

**ACCESSIBILITY OF GREY LITERATURE ORIGINATING FROM PUBLIC
UNIVERSITIES IN TANZANIA**

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**A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN LIBRARY AND
INFORMATION SCIENCE OF THE OPEN UNIVERSITY OF TANZANIA**

2012

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the Senate of The Open University of Tanzania, a thesis titled “**Accessibility of Grey Literature Originating from Public Universities in Tanzania**” in fulfilment of the requirements for the degree of Doctor of Philosophy in Library and Information Science.

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DECLARATION

I, **Athumani S. Samzug**i, declare that this thesis is a product of my own original work and that it has not been presented and will not be presented to any other university or any institution of higher learning for a degree or any other award.

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DEDICATIONS

This thesis is dedicated first and foremost to my dear wife, Messiah, and my three precious daughters, Hellen, Hoise and Hope. You are so special to me.

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ABSTRACT

The main objective of this study was to investigate access to grey literature originating from public universities in Tanzania. To accommodate the research problem and fulfil the objectives of this study, both secondary and primary sources of data were used. The primary data was obtained from both self-administered questionnaires, structured interview protocol, Focused Group Discussions (FGDs), observations and bibliometric analysis. The questionnaire was administered to a sample of 100 library staff, 248 postgraduate students, 500 research and teaching staff. In-depth interviews were conducted with the directors of libraries, directors of research and postgraduate studies of SUA, Mzumbe, UDSM, OUT and SUZA Universities. In all, 16 librarians and two moderators participated in the FGDs conducted at the libraries of Sokoine University of Agriculture (SUA) and the University of Dar es Salaam. Non-participant observation was carried out at the UDSM and SUA libraries, specifically in the East Africana Section. On the other hand, secondary data were obtained through the review of literature from various sources connected with grey literature generation. The initiatives made by various countries in the world to make grey literature accessible to users were reviewed.

The data collected was related to the types and manner in which grey literature is generated and managed, as well as the barriers to accessing such grey literature, the mechanism used to disseminate such literature, the acquisition and the potential offered by ICT as a tool to accessing grey literature. Bibliometric analysis was deployed in the analysis of citation references appearing in doctoral theses defended and submitted to the University of Dar es Salaam (UDSM) and The Open University

of Tanzania (OUT) libraries as well as the refereed journals available in those two libraries. The analysis of the citation pattern of grey literature in the references confirmed that the coverage of grey literature remains insignificant despite its value, hence reaffirming the importance of making such literature easily accessible to the users.

The study established that public universities in Tanzania generate a substantial amount of grey literature through research, teaching and consultancy activities. Such information includes theses and dissertations, research reports, unpublished conference proceedings, faculty discussions and working papers. These documents contain very valuable information crucial to the development of this country and in solving societal problems. However, the study found that the publications are neither accessible nor known to potential users outside that particular university and a large segment of the public. Furthermore, the study developed a model suitable for enhancing access to grey literature generated by public universities in Tanzania where the Tanzania Commission for Universities (TCU) is supposed to maintain a website that shows all researches done and those in progress for all the universities in the country.

On the basis of the study's findings, it can be concluded that, the grey literature in their varied forms and types continue to be one of the most important means of transferring, especially, research-based information in addition to serving as a vital source of such recorded data. Therefore, public universities in Tanzania should make sure that such information is collected, processed, properly managed to facilitate and broaden access to such pertinent information. In this regard, the study proposes the

formation of databases and institutional repositories within libraries of the respective universities to properly deal with their grey literature generated internally. Through these databases and institutional repositories public universities will handle and afford wider access to the internally-generated grey literature. The study recommends the use of Information and Communication Technology (ICT) as a viable means towards enhancing access to such valuable sources of information. It is recommended that further studies be conducted in the trend of grey literature use in private universities and national research managing bodies such as COSTECH and on accessibility and use patterns of grey literature produced by institutions dealing with poverty alleviation in Tanzania.

Key Words: Grey Literature, Public Universities, Tanzania

TABLE OF CONTENTS

CERTIFICATION	i
COPYRIGHT	ii
DECLARATION	iii
DEDICATIONS	iv
ACKNOWLEDGEMENTS	v
ABSTRACT	vii
CHAPTER ONE.....	1
1.0 INTRODUCTION TO THE STUDY	1
1.1 Introduction.....	1
1.2 Factors Contributing to Inaccessibility of Grey Literature.....	4
1.3 Access to Grey Literature Initiatives.....	6
1.3.1 The State of Grey Literature in Public Universities in Tanzania.....	6
1.4 Background to the Problem	9
1.5 Statement of the Problem	13
1.6 Purpose and Objectives of the Study	15
1.6.1 Specific Objectives.....	15
1.7 Research Questions	15
1.8 Significance of the Study.....	16
1.9 Scope and Limitations of the Study	17
1.10 Conceptual Framework	18
1.11 Definition of Key Terms	21

1.12 Summary	24
CHAPTER TWO.....	26
2.0 CONTEXT OF THE STUDY.....	26
2.1 Introduction.....	26
2.2 The Country and the Study Area	26
2.3 Climate	27
2.4 Administration and Political System.....	28
2.5 The People and Population	28
2.5.1 Population	28
2.5.2 Languages and Culture	30
2.6 The Economy.....	30
2.7 Education in Tanzania	33
2.7.1 Tertiary Education.....	34
2.7.1.1 The Evolution of Public Universities in Tanzania	37
2.8 Development of Academic Libraries in Tanzania	38
2.8.1 Composition of Academic Library Collections	44
2.8.2 Published Literature	45
2.8.2.1 Grey Literature.....	45
2.9 The Study Area	45
2.10 Summary.....	48
CHAPTER THREE	48
3.0 REVIEW OF RELATED LITERATURE	48
3.1 Introduction.....	48
3.2 Definition and Composition of Grey Literature	50

3.2.1 Conceptual Definitions and Descriptions of Grey Literature as Library Materials.....	51
3.2.2 Grey Literature Definitions.....	58
3.3 Characteristics of Grey Literature.....	60
3.4 Components and Characteristics of Traditional Grey Literature.....	61
3.5 Types of Grey Literature and Issuing Bodies	65
3.6 Volumes of Grey Literature Produced	66
3.7 Role of Grey Literature in Research	67
3.8 The Identification, Acquisition, Accessibility and Usage of Grey Literature...	70
3.9 Methods of Acquisition	70
3.10 Accessibility of Grey Literature.....	72
3.11 Historical Perspective of Grey Literature in Developed Countries	77
3.11.1 Historical Development of Grey Literature from 1970s - 1980	84
3.11.2 Experiences of Collecting and Accessing Grey Literature in Developed Countries: The Case of Theses and Dissertations, Reports, Faculty discussion papers and Unpublished Conference Proceedings.....	87
3.11.2.1 Theses and Dissertations.....	87
3.11.2.2 Reports.....	92
3.11.2.3 Faculty Discussion Papers and Working Papers	95
3.11.2.4 Conference Proceedings/Workshops/Symposia.....	96
3.12 Historical Perspective of Grey Literature in Developing Countries	97
3.13 Historical Perspective of Grey Literature in Africa	102
3.13.1 Accessibility of Grey Literature in African University Libraries	109
3.13.2 Theses and Dissertations in African Universities	110

3.14	Historical Perspective of Grey Literature in Tanzania.....	111
3.14.1	Theses and Dissertations	112
3.14.2	Unpublished Conference Proceedings.....	117
3.14.3	Faculty Discussion Papers and Working Papers.....	119
3.14.4	Reports.....	120
3.15	Role of International Organisations in Enhancing Grey Literature Collection and Accessibility.....	122
3.15.1	Grey Net.....	122
3.15.2	SIGLE and EAGLE.....	123
3.15.3	Institutional Repository	123
3.15.4	Networked Digital Library of Theses and Dissertations (NDLTD).....	124
3.16	Role of ICTs in Facilitating Access to Grey Literature.....	125
3.17	Research Gap and Motivation for the Study.....	127
3.18	Summary.....	128
	CHAPTER FOUR	129
4.0	RESEARCH METHODOLOGY.....	129
4.1	Introduction.....	130
4.2	The Research Purpose	130
4.3	The Research Approach	132
4.4	The Research Design.....	135
4.5	Grounded Theory Approach	135
4.6	Application of Grounded Theory Method in this Study.....	139
4.7	Area of study.....	140
4.8	Population sampling and Sample Size of the Study	141

4.8.1 The target population	141
4.8.2 Sampling Method.....	142
4.8.2.1 Purposive sampling	143
4.8.3 The study sample	144
4.8.4 Data Collection Methods.....	147
4.8.5 Secondary Data	147
4.8.6 Primary Data	148
4.9 Data Collection Instruments	149
4.9.1 The Questionnaire	150
4.9.2 Interview Guide.....	151
4.9.3 Focus Group Discussion Guide	154
4.9.4 Observation Guide.....	156
4.9.5 Citation Analysis.....	157
4.9.6 Post-Citation Analysis Interviews.....	161
4.9.7 Pre-testing of the Research Instruments	161
4.9.8 Administration of the Research Instruments	162
4.10 Data Analysis	162
4.11 Data Quality Control	163
3.11.1 Triangulation.....	164
4.11.2 Rigorousness and Seriousness in Procedures	164
4.11.3 Ethical Issues	164
4.11.3.1 Trustworthiness, credibility and transferability	165
4.11.3.2 Transferability	166
4.12 Summary.....	167

CHAPTER FIVE	168
5.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF THE RESEARCH FINDINGS	168
5.1 Introduction	168
5.2 Characteristics of the Respondents	169
5.2.1 Distribution of Respondents by Category and Gender	169
5.2.2 Distribution of Library staff by Academic Qualifications	170
5.2.3 Library Staff by Institutions.....	171
5.3 Types of Grey Literature Generated in Public Universities and Usage	172
5.3.1 Theses and Dissertations	173
5.3.2 Research and Consultancy Reports	174
5.3.3 Unpublished Conference Proceedings	175
5.3.4 Faculty Discussion Papers and Working Papers	175
5.4 Grey Literature Acquisition and Management in Public Universities.....	176
5.4.1 Acquisition of Grey Literature in Public Universities.....	176
5.4.1.1 Institutional Regulations.....	177
5.4.1.2 Legal Deposit	179
5.4.1.3 Complimentary Copies	180
5.4.1.4 Direct Purchase	180
5.4.1.5 Seminar, Workshop and Conference Attendance	181
5.4.1.6 Internal Policies in Relation to the Acquisition of Grey Literature	182
5.4.1.7 Follow-up.....	183
5.4.1.8 Internal policies	183
5.4.1.9 Zones for Collection of Published and Unpublished Materials	184

5.5 Management of Grey Literature in Public universities	186
5.5.1 Processing of Grey Literature	186
5.5.2 Electronic Bibliographic Databases	187
5.5.3 Digitisation Projects	187
5.6 Access to Grey Literature	188
5.6.1 Mechanisms used by Public Universities to Disseminate Information on Grey Literature	188
5.6.2 Library Website	190
5.6.3 Theses and Dissertations Abstracts	192
5.6.4 Research Bulletins	192
5.6.5 Access through the use of ICT	194
5.6.6 Database of African Theses and Dissertations	194
5.6.7 Deposition of Theses and Dissertations in Soft Copies	196
5.6.8 Exhibitions	196
5.7 Opinions of Library/Academic Staff Regarding Access to Grey Literature	197
5.8 Usage of Grey Literature as Revealed by Bibliometric Analysis	199
5.8.1 Post-bibliometric interviews	200
5.8.2 Barriers to Access and use of Grey Literature	207
5.8.3 Respondents' Opinions on Barriers to Accessing Grey Literature	209
5.8.3.1 Lack of Bibliographic Control	209
5.8.3.2 Restricted Access	209
5.8.3.3 Lack of Marketing Strategies	211
5.8.3.4 Lack of appreciation of the value of grey literature	212
5.8.3.5 Self-centredness	212

5.8.3.6	Number of copies deposited.....	212
5.8.3.7	Copyright and Intellectual Property Rights	213
5.8.3.8	Confidentiality and Terms of Contract.....	214
5.8.3.9	Weak Documentation Mechanism	214
5.8.3.10	Lack of Inventory or Research Register	216
5.8.3.11	Language Barrier	217
5.9	Strategies to Ease Access to Grey Literature.....	218
5.9.1	Recommendations from the Respondents.....	218
5.9.2	Research and Teaching Staff Recommendations.....	220
5.9.3.1	Policies, Strategies, Recommendations to Improve Grey Literature Access	221
5.9.3.2	Database and Institutional Repository.....	221
5.9.3.3	Registration of Researches at the National Level	221
5.9.3.4	Raising Awareness on the Value of Grey Literature.....	222
5.9.3.5	Communication Channels.....	222
5.9.3.6	Dissemination of Research Findings	223
5.9.3.7	Advocacy through Public/Inaugural Lectures	224
5.9.3.8	Formation of Institutional Repository	224
5.9.3.9	Research Policy.....	225
5.9.3.10	Library Consortium to Facilitate Access and Usage of Grey Literature	225
5.10	ICT Application in Management and Accessing Grey Literature.....	225
5.10.1	Status of ICT facilities	225
5.10.2	Network Bandwidth	226
5.10.3	ICT Skills among Library Staff.....	227

5.10.4 ICTs Application in Commercial and Grey Literature Database Management	230
5.10.5 Publishing on-line by Academic Staff.....	232
5.11 Summary.....	234
CHAPTER SIX.....	235
6.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	235
6.1 Introduction.....	235
6.2 Summary of findings	237
6.2.1 Types of grey literature generated in Public Universities in Tanzania	237
6.2.2 Acquisition of Grey literature	237
6.2.3 Management of Grey Literature.....	237
6.2.4 Access and Usage Grey Literature.....	238
6.2.5 Barriers to Accessing and Using Grey Literature	239
6.2.6 Potential of ICT (PC) as Grey Literature Accessing Tool	240
6.2.6.1 Status of ICT (PCs) facilities	240
6.2.6.2 ICT skills among library staff.....	240
6.2.6.3 ICT Application in Commercial and In-house Databases	240
6.2.6.4 Mechanisms Used to Disseminate Grey Literature.....	241
6.2.6.5 Library websites	241
6.2.6.6 Publishing On-line by Academic Staff.....	241
6.3 Conclusions.....	241
6.4 Recommendations.....	243
6.5 Proposed Model of Grey Literature Access and Usage	244

6.6 Recommendations for Further Study	246
REFERENCES	249
APPENDICES	272

LIST OF TABLES

Table 3.1: BLDSC Grey Literature Stock Since 1997.....	82
Table 3.2: Grey Literature Holdings at British Library Documentation Centre	82
Table 3.3: Distribution of Citations by Format	105
Table 3.4: Frequency of Use of Grey Literature and Average Citation of Grey Literature per Article in Selected Journals Published in Africa in 1997	107
Table 3.5: Deposition of Theses and Dissertations in Public Universities in Tanzania in 2009	113
Table 4.1: Distribution of the Study Sampleí í í í í í í í í í í í í í	146
Table 4.2: Gender and Academic Qualifications of FGD Participants.....	155
Table 5.1: Distribution of Respondents by Category and Gender (N=848)í í í	169
Table 5.2: Distribution of Library Staff by Academic Qualifications (N=100).....	171
Table 5.3: Distribution of Library Academic Staff by Institutions (N=100).....	172
Table 5.4: Regulations for Depositing Theses and Dissertations in Public Universities in Tanzania.....	176
Table 5.5: Deposition of Dissertations and Theses by Teaching Staff and Postgraduate Students	177
Table 5.6: Library Budget in Surveyed Public Universities	181
Table 5.7: Services Provided by Public Universities to Facilitate Access to Grey Literature.....	189
Table 5.8: Opinion of teaching/research staff on Access to Grey Literature.....	199
Table 5.9: Grey Literature Citation in Theses and Dissertations at OUT.....	200

Table 5.10: Status of Citation of Grey Literature in Selected Theses and Dissertations Submitted to the UDSM Library	202
Table 5.11: Distribution of Citations in Journals by Format and Use Frequency	205
Table 5.12: Respondents' opinions on barriers to accessing grey literature	208
Table 5.13: Respondents' Recommendations on Grey Literature Access and Use	220
Table 5.14: The Status of ICT (PCs) Facilities (N=5)	227
Table 5.15: Types of ICT training attended by library staff	229
Table 5.16: ICT Skills Possessed by Library Staff	229
Table 5.17: Staff publishing online	233

LIST OF FIGURES

Figure 1.1: Conceptual Framework of Grey Literature Access in Public Universities in Tanzania formulated on the basis of Literature Review and Field Research 2007/2009.....	20
Figure 1.2: Trends in Population Size (1948-2002)	29
Figure 4.1: Grounded Theory Processes and Outcomes.....	138
Figure 4.2: Methods of Data Collection.....	148
Figure 5.1: Existence of Websites in University Librariesí í í í í í í í ...	191
Figure 5.2: Opinions of Library Staff Regarding Access to Grey Literature.....	198
Figure 5.3: Possession of ICT Skills by Library Staff	228
Figure 6.1: Proposed Model of Grey Literature Access and Usageí í í í í .	245

LIST OF PLATES

Plate 5.1: Database of African Theses and Dissertations.....	195
Plate 5.2: The East Africana Collection at the UDSM Library	211
Plate 5. 3: Theses and Dissertations at the UDSM Library.....	223

LIST OF APPENDICES

Appendix 1: Questionnaire on Accessibility of Grey Literature Originating from Public Universities in Tanzania for Library Staff	272
Appendix 2: Questionnaire for Teaching and Research Staff.....	279
Appendix 3: Questionnaire for Postgraduate Students	282
Appendix 4: Semi-structured Interview Schedule for Directors of Research and Postgraduate Studies.....	285
Appendix 5: Research Instruments for Directors of Public University Libraries	287
Appendix 6: Focused Group Discussion Guide	289
Appendix 7: Observation Checklist	291
Appendix 8: Research Permission	293
Appendix 9: Research Clearance Letter.....	294
Appendix 10: University of Dar es Salaam Library	295
Appendix 11: African University Ranking	301

MAP

Map 2.1: Tanzania-Location of the Study Areas.....	27
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LIST OF ABBREVIATIONS ACRONYMS

AAU	- Association of African Universities
AGRIS	- Agricultural Research Information System
AFNOR	- Association Francoise de Normalisation
ARU	- Ardhi University
BL	- British Library
BLDSC	- British Library Document Supply Centre
BRTT	- British Reports, Translations and Theses
CAS	- Current Awareness Services
CD-ROM	- Compact Disk-Read Only Memory.
CIP	- Catalogue in Publications
CISTI	- Canada Institute for Scientific and Technical Information
COSATI	- Committee on the Scientific and Technical Information
COSTECH-	Commission for Science and Technology
CVCTPT	- Committee of Vice-Chancellors and Principles in Tanzania
DATAD	- Database of African Theses and Dissertations
DEVSI	- Development Science Information System
DUCE	- Dar es Salaam University College of Education
EAGLE	- European Association for Grey Literature Exploitation
ERB	- Economic Research Bureau
ESRF	- Economic and Social Research Foundation
ETD	- Electronic Theses and dissertations
FGD	- Focused Group Discussion

GDP	- Gross Domestic Product
GL	- Grey Literature
ICP	- Index of Conference Proceedings
ICT	- Information and Communication Technology
IDM	- Institute of Development Management
IDRC	- International Development Research Centre
IFLA	- International Federation for Library Association
IGWG	- Interagency Grey Literature Working Group
ILO	- International Labour Organisation
INIS	- International Nuclear Information System
IPR	- Intellectual Property Rights
ISBN	- International Standard Book Number
ISSN	- International Standard Serial Number
IUCEA	- Inter-University Council for East Africa
LAN	- Local Area Network
MU	- Mzumbe University
MUCE	- Mkwawa University College of Education
MUHAS	- Muhimbili University of Health and Allied Science
NAS	- National Agriculture System Network
NDLTD	- Networked Digital Library of Theses and Dissertations
NCL	- Non-Conventional Literature
NIR	- National Institute of Development Research and Documentation
NTIS	- National Technical Information System
OECD	- Organisation for European Economic Development

OPAC	- Online Public Access Catalogue
OSRD	- Office of Scientific Research and Development
OUT	- Open University of Tanzania
RAS	- Russian Academy of Sciences
RPCC	- Research, Publications and Consultancy Committee
SABINET	- South African Bibliographic Network
SCONUL	- Standing Conference of National and University Libraries
SDI	- Selective Dissemination of Information
SNAL	- Sokoine National Agriculture Library
SIGLE	- System for Information on Grey Literature Exploitation
SNAL	- Sokoine National Agriculture Library
SUA	- Sokoine University of Agriculture
SUZA	- State University of Zanzibar
TANU	- Tanganyika African National Union
TCU	- Tanzania Commission for Universities
UAP	- Universal Availability of Publications
UBC	- Universal Bibliographic Control
UCDC	- University College Development Committee
UCLAS	- University College of Lands and Architectural Studies
UDSM	- University of Dar es Salaam
UK	- United Kingdom
UMI	- University Microfilms International
UNDP	- United Nations Development Programme
UNESCO	- United Nations Educational, Scientific and Cultural Organisation

- URT - United Republic of Tanzania
- VINITI - Scientific and Technical Information Centre of Russia
- WWW - World Wide Web.

CHAPTER ONE

1.0 INTRODUCTION TO THE STUDY

1.1 Introduction

Public universities in Tanzania are major producers as well as the greatest consumers of grey literature. Most of their academic activities are based on various written research papers whose products come in the form of research reports, theses and dissertations, working papers, papers presented at workshops or conferences, faculty discussion papers presented at the faculty or departmental levels as well as during inaugural lectures for professors. They form a class of literature used more by students, researchers and academicians in higher learning institutions than anyone else outside the corridors of the world of academia. However, obtaining information pertaining to their existence and accessibility is not always that easy. It has been argued by Natarajan and Bhakta (2007) that one of the difficulties of identifying grey literature is that the producers do not consider their publications to be difficult to find.

On the whole, this type of materials is significant because it directly emanates from the research activities of the university and, therefore, contains valuable information pertinent to the understanding and generation of further knowledge pertaining to their respective fields. As centres of intellectual and scholarly research, universities are expected to take a keen interest in the creation, dissemination and preservation of knowledge for broader economic gains through commercialisation of university outcomes (Gideon, 2008).

Grey literature, or locally generated information, is increasingly becoming an important source of information in the academic world. It is not only an important medium of communication of ideas in the world of academia, but also an indispensable primary source of information for research and decision-making. Kufa (1993) argued that lecturers need to use grey literature to make the courses they teach more relevant to the local needs in Africa, especially considering that in any case, the majority of the textbooks used in most of the universities in developing countries tend to be written in Europe or North America and, therefore, are oriented towards the specific needs of those countries in those areas (Kufa, op.cit.). Mawdsley (2002) noted that without knowledge relevant to local circumstances and conditions, no project or other intervention can succeed. Indeed, research output addressing issues endemic to the country needs to be given wide circulation so that the research findings can be applied in addressing problems in that specific context (Gideon, 2008).

In terms of definition, grey literature refers to publications issued by the government, academia, business, and industry. It can be available in both print and electronic formats. Such literature is not controlled by commercial publishing interests (Tillett, 2006). According to Siegel (2004), the academic grey literature is produced by faculty or staff for the purposes of sharing scholarly information with others. Its distribution may be informal or restricted and limited in scope. Such scholarly generated materials are vital sources for research and general academic use because of their originality, relevance, and thematic coverage. Essentially, they report on current ideas and latest research findings on specific subjects. Such literature also

complements peer-reviewed findings. Furthermore, grey literature contains a wealth of empirical data, which provides the public with the information they require to make informed decisions. In fact, Kufa (1993) argued that the importance of grey literature in academic circles cannot be doubted since excellence in research depends partly on the exploitation of raw data for a specific task or project.

Generally, research tends to focus on specific areas of a discipline and readers often desire additional information to help place the research in a wider context. As a vehicle for transmitting the results of intellectual output, grey literature becomes an integral part of the research process. Therefore, grey literature can fill the readers' knowledge gaps by presenting the topic in greater details, hence allowing the readers to gain a larger perspective of knowledge on the topic. Indeed, such documents contain very valuable and detailed information such as observations, analysed data, primary data and conclusions, which constitute the key research outputs and intellectual capital of the country. However, for grey literature, such as research reports, theses and dissertations, unpublished conference proceedings to be used effectively, they must be collected, organised and made accessible systematically to the intended users. And yet, available literature shows that there are problems related to accessing such grey literature despite their availability. Only an insignificant portion of such grey literature gets published in local journals, which in turn only have minimal circulation due to poor distribution and lack of marketing strategy (Gideon, 2008). As a result, the bulk of such grey literature is either rarely consulted or cited at all. CSTC (1986) noted that research is not complete until the findings have been made available and accessible. In reality, access to grey literature from

various academic works remains problematic. This study intended to determine the level of access to the grey literature originating from public universities in Tanzania.

1.2 Factors Contributing to Inaccessibility of Grey Literature

People cannot use information in whatever format unless they have access to it (Powell, 2003). It is the flow and exchange of information that helps to create its value (Powell, 2003). In making effective planning and good decisions, research institutions, universities, policy-makers and the general public rely not only on accurate, timely, relevant and easily accessible information, but also on information that is presented in a meaningful way (Mchanja, 2008). Whereas grey literature information generated in public universities is regarded as an important source of information, much of the information cannot easily be accessed. Analysing the situation of African universities, Raseroka (1999) noted that although higher learning institutions in Africa use and produce grey literature for academic purposes, this information is not systematically collected and organised for easy accessibility. As a result, such information sources are not widely disseminated, let alone extensively used by the researchers, students, policy-makers and the general public. Moahikh (2009) observed that African Universities are ranked lowest in terms of research outputs and utilisation. According to the world university rankings, the highest ranked university is the University of Cape Town, which is ranked at a distant 349 in the world out of 6,000 universities and number one in Africa. This general poor ranking for African universities indicates that the visibility of African university research output including grey literature is very negligible (Moahikh, 2009). In the African ranking of universities, it is worth pointing out that, only two

of Tanzania's universities made it to the top hundred best universities in the region. These are the University of Dar es Salaam ranked in the 22nd position and Sokoine University of Agriculture ranked 64th in Africa. The ranking was done by using the Webometrics ranking method. Webometrics University Ranking is a ranking system based on university web-site presence, visibility and web access. This ranking system measures how strongly a university is present in the wide-wide web through its own web domain, sub-pages, rich files, and scholarly articles. The central hypothesis of this approach is that web presence is a reliable indicator of the global performance and prestige of the universities and, as such, is an indirect way to measure all the university missions (teaching, research, transfer). Although the Web is universally recognised as one of the most relevant tools for scholarly communication, it is still very rare that these indicators are used for the evaluation of the scientific research and the academic performance of universities. Webometric indicators are provided to show the commitment of the institutions to Web publication (http://en.wikipedia.org/wiki/Webometrics_Ranking_of_World).

The author of this work also had a similar experience in the course of conducting this study. The inhibiting factors included lack of awareness of the existence of such grey literature by the wider community, inability on the part of the in on accessing restricted information, and poor bibliographical information. On the whole, underestimation of the value of grey literature by some of the producers of such information and budgetary constraints was found to be one of the bottlenecks associated with grey literature accessibility. A further complicating factor, as noted by the Boston University Library Services (2008) is that the distribution channels of

grey literature tends to bypass national libraries, archiving systems that serve as repositories and sources of ready-made standardised cataloguing records. As a result, such materials are hidden in the un-catalogued sections of the library collections.

1.3 Access to Grey Literature Initiatives

The importance of grey literature in the world is demonstrated by a number of initiatives within the field. Such initiatives include the formation of Grisel Project in France, the Library Document Supply Centre in the UK, the Russian Union Catalogue of Grey Literature, and the System for Information on Grey Literature in Europe (SIGLE), which is maintained and operated under the auspices of the European Association for Grey Literature Exploitation (EAGLE). Other initiatives include the formation of Institutional Repositories. According to Lynch (2003), institutional repository is a digital archive of intellectual product created by faculty, research staff, and students of an institution and accessible to end users both within and outside the institution, with few barriers to access. The role of institutional repository is to collect, preserve and provide accessibility to the host institutions' research output. In the university environment, materials involved could include theses, dissertations, conference and working papers, committee papers, teaching materials and student projects. In countries such as Tanzania, however, such initiatives are not well-articulated, let alone well-co-ordinated.

