

5.2.8 Characteristics of staff and levels of skills and knowledge in preservation management

The fact that preservation of legal deposit is an important aspect of keeping South Africa's cultural heritage safe and accessible imposes a great responsibility on those who take care of it. Drewes (2006:2) observes that:

Institutional understanding of the value of collections, and the appropriate handling and care of those collections is a key component in their longevity.

So how does the person responsible for preservation accomplish this goal?

In other words, there is a need to employ staff with certain qualifications and skills in order for them to contribute positively in protecting and taking care of the collections.

Seventy two point two percent (72.7%) of the respondents were female implying that more women than men are heading the various legal deposit departments. All the respondents had a university degree in information science, four with an honour's degree and two had master's degrees in information science. All had the appropriate background that is a prerequisite for preservation management. However, the study indicated that none of the staff working in the legal depositories had any training in preservation management or archival related disciplines. This was quite surprising because a small percentage (36.4%) of institutions had a policy to recruit and train staff. Nsibirwa (2007:105) had the same findings as well as Ngulube (2003:315) who revealed that the staff directly involved in preservation and conservation activities might not have been trained in major conservation processes. This was clearly indicated by staff in the current study who ranked staff training or expertise as the third highest major priority when asked to rank priorities for improving the management of the legal deposit collection (Table 16). Three of the staff also indicated the urgency of training under the general comments and concerns. This shows that staff are aware that they are not adequately qualified to handle legal deposit issues that require specialist skills in records and documents management or archival science.

The cross tabulation of age and education (Table 1) indicates 81.8% are within the age bracket of 41-50 and the rest are above 50 years. Nsibirwa (2007:105) points out that a majority of these respondents possibly studied their library science degree approximately 20 years ago when institutions in South Africa did not include preservation management in the curriculum". Khayundi, (1995:34), Mazikana (1995:26) and Rosenberg (2001:17) observed that before the mid-1990s there was a lack of archival and preservation training in Africa and most archivists and conservationists had to receive training abroad. Ngulube (2003:316) confirms that —there is a critical shortage of staff with expertise to preserve records and archives in South Africa".

5.3 Access to information

The six and seventh objectives of the study were to examine whether depositories were accessible to the majority of the population in South Africa and the means and

processes that make materials accessible. In order to achieve this, the researcher sought to discover and examine legislation affecting access, the practice of access by depositories and the equipment used to facilitate access.

Access refers to the right to use materials including the way a document may be found. In the context of the study it refers to access for posterity. Feather (2004:1) emphasises that —everything we have inherited from the past has come down to us because it has been preserved”. However, the main reason for preservation is for people to be able to access the publications for posterity and therefore future generations will get to learn about their national heritage. Provision of universal access to published information is one of the main objectives of legal deposit (Lunn, 1978:1, Lor, 1995:96; Lariviere, 2000:10; IFLA, 2000a). Apart from the Legal Deposit Act, the Promotion of Access to Information Act (PAIA), of 2000 (Act No. 2), the Bill of Rights that supports the Universal Declaration of Human Rights, gives individuals the constitutional right of access to any information. Ngulube (2003:322), Feather (2004:8) and Forde (2005:199) observe that preservation still has to precede access and it is important for archivists to balance the interests of the users and at the same time the need to safeguard records on the other hand. This is because without preservation there will be no access.

As expected six (54.5%) of the respondents adhered to the legislation and their legal deposit materials were open to use at present. Surprisingly, five (45.5%) stated that their materials were not open to use. On investigating further another depository (one) was in the process of being upgrading and having its building renovated and materials have temporarily been packed away in boxes. However, it was indicated that at this depository legal deposit materials were not easily accessible due to materials being stored at different venues. At two other official publications‘ depositories access was limited to particular groups of people. In addition, as noted earlier in section 1.3.3 the Library of Parliament was excluded from the study as it is not open to the public and serves members of parliament only. However, the prevailing legal deposit legislation section 7 (5) (d) in South Africa provides for materials deposited at depositories to be made available to the public, but the head of the depository, on recommendation of the committee can impose restrictions on

certain categories of materials. The legislation needs to be reviewed because it does not specify that certain depositories are only accessible to certain groups of people. On the contrary, the South African legal deposit legislation section 7 (1) (c) indicates that the duties of places of legal deposit include ensuring freedom of access to documents. The gradual development of OPDs as noted in section 5.2.2 also affects accessibility of government information to people in certain provinces, especially those affected by the digital divide.

Apart from the South African legislation mentioned above, various international organisations for example, the United Nations under their Universal Declaration, the Commonwealth in their Human Rights Initiative and IFLA in the Freedom of Access to Information and Freedom of Expression as well as the International Council on Archives all support and encourage access to information. The study revealed that 63.6% of the depositories were making users aware of their access rights by putting up notices and posters as well as through user education. Marketing is part and parcel of the duties of OPDs for public awareness of and access to official publications and any information held by other institutions. In addition to legal requirements, Ngulube (2003:322) observes that access to materials could be —governed by the existence of finding aids, rules of access, equipment to facilitate access and the knowledge of the existence of the holdings”. Darch and Underwood (2005:82) also observed that:

It seems likely that at least part of the difficulty lies in South Africa’s cultural and linguistic diversity, and in the fact that not only information but also the actual discourse of power remains inaccessible to many of the historically excluded sectors of society.

A large 72.7% of depositories revealed that users can access records using computers. Some of them have remote access computer catalogues; others have in-house computer catalogues as well as access via a website. Surprisingly a few still use the archaic card catalogue, and in addition one mentioned the use of an asset register. A significant impediment to the use of material included deterioration, processing backlogs and mislaid documents. Besides the use of finding aids and computer equipment there is reprographic equipment. The need to reproduce legal

deposit material is necessary as material cannot be borrowed but only used at the premises. South African depositories are well equipped as they have photocopy machines, document scanners and computers that help make material accessible to users. However, all legal deposit material is subject to copyright, except for those clearly marked that duplication is permitted. Respondents in this study were asked whether users were made aware of access conditions and copyright legislation. The findings showed that depositories were doing well in this aspect. Depositories were using the same methods to educate users about their access rights and inform them of copyright legislation.

The quality of service also affects accessibility of materials, including turnaround time for services, currency of the collection and the proper functioning of the reprographic equipment. The main concern expressed was related to the functioning of equipment. Respondents stated that patrons tended to tear and steal materials when photocopying machines were not working. The other concern was related to non-compliance by publishers. A respondent pointed out that government provincial departments and municipal offices do not send their documents to the OPDS. Publishing done by government departments is a source of major problems. Lor and van As (2002:116) point out that individual departments do not always follow the procedure of notifying the Government Printer and do not always deliver legal deposit copies due to high costs of delivery. However, Penzhorn (2007:168) found that libraries had no prescribed procedures to follow when pursuing non-compliant publishers. On the contrary, the OPDs are given an "action to remedy non-compliance" letter in the Appendix A of their OPD manual that OPDs can use to pursue non-compliant publishers (Baker, 2004:45). However, if the letter fails to get a response no further steps are provided to help resolve the matter.

5.4 Preservation of digital/electronic materials

Preserving electronic records remains a major challenge because digital preservation is still in its infancy. One of the main objectives of the study was to establish the systems in place that ensure electronic documents will be accessible in the long term. This was done by examining the availability of policies, the current holdings, storage methods and formats kept by depositories. In addition, the

researcher looked at preservation strategies used and the major threats to digital material.

The greatest challenges that come with electronic publishing are the complex issues regarding the preservation of technology used to create, store and access these records in comparison with stable paper. As revealed in section 2.8.5 of Chapter 2, Harvey (2005:45) points out that there are still too many unknowns with regard to digital preservation. The development of technology has led to an extreme increase in the number of electronic records published per day. The main fears related to the preservation and access of electronic materials is that as technology changes, software and hardware become extinct and are replaced, resulting in the loss of a significant part of the cultural heritage. The current South African Legal Deposit Act No. 54 of 1997 is testimony to the fact that South Africa was one of the first countries to include electronic publications within the legislation. The use of broad definitions of terms like 'document' and interpretation of the term 'medium' permits the Act to apply to electronic publications (Lor and Geustyn, 2003:102; National Library of Australia, 2003:South Africa; Chisita, 2010:Challenges of enforcing...). Like the British Legal Deposit Act, the South African Act does not specify how the legal deposit of electronic publications will be implemented. However, the British Legal Deposit Act leaves the details of how these materials will be deposited to secondary legislation through regulations for the deposit of non-print materials (Milne and Tuck, 2008:In his *Alexandria* article...; Gibby and Green, 2008:56). As noted earlier, the South African Legal Deposit Committee is supposed to implement the Act and also recommend regulations to the Minister which they have not done. Although surprisingly, Mpholefole (2011:Personal communication) says that a policy for the preservation of digital publications is in the process of being created and is still at the draft stage. However, implementation takes several years to be fully effective because there is no comprehensive model and drafting of supporting legislation is problematic and slow (Verheul, 2006:25; Besek et al., 2008:109). In addition there are currently many limitations because the legal depositories were designed specifically to collect print materials (Department of Arts and Culture, 2012:199). A significant number of respondents, eight (72.7%), acknowledged that they did not have policies for preservation of electronic publications compared to three (27.3%)

who said they had one. The few who said they had a policy are most probably referring to the draft digital preservation policy or the legal deposit act. The heads of legal depositories clearly stated that they do not have digital preservation policies. However, the study indicated that slightly over half the respondents, six (54.5%), accepted or acquired electronic materials although they did not have policies to guide them. The objects of deposit included static electronic documents only and no dynamic online materials. Valberg (2008:6) points out that the Act should be in accordance with specialists' policy. The British Act makes provision and even has a section regarding regulations for non-print materials. Also, as already mentioned in section 5.2.1, policies help set frameworks and standards and are a requirement to build the foundation for digital preservation.

The study also revealed that the 72.7% that had digital materials in their holdings were available in physical format and were offline materials. This is no surprise as already noted above, publishers in South Africa are, according to Table 1, currently expected to deposit static electronic documents. These electronic materials included videos, cassettes, text files, images, word processing formats, databases and pictures. All these materials were stored as they were received on hard drives or optical discs. Like print materials, electronic materials should remain accessible and usable over time, in spite of technological changes (Millar, 2010:216). Of the six (54.5%) respondents who accepted or acquired electronic materials only two (18.2%) respondents stated that some of their materials (microfilm, floppy disks and diskettes) could not be mounted, read or accessed and had become obsolete. This finding could be attributed to lack of knowledge and skills in the preservation of electronic materials and inaccurate reporting that none of the four (36.4%) respondents' electronic materials had become obsolete. This is also clearly indicated in Table 20 when only three (27.3%) respondents indicated that technological obsolescence was seen as the greatest threat. It is surprising that two (18.2%) respondents indicated that technological obsolescence was not a threat, nor were inadequate policies and insufficient resources. Yet, digital preservation requires constant funding due to having to constantly manage change and also the alarming continuous growth of the collection (Jones and Beagrie, 2003:21; Kavcic-Colic, 2003:204; Wilson, 2004:12; Harvey, 2005:187). Other resources required are

equipment, computers as well as ongoing staff training.