1.3.1 The State of Grey Literature in Public Universities in Tanzania

One of the basic universal missions of universities, apart from training young minds needed for public and private economic sectors, is to conduct research and offer

public services to the community (URT, 1999). As a matter of fact, the laws that established the universities covered in this study have been repealed and replaced by the University Act No 7 of 2005 and Charters. As a result, public universities in Tanzania have been mandated to conduct research and provide consultancies that address the socio-economic and development problems of the Tanzanian community. Hence, as part of their mandates, these public universities are engaged in research and generate a lot of information in the form of Grey Literature. Such documents contain vital and often detailed and up-to-date information such as observations, important and critical analyses and primary data. These constitute key research findings crucial to the development of the country.

Grey literature produced encompasses a vast range of information types. It includes theses and dissertations, scholarly papers, research findings, reports, conference papers, workshop proceedings, faculty discussion papers and official publications. Of these documents, only theses and dissertations have formal processing mechanisms and, therefore, are processed and deposited physically in respective university libraries. Other types of grey literature are neither processed nor deposited in these university libraries. And yet, many of these research reports contain valuable information pertaining to the development of the country. In fact, much of such information is hardly ever accessed. One of the major issues that have been identified in studies by Kufa (1994) which inhibits access to grey literature is a general lack of knowledge on their existence by the potential users such as students, researchers, academicians, policy and decision makers. Furthermore, most of such literatures do not find its ways into the common pool of abstracting and indexing from which other

publications benefit. In consequence, much of these materials is of limited circulation and does not bear any price value. Not surprisingly, many of these documents do not find their way into the bookshops and other selling points. There are two negative results of such a trend. Firstly, valuable data is not accessed and shared on a broad scale in the country. Secondly, important research work conducted in the country is not shared with the rest of the world, hence the failure of the scholars and researchers to get the recognition of their research and efforts they made. Apart from these challenges, information professionals are nevertheless compelled to collect, preserve and facilitate access to the scholarship materials.

In fact, the establishment of more universities both public and private in Tanzania has increased the output of grey literature information in a form of theses, dissertations, reports and faculty discussion papers. Such information generation is only one dimension of the research process. Sharing the findings with users from different categories is another crucial dimension that, in this case, tends to be neglected. Indeed, much of the outputs of the research findings from public universities in the grey literature formats are hard to get hold of because the existing mechanisms designed to make them accessible and oftentimes tend to be limited in scope and user-friendliness. Consequently and inevitably, their availability is little known to the users. Moreover, most of these materials are stocked in sections of the university libraries, special collections, with severely limited access. Very few users, especially at the postgraduate level, tend to access them. Generally, they are not easily accessible to the public for wider dissemination and readership. Access to other types of grey literature, such as reports is restricted and, sometimes, there is no

system of collecting and organising such materials. Many of the faculty discussion papers are not even collected or systematically organised for easy access. Such dire situation has made the intellectual contributions of these universities remain insignificant and unappreciated by other professionals, members of the public, and other potential users.

1.4 Background to the Problem

Scientific and technological information and knowledge is critical to the development of Africa in general, and Tanzania in particular. However, Chisenga (2006) noted that very little research output from Africa finds its way into the international journals. Much of it is in the form of grey literature (i.e. unpublished information and knowledge resources including research reports, theses and dissertations, unpublished seminars and conference papers) which is not visible and easily accessible to potential users. As centres for intellectual and scholarly research, public universities in developing countries are expected to take an interest in the generation, preservation and facilitation of access to the generated knowledge including grey literature.

Grey literature, as one of the primary sources of information, is the lifeblood of university research, teaching and services to the community. It is used to disseminate new ideas and help the literature of a subject to grow by reporting latest developments. In fact, the function of grey literature is to make public the results of unpublished original researches to the wider audience. This can be done by providing permanent records or archives of researches carried out. Doing so enables

an independent scientist or researcher to establish original facts on a certain subject. However, some researchers in public universities have been blamed, perhaps wrongly, for operating without giving a thought to the larger public out there which needs to know about and apply their findings to help improve lives. Tuluka (2012) persuasively argued that the blame directed to public universities is centred on their perceived failure to properly connect with the users be they ordinary people, enterprises and policy makers.

Although academic libraries in Tanzania are proud of holding and affording access to good collections of books, serials and other electronic resources, access to their collection of grey literature leaves a lot to be desired. And yet, it is hard to imagine any subject of interest to academic activity that does not need the perusal or consultation of grey literature sources. Indeed, the significance of such literature has not been adequately investigated and its contribution to the general missions of universities, which include, teaching, research, and services to the community, and preservation and dissemination of information has remained unclear to the public. These four attributes complement each other.

As a matter of fact, the subject on lack of accessibility to grey literature has attracted the worldwide attention of researchers, academicians, students, librarians, information professionals, decision-makers and stakeholders in the higher education sector. It has been argued that this is owing to the fact that, grey literature provides relevant current thought. Grey literature, therefore, is vital, not only for the illiterate, semi-literate and neo-literate, but also for government functionaries for the

implementation of policies and planning (Kargbo, 2005). Policy-makers, researchers, planners and academics alike, use grey literature for synthesis and reaching informed decisions and attaining better results. Thus, an increase in the access to and use of information gleaned from the generated grey literature could help raise innovation and productivity of the beneficiary.

Generally, research tends to focus on specific areas of discipline whereas readers and researchers often desire to have additional information to help place their research in a wider context. According to Smith (1996), researchers, practitioners, students and academics are aware that valuable information on research and practice is never published in the conventional way. Refined and edited versions may appear after a lengthy delay in journal articles or books, although those who have seized the opportunity offered by ICT developments can have their works published electronically on time. In many cases, however, the original report or dissertation is the only source, naturally with severely limited circulation and dissemination. Inevitably, grey literature can fill the readers' knowledge gaps by presenting the topic in greater details; it allows the readers to gain a larger perspective on the topic. Weintraub (2006) has noted further that faculty and students, embarking on research projects, rely on grey literature to provide introductions and overviews of their study's areas of interests. Grey literature serves scholars and lay readers alike, by providing them with research summaries, facts, statistics and other data that offer a more comprehensive view of their topic of interest (Kargbo, 2005; Weintraub, 2006). In Tanzania, the mission statements of the public universities established so far emphasise conserving the existing knowledge, transmitting knowledge through

teaching and generating new knowledge through research. The implication of these mission statements is that the universities must systematically accumulate all kinds of human communication, records, published and unpublished, written or oral, which embody the ideas and knowledge of the past public services to the community.

Through teaching and research, these public universities generate a lot of information in a form of grey literature. Much of it is invaluable in the development of Tanzania, as well as for academic and research purposes. Unfortunately, as stated earlier, much of this information is not tapped and systematically organised for easy accessibility. In certain circumstances, duplication of research programmes results in these universities, simply because of lack of information on what has already been done in a given area (Moahi, 2009). Whereas the importance of these sources of information in supporting core business of the university, such as quality teaching, research and services to the community, has been widely acknowledged, much of it is for a variety of reasons not systematically acquired, disseminated and accessed by the end users. Much of the generated information does not even reach the target audience. In fact, these valuable documents end up gathering dust on the library shelves. Indeed, many of the users cite the factors which hinder their accessibility and usage in countries such as Tanzania as lack of awareness of their existence by the wider community, inability on the part of the universities to promote and market their research output. Other factors are lack of a coherent research policy that seeks the application of the results to the actual productive tasks as well as poor bibliographical control for those materials not listed in the catalogue. There is also lack of appreciation of the value of grey literature by many librarians. The situation has been aggravated by the

absence of a legal deposit law to enforce a mandatory storage and dissemination of such grey literature, even when it is not in substantive quantities. Also there is a lack of clear and comprehensive policies among universities on restricted access, which does not only frustrate the students and scholars but also hinders the free flow of ideas and knowledge. Such a situation ends up undermining the growth of science, technology and innovations in the country. Gideon (2008) argued that information in the grey literature format dies at the institutional level since those who need to apply the knowledge are unable to access it. As a result, useful and valuable information remains unexploited and, in some cases, is lost without ever being utilised. Therefore, since grey literature represents a sizeable portion of information generated in public universities in Tanzania it fair to raise the question on whether grey literature is readily accessible to researchers, policy-makers and the general public. This question is important because the community would like to know the impact of such generated information on the society because they are generated through the use of public funds. Turuka (2012) argues that the growing tendency by researchers to keep their findings shelved in areas where they serve no purpose other than gathering dust instead of availing them to the public for greater access and application was detrimental to the generation of knowledge and development prospects.

1.5 Statement of the Problem

Providing access and the use of grey literature information is one of the key organisational problems that public universities in Tanzania face, which must be addressed at any cost. The importance of grey literature, as a means of primary, non-conventional communication, is accepted in almost every scientific field (Alberani,

1990). Both producers and users of grey literature have always considered it to be a primary source of information (Alberani, op.cit.). In fact, widespread agreement exists on its importance as an important information source for teaching, research and community service because such literature tends to contain more complete, up to date and accurate data than secondary sources (Kufa, 1993).

The primary reason for this truism is that, the primary source contains all the original data in unaltered form whereas the secondary sources are in most cases based on the results of an interpretation of the primary sources (Kufa, op.cit.). Despite the importance attached to grey literature in the world of academia, issues related to the value and actual accessibility and usability in Tanzania public universities remain largely anonymous and inadequately investigated. Studies by Chailla (2002) and Ndumbaro (2006) have dealt with issues of accessibility of information; however, they only mentioned grey literature as a good source of information.

On a global scale, the available literatures worldwide have documented various projects. These projects have included Greynet, European Association for Grey Literature Exploitation (EAGLE), System for Information on Grey Literature in Europe (SIGLE), the British Library Document Supply Centre and the Institutional Repository (IR). However, in the local context of Tanzania, public universities initiatives to boost access to grey literature are either lacking or remain unknown to the public and other end-users. The present study, therefore, was undertaken to address this problem, and make recommendations on redressing the situation.

1.6 Purpose and Objectives of the Study

The general purpose of this study was to investigate accessibility of grey literature emanating from public universities in Tanzania. The specific objectives of the study are as provided below:

1.6.1 Specific Objectives

The specific objectives of this study were to:

- (i) Determine the types and manner in which grey literature is generated in Tanzania's public universities;
- (ii) Examine the systems of grey literature acquisition and management in Tanzania's public universities;
- (iii) Find out how grey literature is accessed and used;
- (iv) Identify the barriers to access and use of grey literature in Tanzania; and
- (v) Examine the potential of ICT as a tool that could be deployed in enhancing the accessibility and use of grey literature in the country.

1.7 Research Questions

Based on the above objectives, the study addressed the following questions:

- (i) What types of grey literature are generated in Tanzania's public universities?
- (ii) How is grey literature acquired and managed in the country's public universities?
- (iii) How is grey literature accessed and used in these public universities?
- (iv) What barriers do users face in accessing grey literature generated in the country's public Universities?

- (v) What role does ICT play in easing the access to such grey literature in Tanzania?

1.8 Significance of the Study

As pointed out earlier, grey literature, if well-managed, can contribute greatly to the advancement of knowledge in the institutions of higher learning, and the country as a whole. The findings of this study, therefore, could help decision-makers in Tanzania's public universities to make informed decisions on the management of grey literature. Indeed, enhanced knowledge on the existence of grey literature can also enhance the quality of research in respective areas and, ultimately, improve the quality of teaching, learning and research. Thirdly, the study also has the potential of raising awareness among academicians, students, researchers and policy-makers on the centrality of grey literature in achieving the objectives of these universities. Fourthly, grey literature is an emerging field and, hence, any academic research work enriches the existing stock of knowledge on the subject. Such knowledge is also intended to serve as a guide to policy-making bodies in universities, especially when it comes to policies on accessibility of grey literature.

Also, librarians and academicians in Tanzania's public universities have a vested interest in understanding how grey literature is accessed and used. After all, in some cases, grey literature represents a substantial portion of their collections in the East Africa. And librarians generally try to find ways to quantitatively describe how such valuable informational resources is accessed by users. Thus, they can also benefit from the findings of this study on grey literature in Tanzania's public universities.

The study on the accessibility of grey literature in Tanzania's public universities can also benefit all those interested in undertaking similar studies in the context of developing countries because certain methods and approaches evolved and employed by the researcher could help them conduct further studies of a similar nature. Hopefully, the research findings would also act as a springboard for further research in this area of grey literature in both Tanzania's and other African universities.

1.9 Scope and Limitations of the Study

The study conducted in Tanzania was limited to the following public universities: University of Dar es Salaam, Sokoine University of Agriculture, Mzumbe University, State University of Zanzibar and the Open University of Tanzania. These universities were selected because they have a longer and more established formal production history of grey literature and they are all funded by the government. The expectation is that the study's findings would fairly reflect the situation in the remaining universities in Tanzania and might also be replicated elsewhere.

Apart from the obvious limitations of qualitative approaches, such as lack of control in social research and subjectivity of human beings, this study encountered the following limitations. Firstly, the study was limited to the public university system in Tanzania. An inclusion of the private universities could also have shed light on what those institutions were doing when it comes to handling the grey literature they generate. Secondly, the study was limited to grey literature information such as theses and dissertations, reports, faculty discussion papers and working papers, unpublished conference proceedings/symposia. It would have been relevant to

include other types of grey literature generated in these universities as they are an integral part of the whole information system.

Also, in this study, e-grey literature, pre-prints, committee reports, translations, pamphlets and newsletters were excluded in the selection process because of the focus of the study. Also there was a non-availability of sufficient numbers of published literature on the subject of grey literature on Tanzania and its various dimensions is another limitation encountered by the researcher.

1.10 Conceptual Framework

According to Reichel and Ramey (1987), a conceptual framework is described as a set of broad ideas and principles taken from a relevant field of enquiry and used to structure a subsequent presentation. In the case for this research, the conceptual framework was used to strengthen and keep this research on track by providing clear links from the literature to the research goals and questions, informing the research design, providing reference points for discussion of literature, methodology and data analysis. Goetz and LeCompte (1984) noted that the conceptual framework contributes to the trustworthiness of the study.

As this framework indicates, the public generally view public universities in Tanzania as think tanks and engines of innovation that generate new ideas and knowledge that can be applied in solving societal problems and improving their wellbeing. Public universities are also regarded as important in generating the nation's primary sources of knowledge (grey literature) useful in the teaching and

furtherance of research. Through teaching, knowledge is transferred to the students, who use the acquired knowledge for learning. On the whole, conducting research entails generating new knowledge and ideas to solve societal problems. In fact, the knowledge generated through research is disseminated through publishing research results. In this cycle, the community is used as a platform for practical learning so that the acquired knowledge and skills can be put into practice. However, as noted earlier, these sources of information are not as accessible to the users outside most of academic institutions as they should be.

The diagram entitled "Conceptual Frame Work Model of Grey Literature Access" describes a conceptual framework regarding the flow of grey literature information from where it is generated to the users. The conceptual framework model presented here was developed on the basis of comprehensive literature review and field research results. As a starting point, this conceptual framework was developed as an organising principle to provide logical framework for data collection and analysis. The constituent concepts of the framework against which the data was assumed and interpreted are:

- (i) The role of public universities in generation of grey literature;
- (ii) Types of grey literature produced;
- (iii) System of grey literature acquisition and management;
- (iv) Constraints to accessing and using grey literature;
- (v) Barriers to accessing grey literature that users face; and
- (vi) The ICT potential as a tool in accessing and using grey literature.

The study is framed within the context of how grey literature generated in public universities is accessed and used to facilitate teaching, research and community service provision. Specifically, grey literature flow chain is viewed as a process consisting of knowledge production, processing, dissemination and use of grey literature in a university environment. However, this process is incomplete without taking into account the issue of access constraints that the immediate and potential users face when it comes to grey literature.

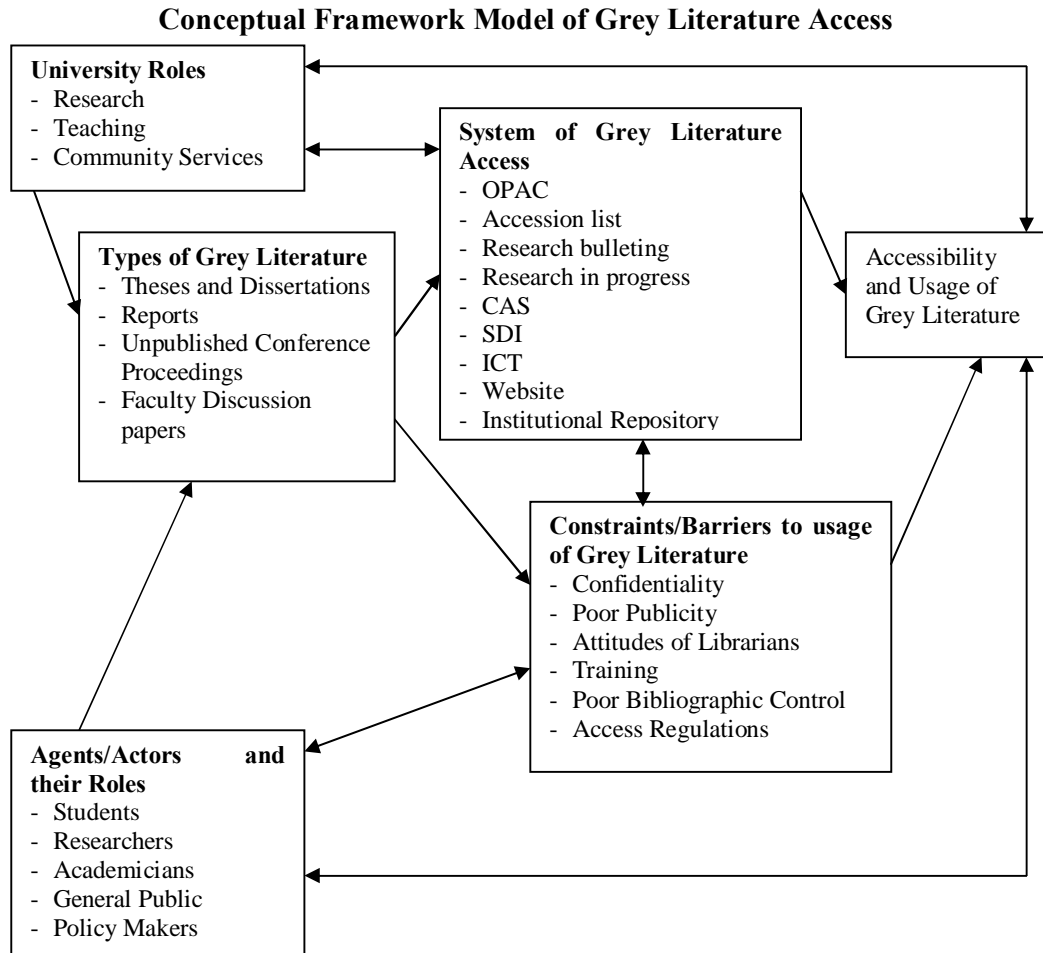


Figure 1.1: Conceptual Framework of Grey Literature Access in Public Universities in Tanzania

Source: Field Research, 2009

Each one of these processes in the university environment is impacted by the use of Information and Communication Technologies (ICT). ICT in turn provides an impetus for enhancing the access to and ready availability of the grey literature produced in the public universities so that the information generated can benefit a large segment of the potential users for the betterment of knowledge dissemination as well as attendance of research objectives, and ultimately spearheading national development.

1.11 Definition of Key Terms

This section provides the definitions of some key terms as used in the study. Where there is more than one acceptable definition, an operational definition for the purpose of this study has been provided.

Access to information: This refers to the inherent right of any person to receive information that he or she is entitled to from the producer of that information. That right also includes the right to an avenue to convey the information in one's possession to others (Law Reform Commission, 2005). Access to information is sometimes referred to as the right to know of one's surroundings (Law Reform Commission, 2005). Furthermore, access to information is the right of any person to seek and obtain information from the government, public or private officials when information is needed for the exercise of the person's right (Media Watch, 2004). Access to information can be seen in terms of two related terms, accessibility and availability defined as follows:

Accessibility: This term refers to the availability of the documents to people other than the authors of such materials (Johnson, 1994:112).

This refers to extending to the widest audience possible the accessibility of the published materials, that is, recorded knowledge issued for public use for the intended users wherever and whenever they need it and in the format required. This access covers not only printed materials but also grey literature and publications recorded in electronic form (<http://www.ifla.org>, 2008).

Bibliographic Control: This concept refers to a system of adequate recording of published, unpublished and audio-visual material through which one knows about their existence (Tella, 2006).

Citation: This term has been defined as the acknowledgement that one document receives from another (Diadato, 1994).

Citation analysis: This refers to an area of bibliometrics that deals with the study of the relationship between cited and citing documents (Diadato, 1994).

Commercial Publishing: Commercial publishing has been defined by the *Online Dictionary of Library and Information Science* as a publisher in the business of producing and selling books and/or other publications for profit as opposed to a university press or publishing arm of the scholarly society, professional organisation or other non-profit making organisations that operates on a cost recovery basis.

Conventional Literature: This refers to commercial literature made available through normal book selling channels.

(<http://www.iaea.org/ins/products/ncl.htm>booksellingchannels, 2007).

Ephemeral: This is defined as verbal message produced by printing or illustrative processes, but not in the standard book, periodical or pamphlet format. Most items of

ephemera are naturally produced for short-term purposes, including bus tickets, timetables, and posters, which though in collectable form, are not considered to be part of grey literature (Auger, 1998).

Grey Literature: This term refers literature produced at all levels of government, academic institutions, business and industry in print and electronic formats, and is not controlled by commercial publishers or interests, i.e. where publishing is not the primary activity of the producing body (Grey Net, 1999).

Library Consortia: This term is defined as a community, or co-operation of two or more information agencies which have formally agreed to co-ordinate, co-operate, or consolidate a certain function for mutual benefits. Consortia may be formed on a local, regional, national, or international basis, or on a functional or formal basis, on subject basis, co-operative collection development, on the basis of sharing physical resources through document delivery services and provision of access to electronic information (Tonta, 2001).

Public university: In the context of this study, a public university refers to an institution of higher learning which is owned by the government of the United Republic of Tanzania, regional or local government or by the Revolutionary Government of Zanzibar (The Universities Act, 2005).

Information: Information in this research has been defined as ideas, facts, and imaginative works of mind and data of value potentially useful in decision-making, answering questions, problem-solving, which can generally reduce uncertainty (Kaniki, 1992).

Information and Communication Technologies (ICT): This broad-based term is an electronic means of capturing, processing, storing and disseminating information (<http://www.neda.gov.ph/>).

Published Materials: These are materials which are published and distributed to the public through the normal selling and distribution channels (Clark, 1996).

Unpublished Materials: These are materials which are not available through the normal book selling channels and have small print runs (Wood, 1984).

Non-Conventional Literature (NCL): These comprise scientific and technical reports, patent documents, conference newsletters, fact-sheets and theses, which are not readily available through commercial channels. NCL specifically does not include normal scientific journals, books or popular publications that are available through traditional commercial publication channels (<http://www.en.wikipedia.org/wiki/grey-literature>access. 21/1/2007). In fact, NCL can be more difficult to search and access than traditional literature. Typically, NCL is not as well-catalogued and not collected by libraries as extensively as one would expect. The study has adapted this definition so that it can refer to the grey literature materials under study.

Information Repackaging: As Okiy (2008:3) notes, information repackaging refers to the process of collecting and designing, remodelling, restructuring, reorganising and disseminating information to a distinct group of people.

1.12 Summary

This chapter has presented the general introduction of the research. It has mapped out the role of public universities in Tanzania in the generation of grey literature.

Notably, it has pointed out that the grey literature generated by these universities include dissertations and theses which tend to be organised, and thus fairly made accessible to users for students' term papers, research reports, conference papers and seminar presentations. It has also noted that such grey literature can contribute positively, not only to the world of academia but also many aspects of life, including enhancing the country's development prospects. The chapter has also delineated the challenges these universities, especially academic libraries, face to ensure that the grey literature generated within these universities are collected, documented, and stored in the library holdings for easy accessibility and retrieval. The chapter has also highlighted the limitations these institutions face in availing, this information to the wider community where it can have practical value beyond the confines of academic research and purposes. The conclusion is that unless information emanating from these universities is acquired, properly organised and disseminated, the research programmes conducted in these institutions cannot be of much use to the development of the nation, hence the urgent need for remedial action.

CHAPTER TWO

2.0 CONTEXT OF THE STUDY

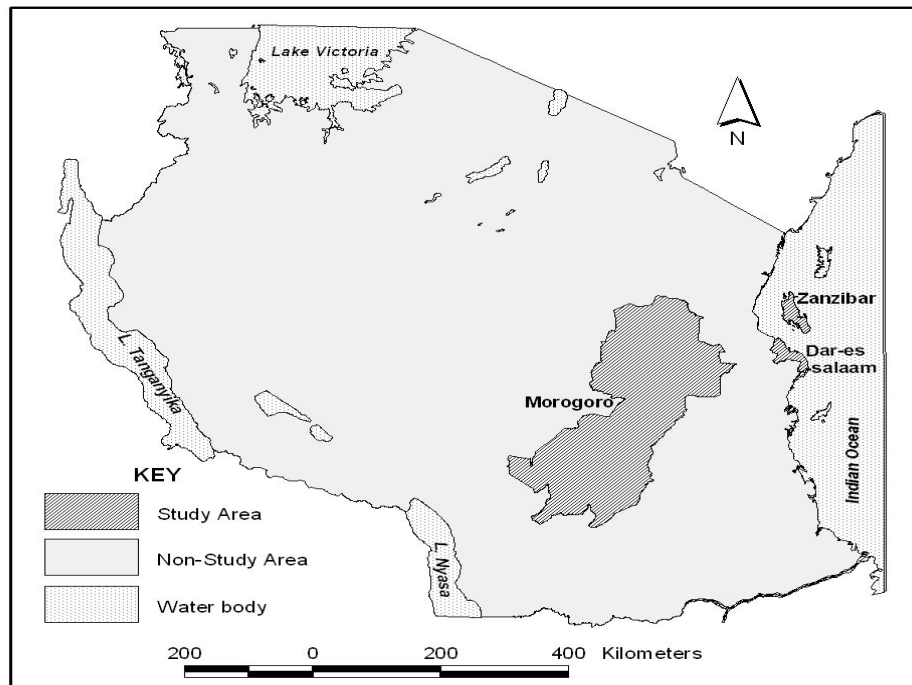
2.1 Introduction

This chapter highlights the context under which the study was conducted so that the readers unfamiliar with this area can relate the subject to the research area. Areas highlighted include the historical background, the climate, population, economy and education of the country under study. It also provides the background information of the subject under study in the context of library collections and information service provision in public universities. The chapter begins with the geographical position of Tanzania, the physical structure of the country, the people, population, government, the economy and the genesis of public universities in the country and their role in generating and affording access to grey literature.

2.2 The Country and the Study Area

The United Republic of Tanzania is the largest country in East Africa, covering 940,000 square kilometres. It lies south of the equator and borders eight countries: Kenya in the North, Uganda, Burundi and Rwanda in the North-West, the Democratic Republic of the Congo (formerly Zaire) in the West, Mozambique, Zambia and Malawi in the South, and the Indian Ocean in the East. It is made up of the area formerly known as Tanganyika, which is now referred to as Tanzania Mainland, and the Zanzibar archipelago primarily constituting the Isles of Unguja and Pemba. Tanganyika became a sovereign state on 9 December 1961 and a republic in 1962. Zanzibar gained its political independence from the United

Kingdom on 19 December 1963. It was named the People's Republic of Zanzibar after the revolution of 12 January 1964. Tanganyika united with Zanzibar on 26 April 1964 to form the United Republic of Tanzania. Figure 2.1 shows the map of Tanzania and the areas covered by the present study.