In addition, four (36.4%) also thought the physical condition of materials was not a threat, although all the different types of storage media are threatened by external elements like dust, magnets, excessive heat, direct sunlight and moisture. This finding could also be due to the fact that magnetic tape and microfilm are more robust than today's CD-ROM and memory sticks, as explained in section 2.8.5.1.3. However, equipment used to read microfilm and magnetic tape is becoming obsolete. All institutions surveyed indicated that they did not use any preservation strategy of either migrating or refreshing the electronic materials. This is most probably due to lack of expertise in digital preservation. Ngulube (2003:314) also speculated that "lack of expertise in digital preservation partly explains the unsatisfactory state of affairs in the preservation of digital materials in South Africa". However, a number of developed countries have found that due to the complex nature and size of the problem, archivists and librarians cannot work in isolation, instead they have formed national and international coalitions discussed in detail in section 2.8.8.

5.5 Limitations of the study

Section 1.3.3 set the boundaries for the study and outlined major delimitations of the research. However, other limitations or constraints became apparent during the progress of the research. As noted at the beginning of this chapter, social research can never be totally perfect and it has its limitations or flaws but its vital objective is to discover knowledge, expand understanding and seek the truth (Perry, 2002:40; Neuman, 2003:469). It is therefore important to note that the researcher was unable to interview the head of the National Library of South Africa (NLSA) despite making an appointment and going to Pretoria on the 8 November 2011. The researcher contacted the respondent on several occasions thereafter telephonically and by e-mail (see Appendix 5). However, not all was lost because the heads of the NLSA legal deposit departments answered the questionnaire sent to them.

5.6 Summary

The major findings of the study are interpreted and discussed in detail. This was done in relation to the research problem, the literature reviewed and rationale of the

study. The researcher also attempted to demonstrate how the current research findings corroborate, conform or differ from previous studies conducted within similar fields of study.

The study established that various aspects of the South African legal deposit act need to be reviewed and changed. This is necessary to help the effective implementation of legislation.

The preservation and access to legal deposit is faced with many challenges due to inadequate funding. Affecting all aspects of legal deposit are environmental conditions of the stack rooms, pest management, handling, disaster preparedness, security and preservation of electronic publications.

In terms of staff and levels of skills and knowledge in preservation management, all staff employed to head the legal depositories and legal deposit departments are graduates. They have an appropriate background that is a prerequisite for preservation management and archival science, but require further training in these fields.

Further, due to the complex nature of electronic publications, the many concerns with regard to preservation and access of these publications, as well as the size of this challenge, preservationists, librarians and archivists should not work in solitude. They need to work together with professionals with expertise in other fields like information technology, media and science. This problem is not a South African one but is one affecting the world and therefore it is imperative for them to join international coalitions.

The following chapter makes recommendations and conclusions of how to deal with the various legal deposit challenges outlined.

Chapter 6: Summary of research findings, conclusions and recommendations

6.1 Introduction

Findings relating to the purpose of the study are presented in Chapter 4 and explained within the context of prior research in Chapter 5. This chapter provides a summary of the research findings, the conclusion and recommendations of the study. The chapter ends with recommendations for further research in this area. This discussion will include a broad range of issues from the literature reviewed in Chapter 2, the findings of the study presented in Chapter 4 and discussed in Chapter 5 as well as insight gained from the study. The order of discussion in this chapter will follow the research questions that guided the purpose of the study.

6.2 Summary of findings and conclusions

The summaries of findings were drawn from the purpose of the study that was to investigate the preservation of, and access to legal deposit in South Africa. The aspect of funding appears several times as it affects the various facets of legal deposit.

6.2.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa

The first research question examined the legal deposit legislation, preservation policies and procedures in place in the South African context. This was done to establish the existence of policies and how developed the policies were that helped to collect print and electronic documents in order to achieve the goal of preservation.

The findings were as follows:

- Legal depositories in South Africa have mission statements that support the vision and goals of a public library but do not articulate any content with regard to preservation of cultural heritage.
- Formal written preservation policies, policies to develop conservation facilities and train and recruit staff were non-existent.
- OPDs have a manual for guidance but none of the OPDs have set policies from the generic guidelines.

6.2.2 Activities and strategies used to preserve legal deposit materials

The second research question addressed the activities and strategies used to preserve legal deposit materials. The findings show that:

- Preservation activities were generally undeveloped in most depositories.
- Only a few legal depositories in South Africa have air conditioning systems. Most of depositories that did not have environmental control systems achieved ventilation and cooling by opening windows, creating further problems.
- Most of the holdings in the stack rooms were exposed to light for approximately eight hours a day. Some of holdings were exposed to both incandescent light as well as sunlight.
- Most of the depositories did not check incoming materials for vermin/insects.
- All depositories fumigated their stack rooms to safeguard their collections from biological agents.
- A fairly large number of depositories were found to be clean. Cleaning was done by contract cleaning services.
- Nearly all depositories were not doing well with the handling of materials, however, most staff were concerned about what could be safely copied.
- The most common preservation option used for print materials was boxing.

6.2.3 Measures used to ensure preservation of documents whilst being used

The third research question investigated the procedures used to ensure preservation of documents whilst being used. This investigation included mechanisms put in place to help prevent certain wear and tear of materials such as handling guidelines, photocopying and scanning procedures as well as conservation treatment. The findings were:

- The overall condition of legal deposit materials was good.
- Most of respondents indicated that wear and tear of legal deposit materials was due to inadequate supervision, photocopying and poor paper quality (acidic).
- The study revealed that neither staff nor users had guidelines for handling material.

- Most depositories in South Africa fail to carry out conservation treatment. The few who do, have it done commercially except for NLSA which does it in-house and has built a deacidification facility.

6.2.4 Levels of skills and knowledge in preservation management

The fourth question sought to establish which skills and knowledge staff possessed that enabled them to help preserve the cultural heritage. The major findings are shown below:

- All staff were graduates and had an appropriate background for this work but all staff lacked rudimentary training in preservation management or archival science.
- South Africa lacks specialist skills in conservation and restoration.
- The level of expertise for the preservation of cultural heritage was basic and minimal in South African depositories.
- Most of the staff lack basic knowledge in the fundamentals of preservation activities, for example environmental control.

6.2.5 Preservation challenges faced by legal deposit staff

Establishing the challenges that legal deposit staff faced was the fifth research question. Some of the findings related to this issue have already been stated in section 6.2.1, regarding legislation, policies and regulations as well as in section 6.2.4. The other findings are:

- All legal depositories receive inadequate funding that hinders preservation activities.
- The budgets for legal depositories vary greatly and do not cover preservation related activities. The budgets only cover legal deposit staff salaries.
- Legal depositories receive alternative funding in the form of conditional grants that does not cover preservation and access to legal deposit.
- The development of OPDs is slow due to lack of funding and support needed to stimulate their development.
- An effort is being made to amend a part of the legal deposit legislation to ensure that OPDs no longer fall under the Public Entities Act No. 93 of 1992,

but rather the Public Finance Management Act 1 of 1999, which means OPDs will be able to get financial support from the government.

6.2.6 Accessibility of depositories to the majority of the population

The sixth research question of the study was to find out whether depositories were accessible to the majority of the South African population. This was done by looking at the geographical location of depositories and legislation affecting access.

- The current Legal Deposit Act and the Promotion of Access to Information Act ensure access to the country's cultural heritage.
- The Protection of State Information Bill threatens access to government information.
- Of the nine provinces in South Africa, four provinces (Gauteng, Western Cape, KwaZulu-Natal and Free State) have places of legal deposit. The findings show there is continual development of OPDs in South Africa. Though development is slow, currently four OPDs (Gauteng, Free State, North West and Mpumalanga) have been established and plans are in the pipeline to open OPDs in Limpopo, KwaZulu-Natal and the Northern Cape. Eastern Cape does not have a place of legal deposit or an OPD.
- The study found that not all depositories are open to members of the public, some depositories limit access to particular groups of people. There is a need to reflect this limitation within the legislation.

6.2.7 Means and processes used to help make materials accessible

Apart from the geographical location of depositories and legislation affecting access, the study investigated the equipment that was used to facilitate access and the practice of facilitating access by depositories. The findings of the study reveal that:

- Nearly all the material in the depositories is accessible using in-house computer catalogues as well as remote Web access.
- South African depositories are well equipped with the equipment needed to make material accessible, including photocopying machines, computers and document scanners.
- Users are made aware of conditions relating to access and copyright legislation.

- The current South African Copyright Act No. 98 of 1978 has no specific provisions to address libraries/archives and if copying takes place in terms of section 12(1) of the Copyright Act it must be in accordance with undefined –fair dealing”.
- The amendment of the Legal Deposit Act to have a public interest copyright exception will improve access.
- Access to legal deposit material will be limited as a result of the underdeveloped preservation activities and strategies. Another barrier will result from the inevitable deterioration of materials in the long run if the current state of affairs persists.

6.2.8 Systems used to ensure electronic documents’ accessibility in the long term

The eighth research question was to establish what systems South African depositories have in place to ensure electronic documents will be preserved and access for posterity. The findings show that:

- With the exception of the Legal Deposit Act that makes provision for the collection of electronic documents, no depository had a policy or regulation for the preservation of electronic publications.
- Over half the depositories accepted static electronic documents only and not the dynamic online publications. As a result many electronic documents are lost.
- No depository in South Africa used any preservation strategy of either refreshing or migrating electronic publications. This gap was the result of a lack of policies, guidelines and expertise in digital preservation.
- The South African Copyright law is unclear regarding the preservation of electronic material, which involves repeated acts of copying to preserve the publications, as well as downloading which is considered as reproduction.

6.2.9 Physical security of the collections

The last research question examined the security of the collections to ensure their long term preservation. The findings indicate that:

- South African depositories do not have disaster plans. A few have plans that are inappropriate as they have nothing to do with the safety and rescue of materials but deal only with the evacuation of people from the building.
- Most of the legal depositories have fire detection systems, although few staff are trained in emergency recovery procedures.
- The security of legal deposit collections can be guaranteed within reasonable limits as most depositories use intruder alarms, electronic security systems, security guards and a few have CCTV.

6.3 Conclusions of the study

The following conclusions are reached based on the findings of the study as well as literature reviewed.

6.3.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa

The South African Legal Deposit Act legislated in 1997 covers new information carriers. One of the main reasons for their inclusion was to enable the collection of the bulk of the country's published output, including electronic and audio-visual publications. This legislation represented a great step forward however, the following gaps/uncertain areas were revealed through the literature reviewed and survey conducted. Only bits and pieces of regulations are found in different government gazettes which lack clearly defined instructions on how to implement legislation.

Mission statements existed but had nothing to do with the preservation of cultural heritage. This means that legal depositories were not strategically planned or advocated for. A mission statement sets the strategic direction and purpose of an institution. Since the mission statement had nothing to do with legal deposit it was clearly evident that neither did depositories have formal written preservation policies, policies to develop conservation facilities, or to train and recruit staff. The institutions did not have the basic framework to set out principles and values and direction to implement programmes and evaluate action.

The lack of coverage of cultural heritage material in mission statements is critical, as although OPDs had manuals for guidance they could not be blamed for not setting appropriate policies because of the lack of direction from their mission statements.

The lack of policy in South African depositories is also as a result of current regulations within the Legal Deposit Act. Another factor is the lack of staff expertise and knowledge. The major challenge of a lack of policy is critical as it affects all facets of legal deposit as there are no frameworks or standards to follow. Policy is a key ingredient as correctly implemented it builds a foundation for direction, principles and values.

6.3.2 Activities and strategies used to preserve legal deposit materials

Preservation activities were generally undeveloped in most depositories. Legal deposit materials are not properly preserved due to the lack of policies for preservation, to develop conservation facilities and train and recruit staff. In addition preservation activities are undeveloped due to a lack of monitoring and control of the stack room environment besides weak organisational structures. As a result materials in the depositories are affected by climate change and the effects of global warming and are in danger of deteriorating at an alarming rate. Few depositories used an integrated pest management programme incorporating mechanical, cultural, biological and as a last resort chemical means. Most of the depositories did not check incoming materials for vermin and pests and ended up with infestations of bookworms, cockroaches, rats and mice. The old approach to pest management was still used, that of using professional pest management services to fumigate the buildings on a regular basis to safeguard collections from biological agents. The staff's lack of knowledge of chemicals used clearly indicates a lack of preservation management knowledge as chemicals affect humans, materials as well as the environment. A few institutions' stack rooms were invaded by doves and cats as a result of opening windows to cool their stack rooms, creating an easy entry point for them as well as insects and vermin. This practice clearly indicated that there was a lack of preservation management knowledge and skills because opening windows in actual fact does not cool stack rooms but exposes the stacks to harsh external environments of temperature, RH and natural light.

A fairly large number of depositories were clean and represented a stride forward in improving the well-being of the collection. However, the cleaning was done by contract cleaning services who lack knowledge and insight with regard to preservation management. The chemicals used for cleaning are also questionable as well as the staff's skills in handling materials. This uninformed handling of materials by contract cleaning staff directly affects the life of materials.

The most common preservation option used in South African depositories is boxing which is a satisfactory way of protecting materials from dust and other particles and, to a limited extent, protection from water damage and insects. However, it should be noted that the boxes need to be acid and chlorine free as these chemicals from the boxes will destroy the materials.

6.3.3 Measures used to ensure preservation of documents whilst being used

Various mechanisms are in place to help prevent wear and tear of material; handling guidelines, photocopying and scanning procedures as well as conservation treatment.

In general, legal deposit materials are in a good condition. South African depositories do not have written guidelines or training programmes for the handling of material, neither are staff and users trained to handle deposit material and yet most of the deterioration identified was a result of frequent use and photocopying. Users and staff alike can learn to handle depository materials with care if they are aware of their obligations and made to understand why this is necessary. There are signs that most depository staff understand the necessity of careful handling because they are concerned about what can be safely photocopied. The second major factor causing wear and tear of material is poor paper quality. However, conservation and restoration treatment is not carried out by most of the depositories as there is a lack of these specialist skills in South Africa and most depositories cannot afford to have it done commercially. Only the NLSA has an in-house conservation treatment and deacidification facility.

6.3.4 Levels of skills and knowledge in preservation management

The study revealed that there was a lack of preservation management skills and knowledge in South African depositories. All staff had a suitable background in that they were all library and information science graduates but they had had no specific training in preservation management or archival science. According to Ngulube (2003:340) “His education in South Africa do[es] not pay much attention to preservation issues” hence the need for specific records and archives management programmes. Yet, knowledge and skills in preservation management is vital to implementing preservation activities. The study concludes that the level of expertise for the preservation of cultural heritage in South African depositories is basic. Staff evidently lack basic knowledge in preservation activities, especially environmental control. Yet, most of depositories have no policy to train or recruit suitable staff. The study also established that South Africa lacks specialists in conservation and restoration. In addition, the study highlights South African depositories need to move away from the preservation paradigm of crisis management to proactive management, as is expected in the twenty first century (Lavoie, 2004:47; Conway, 2010:63).

6.3.5 Preservation challenges faced by legal deposit staff

Some of the conclusions related to this issue are already stated in section 6.3.1 regarding legislation, policies and regulations. Others are discussed in section 6.3.4. in respect of level of skills and knowledge in preservation management. The other major conclusion is related to budgets and funding. All legal depositories were faced with insufficient funding that hindered preservation activities. There is a need for increased funding and budgeting for preservation and access of legal deposit materials. Funding is crucial and essential to the success of preservation activities. Legislation needs to back funding as legal deposit is not seen as a priority especially with the current economic situation. The depositories’ budgets should clearly define how much money is set aside for preservation activities, and should ring fence this amount of expenditure from staff salaries.

The substantial amount of funds required and the general negative attitude towards legal deposit has resulted in procrastination by government officials. The review of

legislation that is in the pipeline is a positive step and will remove OPDs from being under the Public Entities Act No. 93 of 1992 to serve in terms of the Public Finance Management Act 1 of 1999 which will hopefully enable OPDs to get financial support from the national government. Increased funding would help support the growth and development of OPDs. An increase in funding for legal depositories would also help support preservation activities.

6.3.6 Accessibility of depositories to the majority of the population

Legislation including the Bill of Rights, Promotion of Access to Information Act and the Legal Deposit Act in South Africa facilitates access to legal deposit materials and government information. The study established that the Protection of State Information Bill threatens access to certain types of government information. The South African Copyright Act No. 98 of 1978 is not up to date and also limits access to material in terms of “fair dealing” in section 12(1).

Apart from legislation, geographical location affects access to legal deposit material. The study concludes that not all provinces have access to a place of legal deposit or an OPD. Three provinces, namely Eastern Cape, Northern Cape and Limpopo have neither a place of legal deposit nor an OPD. Mpumalanga and North West provinces have OPDs which means they have access to government publications only. In this day and age people can access depositories using technology, although it is important to note that not everyone has the technology. The study also revealed that access to some depositories is limited to certain groups of people. The Library of Parliament was accessible to parliamentarians; the Constitutional Court Library was accessible to judges, magistrates and lawyers and one OPD was accessible to community libraries only.

6.3.7 Means and processes used to help make materials accessible

In addition the study examined the equipment and finding aids used to facilitate access as well as the practice of facilitating access by depositories. The study concludes that the legal depositories' bibliographic records were accessible within reasonable limits. A positive finding is that the bibliographic records of the legal depositories are on the South African Millennium Web Catalogue, with the exception

of the OPDs. South African depositories were well supplied with the equipment used to make material accessible, including photocopying machines, computers and document scanners. This was a positive finding both for access and preservation concerns. However, access was limited in some depositories as a result of the deterioration of material, processing backlogs, lack of finding aids and playback equipment. Access was also limited as result of depositories not collecting dynamic electronic publications as well as a result of the non-compliance of publishers, especially government departments, in depositing their documents.

6.3.8 Systems used to ensure electronic documents' accessibility in the long term

With the exception of the Legal Deposit Act that makes provision for the collection of electronic documents, the only current recommendation to amend the Act includes a public interest copyright exception. The recommendations made have a public interest copyright exception, discussed in section 2.7.2.2, to help preserve electronic documents, which will ultimately improve access.

No depository had policies or regulations in place for the preservation of electronic publications, and more than half the depositories accepted static electronic documents only. The study established that the Legal Deposit Committee was developing a digital preservation strategy but that this was still in draft form. Preservation strategies of either refreshing or migrating electronic publications were not used. South African depositories lack staff with appropriate skills and expertise, sufficient funding, as well as dedicated hardware and software for the long term preservation of electronic documents.

6.3.9 Physical security of the collections

The security of legal deposit collections can be guaranteed within reasonable limits as most depositories use fire detection systems, intruder alarms, electronic security systems, security guards and a few have CCTV. South African depositories however, did not have contingency measures in place in the event of a disaster. The plans were inappropriate and not in line with preservation of materials but dealt with the evacuation of people from the building only. Yet, South Africa has experienced

hazards like floods and heat waves as a result of climate change that threaten the preservation of materials. The security of materials could be compromised as a result of the lack of disaster plans and because most staff were not trained in emergency recovery procedures. There was a need for improvement in this regard.

6.4 Conclusion regarding the research problem

The aim of the study was to examine preservation management policies, strategies and activities with regard to preservation of and access to legal deposit for posterity. This included making the policymakers and government aware of the challenges, problems and concerns related to cultural heritage. This awareness raising can be done through training workshops and seminars to make government officials and the public aware of the benefits of legal deposit. Furthermore, the study has uncovered the way forward in preservation and access and the role of legal deposit as well as highlighting the need to strike a balance between these core concepts. Preservation and access are core concepts of legal deposit as discussed in the literature survey in Chapter 2. The importance of these vital concepts is also highlighted in the legal deposit legislation in section 7(1).

In South Africa, the concept and practice of preservation and access to cultural materials need adjusting to create a state of equilibrium between the two. As already mentioned in section 2.7.1 preservation is nullified if access is prevented (Feather, 2004:8). Ngulube (2003:1) explains the grounds for this assertion, —“preservation as a collection management strategy is key to long-term access to records and archives”. In addition access is limited if there is no preservation. The study highlighted that access was limited as result of preservation not being an inherent part of the places of deposit in South Africa. The reason for limited access of legal deposit was a result of a lack of supporting legislation, policies, funding, skills and knowledge to implement preservation management strategies and activities. As result of the findings and conclusions made in the study the following recommendations are put forward for consideration.

6.5 Recommendations

There are a number of factors that need to be considered if access to the South African cultural heritage is to be guaranteed for future generations. The study was not just a scholarly requirement that pointed out current practices and challenges. In addition the study considered how to address these challenges and proposed a way forward in terms of the future. An additional intention of the study was to contribute to improving the preservation of and access to legal deposit materials in South Africa. The following are considerations that may help with the improvement and development of legal deposit.

6.5.1 Legislative regulatory and policy framework relating to legal deposit materials in South Africa

Although South Africa has modern legislation that has been implemented to collect a country's published output, it has not been able to attain this goal. It collects a steadily declining proportion of this output. All aspects of legal deposit are founded in international convention and the national laws of various countries. Therefore legislation backs the preservation of a nation's published cultural heritage and guarantees access to it (Jasion, 1991:7; Larivière, 2000:4; National Library of Australia, 2003:Legal deposit).

The study reveals that the South African legal deposit legislation has challenges and flaws requiring Legal Deposit Committee to advise the Department of Arts and Culture that the Act needs to be revised. This revision includes establishing current legal deposit regulations and policies with regard to how to collect and preserve materials. The South African Legal Deposit Act should be reviewed by the Department of Arts and Culture (Library Policy and Coordination section) and should adapt aspects of the British legislation which leaves details of implementation to secondary legislation as discussed in section 2.7.1.2. The local legislative framework lacks precision and a distinct programme of action. The Legal Deposit Committee is responsible for the coordination and implementation of the Act (Legal Deposit Act No. 54 of 1997 section 8(4) and (5) and should create current regulations that are easily located as well as create a framework and foundation to develop:

- Mission statements to include the preservation of cultural heritage.

- Preservation policies and guidelines that are standard practice amongst depositories. Including:
 - Disaster management policy and planning.
 - Staff training and recruitment policy.
- The Act needs to be revised in line with other legislation like the PAIA and the Bill of Rights stating which piece of legislation is superior to the other. As well as the PAIA and Bill of Rights, it should address the concerns relating to the deterioration of materials as a result of improper and constant handling (Ngulube, 2003:348).
- Means of national government funding for depositories as it is a national responsibility and should not be left to local and provincial governments.

With the above policy framework in place the Legal Deposit Committee and depositories need to make sure that mission statements that include the preservation of legal deposit are developed. They need to ensure that preservation is not seen narrowly and is not separated from the day to day functions of a library as it may be regarded as a luxury when budget cuts are made (Kenney, 2004:27). Formal written policies and guidelines need to be established. Penzhorn (2007:191) emphasises that —clear policies covering all areas of uncertainty would serve to dispel any ambiguities”. Fewer preservation problems occur if the institution is planned with preservation as part of the mission and vision of the institution. In addition the Legal Deposit Committee needs to raise awareness of the aims of legal deposit so that it becomes part and parcel of the libraries’ function and is not treated as a separate entity, not only by the libraries but by the public as a whole who need to understand the benefits of legal deposit. This awareness raising can be done by advertising on the radio, television as well as having lectures, seminars and workshops.