Map 2.1: Tanzania-Location of the study areas

Source: <http://www.lib.utexas.edu/maps/tanzania.html>

2.3 Climate

Generally, the country experiences a tropical climate. Tanzania has four main climatic zones, mitigated by variations of altitude which influence temperature and rainfall. The first is the coastal strip including the islands of Zanzibar and Pemba varying from 60-70 km in width with temperature ranging from 26.5-29 degrees centigrade, and annual rainfall of up to 1900mm and high humidity (World Bank,

40 2002; UNDP, 1995). The second zone is the central plateau, which lies between
 35 an altitude of 900 and 1220 metres above sea level. This area covers much of the
 30 country. It is hot and dry with rainfall ranging from 20-30 inches. The highlands
 25 are cool and fertile with an annual rainfall of up to 2000 mm, falling between
 20 December and April. There, is also the high, moist Lake region, with little
 15 seasonal variation. Tanzania's eastern section has an average rainfall of 30-40
 10 inches, while the Western parts receive a rainfall of 80-90 inches.

5 2.4 Administration and Political System

0 The country has two capital cities, namely Dar es Salaam which is the
 1948 commercial capital and main Tanzania's seaport, and the centrally-
 located Dodoma, which is the country's political capital. Tanzania is
 a unitary republic currently based on multiparty parliamentary democracy. By the
 time of conducting this research, Tanzania had 26 administrative regions: 21 on the
 Mainland and five in Zanzibar. The regions were subdivided into 127 districts (117
 on the Mainland and 10 in Zanzibar).

2.5 The People and Population

2.5.1 Population

Tanzania has four major distinctive racial groups: Africans, who constitute the
 majority, Asians, Arabs and Europeans. The population of Tanzania has quadrupled
 slowly over the past five decades, from 23.2 million in 1988 to 34.4 million in 2002
 (World Bank, 2002, URT 2002 House Hold Survey Census, Madulu, 2004:91).

Figure 1.2 shows the trends in population size between 1948 and 2002.

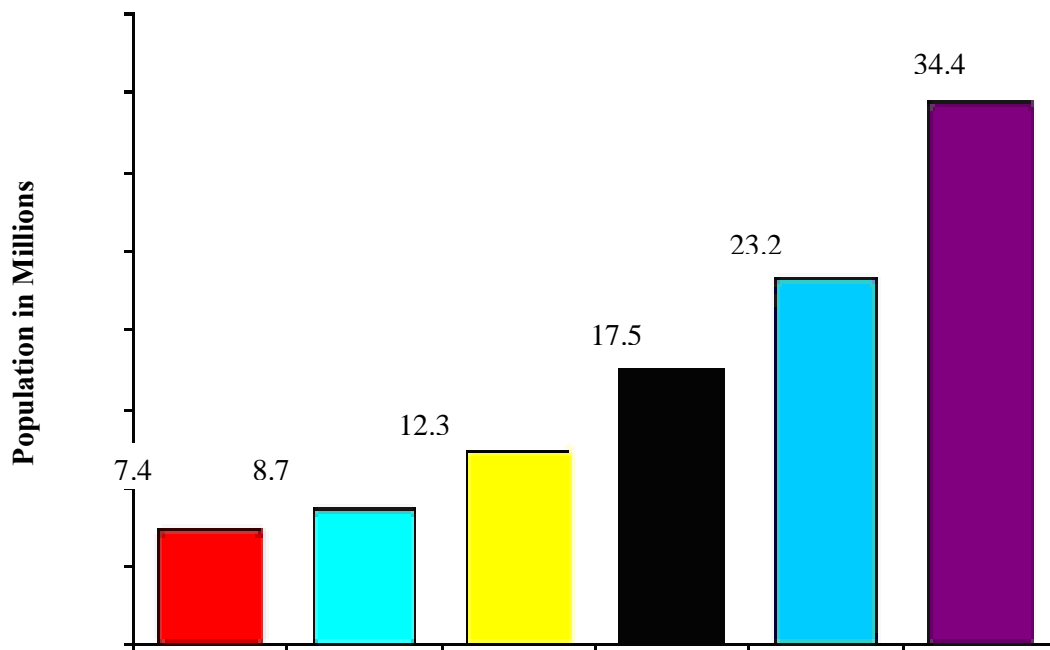


Figure 1.2: Trends

in Population Size 1957 1967 1978 1988 2002
(1948-2002)

Source: House Hold Survey Census, 2002, Madulu, 22004, World Bank, 2002

Tanzania's population is predominantly rural, accounting for 77% of the total population. However, the number of urban population has been rising rapidly as a result of high population growth and rural-to-urban drift as many Tanzanians seek gainful employment (World Bank, 2002). Census data indicate that the urban population grew from six percent in 1967 to 14 percent in 1978, to 21 percent in 1988, and to 24 percent in 1996. The urban population is projected to reach 45 percent (21.1 million people) by 2025 (URT, 2006).

2.5.2 Languages and Culture

There are more than 120 ethnic groups, which account for different languages and diverse cultures. Kiswahili, which is the national language, is widely spoken by the majority of Tanzanians and is used as the medium of instruction in primary schools. English is spoken by a few people; it is also the medium of instruction in secondary schools and higher learning institutions. It is also used for official communication in the public and private sectors, where there is an element of foreign body/institutional involvement. Kiswahili, on the other hand, is a lingua franca that is widely used in Eastern and Central African countries. It has also been adopted as an official language for the African Union (URT, 2009). Tanzania has a mixed culture as a result of the intermingling of African, European, Arabic and Indian Oceanic cultures.

2.6 The Economy

Tanzania is one of the lowest income earning countries in the world. Between independence in 1961 and the mid-1980s, the main preoccupation of the nation's policy-makers was to lift the majority of the population out of illiteracy, poverty and disease (Linda Van Buren, 1996). This was done in line with the objectives set by the 1967 Arusha Declaration, which placed emphasis on the elimination of such ills by introducing Ujamaa, the African brand of socialism that also ushered in the self-reliance policy based on egalitarian principles. This was an experiment which had a lot of implications on the political, economic and historical developments in Tanzania.

Tanzania has an economy, which is heavily dependent on the under-developed and largely peasantry-oriented agriculture. The type of agriculture practised is

predominantly small-scale and subsistence in nature. It accounts for more than 50 percent of the Gross Domestic Product (GDP). This provides 85 percent of the export merchandise, and employs about 90 percent of the work force (World Bank, 2002). The majority of the people (77%) live in rural areas. From the 1980s to-date, the rural-to-urban migration trend has been on the upswing, especially among the youths. Such a trend is partly associated with the few economic opportunities obtainable in the rural areas compared to expectations of securing wage-earning jobs in urban areas (UNDP, 1999). According to the URT (2003) estimates, the economy of Tanzania needs to create some 650,000 jobs annually to keep pace with the new entrants into the labour market each year. To curb the challenge posed by youth unemployment, the government has taken a number of initiatives such as vocationalisation of the education system as well as encouraging the youth to engage in gainful activities such as petty trade, livestock-keeping and self-employment.

Besides agriculture, other important sectors of the economy are industry and mining. The industry is dominated by the manufacturing sector, which accounts for about 10 percent of the GDP. This sector concentrates mainly on agriculture processing and the manufacturing of light consumer goods. As such, industrial development has mainly been pursued in the form of import substitution. With regard to the mining industry, Tanzania has a considerable potential in this field. In fact, mining has become the fastest growing sector of the country's economy. The World Bank (2002) has noted that the opening of the sector to private investment is showing a positive response. Furthermore, the country has become one of the top destinations for mineral prospecting investment in sub-Saharan Africa. Despite the country being

endowed with abundant mineral resources, it has yet to translate these resources into a dynamic driving force in enhancing the country's development. On the whole, the sector's contribution to national social-economic development is disappointingly small despite its enormous potential. Indeed, its contribution to the GDP is a paltry 3.2 percent and 3.0 percent of the country's domestic revenue (URT, 2009). To redress the situation, many economic analysts have been calling for the reduction of tax exemptions in the mining sector and reduce the donor syndrome as well as the engagement of unproductive foreign investors (Mfuru, *Nipashe*, 16 April 2010).

Other key sectors in the economy of Tanzania are tourism and communication industries. Both on Tanzania Mainland and the Isles of Zanzibar, tourism sector is identified as one of the main engines of economic and social development. In fact, the Tourism sector contributes significantly to the economy of the country as it creates employment, generates foreign exchange earnings and tax revenue, and it supports 30,000 jobs on the Mainland and a further 6,000 in Zanzibar (Profit, 2007). In 2011, the tourism sector contributed 17.5 percent of the country's domestic product and nearly 25 percent of the total export earnings, the second foreign exchange earner after agriculture (Mnaku, 2011). Also, the communication industry in the country continues to play an important role in the country's economic growth. This sector's growth rates continued to surpass the growth rates of other sectors of the economy by growing at 22.1 percent in 2009 and contributing 2.1 percent to the national GDP (URT, 2011; Materu-Behista and Diyamett, 2009).

2.7 Education in Tanzania

Education and training system in Tanzania is hierarchically divided into three levels. The first is primary or basic and non-formal adult education, followed by secondary or second level education which includes ordinary and advanced level secondary schooling. The third tier is tertiary or third level education, which also includes programmes and courses offered in non-higher education institutions (www.tcu.or.tz). In short, Tanzania abides by the 7-4-2-3+ system.

The official school entrance age to primary level is seven. Children normally attend two years of pre-primary education before getting enrolled in primary school. Primary education is a seven-year cycle, at the end of which pupils qualify to secondary schools on passing their national examinations. Secondary education is composed of a four-year cycle of -O-level and two-year cycle of -A-level studies. Tertiary or third level is a three or more years cycle, depending on the type of diploma or degree programme one is enrolled in (MOEC, 1997).

During the first two post-1961 independence decades, the country recorded an increase in primary school enrolment from less than 50 percent in gross enrolments to almost 95 percent in 1996 (URT, 1989). Illiteracy rates were reduced from 66 percent in 1967 to 9.6 percent in 1986 (ibid). In fact, the country declared 1975 as the year when illiteracy was expected to be wiped out of the country (URT, 1989 op.cit.). The country took several measures to achieve this goal, including the introduction of universal primary education.

The official abolition of the primary fees and other mandatory contribution, as well as the launch of the 2002-2006 Primary Education Development Programme also contributed to the rise of primary school enrolment observed between 2002 and 2003(ibid). However, the enrolment rate declined to below 80 percent by the mid-1990s mainly due to economic decline of the 1980s (URT, 2003c).

2.7.1 Tertiary Education

The colonial administration had made some initial efforts to develop university education in Tanganyika, as the idea of having a university in colonial Tanganyika can be traced back to the 1950s. During this period, the idea of a university college in Tanganyika was mooted in an official report of higher education in East Africa (Kimambo, 2007). By 1960, this plan had grown into an East African concept aimed at providing university education in the region. Ideally, as noted by Kimambo (2008:93), the main objectives of the colonial government to provide higher education in Tanganyika were to:

- Provide in Tanganyika a place of learning, education and research of a quality required and expected of a university institution of the highest standard and maintain therein the respect for scholarship and for academic freedom which such an institution requires;
- Prepare students through regular and liberal courses of education for degrees, diplomas, certificates and other awards of the university of East Africa and for any diplomas, certificates and other awards of the college; and
- Contribute to the intellectual life of East Africa, which was expected to act as focal point for its cultural development and serve as a centre of study and

research, particularly in matters pertaining to the interests of people of East Africa. The emphasis was placed on fields such as teaching, agriculture, medicine and engineering. Additionally, research was also top of their agenda.

Despite such efforts made by the colonial administration, the idea of establishing a university college in Tanganyika did not materialise until 1961 when the University College of Dar es Salaam was established by the post-colonial government of Tanganyika. Initially, it was affiliated to the University of London. In 1963, it became a constituent College of the then University of East Africa and became the University of Dar es Salaam, an independent national university in 1 July 1970. The splintering of the University of East Africa also led to the formation of autonomous universities of Nairobi and Makerere, which had hitherto been its constituent colleges (CVCPT, 1997; Mkude, 2003).

The teaching programme at the University College of Dar es Salaam started with legal training to cater for the whole of East Africa (Kanywanyi, 1989). As a result, Tanzania had to depend on Makerere University for agriculture and medicine disciplines, Nairobi for Engineering, Commerce and Veterinary Sciences. It has to be further underscored here that these specialised schools had limited capacities. As such, the University College of Dar es Salaam was requested to duplicate some of the training programmes available at Makerere and Nairobi.

As a result, the University College Development Committee (UCDC) recommended in 1967 the establishment of three faculties: Medicine, Agriculture and Engineering

in 1968/9, 1969/70, 1970/71, respectively (Luanda, 2008). This recommendation led to the establishment of the Faculty of Medicine at the main referral hospital in Dar es Salaam (Muhimbili) in 1968, and the Faculty of Agriculture in Morogoro in 1969. The Faculty of Medicine took over and replaced the Dar es Salaam Medical School, which was a non-degree offering centre that had existed since 1963 within the premises of the then Princess Margaret Hospital, now Muhimbili National Hospital (www.convocation.udsm.ac.tz/muhimbili.htm, 2007). A similar procedure was followed when the Faculty of Agriculture was established in 1969. Initially, there was a college training non-graduate agricultural specialists, later converted into the Faculty of Agriculture in 1969 under the auspices of the University of Dar es Salaam (<http://www.easterbarc.org/html/sokoine.html>, 2007).

As mentioned earlier, another important historical development of the University of Dar es Salaam, as a national university, came in the 1970 when the East African Authority decided to split the then University of East Africa into three independent universities for Kenya, Uganda and Tanzania. In the case of Tanzania, the process was facilitated by an Act of Parliament which transformed the University College of Dar es Salaam into the University of Dar es Salaam, a national institution. Since then, the University continued to expand by introducing new faculties (colleges) and institutes. Also some amendments made in the 1970s paved the way to the opening of independent institutions. For instance, the Faculty of Agriculture became Sokoine University of Agriculture (SUA) in 1984; the Faculty of Medicine became the Muhimbili University College of Health Sciences (MUCHS) in 1991. It is now a full-fledged university known as Muhimbili University of Health and Allied Sciences

(MUHAS). Ardhi Institute, which joined the University of Dar es Salaam as a constituent college, known as the University College of Lands and Architectural Studies (UCLAS) was later elevated to a full university. In the same development, the Tanzania School of Journalism (TSJ) was also elevated into a School of Journalism and Mass Communication (SJMC) of the University of Dar es Salaam in 2003.

2.7.1.1 The Evolution of Public Universities in Tanzania

The University of Dar es Salaam has a special place in the history of higher education in Tanzania and East Africa in general. Its presence mirrors the expansion of higher education in the country as well as in East Africa. Indeed, most of the established public universities in the country owe their humble origin from this university. Some of them started their operations as departments of this university, and others as its constituent colleges. Thus, it suffices to regard the University of Dar es Salaam as a nucleus of public universities in the country.

As the first public institution of higher learning in the country, the University of Dar es Salaam has greatly contributed to the development of the country in many aspects. This includes the training of qualified human resources needed for nation-building. It has managed to produce graduate Tanzanians capable of applying their acquired knowledge to change the socio-economic environment so that mankind and society could lead a more dignified and civilized life. Societies that cannot tap the potential of university education are likely to remain backward, both in terms of science, technology and economic development. Nevertheless, Tanzania, as a nation with

such huge and largely untapped potential, faces the paradox of underdevelopment. On the whole, Tanzania has remained one of the poorest countries in the world.

Being primarily an academic institution, apart from teaching the young minds, a public university has contributed immensely to research. In addition to teaching, research conducted at the public university, the university has produced scientific knowledge and technology which has brought about social, cultural and economic changes which, on a small-scale, has improved the quality of lives of the people. Luanda (2008) asserted that by the mid-sixties, the University College of Dar es Salaam had produced a body of knowledge worthy of recognition as a contribution to international scholarship as well as to the economic, social and economic development of Tanzania. However, much of these research findings could not be put to practical use in the society. This implies that there is a problem of dissemination, accessibility and practical application of research results (Luanda, 2008).

2.8 Development of Academic Libraries in Tanzania

The development of university libraries cannot be traced in isolation from the development of university education in Tanzania. A cursory look at the establishment of higher learning institutions in Tanzania can enhance the understanding of the university libraries. Indeed, the development of university education in the country went hand-in-hand with the development of academic libraries. University, or academic, libraries are regarded as an integral part of the intellectual system of the university. In line with this view, to a large extent, the

quality of a university is measured by the services provided by its library. This is in terms of relevant, adequate and up-to-date library materials. Where these are well-provided, it is assumed that both the tutors and the learners would deploy them in the most efficient manner.

The primary mission of academic library is to support the mission of their parent institution in the areas of learning, teaching, consultancy, research and services to the community (University of Dar es Salaam Act, 1970; UDSM Library Strategic plan, 2001; the Universities Act, 2005, Mambo, 1999). To fulfil this primary function, Kargbo (2007:3) outlined the aims and objectives of academic libraries as the provision of facilities for the study and research, geared to the academic setting of the parent institution; and securing, organising and servicing book and non-book materials required for the instructional programme.

For historical reasons, the UDSM Library features strongly in the development of academic libraries in Tanzania, primarily because of the role it has played and continues to play in the country. As the first university in the country, its library is the custodian of the country's national heritage. It holds much of the information pertaining to the research programmes conducted in the country by the university itself as well as other research institutions. The easy accessibility of such information, especially in the form of grey literature, can further enhance its potential nationally and internationally.

The UDSM library services were established in 1961 when Dar es Salaam was set up, first as a college of the University of London, and finally as a constituent college of the then University of East Africa. According to Ordinance No. 6 of 1961 Cap No. 435, the library was established as one of the faculties and institutes of the University of East Africa. In its infancy, the college was temporarily accommodated on leased property, in the then newly-constructed TANU building complex located on Lumumba Street at the city centre from 1961 to 1964 (Mapunda, 2008). Such an ad-hoc arrangement continued until 1964 when the college moved to its permanent campus, the University Hill (Mkude, 2003). At its inception, the library was intended to cater for a small readership of students and staff of the Law Faculty, the first of the university faculties to be established (Kanywanyi, 1989). It was in 1962 when the Tanganyika Legal Deposit Act was enacted and the Library was assigned the task of collecting all the publications published or printed in Tanganyika. That status was relinquished through the enactment of the 1976 Act No. 11.

The 1961 Ordinance, which paved the way to the establishment of the college and the library, was retained by the University College of Dar es Salaam Act No. of 1963. The 1963 Act was repealed and replaced by the new 1970 Act, which as already mentioned, transformed the University College of Dar es Salaam into a full-fledged autonomous national university.

Although the University College of Dar es Salaam was part of the University of East Africa upon its establishment, from the beginning it was evident that each college library should build up its stock to cater for its own immediate teaching and research

needs. Such a decision was, to a large extent, influenced by the reality of the poor nature of inter-library communication, which made it impossible for users in other college libraries to fully access and utilise the resources available in the sister university colleges. The least they could do was utilise the inter-library loan and exchange facilities. In consequence, the University College of Dar es Salaam Library started to develop a collection of both published and unpublished materials. In the case of unpublished material, the move coincided with the world-wide phenomenon of the establishment of Centres of African Studies and collections. The objective of setting such centres was to acquire important documents on Africa by different scholars. Such documents were to support the university library and also to provide research source material for international researchers. In the process, the university library acquired a lot of grey literature and many rare documents. Some of the documents collected consisted of research material, manuscripts and local publications (UDSM Library, 1980).

Apart from the main library, the University College Library System also had two sub-libraries. These were the Medical Library, serving the Faculty of Medicine, and the Faculty of Agriculture, Forestry and Veterinary Science Library. The Medical library at Muhimbili housed practically the collection on medicine and related subjects. This library took over and replaced a small library that had been run by the Dar es Salaam Medical School, a non-degree offering institution that had existed since 1963. The library still contains books marked 'Library of the Dar es Salaam Medical School' inherited from the school. The change in the library set-up followed the reconstitution of the school in 1968 when it became the Faculty of

Medicine of the University Constituent College of the University of East Africa (www.convocation.udsm.ac.tz).

This transformation also meant finding bigger library space to accommodate more readers and house a variety of grey literature collections. The Muhimbili College Library has since been transformed into the National Library of Medicine (UDSM Report, 1980). It provides students, academicians and researchers with literature pertaining to health matters. A substantial collection of grey literature material such as theses, manuscripts, reports and proceedings are available for use by users depending on their specialisation.

The history of the second sub-library, the University College was the Faculty of Agriculture, Forestry and Veterinary Science Library at the Morogoro campus, can be traced to 1964 when a small library was set up to serve students pursuing Diploma in Agriculture studies at the Morogoro Agriculture College. In 1969, the library was elevated to serve the interests of the Faculty of Agriculture, then operating under the auspices of the UDSM. However, as noted by UDSM Report (1980), the Library activities in 1974 were decentralised from the main campus. Some of the activities such as ordering, classification, cataloguing, were transferred to the Faculty Library. In its efforts to make the research output visible to users, the Faculty Library strengthened dissemination of library resources by indexing all research publications emanating from the faculties (UDSM report, 1980). Other efforts made by the faculty library included the documentation of all research output and preparation of a bibliography which was circulated to users.

In 1984, the Faculty of Agriculture of the University of Dar es Salaam at the Morogoro Campus was transformed into Sokoine University of Agriculture. Naturally, its library was also elevated into a university library. In fact, the 1984 Act No. 6 charged the library with the responsibility of developing and maintaining a reference library service in agricultural sciences and related disciplines for the benefit of the university community and the people of Tanzania in general. In 1992, the library was further promoted and designated as the National Agricultural Library under the name of Sokoine National Agricultural Library. In fact, the Sokoine National Agricultural Library Act of 1991 empowered the Library to fulfil 10 objectives and functions. Two of these were to act as a National Bibliographic and Documentation Centre, which also entailed that the library would serve as a repository of published and unpublished materials on agriculture and related fields, safeguarding legal deposit rights, as well as indexing, abstracting and compiling the national agricultural bibliography. The second function was to collect and maintain records of completed agricultural research and development projects, or those in progress in order for the library to serve as a national clearing house for all agricultural material. Through these two functions, the library managed to house an extensive collection of unpublished materials emanating from within the university as well as from other related research institutions.

Other libraries of note include those run by the Open University of Tanzania, Mzumbe University and the State University of Zanzibar. The Open University of Tanzania and State University of Zanzibar libraries are the youngest among all public university libraries in the country. Unlike the other more established libraries,

these two had no inheritance history of older collections. However, the presence of modest collections of reports, theses, annual reports, internal research in the East Africana Section of these new libraries is a clear indication that they are also involved in the collection of unpublished material. Another public academic library is that of Mzumbe University. This came into existence as a result of the transformation of the then Institute of Development Management at Mzumbe (IDM-Mzumbe) created through the Act No.15 of 1972 and amended by Act No 21 of 2001. Its university library thus inherited a substantial collection of grey literature information in the form of reports, unpublished conference proceedings, manuscripts and student staff research papers from the IDM-Mzumbe the University replaced.

2.8.1 Composition of Academic Library Collections

Considering the objectives of university education today, university libraries systems shoulder enormous responsibilities. At the university level, the first essential element is for the library to possess the resources that would satisfy the users' needs. After all, university library does not only complement the classroom study but also supports research. Indeed, both learning and research cannot be achieved without strong library collections. And for a university library to perform its myriad functions effectively and efficiently and satisfy varied needs of the users, it has to collect various categories of information. In the public university libraries surveyed, the following are the basic types of research materials available, that is published and grey literature:

2.8.2 Published Literature

Published materials contain information which has been published before. Such publications include books and periodicals. These are generally published by established publishing houses from within and outside the country. Most of the published materials are also accessible in established and well-stocked bookshops. In addition to books and periodicals, there are other non-book sources available in libraries such as audiovisual material (films, video, tapes CD-ROM, microforms, microfiche and microfilm readers) that are equally useful. These libraries also have internet connections, hence enabling users to access information available online from different sources in the world.

2.8.2.1 Grey Literature

This category of materials is made up of unpublished works. These include internal reports, conference papers presented, technical and research reports, official publications and statistics, patents and trademarks, theses and dissertations, occasional papers, unpublished conference proceedings, inaugural lectures, government publications, lecture notes and technical notes. However, only theses and dissertations tend to be catalogued and deposited physically in the respective university libraries.

2.9 The Study Area

Tanzania public universities are those owned by the Government of the United Republic of Tanzania, regional or local governments or the Revolutionary Government of Zanzibar (Universities Act, 2005). Up to 2009, there were eight public universities (IUCEA, 2009). At the time of conducting this study, there were

only five registered and operational public universities: the University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA), the Open University of Tanzania (OUT), Mzumbe University (MU) and the State University of Zanzibar (SUZA).

The University of Dar es Salaam is the oldest and the largest of all public higher education institutions in the country in terms of the number of students and human resources at its disposal. According to the 2006/2007 University of Dar es Salaam facts and figures, the number of postgraduate students stood at 20,900. The university has a large pool of highly qualified academic staff. Up to 2009, there were 640 PhD and 454 Masters holding academic staff. By ranking, the university has 78 full professors, 133 associate professors and 278 senior lecturers (UDSM, 2007). The number of administrative staff stands at 1,110. The university's main campus and its constituent colleges have their own libraries which collect and provide access to information from both published and unpublished literature. There is also a growing collection of locally-produced information in the form of theses and dissertations, reports, unpublished conference papers and faculty discussion papers.

SUA is the second oldest university in the country and, so far, specialises in agricultural and allied sciences (Committee of Vice Chancellors and Principals in Tanzania, 1997). Sokoine University of Agriculture has 305 academic staff, 801 administrative staff. It has 2,300 undergraduate and 600 postgraduate students. By 2009, most of its programmes were primarily based on agriculture, and hence its library can claim to be an authority on materials relating to agricultural subjects despite the recent diversification of the university's programmes to cover other areas.

As a matter of fact, the legal deposit status accorded to the SUA library has enabled it to acquire a substantial collection of grey literature on agriculture in Tanzania.

As for the Open University of Tanzania (OUT), it came into being in 1992 by an Act of Parliament (Act No. 17). The 1992 Act has since been repealed and replaced by University Act No.7 of 2005 and the OUT Charter 2005. By 2008, the University had 172 academic staff, and 125 administrative staff, with 25, 829 undergraduate and 1,184 postgraduate students (OUT, 2008). OUT provides programmes through distance learning. Primarily operating through regional centres, OUT has a main library at the headquarters which collects both published and unpublished materials produced through its postgraduate programmes and research activities. Over time, the OUT library has managed to build a modest collection of grey literature deposited in its East Africana Section.

As noted earlier, Mzumbe University was established by the 2001 Act of Parliament, hence ceasing to exist as IDM-Mzumbe after being charged with the responsibility of providing university level education. The library's collection of research reports on management issues and local governments is substantive because the materials go back to the period when it was IDM-Mzumbe. The State University of Zanzibar (SUZA), established by Act No. 8 of 1999, became operational in 2001 with an overall objective of preserving, enhancing, transmitting and disseminating knowledge by conducting research in various fields (State University of Zanzibar Prospectus, 2006).

2.10 Summary

This chapter has presented background material regarding the public university institution and their libraries in relation to their collections of grey literature, the basis of this study. The chapter has mapped the evolution and the role of public universities in the generation of grey literature and the problem associated with its accessibility. It also provides the composition of materials found in the libraries. The chapter has also taken into account the mission of these universities, which is the generation and application of knowledge, with the generated knowledge being made accessible to the wider community to make the research findings more relevant to the needs of Tanzanians and ensure that they make a meaningful contribution to the development of the country. The next chapter provides the literature review related to this study.