6.5.2 Activities and strategies used to preserve legal deposit materials

The proper preservation environment is crucial especially because of the effects of climate change and global warming. The different legal deposit materials require a high level of protection against various environmental factors including air pollution, humidity, sunlight, insects, animals, fire, flooding, improper storage and handling.

Most preservation activities were generally undeveloped as a result of lack of equipment, knowledge and skills.

A properly controlled environment will prolong the life of the materials by reducing the rate of deterioration, therefore depositories require equipment to control and monitor the environmental conditions. This equipment includes HVACs, light motion sensors, UV filters, thermometers, humidifiers/dehumidifiers and hygrothermographs. An in depth preservation assessment survey needs to be carried out to point out the strengths and weaknesses of each depository. This survey would establish what preservation standards exist so that the weaknesses can be addressed. Various aspects of green building that are suitable for archives may also be considered such as:

- Renewable energy resources – use of solar panels to help cut electricity costs.
- Renewable construction material like stone that keeps the building cool.

In addition to preserving materials biological agents need to be controlled.

Depositories need to know and keep records of the chemicals used to fumigate the stack rooms. Chemicals are toxic and hazardous to both human beings and materials and the effects of these chemicals need to be established before they are used. Indoor air quality should not be underestimated. Nguyen (2007:15) found that it affected some construction materials (corrosion of cold copper pipes) at the French National Library which suggests that it can be detrimental to deposit materials. However, today depositories need to move away from constant fumigation to control pests and instead use methods involving fewer chemicals – such as the Integrated Pest Management (IPM) method discussed in section 2.8.2.3. The IPM uses the following methods:

- Mechanical – traps, closing entry points, windows and doors, concealing cracks.
- Cultural – checking materials before they are put into stack rooms, good housekeeping habits.
- Biological – understanding the life cycles of the pests, removing the suitable habitats by minimising food, moisture and temperature.

- Chemical use as a last resort.

The IPM method is a strategy that uses a blend of methods to control pests and not just a single method.

6.5.3 Measures used to ensure preservation of documents whilst being used

The goal of preservation has changed from not only prolonging the life of materials but ensuring continued access (Ngulube, 2003:1; Smith, 2004a:7; Feather, 2004:8; Ngulube, 2007:45). Although there is a challenge of conflicting requirements for preservation and access, there is a need to balance both sets of requirements.

The way staff and users treat documents also directly impacts on the useful legal deposit materials. Damage to print materials accumulates with constant poor handling making it unusable requiring costly repair, rebinding, or replacement. Staff and user training is vital in order to preserve books while they are being used as mentioned in section 2.8.2.2.7. Guidelines on how to handle legal deposit material need to be developed for both staff and users. Signs, posters and book marks can be used to raise awareness of the need to preserve as well as access materials. Staff should assist users with the photocopying of materials especially those that are easily damaged.

Damaged items require repairs that need to be carried out by a conservator who identifies the procedures used to produce the item. This process includes the chemical nature and deterioration processes of materials as well as the parameters and dangers of the treatments (Stewart, 2000:288; Reitz,2010:Conservation). It is therefore apparent that a conservator is a highly trained and skilled professional (Stewart, 2000:288; Reitz, 2010:Conservation) and is a rare resource in South Africa. As the NLSA has a conventional conservation facility, they could provide conservation services to legal depositories.

6.5.4 Levels of skills and knowledge in preservation management

Having the tools and support for preservation will not achieve the preservation goals without skilled and knowledgeable staff to carry out the activities effectively. At present few staff have the required preservation management training and

techniques, and therefore the Legal Deposit Committee should immediately identify appropriate courses and arrange bursaries to upgrade skills and knowledge to the requisite level. The Legal Deposit Committee should liaise with LIASA about securing funding to upgrade staff skills and knowledge in preservation management, especially as LIASA has managed to secure funding from the Carnegie Corporation to develop a Postgraduate Scholarship Programme for public librarians working at Carnegie Model libraries in South Africa (LIASA, 2012:R10 million grant...). The researcher identified to academic institutions namely, University of South Africa and University of KwaZulu-Natal that offer preservation management training locally. The Legal Deposit Committee should join forces with the Library of Congress, UNESCO and IFLA-PAC who offer collaborative training.

Apart from having preservation management training, staff need on-going training and assistance through workshops, seminars and conference attendance. This continuing education and training will help to inform depository staff about good current practices for the preservation and access of legal deposit materials. The Legal Deposit Committee can arrange with professional associations, like the South African Society of Archivists, to hold in-house training workshops. Rapidly changing developments in preservation, including the publishing of digital material, the volume of publications being produced, new information carriers, deterioration of the quality of materials used, increased access and climate change all necessitate these on-going training initiatives. Besides looking at the technical details, legal depositories need to look at cost effective action that should be taken (Conway, 2010:62). Another pertinent factor is that each depository is different as they are not situated in the same geographical area, building or province. It is not a simple case of implementing standard technical procedures in a one-size-fits-all manner. Varlamoff (2005a:Marie...) equates it to raising children in which one size does not fit all.

Apart from legal depository staff being trained in preservation management, they are also required to understand the relevant legislation, particularly the Legal Deposit Act and its regulations. In addition, they need to understand other items of legislation affecting legal deposit including the PAIA and Copyright Act. Staff need to be well versed in how these pieces of legislation affect the preservation of and access to

legal deposit materials. Penzhorn (2007:190) states that —a legal deposit system that functions satisfactorily can only be attained if personnel are knowledgeable, dedicated and motivated”. The legal depositories with the development of recruitment policies (recommended in section 6.5.1) need to re-examine their recruitment plans and take cognizance of the significance of preservation and conservation skills.

6.5.5 Preservation challenges faced by legal deposit staff

Recommendations relating to numerous challenges faced by depository staff have already been made in sections 6.5.1 – 6.5.4 above. One of the main obstacles depositories are facing is limited funding. The Legal Deposit Committee needs to lobby for funding for legal deposit. Continuous limited funding will lead to a loss of cultural heritage unless this state of affairs is reversed (Ngulube, 2007:45).

Government officials need to be made aware of the importance of legal deposit, the effects of undeveloped preservation strategies and activities, and the crucial need to preserve South Africa’s cultural heritage. The Legal Deposit Act 54 of 1997 section 6 (3) (see Appendix 6) states that:

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.

This method of securing funding for legal deposit is definitely not working properly as legal depositories’ funds cover staff salaries only. There is a lot of uncertainty as a result of not knowing how much the depositories have to spend on legal deposit. How can the depositories plan ahead with no knowledge of how much money they will get? The researcher recommends that this section of the legislation needs to change as well.

Ngulube (2003:287), as mentioned in section 5.2.2 pointed out that institutions that are not clearly defined and because they lack policy cannot lobby for funding, however with the development of preservation policies, funding can be lobbied for.

Depositories can be given funding by government in terms of a conditional grant especially for legal deposit activities.

6.5.6 Accessibility of depositories to the majority of the population

Several types of legislation, both national and international, support access to information, and as a consequence support the population's access to legal depositories. The legislation emanates from eminent bodies and acts, including the United Nations, the Commonwealth, FAIFE, the South African Constitution's Bill of Rights, PAIA and the Legal Deposit Act (discussed in section 2.9). However, there are also local threats and factors limiting access to information including the Protection of State Information Bill, South African copyright legislation, the slow development of OPDs and lack of preservation activities.

The study concluded that some provinces do not have access to a place of legal deposit or an OPD, namely the Eastern Cape, Northern Cape and Limpopo. Others have limited access like Mpumalanga and North West provinces, which have OPDs only. The Legal Deposit Committee, as a matter of urgency, needs to lobby for funding from the government as well as donor agencies like the Carnegie Corporation, Bill and Melinda Gates Foundation and the National Endowment for Humanities to develop depositories in these areas. However, there is a need to note that donor agencies provide alternative funding which should not be depended upon totally because there is a need for depositories to be sustainable.

The study also established that access is limited to certain groups of people at creation depositories like the Library of Parliament and the Constitutional Court Library. This needs to be indicated within the legal deposit legislation so that members of the public are aware that they are not entitled to access material from these institutions directly. The current legislation is misleading as section 7 (1) of the Act states:

A place of legal deposit shall, subject to such limitations as may be prescribed—

(a) receive, accession, retain and preserve:

(b) catalogue or inventorise; and

(c) ensure freedom of access to the documents supplied in terms of section 2(1).

The South African Copyright Act No. 98 of 1978 needs to be amended as it is not up to date and also limits access to materials in terms of fair dealing as described in section 12(1). A public interest copyright exception has been put forward in the final report of the review of cultural heritage legislation (Department of Arts and Culture, 2012:202). If the public interest copyright exception is passed, access to legal deposit would improve. The researcher recommends that it is passed, as if it is not the rationale for preservation is compromised (Feather, 2004:8; Ngulube, 2003:1).

Besides the copyright exception, a recommendation has been put forward to make the South African Library for the Blind declared a place of legal deposit. The researcher recommends that this should be passed as well, as it will provide for a collection of alternative format publications that are in braille. In addition, it will also be able to provide legal deposit for the blind who have currently been excluded.

6.5.7 Means and processes used to help make materials accessible

Though the study concludes that bibliographic records for print materials are accessible, within reasonable limits, with the main places of legal deposit they are still not accessible for OPDs. According to the Legal deposit Act No. 54 of 1997 section (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 40 No. 93 of 1992); and
- (b) provide public access to databases and other information sources to which the public may gain access under any law.

Yet none of the OPDs have the publications listed on a catalogue as they lack resources to do so. To improve access, the researcher recommends that the Legal Deposit Committee finds the resources to help OPDs put official publications on their computer catalogues. In addition sort out, as a matter of urgency, the limited access at some depositories resulting from processing back logs and the lack of finding aids.

The second recommendation is that all places of deposit and OPDs need to have well designed websites that have links to their catalogues that will give users further access. Thirdly, access to materials should be publicised, as stated in legislation, but care needs to be stressed as without preservation there will be no access in the future. Access is dependent on the proper preservation and management of materials.

6.5.8 Systems used to ensure electronic documents' accessibility in the long term

The study concluded that efforts are being made to develop a digital preservation strategy for electronic publications, as this is needed as a matter of urgency as discussed in section 2.8.5. This includes efforts to amend the legal deposit legislation to add a public interest copyright exception according to the Department of Arts and Culture (2012:199) that allows —places of legal deposit to make copies (including digital copies) of works in their lawful possession for purposes of preservation, replacement or security”. This is highly recommended as preservation strategies as well, as the acquisition, storage and preservation of electronic documents over time involves continual acts of copying (Muir, 2004:67). However, the Department of Arts and Culture (2012:200) emphasises that —legislation needs to take into account the collection of associated software, manuals and hardware needed to ensure access in the future”. In addition, the public interest copyright exception should forbid copying for commercial advantage. Depositories should also be allowed to bypass digital rights management features especially when owners fail to deposit copies (Department of Arts and Culture, 2012:202).

As a result of the multifarious nature of electronic materials and the magnitude of the problem South Africa cannot work in isolation. The issues and problems surrounding electronic publications' preservation discussed in detail in section 2.8.5 include:

- Fast development of technology.
- Legislation not developing at the pace technology is developing.
- Dynamic electronic documents.
- Media stability.
- Technological obsolescence.