CHAPTER THREE

3.0 REVIEW OF RELATED LITERATURE

3.1 Introduction

Studies on access and usage of grey literature have attracted wide attention from many parts of the world. Literature on its originality, relevance in the development of science and in solving societal problems, especially from the developed countries is immense. In the developing world, it has started to gain prominence, especially in higher learning institutions and research establishments. In the course of its evolution and historical development, the term "Grey Literature" has co-opted many terminologies in its meaning, which are used interchangeably with it. Professionals such as librarians, researchers, and the intelligence community have been using the

term "grey literature" to refer to an extensive body of information material that cannot be found easily through conventional channels such as publishers, but which is frequently original and usually recent and provides high quality information (Debachere, 1995/96). According to Cooper (1994), grey literature reports on extensive research, landmark experiments, comprehensive surveys and detailed investigations. Researchers, students, practitioners and academics are aware that a great deal of valuable information on research and practice is never published in the conventional manner. Thus, redefined and edited versions may appear after a lengthy delay in journal articles or books, but in many cases the original report, paper, or dissertation is the only source. Grey literature, therefore, is often at the cutting edge of what is new (Smith, 1996). This view is also shared by Auger (1998), who highlights the fact that these documents present a number of advantages over other means of dissemination. These advantages include greater speed, greater flexibility and the opportunity to go into considerable detail if necessary. Indeed, grey literature covers nearly every aspect of the sciences and provides scholars and lay readers with research summaries, facts, statistics and other data that offer a more comprehensive view of the topic of interest (Weintraub, 2006).

In addition to the general value in research, grey literature is particularly important in the sciences. La Fleur and Rupp (2005:67) note that "the quest for scientific knowledge is an evolutionary process in which every increment of new knowledge adds to, modifies, refines or refutes earlier findings". Hence, grey literature is an important part of this process. Grey literature also provides citizens with the information that enables them to make informed decisions about their lives and the

societies in which they live. In the academic world, grey literature forms a big portion of literature, which is underutilised by libraries due to its unorthodox distribution patterns. Over the years, grey literature has come to constitute a section of publications ranking in importance with journals, books, serials and specifications. It is difficult, however, to estimate the amount of grey literature generated worldwide as a huge proportion of such literature is not sufficiently publicised. According to Wood (1984), such state of affairs arises because of the mistaken belief that grey literature is only of local interest. This, in turn, partly stems from lack of bibliographic facilities on grey literature (Alemna, 2006:3)

This chapter covers the review of literature related to grey literature in both developed and developing countries. It is organised according to the following thematic areas: introduction to grey literature, which covers definitions, descriptions, and basic features of grey literature. The chapter also provides the historical perspective on the development of grey literature in both developed and developing countries, factors that influence access to grey literature, the role of international organisations in enhancing grey literature collection and accessibility, and the role played by ICTs in accessing it.

3.2 Definition and Composition of Grey Literature

Knowledge generation in any field of studies begins with clear, accepted or at least conventional definitions of terms (Farace, 2010). 'Grey Literature' is a term used by library and information professionals, and yet its meaning is still lost to many librarians and information scientists (Omeje, 2005). Since the term was coined

decades ago, there have been various definitions provided by librarians and information professionals. However, this has not really contributed to the understanding, use, and application of grey literature (Farace, *ibid*).

3.2.1 Conceptual Definitions and Descriptions of Grey Literature as Library Materials

The exhaustive and unequivocal definition of the nature and types of material qualified to be defined or described as grey literature could probably form the basis of understanding it. However, there is no certain means of developing a universally-accepted definition or description of grey literature. Grey literature is a term that is probably not widely understood outside the world of librarians in the natural sciences and social sciences. Even within this circle, there are varying degrees of agreement and consensus on what constitutes grey literature (Tittlett & Newbold, 2006). Scholars such as McKinney (2005), der Heij (1985), Aina (2005) and Smith (1996) Wood (1982) have analysed the literature tracing the development of definitions as well as a general description of the term 'grey literature'. The definitions and descriptions provided will demonstrate how hard and awkward it is to find a comprehensive definition and description.

The term 'grey literature' is not new and, perhaps, most people know it by other names. Historically, grey literature is a product of an evolutionary development rooted in the twentieth century science and technology, often being associated with many names. Van der Heij (1985), for instance, noted that synonyms for 'grey' as used in the professional press include 'fringe', 'ephemeral', 'fugitive', 'informal',

“informally published”, “unconventional”, “unpublished” and “invisible” literature. Such literature, as indicated earlier, has also been known generally as “report literature” (Mc Kinney, 2005).

Auger (1998:3), however, opposes the use of the term non-conventional when it comes to grey literature and, instead, states that “documents may be unconventional in many ways and many conventionally published documents show greyish aspects”. He argues further that “some of these items are conventional in appearance and can be acquired by placing subscriptions or orders through agents and booksellers”. Some people relate it to a situation or a topic that does not fit into a particular category and is, therefore, difficult to deal with (Tella, 2006). In Europe, for instance, the term has become widely recognised and used as evidenced by German “graue Literatur”, the Italian “Letteratura grigia” and the French “Littérature grise” (Auger, 1998:4, Malinowska, 2006:2), which all imply not published. In the United States, the term has taken longer to be accepted. According to Auger (1998:4), the term originated from the British librarians and supplanted the longer established American term “reports literature”.

In the defunct USSR (Union of Soviet Socialist Republics), according to Palnikov (1989:16), the term “grey literature” is neither widely used nor officially recognised. The equivalent usage in the then Soviet Union was “literature of small circulation”. The former USSR defined such literature as “literature issued by institutions which have the right to publish, including those that are not actually research institutions or bodies of higher education (Palnikov, 1989:16). Such literature qualifies to be treated

as grey literature due to its characteristics. These characteristics include the low circulation of these publications and the absence of a market-driven price-tag since any price that appeared on such products did not cover the production costs. In addition, the publications of this type as a rule are fully or partially subsidised and distributed between libraries and information centres through a centralised rather than a commercial system. This literature is also issued by institutions which have the right to publish.

Over time, the term 'grey literature' has become widely accepted in terms of usage. The term is used to define or describe information products, which are created and distributed to disseminate non-for-profit knowledge, ideas, facts, and opinions. Indeed, a key distinguishing factor between other kinds of publishing and grey literature is that the latter is not produced for commercial purposes, but as part of the communication process. Some of this material is intended for very limited readership, never reaching dispersion through normal trade channels. As Weintraub (2000), Wessels (1993), de Blaaij (1999) and Mill (2000) have observed, the primary objective of producing grey literature is to disseminate current knowledge and information as quickly and as inexpensively as possible to a, sometimes, restricted group of interested people or organisations. On the other hand, grey literature supplements conventional books and journals. Vickers and Wood (1982:126) have argued that 'conventional literature cannot accommodate, nor probably do they wish to accommodate all the additional information being generated'. One of the factors that made grey literature attractive and attain currency as a separate medium of communication is the initial need for security, or confidentiality associated with

commercial value of the documents in question (Auger, 1989; Wessels, 1993). This happens even when the value of the document has depreciated since the industry needs to keep the material confidential. On the value of grey literature, Weintraub (2000:2) notes:

í those resources support their respective disciplines by providing background data, summaries of research, basic information and general communication designed to provide users with a more comprehensive coverage of the topic of interest.

Augur (1989) and Malinowska (2006:2) trace the birth of 'grey literature' to 'report literature', its forerunner, as the term grey literature only gained currency in the 1970s (Alberani, 2000). In the UK, as noted by Alberani (2000) and Augur (1998), the starting point for the endorsement of the terminology started at a seminar on grey literature held in York in December 1978. The seminar was organised by the European Economic Community, now the European Union, in co-operation with the British Library Lending Division, now known as the British Library.

The most useful and a widely accepted minimal definition before the 1990s was that of Wood (1982: 459-65, 1984:278), who defined it as 'material, which is not available through normal book selling channels'. As well as being the subject of haphazard or specialised distribution arrangements, grey literature also has a number of other distinguishing characteristics such as a small print runs, variable standards of editing and production, poor publicity, poor bibliographic control, and poor

availability in libraries (Wood, 1982, 1984). Gibb and Phillips (1978/79:227) defined grey literature as material which, in its manner of publication, is "non-conventional".

McKinney (2005:1) questions the use of this definition since it is "too inclusive" and likely to cover something ephemeral or a printout from an online search, but can exclude literature often be obtained from vendors which are by definition grey literature (McKinney, *ibid.*). Der Heij (1985:95) defined grey literature as written materials not issued through regular channel. Similarly, Smith (1995:1) defined grey literature thus: "Material which cannot readily be acquired through normal bookselling channels, which therefore escapes listing in bibliographies and in print tools, and which is therefore difficult to identify and obtain." Attempts to re-define grey literature to take into account new developments include the one which came out of the 1996 Grey Works Workshop. This definition refers to non-conventional literature considered to be publicly available information, which may not be available through normal channels or systems of publication and bibliographic control (Smith, 1996:45). The US Interagency Grey Literature Working Group (IGWG 1995) has defined grey literature as foreign or domestic open source materials that are usually available through specialised channels and may not enter the normal channels or systems of publications, distribution, bibliographic control or acquisition by booksellers or subscription agents (IGWG, 1995).

A standardised definition emerged from the Third International Conference on Grey Literature held in Luxembourg in 1997. This comprehensive definition "a result of consensus" defines grey literature as the material "which is produced at all levels of

government, business, academia and industry in print and electronic formats but which is not controlled by commercial publishing interests that are where publishing is not the primary activity of the producing bodyö (Aina 2005:1; Schopfel 2005:50, Farace and Schopfel, 2010:1). This definition is popularly referred to as the Luxembourg Convention. It was officially updated at the Sixth International Conference on Grey Literature held in New York in 2004. Justifying this definition, the International Federation for Library Association (IFLA 2002:3) noted that this new outlook would integrate a number of emerging forms of grey literature, such as electronic documents. These new types of literature were included in the list of grey literature definition in 1997 (Carvallo, 2001:3). The definition of grey literature took a sharp turn by emphasising, for the first time, the supply side of the grey literature, that is production and publication both in print and electronic formats (Farace, *ibid*). This now standard definition deviates from the previous ones which focused on the demand side and the problems associated with bibliographic control, indexing, cataloguing, retrieval and finally positioned it in wider perspectives (Farace, *ibid*). Some of the specialists in the field of grey literature, who prefer to give a general description of grey literature, have provided the following insights:

Wessels (1993:185) describes grey literature as öpublications that are not available through normal bookselling channelsö whereas the British Library describes it as documents not readily available via conventional bookselling channels and which are, therefore, ödifficult to identify and obtainö (Debachare, 1995:94). The Association Française de Normalisation (AFNOR) describes grey literature as ötypewritten or printed documents produced for the intention of a restricted audience,

outside of commercial publishing and dissemination circuits and on the margin of bibliographic control facilities. More descriptions of grey literature come from the Harold Librarians' Glossary (1990:275) and Farace (1997:13), who described it as: Information sources which are not formally published or made available commercially, and consequently difficult to trace bibliographically. Also, Sturges and Dixon (1983) describe grey literature as consisting large quantities of material in form of pamphlets, leaflets, newsletters and other kinds of informal serials, which contain information of value to research.

These descriptions appear to arise because the progress made in the field of publishing has resulted in the proliferation of diverse publications that are written, bound, published and marketed outside the conventional circuit of the publishing houses. In fact, many administrative and scientific specialists now work more and more with scientific reports and projects, surveys, annual reports and memoirs written by administrations that exist in large quantities, but not in the form of a publication in the strictest sense of the word by a publishing house.

On the whole, the numerous definitions and descriptions seeking to make sense of the term grey literature seem not to differ substantially as they refer to the same type of publications or materials. Generally, these materials are neither produced by nor distributed through retail channels. In fact, there are two schools of thoughts on whether to define or describe it. One school of thought prefers to provide a specific definition whereas the second opts to provide a general descriptive definition. Wessels (1993:185) and Debachere (1995:194), for example, have noted that it was difficult to provide a conclusive definition of grey literature, hence the need to

only provide 'a general description' rather than a specific definition. In principle, the definitions and descriptions given to grey literature have made some specialists in the field to deviate from adopting a general definition or description. Whereas there is no consent on whether to define or describe grey literature, the differences of opinion on which document may or may not be classified as grey literature are not really significant as both approaches are applicable (Carvalho, 2001).

3.2.2 Grey Literature Definitions

The definition of grey literature accepted during the Third International Conference on Grey Literature in Luxembourg reads:

...that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers (Farace, 1998: iii).

The Sixth International Conference on Grey literature in New York City, recommended the addition of an addendum to this definition:

i.e. where publishing is not the primary activity of the producing body (Schopf, *et al.*, 2005:31-40).

In the case of Quinion (2009), he defines grey literature as:

[A] wide range of types of informational material which is made available to the general public by public and private sector organisations whose function is not primarily publishing. Such information includes reports, brochures, guides, dissertations, product information, budgetary data, memoranda, and research findings. A more formal definition is: 'That which is produced on all levels of government, academia, business and industry in print and electronic formats, but which is not controlled by commercial publishers'

The ökey difference between other sorts of publishing and grey literatureö, Quinion further explains, öis that the latter is not produced as a commercial undertaking, but as part of a communications processö.

The California State University Library (2009), on its part, defines grey literature as a kind of öliterature (often of a scientific or technical nature) that is not available through the usual bibliographic sources such as databases or indexesö which is found in both print and, increasingly, electronic formatsö, and is usually öproduced by government agencies, universities, corporations, research centres, associations and societies, and professional organisations. Under this definition, scientific grey literature includes: Technical reports; theses and dissertations; pre-prints; fact sheets; standards; patents; working papers; committee reports; business documents; newsletters; government documents; technical documentation (e.g., space shuttle); conference proceedings; white papers; symposia; bulletins and unpublished works.

In the East African context, and Tanzania in particular, the term ögrey literatureö is only known to some librarians and users as normally referring to materials stocked in the East Africana section of the library. In the absence of a context specific definition applicable to condition prevailing in Tanzania, this study adopted the definitions provided by Aina (2005), Grey Net (1999), Schopfel and Farace (2010). These definitions show that ögrey literatureö is an integral part of the overall works of the corpus of documentation reflecting manö's intellectual efforts. Thus, grey literature deserves the attention of librarians and other information professionals just like other forms of publications.

3.3 Characteristics of Grey Literature

According to Sakaguchi (2009), Tella (2006:37), Natarajan and Bhakta (2007:3), grey literature has the following characteristics:

- (i) Not primarily produced for commercial publications, producers of grey literature have traditionally been non-commercial publishers. The main suppliers of such grey literature include government organisations, universities, for whom the publications of reports, newsletters, theses and dissertations serve as a means of disseminating information across, rather than publishing as a commercial venture.
- (ii) Non-conventional diffusion.
- (iii) Lack of standard bibliographic control, and thus it is difficult to estimate their output, for example in terms of ISSN and ISBN.
- (iv) Short life-cycle of documents.
- (v) They are produced in limited copies or small print runs. This often results in their being issued largely in mimeographed format.

Generally, grey literature normally contains the most recent information that cannot be found in other sources, and is intended to complement or fill gaps noted in traditional sources.

3.4 Components and Characteristics of Traditional Grey Literature

Grey literature has become a specialised branch of the information profession. According to Auger (1989), grey literature has attained such status because of its advantage, great flexibility, and speed, hence allowing those who write and issue it to be very concise, precise and focused. Since research tends to focus on specific areas of a discipline, readers often desire additional information to help place research in a wider perspective. Auger (1989) pointed out that the advantage of grey literature over other means of dissemination is its quick access, greater flexibility, and the opportunity it offers for one to go into considerable detail whenever necessary. Thus, grey literature, covering nearly every aspect of the sciences, provides scholars and lay readers alike, with research summaries, facts, statistics, and other data that offer a more comprehensive view of the topic of interest. Grey literature also contains concrete, up-to-date information on research findings not found in formal conventional literature. In fact, no research work on almost any topic can be done without recourse to grey literature.

In terms of characteristics, grey literature possesses its own unique features, which differentiate it from other published or conventional literature. Firstly, the paramount selling feature of grey literature is that it constitutes primary information sources, hence making bibliographic control of such literature usually problematic (Cooper, 1994). This latter component makes many information professionals fail to embrace grey literature with the same eagerness as they do with conventional or traditional sources because of the difficulties inherent in identifying and locating

such grey literature. Other characteristics of grey literature are related to the legal deposit regulations.

Incidentally, in certain circumstances grey literature materials are not subject to legal deposit regulations, hence the failure to include such materials in national bibliographies, especially in developing countries. Conventional literature bears identification numbers known as the International Standard Book Number (ISBN) for books and the International Serial Standard Number (ISSN) for serial publications. These numbers make it easy to identify and trace the origin of the publication. Grey literature, on the other hand, is not covered by this rule, although some efforts have been made to apply some form of identification numbering in the domain of grey literature as well. For example, report numbering was initiated in a bid to introduce standardisation. However, these numbers were designed to include subject matter, date, form, agency, security classification, location, and additional data that are quite long and confusing. McKenzie Owen (2005:1) outlines further the following distinctive characteristics:

- (i) Traditional grey literature is concerned with physical information objects; Information items in paper form produced and distributed by the individuals or organisations that create them.
- (ii) The producers of grey literature do not belong to the formal 'information' industry such as publishing houses. They are either organisations or individuals working for organisations in other sectors such as the industry, universities, research institutes and government organisations for which the

publication of reports, newsletters, websites etc. is a means of getting message across, rather than publishing for profit.

- (iii) The lack of well-defined distribution infrastructure requires a pro-active acquisition policy from intermediary organisations such as libraries and information resource centres.
- (iv) Grey literature tends to have specialised subject content or concentrate on subject of local interest.
- (v) The difficulty in pricing often results in their being distributed at no cost, an obvious advantage to poorly-funded libraries, especially in developing countries.
- (vi) The limited editions of such grey literature also result in their poor availability, poor distribution, poor publicity and, ultimately, poor bibliographical control. The situation presented above is similar to the one existing in Tanzania. As a result, a number of universities libraries have put in place some policies regarding the availability of grey literature. These policies include assigning some members of staff with the task of tracking these documents from various sources.

Some scholars in the field such as Alberan (2001:242) have highlighted some more additional characteristics of grey literature, which relate to the role of grey literature-issuing organisations: the issuing organisation is normally responsible in guaranteeing its contents. Such observation has also been echoed by Wessels (1993:186), who argues that organisations that produce grey literature cannot afford to issue low quality publications if they value their reputation. To control its

quality, the issuing organisations have put in place a number of internal control mechanisms, which may have nearly the same selective effect as those of peer-reviewed literature (Wessels, 1993). An equally important observation has been made by Carvallo (2001) who argues that many of the grey literature documents go through a review process that is even more stringent than those imposed by scientific and technical magazines. She cites the academic works such as dissertations and theses, which are subject to stringent, bench reviews before being accepted. Scholars such as Alberani and de Castro (2001) have also supported the views given by Carvalo (2001) by citing home pages of organisations used to promote the image of their parent organisations, hence making them editorially and contractually responsible for well-screened and presented documents (Alberani, 2000: 242).

Palnikov (1989:16), on the other hand, added other characteristics such as low circulation arising mainly due to the availability of only fewer copies of a document, hence offering few opportunities of many libraries possessing such materials. The documents also bear no economic price tag because publications of this nature tend to be fully or partially subsidised and distributed among libraries and information centres through a centralised rather than a commercial system. Inevitably, such characteristics naturally hamper the control of such publications. Vickers and Wood (1982) have summed up the grey literature situation as involving the following aspects: its distribution is not organised; its production is in limited quantities, hence the uncertainty in availability; its poor bibliographic information and control; and its non-professional layout and low print runs. These characteristics naturally lead to particular intermittent problems associated with grey literature, which have to do

with identification, acquisition, availability, reading and copying (Vickers & Wood, 1982:126). Wood (1984:278) has also noted that grey literature has other distinguishing features such as, variable standards of editing and production, poor publicity, and use of unpopular formats such as microfilm/microfiche. It is also obtainable through direct channels between the historical producing bodies, through direct channels of legal deposit, and information channels relying on informal contacts mainly between academics, library users and librarians.

3.5 Types of Grey Literature and Issuing Bodies

Grey literature is so-called because of its semi-published status and can be difficult to locate and access. Typically, these are works produced by government, industries, universities, associations both in print and electronic formats not contracted to be published through a mainstream publisher (Auger, 1989). Therefore, the distribution patterns of these works can be informal, restricted and, consequently, limited in scope.

In essence, grey literature belongs to the primary sources of information, and it has a very crucial role in the information transfer process in any field because of its research potential. It forms an important element in the advancement of knowledge base in areas of social and natural sciences. Oftentimes, it is used to report on the extensive research, landmark experiments, comprehensive surveys and detailed investigations (Susan, 1994). Normally, grey literature carries and stores much of the knowledge of human kind.

Generally, there are two main categories of grey literature, which have an important share in the area of publishing in general. According to de Blaaij (1999), Auger

(1998), Gibb and Philips (1978-79) these are, firstly, scholarly information such as publications with scientific content. These include theses and dissertations, scholarly papers (both from the public and private sector containing scientific, technical, economic and social information), reports, conference papers, workshop proceedings, manuscripts, certain official publications. In this category, materials include documents issued in limited numbers by government bodies, technical rules and recommendations, patents, web pages and other publications distributed free, available by subscription or for sale. These reports are generally regarded as part of grey literature. In fact, there are also 'reports literature' which had received wider coverage before the term 'grey literature' was coined (Auger, 1998:8). The second distinctive type refers to in-house brochures published or produced by organisations, as well as publications of associations, political party materials and trade unions leaflets (Moahi, 1995). Wessels (1993) and Weintraub (2000) list the main types of bodies, which normally produce and issue grey literature as universities, research institutes and industrial firms.

3.6 Volumes of Grey Literature Produced

Attempts have been made to quantify the amount and type of grey literature produced. According to one estimate, its growth rate is three to four times that of conventional literature (Farace, 1997). Early estimates of the amount of grey literature available was used by the British Library Document Supply Centre as a benchmark to assess the number and growth rates, which was pegged at three million and the growth rate of 150,000 documents per year (Marsh, 1992). In Africa, a study conducted in Botswana and Ghana has indicated that grey literature produced in

those countries had constituted about 98 percent of all the development literature produced (Akoto, 1995:5, 2006:5). Another study report funded by the Development Science Information System (DEVSI), which was sponsored by IDRC, ILO, OED, UN Department of Economic and Social Affairs, and UNESCO, divided information into two categories of published and unpublished materials. The study team found that grey literature constituted 60 percent of the world's information resources (Tella, 2006). In the case of Tanzania, the quantity of grey literature generated as well as its level of access and usage in public universities remain largely unknown as there is no known specific study that has been conducted to establish its quantity in a systematic manner.

3.7 Role of Grey Literature in Research

Grey literature plays an important role in today's complex socio-economic and academic environment. As Weintraub (2008) has observed, grey literature provides scholars and lay readers alike with research summaries, facts, statistics, and other data that offer a more comprehensive view of the topic of interest. According to Weintraub (*ibid*), a world in which free trade and instantaneous communication have eliminated many of the barriers to information flow, grey literature is increasingly gaining greater importance as a source of information for much of the world's population: it covers all segments of knowledge; it serves the informational needs of various people from different disciplines. Such information is an important input for the success of any academic and research system.

When conducting scientific research, for example, it is pertinent to include grey literature in the literature review in addition to information gleaned from peer-

reviewed journal articles to enrich the findings since grey literature is more likely to contain primary data than any other source. The inclusion of grey literature in research makes research results and conclusions more accurate and comprehensive. In fact, the absence of this kind of information can restrict researchers; lower their confidence, their professional standing and even the value of research. La Fleur and Rupp (2005) have argued grey literature is an important part of the communication process despite appearing to be separate from mainstream publishing. Osayande and Ukpebor (2012) have noted further that, generally, grey literature is the main source of indigenous information, and, therefore, it is very relevant in carrying out researches that are home-based. In fact, lecturers, researchers and students in universities rely heavily on materials such as theses, projects, and conference papers, to gain first hand information on topics under study. Other benefits are that grey literature is more likely to report studies that ceased prematurely, as well as innovative pilot projects (Osayande and Ukpebor, 2012).

University libraries, therefore, as part of a complex whole on their part, are key institutions in securing access and disseminating information, knowledge and ideas, which have a crucial role in the advancement of knowledge, decision-making, avoidance of duplication of efforts and in enabling technology transfer. As a place for learning and research, academic libraries are compelled to serve as depositories for a variety of information sources such as published and unpublished materials irrespective of whether or not they are frequently used to meet the informational needs of their diverse users. Equally important, it is also worth mentioning that there is no national development programme which can succeed fully without the proper

information provision and support regardless of its format. To spread knowledge, education and culture to all nations throughout the world, it is essential that all forms of information, including grey literature, should be allowed to flow freely. On the basis of this fact, Frank (2006:1) has argued that "since the knowledge conveyed in these publications is a public good, access to it should be broadened as far as possible to all who are interested in it and all who might profit by it". Nevertheless, there is doubt that much of the existing body of knowledge as set down in the form of grey literature is not utilised as a stimuli for development and in solving societal problems as much as other information from conventional sources.

In fact, researchers and librarians encounter a lot of difficulties in locating, organising and accessing such publications. Some of the conditions that constrain its access and usage are caused by factors such as the process involved in its collection which is somehow very demanding and time-consuming. Grey literature requires innovative methods of acquisition, which include personal contacts, knowledge of the activities of institutions, as well as individuals who are sources of information. Moreover, it constitutes knowledge of the kind of research work taking place in the country and the problem has to do with how to get the documents. However, to have the document is one thing, making it accessible to those who would need the document is another thing. It does not matter how well information is organised and indexed if that information does not realise its value, that is, until it is made known and shared with other researchers and communicated in a simple possible means to different users who would put it to good use. Generally, this is a daunting dilemma, that hampers the widespread use of grey literature information despite the fact that

any remarkable research work in almost any field cannot be done without recourse to grey literature information.

3.8 The Identification, Acquisition, Accessibility and Usage of Grey Literature

Acquisition, accessibility and usage are concepts which complement one another. Together, they portray their inter-relationship in the field of library and information science. 'Acquisition' is generally defined as the process of obtaining books and other documents for a library, documentation centre or archive, whether through purchase or gifts, or through exchange programme (Prytherch, 1987:6). Frank (2006:1) refers to 'accessibility' as a 'commitment to the value and quality of research carries with it and responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and all who might profit by it'. Nevertheless, each of these components can be seen from a different perspective. Generally, the prime obligation of any academic library is to make acquisition of a variety of information from various sources to satisfy the diverse needs of their users. On the other hand, there is pressing aim of the library to ensure that the acquired information is accessible and used by its users in a timely and efficient manner to support scholarship and keep its users well-informed and up-to-date in their fields of interests. The combination of these two processes enhances the value of information.

3.9 Methods of Acquisition

To meet the informational needs of their user in terms of grey literature, libraries have employed various methods to acquire them. Osayande and Ukpabor (2012:2), taking Nigeria as an example, have outlined the following methods as sources of grey literature acquisition:

Purchase: this is done through a vendor who goes round to the source for conference proceedings, bulletins and other grey literature materials which are relevant to the university curriculum/research.

Gifts: corporate bodies and individuals who are friends of the academic libraries send their publication to the library. This has helped a lot to boost the grey literature collection of the library.

Legal deposit: the major avenue for the collection of grey literature publication in the library is through legal deposit. Students/researchers are mandated to drop the hard and soft copies of their theses and dissertations in the university libraries. Also, papers presented at the departmental seminar, public lectures delivered in the academic environment and conference proceedings of conferences held in the institution are all deposited in the library.

Subscription: acquisition librarians subscribe to subscription agents who collect grey literature either in digital format or print copies. This is done through the Internet either free or through premium subscription.

Resource sharing: libraries engage in resource sharing through the formation of a library consortium. Here, the academic library can go into an agreement with other institutions for the purpose of sharing or exchanging grey literature emanating from the participating institutions. The current trend for sourcing grey literature materials is through the use of information technology (IT). Most information professionals have come to set up a listserv that enables them to exchange information in grey form through file attachments. Also, academic libraries have formed electronic groups that enable them to share and know about the existence of grey literature materials.