- Issues regarding authenticity and integrity of electronic documents.
- No definite preservation strategy as electronic preservation is still in its infancy.
- The volume of publications – selection and preservation need to be informed and consistent.
- Funding – digital preservation is a lot more expensive than preservation of print materials.

South African depositories are still struggling to preserve print materials and will not be able to cope with electronic preservation as well. Many developed countries are also trying to find their footing in this regard. The researcher recommends that South Africa should join various organisations that have formed international (UNESCO, PADI, ERPANET, InterPARES) and national (NCDD, DPC, NESTOR, NDIPP) coalitions to work together to find solutions to the challenges of digital preservation. South African depositories would benefit from joint efforts as various resources can be shared including costs, planning and having a wide range of expertise (UNESCO, 2003:63).

South Africa needs to restructure the legal depositories which were designed specifically to collect print materials to accommodate the complexity of organisational, technical and operational aspects that are related to electronic preservation. Besides the above mentioned issues the Legal Deposit Committee needs to ensure the compilation of a comprehensive South African National bibliography that includes electronic publications.

6.5.9 Physical security of the collections

The building is the collections main foundation of security; it is vital and affects preservation and access in various ways (Ngulube, 2007:55; Nsibirwa, 2007:33). Depositories should ideally be custom made with the proper architectural properties and standards that will help prolong the life of materials (Ngulube, 2003:102). Apart from the buildings in which they are stored, there is also a need to consider the geographical area, the external environment of the building as well as factors of climate change and global warming. The researcher recommends that preservationists need to change their way of thinking and focus on the current

problems of global warming and climate change that require the application of green construction to depositories as an adaptive response to climate trends and their implications (Henry, 2008:3). In the long run, meeting these requirements will benefit the prolonged life of the materials as it will help create an appropriate interior environment (Henry, 2008:3; Lull, 2008:1). Not all aspects of green construction are appropriate for depositories and the researcher recommends that South African depositories use the following aspects:

- Utilise renewable energy resources especially solar energy that can easily be harvested in South Africa to save the energy bills as a result of increased demand from electronic equipment.
- Use automatic lighting controls that use motion sensors in the stack rooms.
- Depending on the geographical area of the depository and availability of materials use renewable construction materials (Kim, 2007:1).

Apart from making staff and users aware of handling procedures, the importance of legal deposit as well as the importance of preservation whilst materials are being used, there is a need to safeguard the entire collection. This includes making sure reading rooms are adequately staffed to prevent theft, mutilation and vandalism of items. In addition, the use is recommended of magnetic strips, electronic gates, CCTV, security guards and wire mesh to cover windows. Besides the above mentioned the need to immediately develop proper disaster plans, as mentioned in section 6.5.1, is crucial as well as training staff in emergency recovery if documents are damaged. The Legal Deposit Committee needs to form a sub-committee (disaster management committee) which should determine possible disasters that may affect the different depositories, raise awareness of the importance of disaster plans and arrange for emergency recovery training for depository staff. Various organisations can be approached to help with disaster management issues, for example ESARBICA, ICA, IFLA, UNESCO and the Blue Shield International (Ngulube, 2003a:109; Varlamoff, 2005b:5).

A summary of the discussion of this chapter is shown in Table 26.

Table 26: Matrix of research questions, constructs, authorities, findings and recommendations

Research questions	Constructs	Literature Reviewed	Findings	Recommendations
What systems are in place to help collect print and electronic documents?	<ul style="list-style-type: none"> Legislation Policies 	Jasion (1991) Behrens (2000) IFLA (2000) Larivière (2000) Lor and Geustyn (2003) Penzhorn (2007) Ngoepe and Makhura (2008) Penzhorn, Snyman and Snyman (2008)	<ul style="list-style-type: none"> LDA covers collection of print & electronic materials though full implementation is not achieved. Mission statements lack preservation component. Lack of preservation policies. 	<ul style="list-style-type: none"> The Legal Deposit Act needs to be reviewed to help with implementation by establishing regulation and policies. Develop secondary legislation for distinct programme of action. Include preservation in mission statements and develop standard practice – disaster management planning, staff training and recruitment policy. Library and Archives of Canada can be used as a benchmark as they have a developed documentary heritage framework.
What are the activities and strategies used to preserve legal deposit material?	<ul style="list-style-type: none"> Storage Pest management Condition & care of materials 	Adcock, Varlamoff and Kremp (1998) Banks (2000) Ngulube (2003,2007) Feather (2004) Varlamoff (2004, 2005) Nsibirwa (2007) Ogden (2007) Sahoo (2007) Reilly (2008)	<ul style="list-style-type: none"> Underdeveloped preservation activities and lack of understanding about what needs to be done. Fumigation used to control pests. Lack of handling skills. 	<ul style="list-style-type: none"> Preservation assessment survey. Legal deposit materials need high level of protection due to effects of global warming and climate change. IPM method (least chemical) for pest control. Handling guidelines are required.
What measures are in place to ensure preservation of documents whilst being used?	<ul style="list-style-type: none"> Handling 	Ngulube (2003) Nsibirwa (2007) Millar (2010)	<ul style="list-style-type: none"> Inadequate supervision. Damage -photocopying & acid paper. Most do not do conservation treatment. 	<ul style="list-style-type: none"> In-house training required. Handling guidelines for staff and users. NLSA should provide conservation services.
How knowledgeable are staff about the preservation of the legal deposit materials?	<ul style="list-style-type: none"> Preservation management skills & knowledge 	Ngulube (2003) Nsibirwa (2007) Ngoepe and Makhura (2008)	<ul style="list-style-type: none"> Lack of preservation management skills. Lack of basic preservation activities knowledge. 	<ul style="list-style-type: none"> Staff training required. On-going training – who pays? In-house training – professional associations. Understanding legislation – LDA, PAIA, Copyright – training. Re-examine recruitment plan and develop recruitment policy.
What challenges are the staff faced with preserving legal deposit materials?	Preservation means (funding)	Ngulube (2003) Nsibirwa (2007)	<ul style="list-style-type: none"> Inadequate funding. Effort to get funding for OPDs. 	<ul style="list-style-type: none"> Funding from national government. Including preservation in each depositories budget.

(Source:Field data)

Table 26: Matrix of research questions, constructs, authorities, findings and recommendations (cont.)

Research questions	Constructs	Literature Reviewed	Findings	Recommendations
Are the depositories accessible to the majority of the population in South Africa?	<ul style="list-style-type: none"> Geographical location Legislation Practice 	Lor and van As (2002) Lor (2003) Lor and Snyman (2005)	<ul style="list-style-type: none"> LDA, PAIA and FAIFE ensure access. Parts of LDA section 7 (1) misleading. Protection State Information Bill threatens access. SA copyright law is unclear. Slow development of OPDs. <ul style="list-style-type: none"> No depositories in three provinces Limited access: <ul style="list-style-type: none"> Two provinces – only OPDs. Two depositories are accessible to certain groups of people. 	<ul style="list-style-type: none"> Review section 7(1) of LDA. SA copyright law needs amendment. Amend misleading section 7 (1) of LDA. Pass the public copyright exception. Legal Deposit Committee lobby for funding.
What means and processes are used to help make materials accessible?	<ul style="list-style-type: none"> Legislation Equipment Preservation activities 	IFLA (2000) UNESCO (2002) Lor and Snyman (2005) Besek et al (2008) Shuttleworth Foundation (2008) Darch (2010)	<ul style="list-style-type: none"> SA copyright law is unclear. Depositories are well equipped with computers, scanners & photocopying machines. Limited access: <ul style="list-style-type: none"> Lack of bibliographic records for OPDs. Processing back logs. Finding aids. 	<ul style="list-style-type: none"> SA copyright law needs amendment. Legal Deposit Committee lobby for funding.
What systems are in place to ensure electronic documents will be accessible especially in the long term?	<ul style="list-style-type: none"> Legislation Policies Preservation strategies Practice 	Muir (2004) Harvey (2005) Verheul (2006) Strodl et al (2007) Besek et al (2008) Duranti (2010) Millar (2010) UNESCO (2012)	<ul style="list-style-type: none"> Lack of policies, guidelines & expertise. No preservation strategies. 	<ul style="list-style-type: none"> Join international coalitions created to find solutions to digital preservation. Collaboration.
What security procedures are in place to safeguard the collection?	<ul style="list-style-type: none"> Disaster preparedness Security systems 	Ngulube (2003) Ngulube and Magazi (2006)	<ul style="list-style-type: none"> Lack of disaster plans/ appropriate plans. Majority have fire detection systems. <ul style="list-style-type: none"> Lack of staff emergency recovery procedures. Security is reasonably guaranteed. 	<ul style="list-style-type: none"> Develop proper disaster plans. <ul style="list-style-type: none"> Approach archival organisations for help. Train staff in emergency recovery procedures.

(Source:Field data)

6.6 Implications for theory, policy and practice

The main objective of the study was not to build theory but to address the present situation concerning preservation and access of legal deposit in South Africa.

However, a conceptual framework based on the UNESCO Memory of the World framework was used to guide the study, and provide the principles and building blocks on which to advance the theory.

The study contributes substantially towards the preservation of, and access to, legal deposit as the findings, if considered seriously, will influence policy and practice.

This study is vital as it indicates gaps in legislation and practice and makes recommendations. South Africa is losing large pieces of both its print and electronic cultural heritage. The findings of the current study can be used by policy makers, depository staff, educators and scholars of preservation management as well as for further research in the field, especially with regard to the preservation of electronic publications.

Knowledge that can be used to back depositories when lobbying for resources and funding that are crucial for the preservation and access of legal deposit is provided by the study. In addition, the study helps make government officials aware of the importance of legal deposit and the need to guarantee access to it, as well as creating awareness of the need to amend legislation and practice plus create a foundation and framework for policy in depositories. The study strategically directs depositories to initiate preservation measures that prolong the life of legal deposit materials. Furthermore, the study highlights the needs for preservationists to, not only concentrate on macro environments of the stack rooms, but also consider external environmental threats as a result of climate change and global warming. In addition they should adapt certain features of green building suitable for depositories to help curb the external environmental threats as a consequence of climate change and global warming. Appropriate green building features should also be used to help depositories sustainability especially with the current economic situation that has led to soaring energy costs amongst others.

The study highlights the importance of the skills and knowledge in preservation management, conservation and restoration. The findings of the study will raise awareness amongst management of the need to employ highly qualified staff for preservation activities. The need for ongoing training is emphasised as the paradigm for preservation changes with electronic publications.

6.7 Further research and issues for consideration

The current investigation assessed, built on and extended the researcher's investigation carried out in her master's thesis about how legal deposit materials are kept, preserved and accessed at one depository. The evaluation of activities and strategies of preservation and access to legal deposit for the whole of South Africa was the first of its kind. The study identified a number of concerns that could be the subject of further research in the field. The following discussion points out further areas of research that need to be done.

The current study focused on printed legal deposit materials and electronic documents and delimited audio-visual material (tapes and films). Although these materials may constitute a small fraction of what is being deposited it is recommended that studies should be conducted to find out what strategies are used to preserve and access them, as it is important to assess whether proper strategies are in place to preserve and access audio-visual materials. The study could justify the view that a lack of preservation activities is the result of government not seeing legal deposit as a priority. The study would help emphasise the need for preserving all types of legal deposit material as well as the current trend for preserving such material.