Online search: Internet search is another way of collecting grey literature. This is because transitory and invisible materials on the web are obviously grey and the Internet provides access to materials. Therefore, a librarian can search for relevant literature which can meet the needs of the users. Generally, the librarian can make contacts with publishers, institutions, and organisations where grey literature is produced through telephone, fax, email, letter, and subscription.

3.10 Accessibility of Grey Literature

According to Wood (1980:96-97), a large part of the world's literature is grey in the sense that these publications are not obtainable through the publishing trade. In fact, the distribution patterns of such literature are haphazard. Moreover, its distribution patterns may be informal or restricted and, therefore, limited in scope. Furthermore, the distribution channels commonly bypass the national libraries that serve as sources of ready-made standardised cataloguing records. This leads to a low profile and visibility for such material, which is evident in many African countries. In fact, Aina (1997) and Balabkins (1984) observe that the majority of research materials in Africa appear in the form of grey literature. Hence, any attempt to measure Africa's literary and documentary output without including grey literature will provide only a false picture of the publications that emanate from the continent.

Under normal circumstances, potential users of information in whatever format need to know about the existence of the document in question, its content, its place of publication, and its format. The availability of such information makes it easy for both the librarians and the users to access and acquire the document. Incidentally,

these features are normally absent when it comes to grey literature acquisition and usage. As a result, they render some practical problems, which confine the scope for librarians and users in identifying, acquiring and accessing such literature. Moahi (1995), who analyses the situation in Africa, contends that much of the traditional search tools employed in easily identifying and accessing grey literature in libraries and information centres usually contain references to commercially-published materials rather than to grey literature, hence highly unreliable in this case.

The absence of bibliographic information (Augur, 1989) affects the awareness of the scientific community on published issues that could be potentially significant. Additional problems are those associated with the tremendous number of items appearing in the form of grey literature, initially prepared with a known and limited readership in mind, and often carrying a distribution list. In such cases, copies are regularly numbered so that each individual can be counted for (Augur, 1998).

Vickers and Wood (1982) have outlined other problems that have to do with lack of bibliographic control reflected in the incomplete library holdings. As a result, the producers of grey literature are not bound by any regulation to deposit their works in the library as this requirement only applies to conventional publications which are subject to legal deposit law and regulations. As these publications are not usually subjected to legal deposit regulations, they are rarely listed in the national bibliographies, a valuable universal bibliographic control tool. Such an omission has a significant impact on the identification of grey literature for retrieval and use purposes.

When it comes to grey literature, the role of agents such as booksellers is minimal and, to some extent, non-existent. The absence of legal depository regulations coupled with the minimal role played by booksellers has had a significant impact on the accessibility of grey literature. Auger (1998) and Cooper (1994) have noted that some categories of grey literature contain security restriction to safeguard against exploitation, especially in defence or competitive commercial environment, where a high level of secrecy is important in maintaining a competitive advantage. Naturally, such restrictions lead to poor accessibility of the material to the intended users. Bahrens (1998) attributed poor accessibility of grey literature material to the absence of both selective and coverage in the standard bibliographic control. As a result, he argued, this kind of material was scarcely mentioned or included in the report in his field, otherwise it is normally difficult for a user to trace the publishing organisation, locate the document, then obtain a copy. Wessels (1993), on his part, has argued that a great number of such literature is disseminated as a matter of routine to sister institutions and governing bodies. Therefore, the handful of these documents reaches only a few interested researchers.

Apart from the problems highlighted above, scholars such as Alemna (2001) and Kargbo (1989) have outlined other factors, which inhibit accessibility to grey literature, especially in developing countries. These include poor staffing position in the libraries. As a result, it difficult for the library staff to get involved in the costly and time-consuming exercise of collecting grey literature and setting up supply channels (Aina, 2006). There are also costs that prevent most libraries from being

actively involved in this area of grey literature. Other factors are poor library funding, poor availability in libraries, non-standard arrangements, fragile and flimsy conditions of such literature with some of them simply stitched or stapled together, which result in easy wear and tear. In some cases, the wide variety in formats may prevent grey literature from being shelved alongside other related sources in library (Auger, 1990), thus making it harder for the general users to find them, limiting their use in the library. There is also a problem of given mindsets among librarians. Traditionally, they treat books as the most important information conveyor among the literates. Indeed, most of the libraries stock mainly books and tend to neglect other sources such as grey literature.

However, with the development of ICT and the emergence of e-books, e-journals, on-line databases and other information media, the mindsets of the librarians has changed. According to Aina (1997), the neglect of grey literature can, in part, be attributed to the low priority accorded to it in the curricula of most school library. She argued that courses such as collection development, cataloguing and classification are given priority with grey literature being given little mention since the most emphasis is placed on books and serials.

In Ghana, some librarians shy away from collecting grey literature altogether (Aina, *ibid.*). The major cited reason is the fragility and awkward nature of such materials. Their flimsy physical condition and unbound form often prelude their classification and storage according to systems used for books. Thus, they do not easily fit into the collection arrangement designed for other library materials. In this respect, these obstacles when viewed together make it difficult for librarians to get involved in

such costly and time-consuming exercise of keeping track of such materials. To redress this situation, the funding and staffing situation should be improved; otherwise very little could be done to redress the situation (Alemna, 2001:41).

The additional problems include those associated with the unwillingness and inability of producing organisations which, in one way or the other, fail to promote their output (Wood, 1984). As a result, libraries and others who would wish to collect them for their end users would be unaware of the existence of such materials. In such cases, an inquirer finds it hard to discover the relevant documents that exist that could help him or her deal with the question of his or her interest (Gibb, 1978/9). Since such materials are produced for a particular purpose and audience, the producing organisations normally use their own dissemination channels without necessarily being aware of the external interests of their potential use (Tillet, 2006).

To alleviate the problems associated with the accessibility of grey literature, some initiatives have been taken within the field. These efforts involve the implementation of bibliographic control through the use of International Standard Book Number (ISBN) applied for books and International Serial Standard Number (ISSN) used for serials. Also, the introduction of report numbers has to some extent proved useful. However, Gibb and Phillips (1978/9) have raised a number of issues regarding the practical implementation of the number system, including the way in which the numbers should be allocated. Augur (1989) has argued that this is not likely to be practicable considering the informal ways in which some documents are published. Moreover, there has been a question of using the nationally-appointed authority. For example, reports which form a big portion of grey literature do not, as a rule, use

ISBN, which require a depository. In fact, report numbering was introduced as a means of showing standardisation. But as these numbers were designed to include the subject matter, date, form, agency, security classification, location and include any other additional data, they tend to be long and confusing. Depending on the nature of grey literature, some categories also contain security restrictions (Augur, 1989).

There is also a problem of incomplete or incorrect identification since accession or report numbers must be correct for one to attain access (Augur, 1989). Its absence to some extent makes it difficult for librarians, especially when a patron requests for a particular document and it is not apparent where to begin the search. Other problems, which inhibit the utilisation of grey literature are those associated with copyright issues, especially in this era information and communication technologies. To overcome this problem, Raseroka (1996) suggests that universities find solutions to copyright issues of locally-published output. All these outlined problems generally tend to limit accessibility to grey literature.

3.11 Historical Perspective of Grey Literature in Developed Countries

This section provides a review of some key literature on the historical development of grey literature in developed countries. Most reviews of the literature related to this field has traced its historical development and presented it as a phenomenon that appears mostly to be associated with science and technological progress. Augur (1989:7), for example, asserts: "It is not a phenomenon of the late twentieth century, rather it should be considered as a genre which started at least in the 1920s particularly in Europe among the scientific circles". Much of this explosion in

scientific research happened outside the UK; for example, the US and Russia and the results were published in technical reports rather than in peer-reviewed journals (Tillett and Neubold, 2006). Therefore, there was a desire from the UK government to make this material readily accessible to the UK's scientific community as well. Carvalho (2001:3) argues that the driving force was the need for scientists to disclose their findings in a fast and informal manner.

In the course of its development, grey literature has passed through a series of transformations. From report literature, which was widespread in the scientific community, to different types of documents produced by public and private bodies in the most diverse disciplinary fields. Therefore, understanding its evolution and its historical development entails analysing the fundamental stages of its development.

In German-speaking countries, the development and recognition of such type of literature can be traced to as far back as the 1920s. Schidmaier quoted by Augur (1998:7) explains that no serious librarian can fail to acknowledge that utmost care needs to be paid to 'little literature' and the large number of publications that were not available in normal bookshops. In fact, any division into main and secondary subjects can be disastrous (Augur, 1998). Schidmaier further explains that since 1930s the existing systems have been supplying users with several categories of grey literature by bibliographically registering new publications not available in bookshops within the framework of the Deutsche Nationalbibliothek since 1931. This German experience exemplifies that grey literature had been in existence for decades.

In the US, the use of the 'grey literature' terminology took longer to become accepted as standard name. Bitchler (1991: 31-50), for instance, noted that the term originated from the British Librarians to supplant the longer established American term of 'report literature'. In the UK, as Auger (1998) has explained, the use of this term came into the vogue following the seminar held in York in December 1978 organised by the then European Economic Community in co-operation with the British Library. Auger (1998: 8) also notes that the term gained general currency as a result of a headline in the Financial Times newspaper which read, 'Grey Literature comes in from the cold'. Auger (1998) and Malinowska (2006) relate the birth of grey literature to the development of aeronautics and the aircraft industry, the sector which produced the first set of reports. These included the Advisory Committee for Aeronautics in the UK which published the Report Memoranda in 1909 and the first similar report published in the US appeared in 1915. It was published by the National Advisory Committee for Aeronautics.

Marsh (1992), on the other hand, believed that the first explosion of this literature was associated with the radar programme in the UK and the atomic energy programme worldwide. In the meantime, Carvalho (2001), and Luzi (2000) trace explosion of grey literature to the Second World War when countries such as Germany, the UK and the US increased their research activities to gain an upper-hand in the war. Indeed, the war necessitated new innovations, hence the need for research findings that should be disseminated rapidly to authorised personnel and

centres interested in working on those ideas with minimal delays with the final products deployed in the war efforts.

One of such outstanding outcomes of the war was the growth in the volume of grey literature documents and the appearance of organisations specialising in the collection and dissemination of this literature (Luzi, 2000). A good example was the US Office of Scientific Research and Development (OSRD) set up in 1941. According to Augur (1999) and Luzi (2000), this organisation was charged with the responsibility of releasing the results of research projects and encouraging their applications in national defence interests. It also served as a centre for mobilising the nation's scientific results and applying them to enhance military defence. Generally, the responsibilities of these institutions were twofold: divulging internally generated information and spreading non-classified information to a broader segment of users to foster technology transfer. As the need to foster technology became imminent especially in the US, a new entity known as Publication Board was formed to replace the OSRD in 1945 (Augur, 1998). The formation of new Board led to the publication of the first bibliography of technical reports—the Bibliography of Scientific and Technical Research (Carvalho, 2001).

Other notable developments associated with grey literature came in the 1960s with the formation of an important body in the US known as the Committee on the Scientific and Technical Information (COSATI). Like its predecessors, COSATI was charged with the task of co-ordination and dissemination of scientific and technical information (Augur, 1998). One of the remarkable achievements of

COSATI in relation to grey literature was the formation of the COSATI Subject Category List, which has facilitated the grouping of abstracts and citations in the broad fields or groups for display to the users and for distribution purposes (Luzi, 2000). Specifically, COSATI standardised cataloguing and classification rules for government scientific and technical reports and interconnected the different thesauri used by US government agencies. One COASTI benefit was the standardisation of uniform cataloguing description, which presented a favourable climate for active exchange of bibliographic information. Luzi (2000) noted that both of these instruments were broadly used and provided the basis for grey literature's bibliographic description in many information systems such as SIGLE, INIS, and AGRIS. Another milestone in the sphere of grey literature was reached in the 1960s with the emergence of technology, whose application in libraries has tremendously supported the collection, processing dissemination and storing of grey literature information. These include microfiche and microfilm readers. These tools were used to disseminate grey literature information to a wider clientele.

Also a review of literature by experts in this field such as Luzi (2000), Carvalho (2001) and Smith (1996) has revealed the important role played by the Lending Division of the British Library (latter renamed the Document Supply in the Collection and Dissemination of Grey Literature). The library was given the responsibility of serving as the repository for all British and Irish grey literature entering the library through legal deposit and other routes. These collections had to be managed, developed and exploited as the National Reports Collection by BLDSC as a corporate resource for the library as a whole and its users. Grey literature titles

supplied to the British Library Legal Deposit Office had hitherto tended to be processed very selectively for the British Library's London collections, and in many cases were consigned either to uncatalogued 'dumps' or to growing low priority processing backlogs (Smith, 1996:46). This also served as the main European point for collection and dissemination of reports emanating from the US agencies. Later it was officially transformed into a depository of documents produced by the European Community. The magnitude of grey literature produced, acquired and handled by the British Library Document Supply Centre (BLDSC) was surprisingly large (Wood, 1982:459-65) as Table 3.1 shows:

Table 3.1: BLDSC Grey Literature Stock Since 1997

Category	Holdings	Annual intake
Reports in microfilm	4,100,000	140,000
Other reports	555,000	30,000
Doctoral theses (US)	462,000	5,000
Doctoral theses (UK)	127,840	9,840
Conference proceedings	368,590	17,590
Translations	569,645	5,645

Source: British Library (1982)

About 100,000 reports were acquired annually from the US Government agencies, 5,000 from VINITI, half a million indexed translations from the late 1950s until 1967, market research reports and surveys acquired on request, and agreements with universities for thesis collections. Smith (1996:45) also provides a summary of the grey literature holdings available at BLDS as follows:

Table 3.2: Grey Literature Holdings at British Library Documentation Centre

Type of Materials		Holdings	Increase per Annum
Reports of British, US		4-5 million	100,000
Doctoral theses (565,000)	UK	450,000	6,000
	US	115,000	6,000
Conference papers		350,000	15-20,000
Translations		550,000	9,000

Source: Smith (1996)

Comparing these two early studies, one observes that grey literature constitutes a major source of information with equal status to traditional published literature despite its limited accessibility. Based on his personal experience as the pioneer in the field of grey literature in the UK, Wood (1982) in a study to establish the amount of grey literature produced was surprised about the abundance of documents acquired and handled by BLDSC as Table 3:1 illustrates.

Also the Weinberg report of 1963 laid a solid foundation for grey literature in the US as a good source of information in promoting science and technology. The report was entitled "Science, Government and information: the Responsibility of the Technical Community and the Government in the Transfer of Information". According to Luzi (2000), the report recommended that an institution be established to gather and disseminate such information. The report also emphasised the importance of grey literature in the dissemination of knowledge in the scientific field as well as technological transfer. Due to importance of grey literature, Germany instituted rules and regulations to guide the collection and accessibility of grey literature. All

institutions, which produced grey literature, were required by law to deposit them with the central subject libraries, the Zentrale Fachbibliotheken (Wood, 1982:127).

3.11.1 Historical Development of Grey Literature from 1970s - 1980

Another important period in the evolution and historical development of grey literature covers the 1970-80s period. During this period, issues related to the management of grey literature increasingly started to crop up. Similarly, studies on this field multiplied in many different aspects such as indexing, cataloguing, dissemination and information retrieval. More importantly, the first remarkable achievement on grey literature was made during the 1978 Conference in York, Great Britain by the EU in collaboration with the British Library Lending Division (Auger, 1998). The seminar was aimed at determining ways of improving access to information contained in grey literature within the European Community. The most notable achievements from the seminar have been outlined by Gibbs and Phillips (1978/1979:25) as follows:

- (i) The creation of guidelines for producer of grey literature;
- (ii) The unique identification of documents;
- (iii) The establishment of grey literature bibliographies;
- (iv) The improvement of the supply of documents to users; and
- (v) The establishment of the national grey literature agencies.

These initiatives were envisaged to cover the following areas: collection of documents on their own territory; assignment of unique codes; cataloguing; document delivery and education of producers (Gibbs & Phillips 1978/79:222). Luzi (2000:110) in his study entitled 'Trends and evolution in the development of Grey

Literatureö noted some other remarkable developments in the field during this period as those associated with the appearance of online databases specifically dealing with grey literature, most of which is distributed commercially. He cited the NTIS Bibliographic Database, as one of the first databases available on CD-ROM.

The 1980s also saw significant improvements in the acquisition, processing, and dissemination of grey literature. One of such recorded achievements was the formation of the System for Information on Grey Literature in Europe (SIGLE). Equally important was the formation of a database for Grey Literature, which was managed by the European Association for Grey Literature Exploitation (EAGLE), a Consortium of Legal Libraries and documentation centres in Europe. One of the major goals of SIGLE, as outlined by Smith (1996) and Wood (1984), was to provide access to documents and improve the bibliographic information of the grey literature produced in the European countries. Similarly, STNEWS of November/December 1999 noted, SIGLE was also mandated to collect technical or research reports, doctoral dissertations, conference papers and pre-prints, official publications, discussion and policy papers, and other grey literature documents produced in member countries. Each year about 46,000 documents are added to the file and can be accessed over the Internet using the Compact Disk or hard drive (STNEWS, 1999). Before the formation of SINGLE databases, grey literature covered specific subject areas, such as science and technology, energy and aerospace (Auger, 1998).

In countries such as the former USSR (of which the now reconstituted Russian Federation was a part) there existed a centre known as the Scientific and Technical Information Centre of Russia, VINITI as it is known by its Russian acronym, one of

the world's largest information bodies that maintains a vast collection of Russian grey literature on the art, science and technology in that huge country. The centre was founded in 1952 by the Russian Academy of Sciences (RAS).

Its main goal was to supply the national and world community with scientific and technical information in the fundamental, engineering and applied sciences (www.viniti.ru). Pavlov (2000) observes that the centre is responsible not only for the maintenance of the complete repository for scientific research development reports and dissertations but also carries a dual function of archiving and disseminating grey literature.

The effective promotion of the collection of grey literature in Russia had to do with the effectiveness of the Federal law of the Russian Federation entitled the 'Obligatory Copy of Documents' (Palnikov, 2000:169). The law enacted by Russian Parliament was published on 17 January 1995. This law states that the presentation of documents to VINITI is obligatory for all organisations engaged in state-funded scientific research and development (Palnikov, 2000).

In Tanzania there is no centre charged with overseeing the collection of grey literature as well as providing access to such materials. In addition, there are no pool databases, which deal specifically with grey literature. As a result, each institution works on its own to meet the information needs of its users. There is also no co-ordinated or dedicated centralised place where the grey literature emanating from various sources can be accessed and shared.

3.11.2 Experiences of Collecting and Accessing Grey Literature in Developed Countries: The Case of Theses and Dissertations, Reports, Faculty discussion papers and Unpublished Conference Proceedings

The discussions that follow briefly focus on the experiences of countries such as Britain, the US, and Canada. These countries have been chosen because of their long established history in collecting, processing and disseminating grey literature.

This is evidenced by the formation of agencies dealing specifically with the collection, processing and dissemination of grey literature. Such initiatives include the British Library Document Supply Centre and University Microfilms International (UMI). Raseroka (1999) and Kargbo (2005), for example, attest to this orientation regarding various initiatives taken to make grey literature an integral part of library collections.

3.11.2.1 Theses and Dissertations

Theses and dissertations are results of high quality academic research written in a special form of report. Generally, university theses contain the most up-to-date research in most subject areas (Friend, 1998; Bahrens, 1998). Most of them also tend to constitute some of the most difficult sources of information to identify, locate and obtain as they are deposited only in the university library where the student had worked (Friend, 1998). Some do appear in abbreviated form as white literature in journals or even as complete books and, thus, cease to be grey literature. Bahrens (1998) argues that most of these theses and dissertations never make this transition and thus remain unpublished documents. This is because they are not subject to legal deposit and are not included in normal publishing processes. In addition, only a few

printed copies are made available to the receiving library. As a result, they are unlikely to be listed in national bibliographies as well as identified by ISBNs. Friend (1998:175) argued that 'by burying such research in volumes on library shelves, universities may be missing out on an opportunity to publicise the quality of research undertaken in their academic departments'. Research published in conventional publications, on the other hand, was made known through publishing of catalogue and mail shots. Generally, however, there is no marketing strategy to make users aware of the research theses available in the university.

According to Fried (1998), the doctoral thesis is the heart of the academic value, a touchstone of academic prestige. Anglada (2006:26) and Vijay Kumar (2006:3) termed the theses and dissertations as the most visible results of research at any university: '[T]hey are often the starting point for subsequent research work, thus beginning a chain reaction that reflects and assures intellectual life in any given society'. These scholarly productions signal the trend in the productivity of the researchers and help to determine one's research area, in addition to helping to avoid duplication in research. Therefore, poor access to such materials represents a handicap in the dissemination of knowledge advances. The terms 'thesis' and 'dissertation' are synonyms, with the former customarily used in the UK and South Africa and the latter in North America for PhD level studies (Cooper, 1994:24). Both terms refer to a substantial and lengthy student research project submitted to an academic institution to obtain a degree (Bahrens, 1998:24). In the UK, the term thesis is usually associated with a PhD (doctoral) or M.Phil (research-based) degree, whereas the dissertation is the more common term for the research project required

for an undergraduate and taught postgraduate degrees (<http://wikipedia.org> acc. 2006). British Standards Institution has defined a thesis as a 'statement of investigation or research presenting the authors findings, and conclusions reached, submitted by author in support of his candidature for a higher degree, professional qualification or other award'. Conversely, in the US a dissertation generally refers to a doctoral thesis and a thesis to an undergraduate and even graduate long essay with a sustained argument. Such an expensive activity is usually centred in tertiary educational institutions.

In the case of the UK, Marsh (1992:126) argues that 'theses have been produced for some centuries in the United Kingdom but were not collected by a central agency until 1970/71 when the British Library Document Supply Centre (BLDSC) initiated a programme of collection and deposit by the UK universities'. In an attempt to promote the accessibility and usage of the information being generated by PhD students in the country, it was decided in 1970 that the division should play a much more active part in the dissemination of theses. UK universities were requested to co-operate in making their theses available by sending them to Boston Spa for filming before being returned to the universities (Vickers & Wood, 1982).

Earlier there had been no central supply channel for British doctoral theses, and thus the main sources were university libraries and individual university departments (Vickers & Wood, 1982:127). Other efforts made in the UK to make theses accessible included putting in place an indexing tool to theses known as Aslib Index to Theses. Friend (1998) has, however, noted that the major shortcoming of this

arrangement is that there is a time-lag between the compilation of the theses and its appearance in the indexing publication.

The scope of collecting and accessing theses and dissertation is inhibited by factors such as the vagueness on the ownership of copyright. On this aspect, Davinson (1981:103) notes: "The ownership of copyright for some university authorities is a matter of dispute". Marsh (1992:127) argues that "the speed of availability and restrictions on use is also a factor". To solve such a problem of opening up these materials to a wider audience, the British Library Lending Division, through special arrangements has amicably managed to persuade universities and the Council for National Awards to allow them to microfilm and add to stock under agreements with university libraries (Wood, 1984). Universities such as Cambridge University still restrict the distribution and reproduction of their theses (Marsh, 1991). Also the University of London has withdrawn from the scheme and prefers to provide a direct service to the users (Wood & Vickers, 1982). Other efforts involved measures devised by the Standing Conference of National and University Libraries (SCONUL), which set conditions for the availability of theses and dissertations. These include ensuring that at least one copy of every thesis accepted by a university is deposited in the university library, and subject to the author's consent every thesis should be available for loan and photocopying. At the time of submission of their theses, the authors are asked to give their consent in writing and a copy of the consent statement is inserted in the deposit copy of their theses (Davinson, 1981). On the part of users, many universities in the UK normally request the reader of the borrowed copy of unpublished thesis to sign a declaration which states that no

information derived from the study of the text will be published without the written consent of the author (Augur, 1998). Other initiatives involved the inclusion of theses in the monthly British Reports, Translations and Theses (BRTT) produced by BLDSC, Boston Spa (Marsh, 1991; and Wood, 1984, 1982).

European countries have taken further steps to enhance the access and usage of such grey literature. These efforts include the formation of the System for Information on Grey Literature in Europe (SIGLE). This is a consortium of Legal Libraries and Documentation Centres in Europe entrusted with the responsibility of storing reports, dissertations, and other grey literature produced in member countries (Carvalho, 2001). Gibb (1982) also note that "SIGLE member countries agreed to collect, index, and most importantly, provide document delivery Services for grey literature". With the development of the Internet, other initiatives in promoting accessibility have involved the formation of Electronic Thesis and Dissertations (ETD). The term ETD refers to a thesis or dissertation that is archived and circulated electronically rather than archived and circulated in the print format. A major boost to ETD was the Networked Digital Library of Theses and Dissertation (NDLTD) initiative. The NDLTD is an international organisation dedicated to promoting the adoption, creation, use, dissemination, and preservation of electronic documents as opposed to the traditional paper-based theses and dissertations.

These efforts notwithstanding, grey literature still presents a challenge to countries with long standing academic traditions and highly developed library systems. Cooper (1994) and Olle (1984), for example, have pointed out that until the middle of the twentieth century both the control and accessibility of theses were poor,

especially in the UK. As a result, the Theses Online Group in the UK was established as part of concerted efforts to deal with this problem. Under this arrangement, students were required to submit their theses in electronic format (Friend, 1998). Even then, most of the theses and dissertations are not always easy to access as published sources of information.

3.11.2.2 Reports

The word *report* is derived from the Latin word *reportare*. The Latin word implies to bring back (Augur, 1998). Thus a person or corporate body goes out and gets something that has been commissioned to be derived and then conveys it back to the commissioning agency. Characteristically, reports are products of organisations rather than of an individual work, and are compiled as a result of the efforts of a number of people who may or may not be acknowledged in the final work (Gash, 2000). Sometimes, reports answer a question or a demand from some other person or organisation or agency in need of information. A report is also one result of an assignment accomplished (Augur, 1998).

It normally provides an account from government establishment, scientific institution, or individual laboratory on a work performed and the results obtained, rendered to their clients and sponsors (Augur, 1980). Before the term *grey literature* came into use, *report literature* had achieved wide coverage and was well-understood even though it was regarded as a difficult area to work in (Augur, 1998:8). Generally, reports form a key element in the dissemination of information and, typically, they tend to contain details of experimental and production data with

summaries, conclusions and recommendations. There are several types of reports, each serving different functions.

For example, there are research and development reports, technical reports and government reports. According to Gash (2000), the common factor is that all reports will present the results of/or the progress of an investigation and will usually draw conclusions from the facts presented and recommendations for future activities or development. Generally, this is where the value of the report as a source of information lies. Unlike many other research publications, reports also describe unsuccessful features of the investigation and analyse why they were unsuccessful.

As reports are generally written during or after the work that they describe and are released quite quickly, they often contain latest material obtainable in a particular field. Reports are, therefore, of particular importance in those areas of research where development is very rapid, for instance, in the field of information technology and electronics. Practically, in many countries much of the report literature is of government origin, either directly or indirectly. This is so because the government is the largest source of funding for research work. It is estimated that over 20 percent of all documents cited today are reports (Gash, 2000). Thus, it can be argued that reports which are part of grey literature are a source of valuable information that cannot be ignored. The reports resemble conference papers because they are up-to-date accounts of recent experimental or investigative work.

In certain circumstances the distribution of a report may be restricted under the terms of the contract. Most reports are prepared for a particular and limited readership and the number of copies available may also be restricted for security purposes. For

instance, a report produced under the aegis of the government contract is likely to be classified. Although in most cases reports are not classified or restricted, their distribution is still relatively small. According to a study conducted by Davinson (1989:113), 'bibliographic control of report literature is very awkward and not even likely that the producers will want to go to the trouble of producing their own lists.' In some instances, the scope of some technical report series is so broad that some academic libraries were forced to comprehensively collect all the reports sponsored by an individual organisation. Those that collect large numbers of individual series frequently do not bother to list individual titles in their catalogue, hence making it difficult to identify the library that owns a specific report (www.bu.edu/library 2008:3).

To overcome the problem of keeping track of the reports, countries such as the US, Canada and the UK have appointed some organisations to produce indexes/catalogues of literature produced in their respective countries. In Canada, the Canada Institute for Scientific and Technical Information (CISTI) has a network to provide information to scientists and researchers. In the US, the National Technical Information Service (NTIS) is a good source of thousands of reports produced under US government research grants. Other notable initiatives include one by the International Federation of Library Association (IFLA) under which a UNESCO-supported programme, Universal Availability of Publication Programme (UAP), falls. The programme envisages availing a wide range of scientific, socio-economic and technical materials to anyone, anywhere (Augur, 1989). Apart from the initiatives highlighted above, the development of ICT has also helped to make report

literature visible. Increasingly, the reports of various types are now found on the Internet. In particular, many government and other official reports may be published through this medium.

3.11.2.3 Faculty Discussion Papers and Working Papers

Faculty discussions and working papers represent preliminary research on a given topic and the eventual publication in a journal or book even though the vast majority are never formally published. Usually, the papers are circulated to colleagues for review and discussion. Doing so helps the researcher to refine and develop her/his ideas before publication. The process helps the researchers to establish the priority of innovation over others working in the same area and to safeguard against plagiarism. Since these papers represent preliminary investigations on a topic, many departments and authors normally fail to appreciate the value of depositing a copy with their respective institutional libraries. As most of these papers are not published (particularly in developing countries) due to lack of facilities, these documents end up being lost without being archived. As result, much of such useful literature fails to reach the public in case they are not published.

The worst part is that they also fail to reach the library for deposit. Therefore, a mechanism should be worked out to avail such literature to researchers, scholars, students and the general public for different uses. In developed countries, due to the ICT revolution, there exists a practice of making working papers available at university department/faculty Internet/web-sites. One of such mechanism used is the formation of an institutional repository.

3.11.2.4 Conference Proceedings/Workshops/Symposia

One of the major components of grey literature is conference proceedings which fulfil a distinct function in research, and yet these are often difficult to verify and locate unless a researcher has attended an event. Conference proceedings are part of the category of grey literature in the sense that not all conference proceedings are published. Normally, conference meetings are used as vehicle and forum for initial communication for specialists on new discoveries and inventions (Tillet, 2006)). Such information is extremely useful to libraries as it is frequently cited in the literature and, therefore, sought after by library users. They are useful because:

- They normally document the current state of research.
- They provide a lasting record on what took place at a particular conference.
- The proceedings also enable research to be shared among those who were not present at a conference and serve as a point of reference for those in attendances (La Fleur and Rupp 2005:68).

However, conference proceeding can be difficult for researchers and information professionals to identify, locate and acquire. The principal problem that librarians and libraries engaged in the collection of such material face is 'the identification and location of conference papers' (Marsh, 1992:130). Moreover, Davinson (1981:116) has noted that 'the problem of inadequate citation of conference papers can usually be traced back to authors of papers or books who cited conference papers they have heard or read'. Also, LaFleur and Rupp (2005:68) observe that oftentimes the groups that organise conferences are small and their events are not widely publicised. Once

the proceedings of such workshops and conferences are not published, the writers may never locate such papers physically (Aina, 1993). Furthermore, even those proceedings collected by libraries can often be difficult to access due to lack of item-level indexing, frequent title changes and the irregular and informal nature of their publication. In the case of the US and the UK, agencies specifically dealing with the collection and dissemination of conference proceedings have been formed. Notable ones include the BLDSC, which produces a monthly publication of the Index of Conference Proceedings (ICP) received.

Generally, the 1990s saw the great blossoming of ICT, specifically the Internet and the World Wide Web. Kabede (1996), Moahi (1990, 1995) and Debachere (1995) have indicated that the advent of the Net has not only catalysed the growth of grey literature but also facilitated the search and ability to quickly obtain such information among the researchers. In addition, the Internet also empowers researchers to exchange large quantities of data and numerous services such as online catalogues in addition to searching the databases. In consequence, Debachere (1995) concludes that the 1990s evolution has opened up the route for a new way of gaining access to grey literature through ICT.

3.12 Historical Perspective of Grey Literature in Developing Countries

This section examines the historical perspective of grey literature in developing countries. As is the case with the developed world, the section traces development of such literature, its management and challenges associated with its accessibility. The concept of grey literature in developing countries, specifically Africa, is relatively

new as compared to the same in the developed world. The scanty literature available in this field reveals this newness. In recent times, however, it has started to gain prominence in higher learning institutions and research establishments. As noted by Akoto (2005), grey literature on socio-economic development, such as feasibility studies, survey results, consultancy reports, project documents, evaluation reports, conference papers and research finding contain information vital to Africa's economic planning and development.

Studies by Aina (1987, 1982, 1997, 2000), Debachere (1995), Moahi (1996), Kate-Kwafo-Akoto (1995), Lor (1996), Raseroka (1999), Wald (2000) Alemna (2001, 2006), Otike (1989), Kargbo (2005) and Association of African Universities (2006) have traced the development of grey literature and its uses in Africa. However, of the literature reviewed none seems to provide concrete factors accounting for the development of grey literature over a period of time in Africa. In fact, Kargbo (2005:147) has noted: "There is no mention of any unique historical development of such literature and its evolution and development in the continent". As a result, this poses problems for those who would like to establish a critical historical path. Kargbo (ibid.) further asserts: "What is certain is that the emergence of this type of literature in these areas, as in developed countries could be attributed to the rapid development of science and technology, modern methods of copying and improved telecommunications".

Although there are no comprehensive historical documented facts to account for its development in Africa, the presence of Africana sections in many university libraries

and national libraries, as well as the legal deposit legislation which empowers these institutions to collect and deposit these materials provide a clear indication regarding the value of grey literature in Africa. These materials are mostly acquired through four main methods. They include direct acquisition from publishers within national boundaries who send copies of their publications to one university libraries in the country. Others are overseas libraries such as the British Library, the Library of Congress of the US and the Ohio University Libraries also of the US, which have an aggressive policy regarding the collection of this type of literature emanating from Africa to support information needs of their users. According to Alemna (2001, 2006), the Library of Congress has set up a centre in Nairobi, Kenya, whose main function is to acquire and document the collection of indigenous literature from Eastern, Central, Western and Southern African countries and send them to the US. The information on the materials is published in the Library of Congress Accession List, a bimonthly publication with an annual supplement. According to Otiike (1989), this accession list is the most comprehensive and up-to-date bibliographic source in the entire Eastern African region. Alemna (2001, 2006) has also noted that this interest in African literature came about as a result of the increasing interest in African studies and the rise of cosmopolitanism and trans-nationalism.

On the part of Africa, Botswana is making efforts to ease access to grey literature. These efforts have been induced by the decision that mandated the National Institute of Development Research and Documentation (NIR) of the University of Botswana to be the national focal point for the collection of grey literature produced in the country (Akoto, 2006). The establishment of NIR marked a critical stage in the

development of grey literature in Botswana. The specific objectives of NIR are to collect, process and store mainly unpublished materials and disseminate the information to public institutions, private organisations and interested individuals. Botswana has also formed DEVSIS Africa, which is concerned mainly with the collection and dissemination of grey literature. According to Aina (1992), this information is disseminated through the publication of Devindex Africa, which was first produced in 1981. This system makes grey literature known by publishing DEVINDEX Botswana annually.

Other forms of Grey literature such as theses and dissertations are produced yearly by African universities. However, African theses and dissertations are beset with many problems such as lack of systematic acquisition, lack of access, uncertain publication practice and enormous growth in the number of theses. According to Raseroka (1993) and the Association of African Universities (2002), much of the grey literature is not collected and rarely features in the international literature. Sturges and Neill (1998) assert that presently most of theses and dissertations produced in Africa are not accessible to either the students or the researchers.

Furthermore, the vast bulk of the research conducted in Africa remains grey literature and is, thus, effectively lost. The exception is South Africa, where the Human Sciences Research Council maintains a database of completed South African theses and those in progress. Bahrens (1995) notes other efforts in South Africa as involving the formation of the Union Catalogue of theses and dissertation of South

African Universities available in CD-ROM and via SABINET as well as in microfiche form.

To solve this widespread problem on the continent, the Association of African Universities (AAU) has launched a project known as the Database of African Theses and Dissertations (DATAD), whose aim is to make these scholarly materials that are part of grey literature accessible both in print and electronic format (AAU, 2004). However, this initiative involved only eleven (11) universities on the continent in the pilot phase. These are Addis Ababa University, Ethiopia; Makerere University, Uganda; University of Ghana, Ghana; University of Dar es Salaam, Tanzania; Université Cheikh Anta Diop, Senegal; Eduardo Mondlane University, Mozambique; University of Zimbabwe, Zimbabwe; Université Yaounde I, Cameroon; Ain Shams University, Egypt; Kenyatta University, Kenya and the Council for Social Science Research in Senegal). As a capacity building initiative, DATAD supports participating institutions through training, infrastructure supply and orientation towards retrospective indexing of existing collections. Participating institutions, for their part, are expected to maintain annual updates as part of their institutional contribution.

In India, the initiatives to make grey literature in the form of electronic theses and dissertations (ETD) accessible started during the late nineties (Ghosh & Das, 2007). Universities in India compel researchers to submit the print version of theses to library. In addition, few universities require the same version on CD-ROM or submission on line (Ghosh & Das, *Ibid.*). Ghosh and Das, however, observe that despite these efforts yet there is no single reliable source available where one can

locate accurate statistics about the theses produced in India. In Latin America, specifically Puerto Rico and Venezuela efforts were made to make grey literature accessible through a database. Two databases were created to cater for ongoing research projects, and another for the papers and lectures of the researchers. The aim of the Puerto Rican materials collection is to serve the university community at the Rio Piedras campus and through the library system of the University of Puerto Rico, in its search for material concerning Puerto Rico for information and research (Hurtado, 1997). According to Hurtado (1997) such efforts included collection of works written by Puerto Ricans and works about Puerto Rico whenever published. Among the works collected are: official publications, theses, conference papers and research reports (Hurtado, *ibid.*).

3.13 Historical Perspective of Grey Literature in Africa

African countries have also been included in this study because, despite lacking significant historical development in this type of literature, scholars and researchers on the continent have appreciated its value. Researches conducted by Aina (1987, 1982, 1997, 2000), Debachere (1995), Moahi (1996), Kate-Kwafo-Akoto (1995), Lor (1996), Raseroka (1999), Wald (2000) Alemna (2001, 2006), Otike (1989), Kargbo (2005), Association of African Universities (2006), Manda (1989), Kiondo(2004), Odaro and Ukpebor (2012).

Universities worldwide normally have three major missions to accomplish. These are teaching, research and consultancy. The combination of these roles sets a foundation on which the university library is based. All the three functions complement each other. As university libraries derive their missions from those of

the parent organisations (Raseroka, 1999), they support this mission through the services they provide and the material they collect. A university library also collects materials produced by the university itself as well as by external publishers. Since they operate in places of learning and research, academic libraries serve as homes and reservoirs of published and unpublished material. The latter is one of the major and, perhaps, the most significant source of primary information worth collecting, preserving and disseminating to support teaching and research, as well as enable policy-makers, planners and researchers to make rational, informed decisions. By collecting unpublished materials in the form of grey literature, university libraries become sources of knowledge itself rather than simply serving as centres of borrowed thinking.

Using the case of Sierra Leone, Kargbo (2005) urges librarians to provide a balanced stock of information by not ignoring grey literature, arguing that grey literature should be a genuine concern for academic libraries, which they should endeavour to preserve. Indeed, grey literature is capable of being used to make a significant contribution to the future of library and information services in Africa. In this regard, Raseroka (1999) and Lor (1994) have suggested that 'systematic collecting' of grey literature is a 'viable way of providing relevant current thought' which 'contributes to the support of core business of the University library' without placing demands on the often 'limited foreign currency'.

In Africa, ideally the information resource base in terms of grey literature is very broad. In fact, Aina (1997) asserts that in Africa the importance of grey literature

cannot be over-emphasised given the fact that it constitutes the bulk of publications emanating from the region. In addition, Balabkins (1984:63) observed that, "the majority of research materials in Africa appear in the form of grey literature". However, such information from which scholars worldwide could benefit and which acts as African contribution to world body of knowledge is not collected, organised and disseminated as it should be. Thus, Raseroka (1996:23), who was writing on the relevance of library services in developing countries, asserts: "[T]here is no commitment to systematic collection of grey literature and documents produced locally by governments, parastatals and non-governmental organisations". To redress the situation, Alemna (2001) calls for comprehensive bibliographical control of such literature to make them visible nationally and internationally.

Moreover, the major role of university libraries should be to serve as centres of locally-generated information, whether generated through consultancies, student research projects or academic research or the government (Raseroka, 1999). Hence university libraries should increase their ability to collect, organise and make accessible the grey literature and published papers produced by its academics, researchers and students through comprehensive indexing and abstracting. In so doing, the academic libraries would be performing a major mission of collecting information and making it available to their prospective users. The ultimate goal in this regard is to ensure that users gain access to the grey literature they need in a timely and efficient manner. In fact, as Raseroka (ibid.) recommends, the focus should not simply end with collecting grey literature as the academic libraries still have the responsibility of making sure that this literature is also appropriately

accessed and used. It has been proven world-wide that the importance of grey literature can be equated to that of conventional literature, as Table 3.3 illustrates:

Table 3.3: Distribution of Citations by Format

Form	Educ.	Soc.	Sociol.	Agr.	Libr.	Mgt.	Hum.	Total	%
Book	37	98	50	27	9	42	61	324	20.8
Journal	51	91	78	151	21	61	20	473	30.4
Newspaper	1	2	-	-	10	2	7	22	1.4
White Literature	89	191	128	178	40	105	88	819	52.6
Reports	54	270	21	53	48	62	145	653	41.6
Theses	-	6	15	8	2	-	6	37	2.4
Proceedings	10	4	4	21	8	1	1	49	3.1
Grey Literature	64	280	40	82	58	3	152	739	47.4
Total	153	471	168	260	98	168	240	1558	100.0

Source: Aina (1997):

Aina (1997) in this study entitled "The Management of Grey Literature as a component of library and information Science Curriculum" demonstrates the value of grey literature in Africa. This study was conducted to determine the pattern of use of grey literature by researchers in Africa compared to their use of white literature. During the study, samples of journals published in Africa were used as sources of information. Aina used the journals because in Africa they constitute the major medium for disseminating research findings. The following criteria were used to justify the selection of a journal:

- (a) The journal must have a continental coverage. Its scope must not be limited to a country or a sub-region in Africa;
- (b) It must be based in Africa, that is, it must not be published outside the continent; and
- (c) It must be a refereed journal.

Based on these criteria, the following journals were selected, with the citations taken from the latest issue:

1. *African Crop Science Journal*, Kampala, Uganda ó 4(4) 1996.
2. *African Development*, Dakar Senegal ó 10(1-2) 1996.
3. *The African Journal of Finance and Management*, Dar es Salaam ó Tanzania 5(2) 1997.
4. *The African Journal of Library, Archive and Information Science*, Ibadan, Nigeria 7(2) 1997.
5. *African Journal Physical, Health Education, Recreation and Dance*, Ibadan, Nigeria 3(2) 1997.
6. *African Environment*, Dakar, Senegal 10(1-2) 1996.
7. *African Journal of Science and Technology (A & B)*, Nairobi, Kenya A9(2) 1991 B -5(2) 1991
8. *The Journal of African Association for Literacy of Adult Education*, Gaborone, Botswana ó 10(i) 1996.

The research findings revealed that grey literature is very popular among researchers in all the disciplines. As such, it should be made available to the researchers since information contained in these publications may never appear in other formats (Aina, 1999: 258).

On the basis of these findings, Aina (1997) suggests two important things: the first one is to include grey literature as a subject in the curricula of library and Information Science School in the continent; and the second is to change the mindset of library science trainees to appreciate the importance of grey literature in a bid to give it more emphasis than it is normally presently accorded in libraries and documentation centres throughout Africa. The importance of grey literature is further reinforced in Table 3.4:

Table 3.4: Frequency of Use of Grey Literature and Average Citation of Grey Literature per Article in Selected Journals Published in Africa in 1997

Disciplines	No. of articles	No. of citation	No. of GL	% of GL	Average No. of GL per articles
Education	12	153	64	41.8	5.33
Social Science	18	471	280	38.2	15.55
Agriculture	11	260	82	31.5	7.45
Science	14	168	40	23.8	2.85
Library/information	8	98	58	59.2	7.25
Management	9	168	63	37.5	7.00
Humanities	9	240	152	63.3	16.88
Total	81	1558	739	47.4	9.12

Source: Aina (1997)

Generally, the citation of grey literature in the institutions of higher learning is high. Manda (1989) used the citation analysis in his study to determine the usage of grey literature by economic researchers at the University of Dar es Salaam. The results of this study confirmed that there was a high frequency (88%) of citing grey literature. Manda (1989) argues that with the publishing industry in Tanzania being in its infancy stage, large quantities of documentary sources survive as grey literature. In fact, the findings by Ndumbaro (2007) in a study on the research trends in Dar es Salaam from 1980 to 2003 established that a large proportion of research (62%) findings produced in Dar es Salaam were unpublished.

Also, Dulle *et al.*, (2004) analysed the citation patterns of grey literature among agricultural scientists in Tanzania. The study involved the analysis of 295 theses and 21 doctoral theses submitted to the SUA between 1989 and 1999, and 309 conference proceedings articles that appeared during the same period. The study revealed that the journals consulted (44.3% of total citations) compared to other sources of literature (books 25.1%, proceedings 10.3%, theses 4.2%, reports 5.7% and other sources 10.4%). The findings from this study confirm that although grey literature information is important in research and is produced through the university research activities, it is not as widely used by the researchers as it should be. Dulle *et al* (2004: 2.) argue that "some information resources remain unused simply because they are unknown to users". This argument is relevant here because it is not logical that the highly valued theses and dissertations produced by the elite of the home institution are not widely cited. The implication is that the university researchers

produce what they do not consume, an anomaly that hints at a bigger problem of limited access and lack of visibility for such grey literature.

3.13.1 Accessibility of Grey Literature in African University Libraries

Universities and research institutions conduct numerous researches, which survive as Grey Literature. In fact, academic libraries have been empowered by their host institutions to collect the generated information and make it available to users. Akoto (2008), citing the universities in the Southern African region, noted that although the universities produce grey literature such as theses and dissertations, many of these products are not deposited in the university libraries as they remain in the sole possession of the individual authors.

This inhibits the ultimate goal of generating information aimed at ensuring that users gain access to the information they need in a timely and efficient manner. It is, thus, desirable that the impetus should not end with collecting such information, but should also be extended to making sure that such grey literature is easily and appropriately accessed. Several studies have been conducted in Africa to examine the role of grey literature information in solving the societal problems on the continent and the factors which inhibit the exploitation of such literature because of poor accessibility. The increased focus and interest in this type of information in Africa has offered on the one hand opportunities and on the other new challenges to academic librarians because they have to re-think and extend their skills beyond their usual scope so as to integrate this important source of information.

Kargbo (2005:146), for example, in his work entitled *Grey Literature the forgotten collection in academic libraries in Sierra Leone* explores the challenges on how best to deliver this literature to a wide range of clientele: '[T]he need for academic librarians to refocus their attention to this type of information so that they are involved in providing a balance stock that will enhance teaching and learning activity in their respective institutions'. He cautions that the provision of books should not be viewed as the only task of the academic librarians since the onus is on them to avail grey literature collections as well.

Alemna (2001) and Raseroka (1999) also agree that most of the African universities experienced financial constraints. As a result, their library stocks have been dwindling and library users had to make do with usually outdated materials. What is often overlooked in this dilemma is that the gross shortage of teaching and learning materials can be offset by the systematic development of grey literature collections, which often come at a relatively low, if any, cost. These materials produced locally provide relevant current local thought without making demands on the scarce foreign currency needed to import books.

3.13.2 Theses and Dissertations in African Universities

In Africa, grey literature in the form of theses and dissertations is produced yearly by African universities. However, African theses and dissertations are beset with many problems such as lack of systematic acquisition, lack of access, uncertain publication practice and enormous growth in the number of theses. According to Raseroka (1993) and the Association of African Universities (2002), much of the grey

literature is not collected and it rarely features in international literature. The exception is South Africa, where the Human Sciences Research Council maintains a database of completed South African theses and those in progress. Bahrens (1995) notes other efforts in South Africa as involving the formation of the Union Catalogue of theses and dissertation of South African Universities available in CD-ROM and via SABINET as well as in microfiche form. To redress this widespread problem on the continent, the Association of African Universities (AAU) has launched a project known as the Database of African Theses and Dissertations (DATAD), whose aim is to make these scholarly materials that are part of grey literature accessible both in print and electronic format (AAU 2004).

In Tanzania, an integrated system for accessing theses and dissertations at the national level has not been fully developed. It is only the University of Dar es Salaam, which through the DATAD project, is trying to make them accessible to the public. So far, neither the parent ministry responsible for education nor the universities have come out with comprehensive strategies similar to DATAD or an integrated national ETD system to make theses and dissertations from public and other universities more visible and accessible.

3.14 Historical Perspective of Grey Literature in Tanzania

A number of public university libraries in Tanzania collect grey literature materials emanating from their host institutions. These include internal reports, unpublished conference proceedings, theses and dissertations, faculty discussion papers, research reports and manuscripts. Many of these materials are of great importance to the society and academics but many of them are not easily accessible and are produced

in limited numbers, hence with severely limited circulation. This part explores the type of grey literature materials produced in Tanzania and the problem associated with accessing them.

3.14.1 Theses and Dissertations

Theses and dissertations in the universities in Tanzania constitute a major source of primary data resulting from academic research or surveys. Kiondo (2007) notes that these types of materials are valuable sources of research information for prospective graduate students, researchers, policy-makers and other practitioners who benefit from the research findings contained in these documents. This grey literature also helps student to understand how new knowledge is acquired and communicated within their chosen field. The materials contain important ideas, methodologies, literature reviews, successful hypotheses, and records of experimentation (Vijayakumar, 2005). Grey literature helps the student to grasp the subject and the research methodology deployed in that respective study.

Since these theses are assessed by a number of examiners, both internal and external, the overall quality of the work is considered to be comparatively high. As part of degree requirements, universities require finalists undertaking postgraduate studies to produce either dissertations or theses as evidence of having successfully completed research in their field of interest. In some cases, undergraduates also produce dissertations. In addition, university faculty who undergo further training either within the country or abroad also need to submit their dissertation or theses once they complete their academic pursuit. The University of Dar es Salaam also deposits

theses from other universities written by Tanzanians, as well as from the former sister colleges of East Africa (UDSM Library Information Service, 2007).

Despite an obvious recognition of the importance of such materials, their actual use in most African universities is restricted and these research products are treated primarily as the national heritage of the country. Therefore, several rules and regulations governing their use have been formulated to ensure that future generations build upon what has been generated by other researchers in a particular discipline. These rules and regulations have severely limited access to and usage of these materials because of the inherent difficulty in obtaining them, either free access to them through the university libraries or through other organisations (Eaton, 2004:2). Access to theses and dissertations at the UDSM library, for example, is strictly limited to a short loan service within the East Africana Section and for the special category of users, normally advanced or postgraduate students, researchers and academicians. For undergraduates permission is granted under a special arrangement. And the copies of theses and dissertations deposited in these public university libraries in Tanzania are in print format, and are limited in number as Table 3:5 indicates:

Table 3.5: Deposition of Theses and Dissertations in Public Universities in Tanzania in 2009

University	No. of copies for deposit	Distribution of theses/dissertation			
		Library	Department/ Postgraduate Directorate	Faculty	Other
Sokoine University of		02	01	01	

Agriculture					
Mzumbe University					
University of Dar es Salaam	04	02	01	01	-
The Open University of Tanzania	04	02	01	01	01
Zanzibar State University					

Source: Prospectuses of UDSM (2006/07); OUT (2007); SUA (2007)

In many cases, users have to visit the library physically to access the information. Furthermore, there is normally a resistance from a holding university to loan theses because the few copies in their collections cannot be replaced once they are lost. Several initiatives have been undertaken by the universities themselves or through donor-funded projects in an attempt to increase access to such materials. These initiatives include the Theses and Dissertations Abstracts [1996-2001] issued by the UDSM Directorate of Postgraduate Studies. The abstracts cover a six-year period and a variety of themes. This document keeps students, staff and the general public informed on the studies that have been conducted and give individuals access to the most recent studies and knowledge. According to the UDSM's Directorate of Postgraduate Studies (2002), before this document was issued none of these themes had ever been synthesised into a single document. The report notes that the most important contribution of this publication is the dissemination of information on the available research findings held by UDSM main library. The publication envisages facilitating the writing of papers, books and monographs, as well as research development in the scholars' areas of interests (UDSM, 2002).

OUT as well as SUA also issue research bulletins as well as records of research documents which highlight bibliographical information of their intellectual contribution to society. Another method used by these universities to publicise their holdings is through accession lists which inform users of what is available. The UDSM, for example, produces an accession list of theses and dissertations, which is available in the East Africana Section. The list is circulated without charges to leading libraries in Tanzania. This is a positive move aimed at improving the usage by users of such literature. One of the problems associated with these initiatives has to do with the irregularity and limited circulation of these documents. Universities frequently lack resources to produce them on regular basis. In fact, it can take up to three or four years for such document to appear, whereas researchers need current information to solve a particular problem. This means the information contained in these undocumented materials will not reach users at the right time. In addition, the information may never reach the users when it is actually needed.

Some initiatives taken by some of the public universities in the country to control the bibliographic information of Theses and Dissertations produced involve the use of ICTs. Indeed, several universities have created databases to preserve, organise, and make these materials accessible. Until recently, these theses and dissertations were mainly accessed through manual information systems. But with the introduction of ICTs, theses and dissertations as part of the library collection can be accessed through the Online Public Access Catalogues (OPACs) which can satisfy even the needs of remote users. This system, however, has some limitations. OPACs provide only minimal access to the contents as the contents of these documents are not

immediately accessible since the user has to physically visit the library to retrieve the hardcopy (Tripath, 2007).

Also, the UDSM Library has been participating in the project known as Database of African Theses and Dissertations (DATAD) under the auspices of the Association of African Universities (AAU). According to the AAU (2007), the DATAD programme was conceived as a regional initiative aimed at addressing the problem of production, management, access and dissemination of research contained in theses and dissertations. Through this project, 2,000 titles of theses and dissertations submitted to the UDSM have been abstracted and digitised to develop a bibliographic electronic database (Kiondo, 2007; AAU, 2008; Uborgu, 2007; the Association of Commonwealth Universities, 2004; UDSM Information Services, 2007). The work done through this project is helping researchers to get the bibliographical details of dissertations available. Furthermore, some universities such as OUT, UDSM and SUA are contemplating requesting submission of theses and dissertations in both hard and soft copies (Kiondo, 2007; OUT Research and Publication Committee, 2006/7). However, as noted by Kiondo (2007), the main weakness is access to these theses and dissertations, which still remain restrictive due to lack of clearly spelt out guidelines.

Another recurrent problem is the question of copyright and intellectual property rights. The ownership of the copyright to such materials is still a matter of dispute. To protect intellectual creation, a number of intellectual property rights have been created. These include the copyright, trademark law, designs and models of patent

law. Theses and dissertations, according to the 1999 Copyright and Neighbouring Act, fall under the category of unpublished work. They are still protected under the Act. In fact, the Act prohibits the re-publication of any significant part of a thesis or dissertation without the copyright owner's consent.

In so far as public universities in Tanzania are concerned, it is only SUA that currently has in place an Intellectual Property Policy (IPR policy). Other universities such as the UDSM and OUT are in the process of following suit to deal with urgent matters relating to the copyright issues of individual creations such as theses and dissertations (OUT, 2007). These policies seek to strike, among other things, a balance between the interests of users to access and use them and creators. The policy stipulates in part that the ownership of the theses or dissertations rests on the candidate; upon submission of theses the authors can grant the university the royalty and free licence to reproduce and publish the work with proper acknowledgement of authorship. In case the research project financed by a scientific organisation or commercial firm with vested interests for security purposes, the policy provides that the candidate is requested to delay publication of such theses.