The study had some limitations discussed in section 5.5 with regard to top management of the NLSA which should be looked into to help create a clearer picture of legal deposit in South Africa.

Although the study investigated the preservation and access of electronic publication in the South African depositories there is still a need to further examine the issues and concerns revealed by the current study including:

- Whether the draft digital policy will eventually become policy?
- What preservation strategies will be used for electronic publications?
- Whether the researcher's recommendations will be considered especially with regard to joining international coalitions?

A further study should be conducted to investigate exactly how the challenges and flaws in the Act can be revised. This includes reviewing the whole Act and establishing current legal deposit regulations and policies in order to have a solid foundation and a distinct programme of action. The review of the Act should include investigating the possibility of adapting pieces of the British legislation that leaves details of implementation to secondary legislation.

In addition the current study did not gather sufficient data regarding the physical access of depositories for people with disabilities. This aspect is important as access to material should not be limited to certain groups of people only.

An in-depth study of OPDs is also recommended as their development is slow and yet they provide access to official government publications which are crucial to democracy in South Africa. If and when the Protection of State Information Bill becomes an Act, a study is required to show the effects of the legislation on legal deposit especially access to information.

Current research shows that collections also emit volatiles as a consequence of ill-suited purification systems; these should also be considered seriously like air pollutants. A study conducted by Nguyen (2007:15) on the French National Library showed that indoor pollution should not be ignored, as evidence shows its effect on construction material and therefore it is potentially harmful to documents. Not much has been done in this area and research into pollution caused by the materials themselves as well as by fumigation, is an area that was beyond the scope of the current study.

Currently research advises depositories and archival institutions to use an Integrated Pest Management Programme which concentrates on the least toxic approaches to pest control (Chicora Foundation, 2010: Integrated Pest Management) as discussed

in section 2.8.2.3. An in-depth study in this area would be vital as it would help develop suitable practice in depositories.

Lastly, the study found that legal depositories have insufficient budgets and as a result this affects the preservation related activities. A study to assess ways and means of funding legal depositories may bring to light various underlying issues as well as a way forward to get funding and support to preserve our cultural heritage.

6.8 Final summary

The current study investigated preservation and access to legal deposit of print and electronic materials in South Africa with a view to propose a way forward for legal depositories. This was done by:

- Examining legislation affecting legal deposit.
- Looking at collection management policies and preservation strategies.
- Studying factors that affect access to information.

The study established that effective implementation, preservation and access of legal deposit are largely dependent on many factors, the most important of which are a proper legislative framework that provides a firm foundation for legal deposit, adequate funding as well as skills and knowledge in preservation management.

However, preservation activities were generally embryonic in most depositories and therefore cultural heritage is not being preserved properly. In the long run this will lead to an amnesiac society as a result of degeneration and loss of cultural heritage material (Sturges, 1990:25). Preservation is invalidated if access is prevented because materials are preserved in order to ensure freedom of access to the current and future population. If looked at accurately and thoroughly, preservation supports access as it prolongs the life of the material therefore making access possible. The test is getting the balance right with the conflicting needs of both the preservation and access to legal deposit materials. The study also made recommendations and stated implications for theory, policy and practice.

To ensure access for the future generations legal depositories require a solid foundation from proper legislation, adequate funding, staff with preservation skills and knowledge, proper preservation policies, activities and strategies as well as

collaboration with other countries to look at a way forward with the preservation of electronic publications.

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Appendices

Appendix 1: Letter to the Department of Arts and Culture

Department of Arts and culture
Private Bag X 897
PRETORIA 0001

11 October 2011

Dear



Preservation of, and access to, legal deposit materials in South Africa.

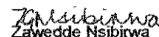
I am a student at the University of KwaZulu-Natal doing a PhD in Information Studies. I am seeking your assistance with my research project. The purpose of the study is to identify how legal deposit materials are preserved and accessed in South Africa.

The study is designed to collect data about preservation policies and procedures, storage and handling of legal deposit materials, access to materials and education and training of staff for preservation of these materials. All replies will be treated in the strictest confidence and will not be attributed to particular respondents, organizations, or departments. I realise that there are many other demands on your time, but, the results will be beneficial to all those with responsibility for preserving legal deposit materials.

I would appreciate it if you would support this study by encouraging all legal depositories to participate in the study. I will share the results of the study with all the legal deposit institutions mandated to preserve the South African cultural heritage. The results of the survey based on the findings may be used as a proposal and a way forward to develop strategies, policies and training for the preservation and access of our heritage in the current environment of fast technological development.

The project has been screened and complies with the professional code of ethics of the University of KwaZulu-Natal, ethical clearance number HSS/1480/2010.

Your assistance will be highly appreciated.


Zawedde Nsibirwa
PhD Candidate
Tel: 033 2605685
Cellphone: 0837493138
E-mail: 204523916@ukzn.ac.za or Nsibirwaz@ukzn.ac.za


Dr Ruth Hoskins
Supervisor
Tel: 033 2605093
E-mail: hoskinsr@ukzn.ac.za


Professor Christine Stilwell
Co-Supervisor
Tel: 033 2605095
E-mail: stilwell@ukzn.ac.za

School of Sociology & Social Studies

Postal Address: Private Bag X01, Scottsville, Pietermaritzburg 3209, South Africa

Telephone: +27 (0)33 260 500/5330

Facsimile: +27 (0)33 260 5092

Email: holtz@ukzn.ac.za
poddyachesp@ukzn.ac.za

Website: www.ukzn.ac.za

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Washville

Appendix 2: Informed consent form and covering letter for survey instrument

Informed Consent Form

Title of the study: The preservation of, and access to legal deposit materials in South Africa.

I....., agree to take part in the study as outlined in the covering letter attached to the questionnaire and made clear by the researcher. I understand that participation is entirely voluntary and that I will not be forced to answer questions and I am able to withdraw from the project at any time and this will not affect my status at my work place.

I acknowledge that the study will be conducted by Zawedde Nsibirwa and I understand the contents of this form and willingly consent to participating in the study.

Respondent

Signed.....

Date.....

Researcher

Signed.....

Date.....

Covering letter for the questionnaire for collecting information on preservation of, and access to, legal deposit materials in South Africa.

Dear _____

I am a student at the University of KwaZulu-Natal doing a PhD in Information Science. I am seeking your assistance in my research project. The purpose of the study is to identify how legal deposit materials are preserved and accessed in South Africa.

The survey is designed to collect data about preservation policies and procedures, storage and handling of legal deposit materials, access to materials and education and training of staff for preservation of these materials. All replies will be treated in the strictest confidence and will not be attributed to particular respondents, organisations, or departments. I realise that there are many other demands on your time, but, the results will be beneficial to all those with responsibility for preserving legal deposit materials. I will share the results of the study with all the legal deposit institutions mandated to preserve the South African cultural heritage. The results of the survey based on the findings may be used as a proposal and a way forward to develop strategies, policies and training for the preservation and access of our heritage in the current environment of fast technological development.

Attached is a word version of the questionnaire which you can examine. I will be grateful if you would complete the questionnaire and email or fax (fax no. 0332605092) it to me by the **Wednesday, November 30**. Should you have any queries about the study, please do not hesitate to contact me.

Thank you for your assistance.

Yours faithfully

Zawedde Nsibirwa
Tel:033 2605685
E-mail: 204523916@ukzn.ac.za

Dr Ruth Hoskins
Supervisor
Tel:033 2605093
E-mail: hoskinsr@ukzn.ac.za

Prof Christine Stilwell
Co- Supervisor
Tel: 033 2605095
Email: stilwell@ukzn.ac.za

Appendix 3: Questionnaire

Case Number

Questionnaire for collecting information on the preservation of, and access to legal deposit materials in South Africa.

Instructions for filling in the questionnaire

- a) Please tick or mark X the applicable answer(s).
- b) Use spaces provided to type or write your answers to the questions. Please print if you write.
- c) Please, 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.

Demographic Data

1. Are you:

Male		Female	
------	--	--------	--

2. Which age group do you fall under?

Under 20	20 – 30		31 – 40		41 – 50		51-60		over 60	
----------	---------	--	---------	--	---------	--	-------	--	---------	--

3. What is the highest level of education you have reached?

	Primary school	Grade.....
	High school	Grade.....
	Technikon	Qualifications.....
	University	Qualifications.....
	Other

PRINT MATERIALS

Preservation policies

Preservation is the process in which all actions are taken to check deterioration. This includes preventative measures (good housekeeping) and conservation which is the curative measure of reversing the effects of time.

4. Does your library have a policy to:

- a) Improve preservation conditions

Yes		No		Unsure	
-----	--	----	--	--------	--

b) Develop conservation facilities

Yes		No		Unsure	
-----	--	----	--	--------	--

c) Train and recruit qualified personnel

Yes		No		Unsure	
-----	--	----	--	--------	--

5. Do you have in-house conservation facilities?

Yes		No		Unsure	
-----	--	----	--	--------	--

The environmental conditions of stack rooms

Temperature and relative humidity

6. Does your building have a heating, ventilation and air conditioning (HVAC) system in the stack rooms?

Yes		No go to #11		Unsure	
-----	--	--------------	--	--------	--

7. If you have one, how old is the HVAC system?

	a) Less than 1 year
	b) 1 to 3 years
	c) 4 to 10 years
	d) More than 10 years
	e) Unsure
	f) Other, please specify.....

8. Is the HVAC system on at all times?

Yes		No		Unsure	
-----	--	----	--	--------	--

9. Does the HVAC system provide constant climate control throughout the year?

Yes		No		Unsure	
-----	--	----	--	--------	--

10. How often is the HVAC system serviced?.....

11. If you do not have a HVAC system, please state how the following conditions are achieved

a) Heating		Unsure	
b) Ventilation		Unsure	
c) Cooling		Unsure	

12. Do the stack rooms have separate environmental control systems from offices?

Yes		No		Unsure	
-----	--	----	--	--------	--

13. Do the stack rooms have separate environmental control systems from reading rooms?

Yes		No		Unsure	
-----	--	----	--	--------	--

14. What is the average temperature in the:

a) Building?		°C	Unsure	
b) Stack rooms?		°C	Unsure	
c) Reading rooms		°C	Unsure	

15. Is the temperature level in the stack rooms monitored constantly?

Yes		No	
-----	--	----	--

16. Is the relative humidity (RH) level in the stack rooms monitored constantly?

Yes		No		Unsure	
-----	--	----	--	--------	--

Light

17. For how many hours are materials exposed to artificial light during the day?

.....hours

	Unsure
--	--------

18. Are lights in the stack room turned off when not in use?

Yes		No		Unsure	
-----	--	----	--	--------	--

19. Is the artificial lighting in the storage areas controlled by sensors?

Yes		No		Unsure	
-----	--	----	--	--------	--

Pest management

20. Are all materials that are to be accessioned checked for insects/vermin in a separate storage area before they enter the stack rooms?