3.14.2 Unpublished Conference Proceedings

Unpublished conference proceedings often fall in the category of grey literature in the sense that not all conference proceedings are published. Universities in Tanzania host a number of scientific conferences, seminars, workshops, symposia, courses, which draw participants from within and outside the country at which papers are presented and discussed by experts. Universities also support their staff by presenting them with travel grants to allow them to present papers. Normally the conferences

are used as a vehicle and forum for initial scholarly communication cycle for specialists on new discoveries and inventions. LaFleur and Rupp (2005) observes that proceedings from conferences document the current state of research and provide a lasting record on what took place at a particular conference. This material, while is of great interest to general academic use, is however difficult to access due to a number of factors, including the weak documentation and dissemination mechanism for the output of conference proceedings.

The organisation or university sponsoring the conference may collect the submitted papers and produce a limited number of copies based on the number of registered participants. If the organisers do not arrange to publish proceedings little can be done for the users to know about and access them. In fact, some documents disappear with the conference or seminar. Also, under certain circumstances, few such papers found their way to academic libraries for deposit. Even those which found their way to the libraries can often be difficult to access due to poor bibliographical control on the items, level indexing, frequent title changes and the irregular and informal nature of the publications. Another problem is that a conference may be published in a variety of formats such as a bound conference volume, as part of a journal, as a supplement to a journal, as reports, as pre-prints or made available on the Internet. It has been observed by Gash (2000) that lack of uniformity on publishing of such documents limits the abstracting and indexing of such items in the seasoned journals. Unless information emanating from these conferences is acquired and properly organised, the research findings cannot be of much use to the users.

In the case of Tanzania, several methods of accessing such types of materials have been initiated. Notable ones include the issuance of research records, and a publication known as Research Achievements of SUA in Agriculture, Forestry and Animal Health compiled by the Directorate of Research and Postgraduate Studies. The strategy of such publication is to facilitate the exchange and dissemination of agricultural research results on matters of common interests in the development of agriculture, forestry and animal health (SUA, 2000). This is one of the mechanisms deployed in promoting and increasing the visibility of unpublished conference proceedings for users. However, such mechanism is not reliable or sustainable as it is issued irregularly and largely depends on donor support.

3.14.3 Faculty Discussion Papers and Working Papers

Faculty discussion and working papers normally constitute an initial stage on a topic targeted for eventual publication in a journal or book, or research in case of a research proposal. Traditionally, university papers are informally distributed to colleagues for review and discussion, or are presented during a seminar in the case of postgraduate studies especially at the doctorate level. The idea is to help the authors or researchers refine and develop their ideas before the final publication or progressing to another stage of research in the case of masters or doctoral students.

As these papers represent preliminary investigations on a research topic, they advocate new ideas, stimulate ideas, and extend the frontiers of new knowledge. In an ideal situation, they are supposed to be deposited in a library. In some cases, however, departments or authors fail to appreciate the value of depositing a copy in their university libraries and, as a result, much of the information contained in these

documents gets lost without reaching the public, especially when the researcher decides to abandon the research and embark on another topic. Similarly, there is a danger of duplicating research undertakings as there is no inventory registers of knowing who is doing what. The review of various university documents pertaining to this issue such as university prospectuses has revealed the absence of a guiding policy regarding the deposition and retention of these materials.

3.14.4 Reports

Consultant activities are fundamental and vital components of a university's activities in Tanzania. Through consultancy activities, researchers are required to produce reports which are also referred to as technical reports as evidence of the accomplished works. As such, scholars, academicians, students write research reports to communicate the results of their research to a specific professional audience with vested interests. Such reports have significant analytical content as they are designed to dig out the important pieces of the problem and point out the future course on how to solve the problem. These reports provide a body of knowledge, expertise, research materials and case studies which may be incorporated in taught courses in our universities. The Boston University Library Newsletter (2007) has, however, noted that the distribution of these reports may be restricted under the terms of the contract. Moreover, many researchers do not want to disclose their research or register them with the faculty or university to avoid paying a certain percentage to the university, which is as high as 30 percent of the consultancy fee. Similarly, academic libraries which collect these reports from various faculties and institutes seldom bother to register them in their catalogue, hence making it almost

impossible for readers to access them. Despite the increasingly prominent role played by reports in national research and in teaching, concern has been raised among information specialists and users in general on how well such type of information can be incorporated into an overall library information body and to be accessed by users.

It is evident from the above discussion that a substantial amount of information in the form of grey literature is produced every year by public universities in Tanzania. However, very little information finds its way into the university libraries to enhance user access and find practical use for such grey literature in teaching, research or in solving societal problems. In consequence, much of the valuable information generated is lying idle, or abandoned in cabinets, files, in faculties, departments and sections. The challenge facing librarians and public universities in general, therefore, is how to make such literature accessible to the public. This could be achieved by making it mandatory for all grey literature from universities to be deposited in their respective libraries. Thus, libraries should endeavour to keep track of conferences, workshops, seminars, faculty discussions held at the university and to ensure that the papers presented during such events are acquired, stored and properly documented. The academic libraries should also use ICT to make grey literature information much more accessible.

3.15 Role of International Organisations in Enhancing Grey Literature Collection and Accessibility

International organisations such as Grey Net, SIGLE (System for Information on Grey Literature), EAGLE (European Association for Grey Literature Exploitation), Institutional Repository and Networked Digital Library of Theses and Dissertations (NDLTD) play significant roles in enhancing access to grey literature for a multiplicity of users.

3.15.1 Grey Net

This organisation is responsible for providing information on the conference proceedings that produce grey literature. It has the responsibility of preparing grey literature documents and releasing a newsletter periodically. Grey Net gives out the international guide to people and organisations on grey literature including the address of member institutions dealing with grey literature and their products. Grey Net has also launched a journal entitled *International Journal on Grey Literature* responsible for publishing information on grey literature. This flagship journal for the grey literature community targets colleges and schools of library and information studies, as well as information professionals, who produce and publish, process, manage, disseminate and use grey literature. Thus the journal is a forum for reporting developments in the grey literature field as well as for promoting a free flow of information on grey literature among the user community.

3.15.2 SIGLE and EAGLE

SIGLE is a bibliographic database covering European grey literature in the fields of pure and applied natural sciences, technology, economics, social sciences, and humanities. SIGLE is a co-operative project of EAGLE, which was founded by the European Community. EAGLE's mission is to provide access to and promote the use of grey literature produced in European countries by encouraging co-operation among interested information and document supply centres. The SIGLE database is accessible online through STN International and BLAISE. Categories of grey documents covered by SIGLE include technical or research reports, doctoral dissertations, conference papers and pre-prints, official publications, discussion and policy papers, standards and bibliographies. All the documents listed by SIGLE are available through the national centre, which enter the records in the database. Each document is available on loan or for retention as deemed appropriate by the source indicated in the record. There are national SIGLE centres in Belgium, Denmark, France, Germany, Hungary, Italy, Latvia, Luxembourg, the Netherlands, Portugal, Russia, Slovakia, Spain, and the UK. English language descriptions of Russian grey literature with abstracts are loaded into SIGLE as well.

3.15.3 Institutional Repository

Institutional Repository is a digital repository of the research and intellectual output of universities or research institutions. It is described by Lynch (2003) as a set of services offered to the members of a community for the management and dissemination of completed digital research materials donated or created by the institution and its community members. This set of services includes the collection,

storage and preservation in digital format and retrieval of items submitted to the repository.

Many universities and research institutions in both the developed and developing countries have established institutional repositories so as to make their unpublished research output visible to the community for the purpose of sharing information as well as to encouraging dialogue among researchers worldwide. University institutional repositories collect materials such as research reports, data sets, examination papers, conference papers, newsletters and seminar papers, course notes, journal articles undergoing peer review, and digital version of theses and dissertations (Chisenga, op.cit.).

3.15.4 Networked Digital Library of Theses and Dissertations (NDLTD)

The Networked Digital Library of Theses and Dissertations (NDLTD) is an International Organisation dedicated to promoting the adoption, creation, use, dissemination and preservation of electronic analogues to traditional paper-based theses and dissertations (www.ndltd.org, 2010). The NDLTD assists students and universities in using electronic publishing and digital libraries much more effectively and share knowledge to unlock the potential benefit worldwide. Edminster (2002) notes that these international efforts are aimed at developing a worldwide digital library of theses and dissertations focused on the following aspects:

- (a) The need to provide developing countries with equal access to current international scholarship;
- (b) Collaborative development of training materials to facilitate wider global participation in the NDLTD;

- (c) Empowering universities to unlock their information resources; and
- (d) Increasing the availability of student research for scholars and to preserve it electronically.

Whereas on the international scene these efforts have been made to enhance access, in Tanzania no integrated national system to locate and access theses and dissertations has been implemented. Park (2007), Alhaji (2007) and Salmi (2008) citing the experiences of Korea, Nigeria and the Gulf States, respectively, mention factors such as absence of an adequate policy and infrastructure to handle these materials, the risks of plagiarism, lack of funding, administrative support, legal and regulations barriers as the reasons for not having NDLTD in their countries. In the case of Tanzania, the literature consulted is silent on this problem.

3.16 Role of ICTs in Facilitating Access to Grey Literature

Technological advances, especially in ICT, have changed the way information is accessed, retrieved and utilised. The 1990s saw the great blossoming of ICT, specifically the internet and World Wide Web. Kabede (1996), Debachere (1995) and Moahi (1990, 1995) assert that the advent of the Internet has triggered the growth of grey literature as well as facilitated the search and access to such information among researchers. Prior to the widespread use of ICT, grey literature was accessed in print format with the use of specific, and often limited distribution list. These technological changes, which allow for information to be stored and transmitted digitally, offer the means of bypassing the printed publications process and minimising the importance that proximity and location play (Manley, 2011). In

addition, the internet and World Wide Web also empowers researchers to exchange large quantities of data, and numerous services such as on-line catalogues and the querying of databases. Debachere (1995) asserts that the 1990s evolution has opened up doors for new ways of gaining access to grey literature. Manley (2011) argues that in today's digital environment, the Internet has become a major source for dissemination and retrieval of scientific and teaching information and often serves as a researcher's first introduction to a topic. Indeed, the Internet generally, serves as a tool that affords access to grey literature to many users in hitherto unimaginable ways. In fact, institutions responsible for generating grey literature can also use the Internet to provide bibliographic access for their publications as well as publicising them through institutional web sites. Using electronic networks for disseminating grey literature has the potential benefits, which add value to institutional publications, the end-users and the institution itself.

ICT can also enhance access to grey literature through networking. Many organisations use computers to network and exchange information and databases. The concept of network, as noted by Tella (2006), is aimed at evolving a method of partnership in which each member has something useful to contribute to the others in the network. A good networking example in relations to grey literature is EAGLE and SIGLE in Europe. ICT is utilised to link libraries, specialised data resources, or individuals to the persons or institutions in need of information. Debachere (1995) suggests that only the development of intensive international co-operation and the use of the possibilities provided by ICTs can lead to an improvement in this field.

3.17 Research Gap and Motivation for the Study

The review of the literature available coupled with personal experiences demonstrates that there is a gap, which the current study has addressed and provided information likely to fill that gap. The analysis of the literature available, especially on Tanzania, has revealed that not much has been written on accessibility of grey literature originating from public universities in Tanzania. On the whole, studies on grey literature conducted in Tanzania remain scanty. Chailla (2002) in her study entitled "Implementation of Policies and Strategies for Agricultural Information Access and Use in Tanzania" highlighted grey literature as a good source of information for agricultural research; Ndumbaro (2006) looked into the nature and characteristics of materials produced in Dar es Salaam, concluding that a large proportion of such research is unpublished. This study, on the other hand, sought to establish the level of access to grey literature emanating from public universities in Tanzania. Therefore, there was an urgent need to conduct research and establish the level of access to grey literature originating from public universities in Tanzania.

Devis (1975) revealed that grey literature constitute 60 percent of the total literature in the world. The question is the extent to which the users are aware of the presence of such literature, and the manner of accessing it. Personal interest in grey literature dates back to the mid-1990s, when I was doing industrial training at the Academy of Science Library at St Petersburg in Russia. I observed that grey literature was one of the information which many researchers from different backgrounds request for and consulted. By then, I did not know it went by the name of grey literature until my supervisors introduced this concept to me. While dealing with such information at

the Academy, I noted that the institution collected this literature from different parts of the world regardless of the language and geographical location. At OUT, grey literature is in high demand among postgraduate students and researchers in furthering their academic research projects, or in writing their research papers. But the problem is that it is difficult to locate such literature and access it when needed.

Whereas in developed countries formal efforts have been made to make grey literature accessible, very little has been done to resolve the problem of accessing grey literature in Sub-Saharan Africa with the exception of South Africa, whose system is more advanced. Ad hoc efforts in the field include irregular and incomplete compilations of researches in progress and completed ones done by institutions, such as the AAU through the DATAD online database, a pilot project involving 11 African universities namely the universities of Dar es Salaam, Makerere and Kenyatta, Younde, Ghana, Eduardo Mondlane, Ain Shams, Zimbabwe, Addis Ababa, and Sheikh Anta Diop. DATAD seeks to enhance the capacity of African universities to collect, manage, and access these grey literature collections. The three-year pilot project was launched in 2000. For Tanzania, however, these initiatives do not include all types of grey literature as well as theses and dissertations deposited in other universities in Tanzania.

3.18 Summary

This chapter has explored various concepts related to grey literature and also literature related to the problems associated with its accessibility. Several crucial issues have been raised, which were explored in this study with the help of data collected and analysed to understand the phenomenon under study in the context of

public universities in Tanzania. The literature review has established that few studies have been conducted on addressing the issue of accessibility of grey literature in developing countries in Africa such as Tanzania. On the whole, the literature review has helped to establish that there is no specific study which has been conducted to indicate the problem in accessing of grey literature emanating from public universities in Tanzania. This study was geared towards filling this gap.

CHAPTER FOUR

4.0 RESEARCH METHODOLOGY

4.1 Introduction

This chapter discusses the research methodology used in conducting this study. It covers the philosophical and theoretical aspects of the research with respect to qualitative, quantitative, bibliometric methods and mixed methods approaches in social science research and the author's reasons for integrating all the three approaches in conducting this study and reasons for using multiple data collection methods. The chapter also discusses population of the study and strategies used in getting the sample, procedures used in data collection, instrumentation, the methods used in data analysis and presentation, and the mechanisms used to ensure validity.

DøCruz and Jones (2004) describe research methodology as an analysis of how research should or does proceed. Such research undertakings include discussion of how theories are generated and tested, the kind of logic is used, the criteria they have to satisfy, the theories employed and how a particular theoretical perspective can be related to particular research problems. Research methods, in particular, constitute actual techniques and procedures used to gather and analyse data related to some research question or hypothesis (DøCruz and Jones, 2004).

4.2 The Research Purpose

There are three basic purpose of inquiry: exploratory, descriptive and explanation research (Polonsky & Waller, 2005; Payne, 2009; Babbie, 1989). Exploratory research aims at providing insight into, and understanding of, the problem confronting the research (Polonsky *op.cit.*). Often this is used when the researcher does not have enough information on a topic and wants flexibility in the exploration

of the issue or when the subject of study is itself relatively new and unstudied Babbie (1989). Methodology includes secondary data, and qualitative research such as expert interviews and focus groups (Polansky, *ibid.*). On the other hand, descriptive studies focus on describing situations and events, characteristics of a particular specific population of subjects (Babbie, 1989).

The major purpose of descriptive research is to describe the state of the affairs as it exists at present. As for exploratory research, it is designed to examine the cause and effect relationships of a certain variables that affect the problem (Polonsky, *op.cit.*). Another method of inquiry is explanatory research, which deals with the discovery and reporting of relationships among different aspects of the phenomenon under study (Babbie, *op.cit.*). Whereas descriptive studies answer the question "What is so?" explanatory ones tend to answer the question "Why?"

The aim of this study, as noted in Section 1.6 of Chapter One was to investigate the issue of the accessibility of grey literature emanating from public universities in Tanzania. This study, therefore, was descriptive, exploratory, and explanatory in nature. It is exploratory because the subject of study is relatively new; it is descriptive because it has described the state of affairs of grey literature as it exists at present in Tanzania's public universities; and it is explanatory as it has reported different relationships among different aspects of the phenomenon as delineated in Chapter Three.

4.3 The Research Approach

The views, strategies and methods all contribute to a research design that tend to be quantitative, qualitative or mixed nature (Creswell, 2009). Both used in this quantitative and qualitative methods were deployed in this study. Generally, qualitative techniques rely more on language and the interpretation of its meaning (Walliman, 2006:37). Qualitative data relates to data that cannot be subjected to quantitative or numerical analysis (Lancaster, 2006). It is therefore associated with phenomena that cannot be or is difficult to quantify (Lancaster, *ibid.*). In other words, qualitative research means going into the field, into the real world of programmes, organisation, neighbourhoods, street corners and getting close enough to the people and circumstances under study to capture what is happening (Patton, 2001). In this situation, the researcher seeks to establish the meaning of the phenomenon from the views of participants (Cresswell, 2009).

The qualitative approach was deployed in this study to get the inner perspective of the participants involved in the grey literature cycle in relation to the research objective. According to Babbie and Mouton (2005:53), "qualitative researchers attempt always to study human action from the insiders' perspective", with the goal of research "defined as describing and understanding rather than the explanation and prediction of human behaviour" and emphasis placed "on methods of observation and analysis that 'stay close' to the research subject". Hence observational methods such as unstructured interviews, participant observation and the use of personal documents were deployed in the collection and analysis of data in this study. Emphasis, however, was on grounded theory and other inductive analytical

strategies. Specifically, qualitative data was collected mainly through the use of in-depth interviews and Focus Group Discussions (FGDs). The grounded theory approach was used in this study as it was deemed appropriate to this study because the inquiry process was guided by the participants rather than the researcher in this process.

Quantitative research, on the other hand, is a means for testing objective theories by examining the relationship among variables (Cresswell, 2009). It is based on explaining phenomena by collecting numerical data that are analysed using mathematically based methods (Muijs, 2008:1). This is contrary to the qualitative approach that is often primarily concerned with subjective assessment of attitudes, opinions and behaviours. Quantitative methods are concerned with facts and thorough empiricism (Crotty, 1998). In a nutshell, quantitative paradigm focuses on the following themes (Babbie and Mouton, 2005:49):

- An emphasis on the quantification of constructs. The quantitative researcher believes that the best or only way of measuring the properties of phenomena (such as the attitudes of individuals towards certain topics) is through quantitative measurement, including assigning numbers to the perceived qualities of things.
- A related topic concerns the central role of variables in describing and analysing human behaviour, which in some circles, a process that has come to be known as variable analysis.

- The central role afforded to control for sources of error in the research process. This has to do with the nature of the control (in experimental designs) or through statistical controls (in multivariate analyses). Critics of the quantitative approach argue that this 'obsession' with control is another sign of the positivist assumption that social sciences should be modelled on natural sciences.

Apart from the link between an ideal of quantification and the use of statistics, quantitative approach also ensures neutrality, that is, the application of systematic statistical techniques can eliminate problems associated with subjectivity and prejudice. According to Ulin *et al.*, (2002:52), quantitative and qualitative techniques can be used independently to examine a problem from different perspectives as was the case in this study that employed mixed methods of both qualitative and quantitative approaches (Cresswell, 2009). Both qualitative and quantitative data collection methods were used in this study primarily to neutralise or eliminate the biases inherent in the use of a single method (Creswell, *ibid*; Glazier and Powell 1992). These approaches helped the study to analyse how grey literature from public universities in Tanzania is acquired and disseminated, as well as explore the dynamics which influence access to it.

The grounded theory approach was used with the aim of making participants guide the inquiry process rather than the researcher. Both qualitative and quantitative research designs were integrated to ensure participation of various stakeholders in the research process. The participation of other stakeholders helped to make credible recommendations for the purposes of application of research findings. In short, the

multiple or mixed, or convergence or integrated methods were used to collect the necessary data in a complementary fashion.

4.4 The Research Design

Research design has to do with identifying the approach, and determining the general procedures or strategies of inquiry and of data collection, analysis and presentation (Creswell, 2000). According to Kerlinger (1986), a research design is a plan, structure and strategy of investigation so conceived to obtain answers to research questions or problems. The plan is the complete scheme or programme of the research. It includes an outline of what the investigator will do from the hypotheses and their operational implications on the final analysis of data (Kerlinger, 1986). In other words, a research design is a procedural plan adopted by the researcher to answer questions with validity, objectively, accurately and economically (Kumar, 2005). Generally, the research design has two main functions. The first relates to the identification or development of procedures and logistical arrangements required to conduct the study, and the second emphasises the importance of quality in these procedures to ensure their validity, objectivity, and accuracy (Kumar, 2005). The research design in this study involved the study area, population and sample size, sampling method, data collection methods and data analysis procedures. The next section presents the research design used in this study.

4.5 Grounded Theory Approach

According to Straus and Corbin (1990), grounded theory is defined as one that is inductively derived from the study of the phenomenon it represents; it is discovered, developed and provisionally verified through systematic data collection

and analysis of data pertaining to that phenomenon. As a strategy of inquiry, the researcher derives a general, abstract theory of process, action or interaction grounded in the views of the participants in a study (Creswell, 2009:13&22a). Therefore, data collection, analysis and theory stand in reciprocal relationship to one another (Straus and Corbin, 1990:23). Grounded theory was developed by Straus and Glaser to spearhead the qualitative revolution (Denzin and Lincoln, 1994). Straus and Corbin (1990) explain that one does not begin with a theory, and then prove it; rather one begins with an idea of study and what is relevant to that area is allowed to emerge. On the other hand, Denzin and Lincoln (2005) refer the term Grounded Theory approach to both a method of enquiry and the product of enquiry. Generally, researchers apply the term to mean a specific mode of analysis (Charmaz, 2003).

This study did not start with any pre-conceived speculative theory to test; instead it used a Grounded Theory approach. However, it should be noted here that the emphasis on building rather than on testing preconceived theories does not mean that the researcher started with a tabula rasa (Payne, 2004:99). Straus and Corbin (1988) for example, recognise that researchers bring considerable knowledge to their projects, including concepts to be used in confronting their data (Straus and Corbin, 1988). The Grounded Theory is a qualitative inquiry method that looks systematically at the qualitative data with an aim of generating theory that accounts for a pattern of behaviour that is relevant and problematic for those involved (Tavakol, 2006). In fact, Walliman (2006) asserts that although the grounded theory is associated with qualitative approaches, it can be used on any data or combination of data through a process of data collection that is often described as induction

(Morse, 2001). Generally, the grounded theory approach begins with the research situations, within which the task of a researcher is to understand what is happening there, and how the players manage their roles. In this regard, the research direction was guided by the research questions and objectives of the study.

Essentially, Grounded Theory methods are a set of flexible analytic guidelines that enable researchers to focus their data collection and employ inductive middle range theories through successive levels of data analysis and conceptual development. Data collection and interpretation under this method tends to focus on what is happening within an individual or groups of individuals in particular contexts. This process involves using multiple stages of data collection and refinement and interrelationships of categories of information (Charmaz, 2006, Straus and Corbin, 1998). When using this theory, the researcher begins with an area of study and allows the theory to emerge from the data collected from the field. It must be acknowledged that, as a rule of grounded theory, the theory is not created from analysing research literature, but from systematically analysing the data through inductive and deductive reasoning. A grounded approach was used in the development of a coding structure. This involved a line-by-line review of a sample of transcripts to generate a list of categories. The initial list of categories was scrutinised against a second list of transcribed interviews and amended appropriately.

Additionally, the coding structure of the data served as the basis for generating statistical descriptions from the data to assist with the identification of themes in the text. Repeated reading of the transcripts and reports provided an opportunity to

review and compare the codes against emerging themes from the data as a way of ensuring validity. Therefore, the principles of grounded theory help to formulate either a substantive or formal theory about the phenomena under study (<http://www.wikipedia.org> 2007:1). Bryman (2001) has attempted to present the process of grounded theory in a model as reproduced in Figure 4.1.

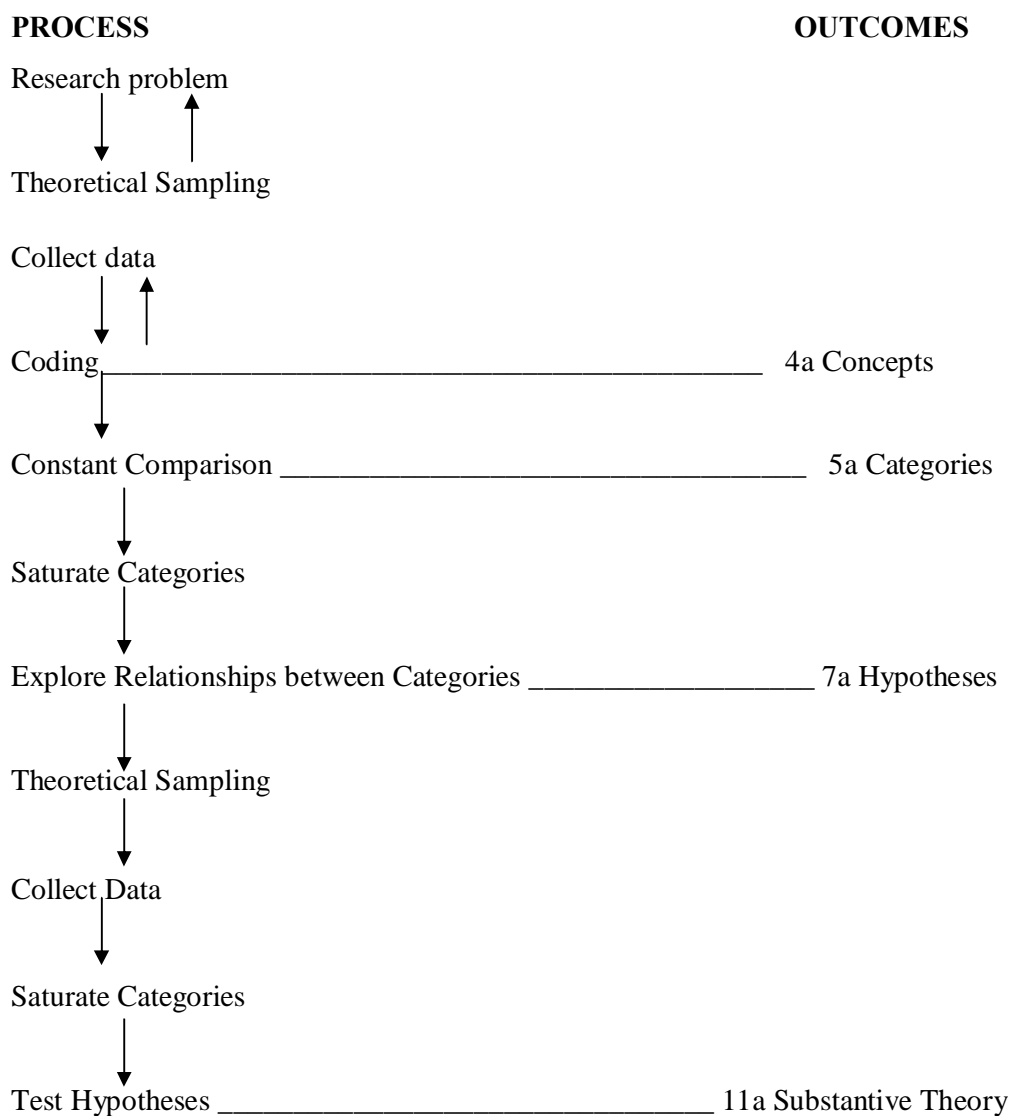


Figure 4.1: Grounded Theory Processes and Outcomes

Source: Bryman (2001:394)

The model provides a reasonable representative of how the grounded theory is generated and applied to an area of study. In fact, it has been observed by Straus and Corbin (1998) that a theory derived from data is more likely to resemble the reality than a theory derived from putting together a series of concepts based on experience or solely through speculation regarding how one thinks things ought to work. In addition, Payne (2004:99) notes that theories 'drawn from data, are likely to offer insight, enhance understanding, and provide a meaningful guide to action'. In the same vein, Stern (1985) underscores that the grounded theory makes theory come from the data; therefore, at no time does the investigator impose a theory of another study onto the data. The grounded theory in this study was used to explore the issue of access of grey literature through the social process presented during interaction.