Yes		No		Unsure	
-----	--	----	--	--------	--

21. Have you ever experienced any insect invasion or vermin infestation in the building?

Yes		No		Unsure	
-----	--	----	--	--------	--

22. If you answer to question 21 is “~~Yes~~”, please state the type(s) of insect invasion/vermin infestation.....

Storage and handling

23. Is the stack room generally clean?

Yes		No	
-----	--	----	--

24. How are the stack rooms cleaned?

	Unsure
--	--------

25. Is there adequate space for shelving and storage?

Yes		No	
-----	--	----	--

26. Who has access to the stack rooms?

a) Staff only	
b) Staff and the users	

27. Are users trained in the handling of materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

28. Are staff trained in the handling of materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

29. Are there written guidelines for handling of materials for staff?

Yes		No		Unsure	
-----	--	----	--	--------	--

30. Are there written guidelines for handling of materials for the users?

Yes		No		Unsure	
-----	--	----	--	--------	--

31. Who determines what can be safely copied?

	Unsure
--	--------

Disaster preparedness and management

32. Is there a disaster planning team in place?

Yes		No		Unsure	
-----	--	----	--	--------	--

33. Have staff been instructed in emergency planning?

Yes		No		Unsure	
-----	--	----	--	--------	--

34. If ~~Yes~~ to question 33, please provide details

.....

.....

.....

35. Have staff been instructed in emergency recovery procedures?

Yes		No		Unsure	
-----	--	----	--	--------	--

36. If ~~Yes~~ to question 35, please provide details

.....

.....

.....

Fire detection and suppression

37. Do the stack rooms have a fire detection system?

Yes		No		Unsure	
-----	--	----	--	--------	--

38. If ~~Yes~~ to question 37, how often is it serviced

.....

Security

39. What security systems exist in the building? (Please tick or mark X all the applicable options).

a) Employ security personnel	
b) Electronic security system	
c) Closed circuit television cameras (CCTV)	
d) Intruder alarm system	

40. How effective do you think your security system has been since it was installed?

a) Very effective	
b) Effective	
c) Moderately effective	
d) Not effective	
e) Not effective at all	

41. If your answer to the previous question is not effective or not effective at all please explain why you think it is not effective

.....

Condition and care of materials in general

42. Which of the following preservation options do you use?
 (Please tick or mark X all the applicable options).

a) Protective enclosure (Boxing)	
b) Microfilming	
c) Digitisation	
d) Encapsulation	
e) Lamination	
f) De-acidification	
g) Leaf casting	

h) Other, please specify.....

43. What is the overall condition of the legal deposit materials?

Very good		Good		Average		Poor		Very poor	
-----------	--	------	--	---------	--	------	--	-----------	--

44. If your answer to question 43 is ~~poor~~ or ~~very poor~~ which types of records are in particularly poor condition?

.....

45. In the table below state the extent of agreement or disagreement about the general physical condition of the materials in your stack rooms.

Physical condition of materials	Strongly agree	Agree	Disagree	Strongly disagree	Unsure
They are dirty (soiled, stained)					
Deteriorating through wear and tear					
Condition of paper is poor (acidic and brittle)					
Condition of materials generally poor because of mould attack					

46. Have you observed deterioration resulting from the use of documents by the users?

Yes		No	
-----	--	----	--

47. If “~~Yes~~” to question 46, do you ascribe the deterioration to: (Please tick all the applicable options and where you are required to answer in your own words, use the space provided).

a) Frequent use	
b) Inadequate supervision	
c) Photocopying	
d) Microfilming	
e) Scanning	

f) Other, please specify.....

48. Who carries out conservation treatment? (Please tick or mark X all the applicable options).

a) Done in-house	
b) Done commercially	
c) Done at the national archives (Pretoria)	
d) Not done	
e) Unsure	

Access to information

49. Are all your legal deposit materials open to use at present?

Yes		No		Unsure	
-----	--	----	--	--------	--

50. If your answer is —No to question 49, please explain why access is limited

.....

51. Are users made aware of their access rights and their responsibility to comply with the policies and regulations of your institution?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Unsure	<input type="checkbox"/>
-----	--------------------------	----	--------------------------	--------	--------------------------

52. If your answer is —Yes to question 51, how is this done?

.....

53. Through which of the following finding aids are users able to locate descriptions of your legal deposit? (Please tick or mark X all the applicable options).

a) Card catalogue	<input type="checkbox"/>
b) Word processed registers/inventories	<input type="checkbox"/>
c) Printed guide to whole collection	<input type="checkbox"/>
d) Computer catalogue accessible in-house	<input type="checkbox"/>
e) Computer catalogue accessible remotely (via dial-up modem connection, Telnet, Internet, etc.)	<input type="checkbox"/>
f) Website, please provide URL	<input type="checkbox"/>

g) Other, please specify.....

54. Are any of the following **significant** impediments to the use of your legal deposit materials? (Please tick or mark X all the applicable options).

a) Cannot physically locate them	<input type="checkbox"/>
b) Lack of indexes or other finding aids	<input type="checkbox"/>
c) Necessary playback equipment not available (for example microfilm readers, tape players)	<input type="checkbox"/>
d) Records have deteriorated beyond use	<input type="checkbox"/>
e) Processing backlog	<input type="checkbox"/>

f) Other, please specify.....

55. What equipment does your organisation have at its disposal for use in managing or making your legal deposit materials available? (Please tick or mark X all the applicable options).

a) Photocopier(s)	
b) Document scanners	
c) Computers	

d) Other, please specify.....

56. Are users made aware of their obligation to comply with copyright legislation and access conditions when using information contained in legal deposit materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

57. If your answer is —Yes’ to question 56, please describe how this is done.

.....

.....

.....

.....

58. If —Yes” to question 56, when are the mechanisms communicated to the users?

a) During use	
b) Before use	

c) Other, please specify.....

59. Please rank each of the following priorities for improving the management of your legal deposit collection and making them available for use: (Please tick or mark X one for each row).

Priorities for improving the management of the legal deposit collection	Major priority	Moderate	Minor	Not a priority	Undecided
Increase funding					
Increase capacity of storage space					
Improve storage conditions (temperature & humidity controls, security)					
Improve staff training or expertise					
Improve finding aids					
Automate description systems					
Reformat collections (microfilm, imaging)					
Develop policies/procedures for handling new media					
Preservation/conservation of collections					
Develop disaster plan					

PRESERVATION OF DIGITAL/ELECTRONIC MATERIALS

The term “digital materials” refers to information sources in digital form, including reformatted materials and electronic materials. The definition encompasses materials originally in digital form and that have never existed as print or analog form (also called “born-digital” and “electronic materials”). Preservation refers to long-term storage, maintenance and migration of digital materials.

Digital/electronic materials policy

60. Does your institution currently have any written policies for managing digital materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

Current holdings

61. Does your institution have any digital materials in its holdings for which it assumes responsibility for their preservation?

Yes		No		Unsure	
-----	--	----	--	--------	--

62. Does your institution accept or acquire electronic materials for which it assumes preservation responsibility?

Yes		No go to #64		Unsure	
-----	--	--------------	--	--------	--

63. If ~~Yes~~, do you accept electronic records in any format, or only in specified formats?

Any	
Specified only, please indicate which format

64. Does your institution currently create digital materials as a result of digital conversion projects or by any other conversion methods?

Yes		No		Unsure	
-----	--	----	--	--------	--

Storage methods and formats

If you do not currently have electronic records in your holdings, please, skip to question 78.

65. Does your institution have any dedicated hardware or software systems for the long-term preservation of electronically created records?

Yes		No go to #67		Unsure	
-----	--	--------------	--	--------	--

66. If ~~Yes~~, what hardware/software system(s) are used?

.....

67. Which of the following formats are present in the digital holdings for which your institution assumes preservation responsibility? (Please tick or mark 'X' all the applicable options).

Flat ASCII files (e.g. , Text file with the file extension .TXT)	
Spreadsheet format (e.g., Excel, etc.)	
Magnetic tape (open reel)(e.g., cassettes,etc.)	
Text files with markup (e.g., SGML, HTML, XML, etc.)	
Wordprocessing format (e.g., MS Word, etc.)	
Database format (e.g., Access, FoxPro, etc.)	
Image format (e.g., TIFF, GIF, etc.)	
Video / Moving Images	

Other method, please

specify.....

68. What method(s) do you use to store electronic records, that is, those materials received in digital form? (Please tick or mark X all the applicable options).

Store as received	
Hard drive	
Magnetic tape (cassette or cartridge)	
CD-ROM	
Optical Disc (Rewritable)	
WORM Optical Disk (Write-once-read-many)	
Contract with third party for storage	

Other method, please

specify.....

69. What format do you store electronic records received, please provide examples of storage media and formats?.....

70. Are there any digital materials in your holdings for which you lack the operational and/or technical capacity to mount, read, or access?

Yes		No		Unsure	
-----	--	----	--	--------	--

71. If ~~Yes~~, please give brief details

.....

.....

.....

.....

72. Does your institution have an established method for preserving digital materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

73. Refreshing is the process of copying data from one storage medium to another such as from floppy to CD-ROM". This is done because storage medium becomes obsolete or is damaged over time. Does your institution refresh digital materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

74. If ~~Yes~~, please describe frequency and method:

.....

.....

75. Migration is the transfer of files format from one software/hardware configuration to another. Does your institution migrate digital materials?

Yes		No		Unsure	
-----	--	----	--	--------	--

76. If —~~es~~”, please describe the frequency/method:

.....

.....

77. How would you rank the following factors as threats to the loss of digital materials at your institution within the next 5 years? (Please tick or mark X one for each row).

Threats to the loss of digital materials	Greatest threat	Moderate threat	Minor threat	No threat	Undecided
a) Physical condition					
b) Technological obsolescence					
c) Insufficient policy or plan for preservation					
d) Insufficient resources for preservation					

e) Other, please specify.....

78. Please use the space below for any additional comments or concerns related to the management, care, or use of your organisation’s legal deposit materials.

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Thank you very much for your time.

Appendix 4: Interview schedule

ID.....

Interview Schedule for collecting information on preservation of and access to legal deposit materials in South Africa.

Interviewer: Zawedde Nsibirwa

Date of Interview :.....

INTRODUCTION:

I am a student at the University of KwaZulu-Natal doing a PhD in Information Science. I would like to ask you a few questions about the study I am conducting on legal deposit materials at your institution/depository. The purpose of the study is to identify how legal deposit materials are preserved and accessed in South Africa. The survey is designed to collect data about preservation policies and procedures, storage and handling of legal deposit materials, access to materials and education and training of staff for preservation of these materials. All replies will be treated in the strictest confidence and will not be attributed to particular respondents, organisations, or departments. I realise that there are many other demands on your time, but, the results will be beneficial to all those with responsibility for preserving legal deposit materials. The results of the survey based on the findings may be used as a proposal.

Demographic Data

1. Male Female

2. Which age group do you fall under?

Under 20	20 – 30		31 – 40		41 – 50		51-60		over 60	
----------	---------	--	---------	--	---------	--	-------	--	---------	--

3. What is the highest level of education you have reached?
(Please specify the level)

- Primary school - Grade.....
- High school - Grade.....
- Technikon - Qualifications.....
- University - Qualifications.....
- Other.....

PRINT MATERIALS

Preservation policies

4. Does your organisation have a mission statement?

Yes		No, go to #6		Unsure, go to #6	
-----	--	--------------	--	------------------	--

5. If you answer to question 4 is “~~Yes~~”, please state your mission statement

.....
.....
.....
.....
.....

6. Does your library have a policy to:

a) Improve preservation conditions

Yes		No		Unsure	
-----	--	----	--	--------	--

b) Develop conservation facilities

Yes		No		Unsure	
-----	--	----	--	--------	--

c) Train and recruit qualified personnel

Yes		No		Unsure	
-----	--	----	--	--------	--

7. Is your institution involved in co-operative preservation activities with any of the following types of institutions in South Africa?

a) Libraries

Yes		No		Unsure	
-----	--	----	--	--------	--

b) Art galleries

Yes		No		Unsure	
-----	--	----	--	--------	--

b) Museums

Yes		No		Unsure	
-----	--	----	--	--------	--

c) Research laboratories

Yes		No		Unsure	
-----	--	----	--	--------	--

e) Other, please specify

8. Does your institution have a preservation policy?

Yes		No		Unsure	
-----	--	----	--	--------	--

If, yes can you provide me with a copy or a link to it?

9. If yes to question 8, overall, how successful do you consider your current preservation policy/strategy is in achieving your institution's preservation goals?

a) Extremely successful	
b) Successful	
c) Moderately successful	
d) Unsuccessful	
e) Not successful at all	

10. Please explain the reasons for your answer to the previous question about you're the success of your current preservation policy/strategy?

.....
.....
.....
.....

11. Do you foresee the emphasis of the preservation policy/strategy shifting over the next five years?

Yes		No, go to # 13	
-----	--	----------------	--

12. If yes to question 11, please elaborate in what direction?

.....
.....
.....
.....
.....
.....

Preservation means

13. What is the current annual budget for the library?

.....

14. What percentage of the annual budget is allocated to the legal deposit function of the library?

.....

15. Is the allocation sufficient?

Yes		No	
-----	--	----	--

16. If no to question 15, please specify

.....
.....
.....
.....

17. Does the library receive any alternate funding?

Yes		No	
-----	--	----	--

18. If yes to question 17, please state the organisations that provide extra funding

.....

19. If yes to question 17, please state what the funds are/will be used for

.....

Disaster preparedness and management

20. Is there a written disaster preparedness and recovery plan for your institution?

Yes		No, go to # 26	
-----	--	----------------	--

21. If ~~Yes~~ "Yes", please choose the aspects that it covers from the list below.

a) It deals with safe evacuation of people	
b) It deals with records	
c) It deals with the building	
d) It describes emergency procedures	
e) It outlines disaster response	
f) It lists emergency supplies	
g) Unsure	

h) Other, please specify.....

22. Please name all the natural disasters covered by your plan.

a) Floods	
b) Earthquakes	
c) Tornados	
d) Mould	
e) Insects	
f) Unsure	

g) Other, please specify.....

23. Please name all the human-made disasters covered by your plan

a) Fire	
b) Bomb threats	
c) Vandalism	
d) Unsure	

e) Other, please specify.....

24. When was your disaster preparedness and recovery plan last tested?

.....
.....
.....

25. When was your disaster preparedness and recovery plan last reviewed?

..... Unsure

Level of skills and knowledge in preservation management

26. The table below indicates some of the features of the staff employed in the preservation and conservation of legal deposit materials at your institution? Please indicate the total number of staff involved in each instance. Technical training =technician without university degree; academic=university degree plus professional qualification in conservation. Indicate “NA” where it does not apply.

Variable	Total
Number of staff at your institution	
Staff directly involved in preservation and conservation activities	
Number trained abroad	
Number with technical training	
Number with the highest qualification as Grade 10	
Number with the highest qualification as Grade 12	
Number with the highest qualification as a Certificate in archives or records	
Number with the highest qualification as a bachelor's degree without archives studies	
Number with the highest qualification as a Masters in an archival related discipline	
Number with training in deacidification	
Number with training in microfilming	
Number with training in digital preservation	
Number with training in developing conservation-restoration programmes or surveys	
Number with training in providing advice and technical assistance for conservation-restoration of cultural property	
Number with training in developing and implementing preventive and handling procedures	
Number with training in evaluating conservation problems in context	

Other, please specify.....

27. Are the personnel carrying out preservation activities trained in preservation techniques?

Yes		No		Unsure	
-----	--	----	--	--------	--

Access to information

28. Are users' interests and needs analysed at regular intervals, and policies and practices adjusted accordingly?

Yes		No		Unsure	
-----	--	----	--	--------	--

29. If yes to question 28 please describe how?

.....
.....
.....
.....

30. Is there sufficient physical and technical equipment to facilitate easy and safe access to all types of legal deposit materials held?

Yes		No	
-----	--	----	--

31. If your answer is "No", please give details of the deficiency

.....
.....
.....

32. Are access facilities adequate for the physically challenged (disabled)

Yes		No	
-----	--	----	--

33. Are there established standards governing the quality of service provided by your institution?

Yes		No		Unsure	
-----	--	----	--	--------	--

34. What are your current priorities, in terms of access to the collection for users?

.....
.....
.....
.....

PRESERVATION OF DIGITAL/ELECTRONIC MATERIALS

The term —digital materials” refers to information sources in digital form, including converted materials and electronic materials. The definition encompasses materials originally in digital form and that have never existed as print or analog form (also called —non-digital” and —electronic materials”). Migration refers to periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer technology to a subsequent generation. Reformatting refers to transferring data in their original digital format from old to new storage media. Emulation refers to the use of programmes that mimic obsolete hardware and operating systems. Preservation refers to long-term storage, maintenance and migration of digital materials.

Digital/electronic materials policy

35. Does your institution currently have any written policies for managing digital materials?

Yes		No, go to #44		Unsure	
-----	--	---------------	--	--------	--

36. If ~~Yes~~, where are copies of these available?

- a) Website (give website details)
- b) Publication (give title, publisher)
- c) Other, please describe

37. If ~~Yes~~, does policy provide guidelines for: (Please name all the applicable options).

a) Acquiring materials in digital form	
b) Converting materials from print to digital form	
c) Storage	
d) Reformatting	
e) Migration	
f) Emulation	

g) Other, please specify.....

38. If ~~Yes~~, how well does this policy meet your institution's current needs?

Perfectly		Satisfactorily		Inadequately		Unsure	
-----------	--	----------------	--	--------------	--	--------	--

39. Has your depository have any agreed standards or guidelines for the long-term preservation of electronically created records?

Yes		No, go to #44		Unsure	
-----	--	---------------	--	--------	--

40. If ~~Yes~~, where are copies of these available?

- a) Website (give website details)
- b) Publication (give title, publisher)
- c) Other, please describe

Digital preservation expertise

41. Does your institution plan to increase the level of staff expertise with digital preservation?

Yes		No		Unsure	
-----	--	----	--	--------	--

42. If you answer to question 41 is “Yes”, what methods does your institution plan to use over the next 3 years to increase the level of staff expertise with digital preservation? (Please name all the applicable options).

a) Local courses in computer or digital technology	
b) Training provided by professional organisations	
c) Training provided by vendors	
d) Independent study/assessment	
e) Hire staff with digital knowledge or experience	

f) Other, please specify.....

43. What is the highest level of knowledge available in-house for digital preservation activities?

Expert		Intermediate		Beginner		Novice		None	
--------	--	--------------	--	----------	--	--------	--	------	--

44. Do you have any additional comments or concerns related to the management, care, or use of your organisation’s legal deposit materials?

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Thank you very much for your time.

Appendix 5: Letter to NLSA

Zawedde Nsibirwa - Preservation of and access to legal deposit materials in South Africa

From: Zawedde Nsibirwa
To:
Date: 2012/02/10 09:27 AM
Subject: Preservation of and access to legal deposit materials in South Africa

Dear

I am student at the university of KwaZulu-Natal doing a PHD in Information studies. I approached you last year asking if I could ask you a few questions with regard to my study. Due to your busy schedule I was unable to interview you. I have now managed to collect data from other depositories and have put together the results and I would appreciate it if you could clarify a number of the findings for me:

- The study found that depositories do not have policies to improve preservation conditions, develop conservation facilities as well as train and recruit staff. Does the NLSA have these policies in place?
- The study found that the depositories do not have funds allocate from their budget for legal deposit specifically. The only money used for legal deposit from budgets is used to cover staff salaries only. Who is responsible for funding legal deposit? Does the NLSA have funds allocated specifically for legal deposit? How much is the NLSA budget and what percentage is allocated to legal deposit?
- Depositories are not prepared for disasters. Does the NLSA have a disaster plan? If you do could you please send me a copy.
- The researcher also found that staff carrying out preservation activities are not trained in preservation techniques. Are the staff at the NLSA who deal with legal deposit trained in this field?
- Majority of the depositories do not have physical and technical equipment to facilitate access of materials. What sort of physical and technical equipment do you have at the NLSA?
- Does the NLSA have any written digital policies?
- How does the legal deposit committee support the depositories?

Should you have any queries about these questions, please do not hesitate to contact me.

Thank you for your assistance.

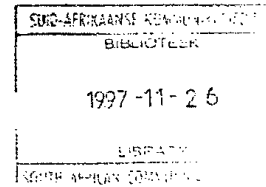
Yours faithfully

Zawedde Nsibirwa
Tel:033 2605685
Cellphone: 0837493138
E-mail: zawedde@unsw.edu.au

Appendix 6: The South African Legal Deposit Act



REPUBLIC OF SOUTH AFRICA



GOVERNMENT GAZETTE

STAATSKOERANT

VAN DIE REPUBLIEK VAN SUID-AFRIKA

Registered at the Post Office as a Newspaper

As 'n Nuisblad by die Poskantoor Geregistreer

VOL 389

CAPE TOWN, 14 NOVEMBER 1997

KAAPSTAD, 14 NOVEMBER 1997

No. 18424

PRESIDENT'S OFFICE

No. 1511.

14 November 1997

It is hereby notified that the President has assented to the following Act which is hereby published for general information:—

No. 54 of 1997: Legal Deposit Act, 1997

KANTOOR VAN DIE PRESIDENT

No. 1511.

14 November 1997

Hierby word bekend gemaak dat die President sy goedkeuring gegee het aan die onderstaande Wet wat hierby ter algemene inligting gepubliseer word:—

No. 54 van 1997: Wet op Pliglewering, 1997,

ACT

To provide for the preservation of the national documentary heritage through legal deposit of published documents; to ensure the preservation and cataloging 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 1997.)*

BE IT ENACTED by the Parliament of the Republic of South Africa, as follows:—

Definitions

1. In this Act, unless the context indicates otherwise—

- (i) "Committee" means the Legal Deposit Committee referred to in section 8; 5
(vii)
- (ii) "Department" means the Department of Arts, Culture, Science and Technology; (iii)
- (iii) "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; (iv) 10
- (iv) "medium" means any means of recording or transmitting information intended for subsequent reading, listening or viewing; (viii) 15
- (v) "Minister" means the Minister of Arts, Culture, Science and Technology; (ix)
- (vi) "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 No. 93 of 1992); (i) 20
- (vii) "official publications depository" means a place of legal deposit designated in accordance with section 6; (ii)
- (viii) "place of legal deposit" means a library or institution referred to in section 6; (x) 25
- (ix) "prescribed" means prescribed by regulation made under section 12; (xii)
- (x) "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 30
(b) the members of an association or a society, the membership of which is open to any qualifying member of the public; (v)
- (xi) "publisher" means the person who or body, whether public or private, which—
(a) publishes and distributes a document; 35
(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; (xi) 40

(xii) "this Act" includes the regulations made under section 12. (vi)

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. 5

(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. 10

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. 15

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. 20

(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). 25

(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. 30

(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. 35

(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. 40

(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— 45
(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 5 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 10 deposit in each province [o 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: 15 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 20 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 inventorise; and 25
- (c) ensure freedom of access to,

the documents supplied in terms of section 2(1).

(2) 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 30
- (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 35 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 40 No. 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, 45 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 50 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 55 *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 earned 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 No. 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 5
(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

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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*.

15

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. 15 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 (Gazankulu)	National Library Service Act, 1982	Section 14(4)
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 15