4.6 Application of Grounded Theory Method in this Study

In this study, the views, actions, feelings, opinions, and concerns of the users, generators and custodians of grey literature were the primary information that the researcher wanted to capture. To achieve this objective, the researcher, as noted earlier, embraced the grounded theory approach, which is a qualitative inquiry method, to gather and analyse the data for the study. The strategy of using the qualitative research is to study things in their natural settings and attempt to make sense or interpret the phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 2005). As the method deploys a wide range of interconnected interpretive practices, it also helped to get a better understanding of the subject matter at hand.

Although it would have been possible to use the existing theories in this study, the existing theories on a phenomenon under study appeared largely inadequate. In such circumstances, Punch (2003:18) recommends that 'if there is no satisfactory theory on the topic, and that we do not understand enough about, then use [the] grounded theory'. This study benefited from this insight and, therefore, used the Grounded Theory instead.

4.7 Area of study

The initiation of the Grounded Theory research first involves the selection of an area of inquiry by the researcher and a suitable site for study (Marshall, 2002). An area of study is described by using a specific phenomenon, a place or location or a context (Marshall, *op.cit.*). This study was conducted in Dar es Salaam and Zanzibar, covering five public universities and two constituent colleges. The selection of the five public universities in the study was purposive on the basis that they were all funded by the government. They were also the first to be established in the country as explained in Chapter Two, and they have established research traditions. These public universities provide opportunities for generating a wider range of grey literature, which if easily accessible can contribute to the growth of research, teaching and opportunities aimed at solving societal problems. Indeed, the public universities under study with their constituent colleges offered the optimum environment for conducting this study.

4.8 Population sampling and Sample Size of the Study

4.8.1 The target population

Population refers to people or things with similar characteristics, which the researcher intends to study within the context of a particular research problem (Rwegoshora, 2006). Also according to Ghauri (2002), the population means all members, individuals, groups or elements involved in the study. A sample, on the other hand, is a small group of respondents drawn from a population from whom the researcher is interested in gaining information. A research sample is considered to be representative of the population if it has the same basic characteristics of the population from which it is drawn. According to Rwegoshora (2006), a sample is part of the population which is being studied to make inferences on the whole population.

In this study, the target population from the five public universities in the country comprised respondents who provided the required information. A purposive sampling approach was used to select the key informants situated within the pre-defined criteria for the study. The criteria used in formulating the categories of the respondents were information-rich and knowledgeable people involved in the grey literature cycle within a university context. More specifically, the respondents were selected on the basis of their involvement in the grey literature production and accessibility.

The sample of respondents was made up of the following: library staff (100), academic and research staff (500), postgraduate students (248), directors of public

universities libraries (6) and directors of postgraduate studies (5) from each of the universities in under study. The materials studied included theses, dissertations and journals. The sample for theses and dissertations the sample was 100 percent at OUT; that is, all theses produced and available at the OUT as well as a sample of 14 journals published by the UDSM and OUT.

The public institutions under study had a similar primary feature. All of them were funded by the government. Consequently, this group was seen as a relevant target in relation to accessing grey literature because it is the largest group in the information sector. The University of Dodoma was not included in the study because at the time the research was being conducted it was new, still in the formative stage, and did not offer any postgraduate studies, one of the key sources and use of grey literature.

4.8.2 Sampling Method

The process of selecting the sample to represent the population is referred to as a sampling technique (Kothari, 2010). Punch (2003) argues that sampling is important in both qualitative and quantitative research. In qualitative research, the researcher cannot observe everything that might be relevant to the research problem. In qualitative approach, the researcher selects the sample that is sufficient enough to provide maximum insight and understanding of the problem under study. The selection of the sample for this study was based on Punch's suggestions. According to Punch, three factors need to be considered during the selection of the sample of the study: the availability of the population, which would be the subject of the research in the ideal, methods of sampling, and financial resources. These factors

influenced the use of the purposive and convenience sampling techniques in this study.

4.8.2.1 Purposive sampling

According to Punch (2003) purposive sampling is defined as a sampling technique employed with some purpose or focus in mind. Purposive sampling was used to select the key informants situated within the pre-defined criteria for the study. The criteria used in formulating the categories of respondents were information-rich and knowledgeable people involved in the grey literature cycle and research within the public universities under study. The journals were purposively selected by using the following criteria:

- (i) The journal needed to have a wider coverage and not limited to a country.
- (ii) Journal selected must be based in either of the two universities under study.
- (iii) The journal must be a popular referred journal with a known board of editors.
- (iv) The frequency of the publication should be known.

These guidelines were followed to select the following journals for this study:

- (i) HURIA: Journal of the Open University of Tanzania;
- (ii) University of Dar es Salaam Library Journal 2001-2007;
- (iii) Journal of Issues and Practices in Education;
- (iv) Tanzania Journal of Science;
- (v) Open University Law Journal; and
- (vi) Tanzania Journal of Engineering and Technology.

4.8.3 The study sample

Basically, the respondents provided information that reflected the diversity of ideas, experiences and feelings pertaining to the availability and accessibility of grey literature in Tanzania's public universities. More specifically, the respondents were selected on the basis of their positions, involvement in grey literature generation, processing and usage. The selection of informants was determined by one consideration that all of them have some connection with grey literature. For consistency and easy management of data, the respondents were divided in the following categories:

(a) Directors of Libraries, and of Research and Postgraduate Studies

The target population comprised six (6) directors of libraries, and five (5) directors of research and postgraduate studies. These were information-rich cases and were purposively selected based on the position they were holding in their respective institutions. It was assumed that their positions would enable them to provide relevant data, particularly on policy and management issues pertaining to the library collections and accessibility of grey literature in their respective institutions. The names of six (6) directors of libraries, and five (5) directors of research and postgraduate studies were obtained from the offices of the vice-chancellor.

(b) Librarians

The target population included the librarians with qualifications ranging from Masters to Doctorate degrees. The actual number of librarians, who participated in

this study, was 100 34 females and 66 males. The list of librarians and their qualifications was obtained from the offices of the directors of these libraries. The selection criteria took into account their qualifications and their experiences in handling grey literature in their libraries. As custodians of all types of information available in libraries, they helped to explain the problems pertaining to poor accessibility of grey literature. By virtue of their professional qualifications, they were regarded as reliable sources of first data on the problematic access to grey literature generated by the public universities in Tanzania.

(c) Research and teaching staff

This category involved 500 research and teaching staff who were selected using convenience sampling. The *Handbook of Gender Research Convenience Sampling in Psychology* (2010) stresses the collection of information from the members of the population who are conveniently available to provide it. This approach was used due to its convenience in reaching as many respondents as possible. These respondents were included because they were responsible for either generating or using research in their respective institutions. At almost all levels, academicians carry out their daily professional endeavours in research and teaching. These academicians generate grey literature, which can be utilised in teaching, research and other practical community service uses.

(d) Postgraduate Students

This category involved 248 postgraduate students. These were drawn from various specialisations. This group comprised 69 females and 179 males. The respondents were selected by using convenience sampling. In conventional universities,

questionnaires were administered with postgraduate students in their respective faculties. At the Open University of Tanzania, the selection was made among postgraduate students who visited the library's postgraduate study room and OUT's regional centres. The selection of the participants was based on their willingness to respond to the questionnaires. The main aim of the questionnaire was to gather their views on experiences with accessing grey literature. In all, the sample of this study had 859 respondents as Table 4.1 illustrates:

Table 4.1: Distribution of the Study Sample

Categories of Respondents	Number of Respondents		Total
	Female	Male	
Directors of Libraries	3	3	6
Directors of Postgraduate Studies	-	5	5
Librarians	34	66	100
Research and Teaching Staff	116	384	500
Postgraduate Students	69	179	248
Total	222	637	859

Source: Field Research, 2006 - 2007

(e) Doctoral Theses and Journals

The population for this category involved doctoral theses defended and submitted to the Open University of Tanzania and the University of Dar es Salaam libraries and journals published by these universities. Theses and dissertations were selected because they represent a substantial portion of collection in the public universities in Tanzania. In fact, librarians are always trying to find ways to quantitatively describe the value of this resource to the university management and the general public.

Journals were analysed because they are major medium through which research findings are published and disseminated.

4.8.4 Data Collection Methods

Data collection refers to a systematic, focused and orderly collection of data for the purpose of obtaining information to solve research problems (Ghauri, 2002). Data collection for this study was done in Tanzania in two phases. The first phase was conducted from March to August 2006. The second phase, which involved post research interviews and bibliometric analysis, was conducted from April to July 2009.

For the reasons advocated by grounded theorists, a variety of data collection methods was employed in this research. The following methodological procedures of data collection were used. In all, seven main data collection methods were applied in the study: semi-structured interviews, FGDs, documentary analysis, bibliometric methods, post research interviews and observations. The methods were used in a triangulation form: more than one data collection methods were used to gather data from one setting. The data collection methods are illustrated with the help of Figure 4.2:

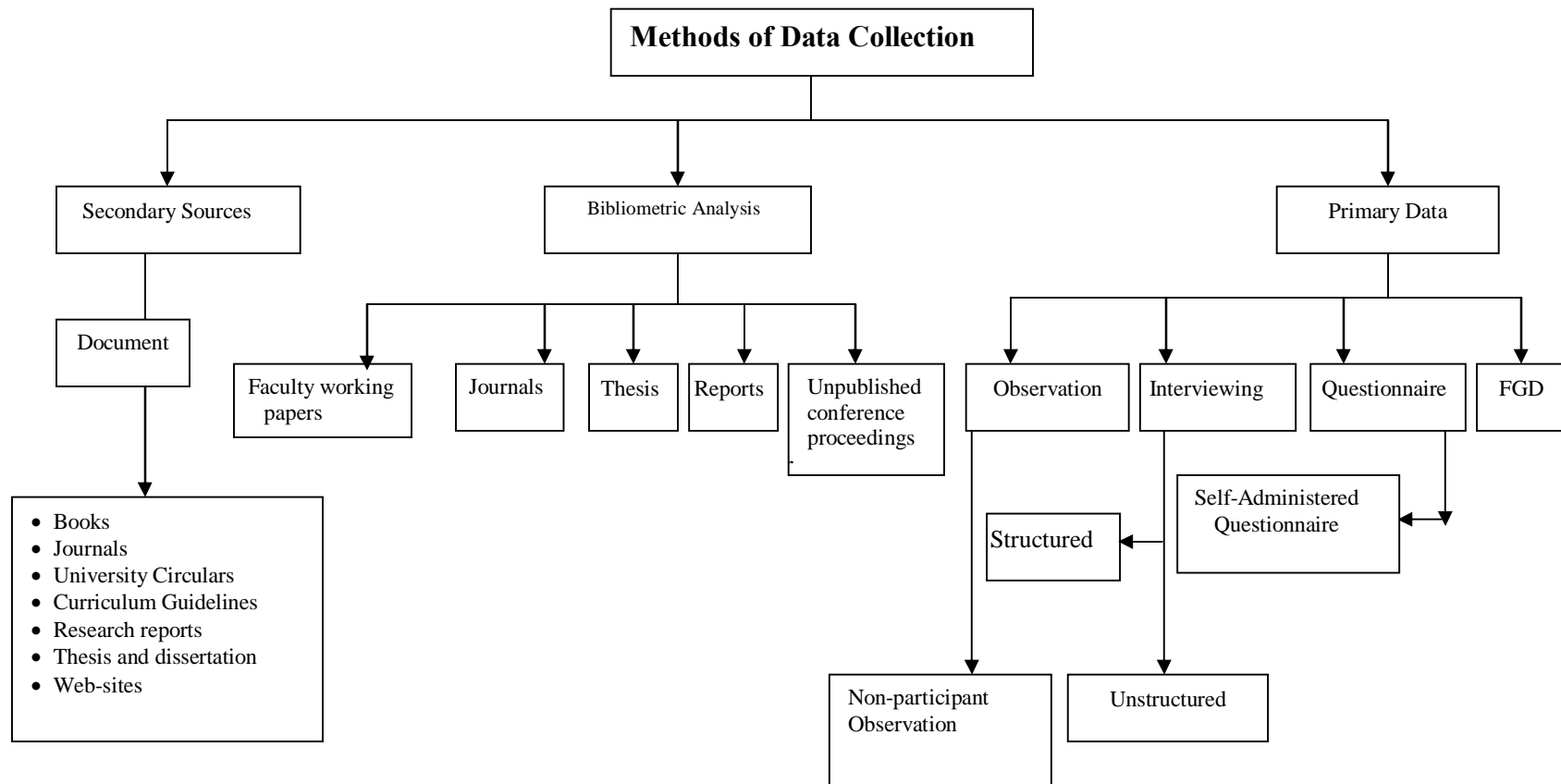


Figure 4.2: Methods of Data Collection

Source: Field data, 2009

4.8.5 Secondary Data

According to Kothari (2010), Ghauri (2002), secondary sources of data refers to already available data, which has been collected and analysed by someone else. In this study, secondary sources of data involved the use of published and unpublished documents obtained from libraries, offices and the Internet. Such documentary materials include published books, journal articles, university circulars, directives, training and curriculum guidelines, research reports, theses and dissertations, minutes and meeting files. Most of them were obtained from the directors of libraries, directors of research and postgraduate studies. The secondary data provided the researcher with more insights on the problem being studied by cross-validating and augmenting evidence obtained from interviews, questionnaires and FGDs.

Secondary data was used because published and unpublished materials can provide significant documented information. The usefulness of documents, as pointed out by Mambo (1999), can be found in their implicit accuracy or lack of bias as well as their stability, and thus can be reviewed repeatedly. Secondary data also helps to broaden the base from which scientific conclusions can be drawn (Ghauri, 2002). In fact, the documentary information consulted was useful not only in enriching the understanding of the problem but also in providing the experiences of others in dealing with the problem under investigation. Consideration of some documents before the interview helped the researcher to refine interview guides as well as the list of questions in the questionnaires.

To abide by the grounded theory, the documentary analysis was completed in three stages. The initial stage focused on the preparation of the background and

significance of the study and covers the contribution of the study to the existing knowledge. The initial literature review in this study was carried out during the writing of the proposal and identified a gap in research on accessibility of grey literature in public universities in Tanzania. The second literature review established the background and context of the study and reviewed readings on the grounded theory method. However, literature on the substantive area was not reviewed at this stage to avoid influencing the analysis. Glaser (1998:67) asserts that the researcher needs to be 'as free and as open as possible to discovery and to emergence of concepts, problems and interpretations from the data so that the use of any preconceived ideas gleaned from the literature that did not fit or was irrelevant to the data was avoided'. The third literature review was conducted at the time when the analysis was nearly complete and it focused on the substantive area of the study. This part of the literature review was woven into the findings (Glaser, 1998).

4.8.6 Primary Data

According to Mugenda (1999:12), primary sources of data constitute the 'information a researcher obtains from the field that is data collected from the subjects in the sample'. Primary data for this research was collected by interviewing key informants. These include librarians, postgraduate students, academicians/researchers, directors of public libraries, directors of research and postgraduate Studies. This has been done by using surveys, FGDs and interviews. The use of a combination of different methods was justified because it allows for cross-checking and verification of data obtained through different methods that is through triangulation. Most of the information was collected through a prepared

questionnaire, FGDs, and interviews. A different set of questions was used to collect primary data from the directors of public university libraries as well as the directors of research and postgraduate studies on the scale of the problem studied and efforts being made to redress the situation and possible recommendations. This method proved useful in generating figures and insights which, otherwise, could not be obtained through the use of other sources.

4.9 Data Collection Instruments

Data collection is the process of selecting participants and gathering data from these participants (Burns & Grove 2001). Researchers have a choice of two broad streams of research design that one can use to uncover the intricacies of a given phenomenon: qualitative and quantitative. According to Glaser and Straus (1967), data gathered using either of these two streams of methodology can be used to verify or generate new theory. Basically, the choice of methodology depends on what the researcher wants to know, the way the problem has been defined, the goals and circumstances of the research, as well as the nature of the phenomena under study. Under such a situation, the researcher has to weigh the merits and limitations of each strategy and select the method accordingly. The research instruments used were questionnaires, interviews, FGDs, observations and documentary review. Research instruments have been defined by Johnson (1994) as the means by which different approaches to research are used to collect the necessary data.

In this study, the necessary data was collected using the four mentioned instruments that fulfilled the research objectives. The multiplicity of instruments used for data

collection was done to neutralise elements of bias often associated with the deployment of a single instrument. The following instruments used for data collection:

4.9.1 The Questionnaire

According to Wilson (1994), a questionnaire generally provides 'structured' often numerical data, often administered without the presence of the researcher. Kothari (2010) recommends this method because it accommodates large samples and its findings are dependable and reliable. The questionnaire was one of the methods used to collect the primary data for the study. Generally, questionnaires are associated with surveys since they are most productive when used with a large number of respondents as was the case with respondents drawn from public universities in Tanzania. The main concern with a questionnaire or surveys is the development, or testing of a theory. As such, the survey design operates within the positivist approach, which uses the scientific procedures to obtain social knowledge. According to Jupp (2006), through the use of questionnaires, a survey measures some characteristics or opinions of the respondents.

This study used three types of questionnaires, which were administered to the librarians, academic and research staff and postgraduate students. Both questionnaires contained a written list of closed and open-ended questions. Before the questionnaire was administered, the researcher together with the supervisors examined the questions for consistency and clarity and validity and their ability to measure what they were intended to measure. The supervisors also assisted the

researcher to prepare an introductory covering letter addressed to the officials of the institutions under study. The introductory letter contained a self-introduction, brief information on the study, its importance and the reasons for selecting the institutions under study. The Directorate of Research and Postgraduate Studies at the OUT issued a research clearance (see Appendix 7). This is in line with Government Circular MPEC/B/10/1 of 4 May 1980 issued by the then Ministry of Planning and Economic Affairs. The survey questionnaires were aimed at collecting data related to the research objectives. Specifically, the questionnaires were used to generate demographic data, determine the usage of grey literature, identify the type of grey literature generated and used, as well as determine the role of ICT and its potential in enhancing access to grey literature. The information generated was instrumental in making their recommendations on what should be done to improve access to grey literature.

4.9.2 Interview Guide

In-depth interviews are common methods of collecting qualitative data. Interviews are important qualitative data collection tools because they provide an opportunity for the researcher to enter into the world of the person being interviewed. The interview method also enables the researcher to get the interviewees' inner perspectives and the meaning they make from those perspectives through clarifications made in the course of exchanging ideas (Patton, 1990; Seidman, 1991). As Jones puts it, 'in order to understand other persons' constructions of reality, we would do well to ask them *í* and ask them in such a way that they can tell us in their terms rather than those imposed rigidly and a priori ourselves) and in a depth which

addresses the rich context that is the substance of their meaningsö (Punch, 2003: 175). Given the nature of the research design, in-depth interviews were used as the main means of collecting primary data.

The researcher used this method for data collection because it provided participants with the opportunity to fully describe their experiences on the research questions in more depth. A framework of questions or issues explored during the interviews was developed with considerable flexibility on how and when the questions were to be asked. Flexibility in interviews ranges from casual conversation and brief questioning to more formal lengthy interaction (Marshall and Rossman, 1989). This approach helped the researcher to make use of the time available while at the same time interviewing the directors of the public university libraries and the directors of research and postgraduate studies of these institutions. In addition to using a structured question guide for the interviews, the researcher also asked follow-up questions, which yielded even richer data based on interviewees' experiences pertaining to handling grey literature, their attitude towards the way grey literature was being handled and what should be done to redress the situation. These interview questions were different for each category of respondents. For instance, the set of questions for the directors of libraries were different from those of the directors of research and postgraduate studies. They were administered by the researcher himself in the form of one-to-one conversations.

The study adopted this as one of the methods because the researcher was interested in understanding the perception of the interviewees with regard to grey literature.

This method of data collection allowed the participants to share their own stories in their own words, rather than being forced by pre-established lines of thinking developed by the researcher. Generally, interviews in research are also regarded as the best way of exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon (Munhall, 2001; Streubert and Carpenter, 1999). After the participants had said what they wanted to say, additional questions were asked to seek clarifications and further detail. The researcher later reviewed the interview responses to check whether all the questions had been answered. At the beginning of each interview, the researcher explained to the respondents the purpose and nature of the study. He also showed them the research clearance letter permitting him to conduct the study. The interview was conducted in English and routinely, the researcher requested for consent from the interviewee regarding recording the interview. All the participants agreed to have their interviews recorded. Thus, all the interviews were audio-taped and transcribed verbatim.

In addition, the participants were informed beforehand that they would remain anonymous since it was only the researcher who would be able to link their names with the data. Although anonymity cannot be completely guaranteed in qualitative research (Streubert and Carpenter, 1999), an attempt had been made by the researcher to ensure that there was no unauthorised access to the data collected. No personal identification details were recorded on the audio-tapes or interview transcription. Overall, no participant was identified in the transcript or reports to maintain confidentiality. According to Burns and Grove (2001), confidentiality is

the researcher's effective tool for managing private information shared by the participants, which must not be shared with others without the express authorisation of the participant. For this study, in-depth interviews yielded rich data, as participants were able to air their views without the influence of the researcher.

4.9.3 Focus Group Discussion Guide

In addition to the interviews, the required data was generated through Focus Group Discussions (FGDs). The FGD was conducted in two of the five public universities for two purposes: First, since the triangulation method was used in this study, the FGD enabled the researcher to probe further the information generated from the respondents and, thus, verify what the participants had indicated in the questionnaires and interviews and post-research interview. Second, the FGD was deployed in a bid to get an honest opinion from the practitioners on the problem of accessibility and usage of grey literature originating from the public universities in Tanzania. The use of this approach facilitated the gathering of relevant information from the librarians at the SUA and UDSM libraries. At the SUA Library, a small group of eight people were involved in the FGD and their discussion centred on the vexing question of the accessibility of grey literature. Similar arrangements were made at the UDSM library. The selection of this sample was based on a combination of models provided by Gibbs et al (1990), and Stewart and Shamdasani (1990). Gibbs et al recommend the number of FGD participants per group that varies from a minimum of four to 15. Stewart and Shamdasani, on the other hand, recommend a group of 6-12 participants, arguing that an FGD with fewer than six participants was likely to lead to a dull discussion and one with more than 12 participants could be

difficult for the moderator to manage, or could deny some participants an opportunity for active participation. Thus, 16 participants in groups of eight made up the FGDs in this study. Table 4:2 summarises the gender and academic qualifications of the FGD participants:

Table 4.2: Gender and Academic Qualifications of FGD Participants

Samples	No.	Gender		Educ		Expected	Remarks
		Male	Female	MA/MSc	PhD		
Sokoine University of Agriculture	8	5	3	7	1	10	2 librarians were attending a meeting on that day
University of Dar es Salaam	8	4	4	6	2	10	2 had a consultations with their supervisors
Total	16					20	

Source: Field Research 2006-2007

The study had anticipated a total of 20 library staff to take part in the FGD. The FGD guide used in this study has been attached as Appendix 6. As already explained, the FGDs were conducted with the employees of the two of the five universities under study, primarily because the SUA and UDSM libraries had a more extensive and more established histories in the collection of grey literature than other emergent public universities. The gender distribution and academic qualifications of the respondents have been provided in Table 4.2. The discussions were guided by

focused topics listed in the discussion guide. The respondents were purposively selected on the basis of their experience in handling grey literature. The moderator, chosen from the research site, facilitated the discussion, but the proceedings of the discussions were recorded by the researcher himself. The discussion took place in the respective library and each FGD session lasted for 45 minutes. The broad research topic was introduced by the moderator followed by the questions aimed at stimulating the discussion. During the discussion, the participants were encouraged to talk freely and interact with the expectations to build on one another's comments. As Cohen (2000) notes, group interactions allow for quality data to emerge. Through FGDs, the librarians were able to air their views on the issue under investigation, with their concerns recorded.

4.9.4 Observation Guide

Observation was one of the methods deployed in this study to collect primary data. According to Kumar (2005), an observation is a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place. In this study, the researcher used non-participant observation, which allowed him to follow and record the activities related to grey literature at the East Africana sections. Participant observation entails the organised description of events, behaviours and artefacts in the social setting selected for the study. These observations gave the researcher an opportunity to look at what was taking place. The method was also used to cross-check some of the information provided through the use of other instruments such as the questionnaire, the interviews and the FGD. The researcher had an opportunity to observe the kind of grey literature available and the manner in

which it was organised, processed, disseminated and accessed at the UDSM library and SUA East Africana Sections. The observation checklist appears as Appendix 7.

Morison (1995) argues that observations enable the researcher to gather data on physical and human setting. Such a method also helped to eliminate issues of subjectivity in this study. The information obtained through observations is usually related to what is currently happening, and tends to be free of the respondents' bias.

A series of observations were made at the libraries of both SUA and the UDSM to examine the type of grey literature available, methods of grey literature acquisition and dissemination, barriers to assessing such literature, the curriculum of the Department of Information Studies at the UDSM. The curriculum in this case was important because the researcher sought to ascertain whether the curriculum encompasses issues pertaining to grey literature as library materials. The other aspect that was observed during the study was the staff participation in handling grey literature. As already noted, this method was employed to complement other research instruments.

4.9.5 Citation Analysis

Another method used in this research to supplement information acquired through questionnaires, interviews, FGDs and observations was citation analysis, a common method of bibliometrics. A citation analysis is defined as the acknowledgement that one document receives from another; it constitutes an area of bibliometrics that deals with the study of relationship between cited and citing documents (Smith, 1981). According to White (2001), citation analysis relies on the assumption that formal references to other documents within a text may be meaningfully aggregated to

describe the social and intellectual dimensions of a scientific community. Bibliometrics, on the other hand, is broader in scope as it is defined as the study and measurement of the publication patterns of all forms of written communication and their authors (Tunon and Brydges, 2005:2). Normally, citations can be treated as objects that can be counted and described. Studies on citation are useful indicators of scientific productivity, trends, emphasis of research in various disciplines, and of the researchers' preferences for publication outputs (Jacobs, 2001). Results of studies determined through the use of citations are useful in decision-making, in research administration and planning, in collection development and use in libraries (Jacobs, 2001). In fact, referencing other documents has the effect of either reinforcing the knowledge or prior research or making a reader aware of the existence of other relevant sources of information (Manley, 2011). According to Archambault and Gagne (2004:2), citation analysis is based on two premises:

- (i) That, the goal of researchers is to advance knowledge, and this means disseminating the results of their research and studies through a variety of communication media including writing, which lies at the core of the academic tradition.
- (ii) That, scholars have to publish to build a reputation and advance their careers.

In this study, citation analysis and bibliometric techniques were employed to show the usage of grey literature in research at the university level. Chikate (2009:1) notes that citation analysis is also helps to understand users: 'Studying references cited by your faculty's publications or your students' papers shows you the types of sources most commonly used and valued locally in their disciplines'. This study

analysed the citation references in the PhD theses defended and submitted to the UDSM and OUT libraries. The two universities were representative of other public universities in the country: the UDSM represents the oldest university in the country and has a good collection of grey literature information; the OUT, on the other hand, is a relatively new institution which has started to build its own stock of grey literature. The objectives of using this method in the study were to:

- (i) Analyse the type of cited materials by postgraduate students, academicians and researchers.
- (ii) Establish the citation patterns of doctorate students and researchers in the refereed journals.

Data for bibliometric analysis was collected from theses and dissertations submitted and available at the OUT and UDSM library as well as refereed journals published by OUT and the UDSM. Theses and journals were analysed because they best represent the research interests and activities carried out by these universities. Using citation analysis allowed the researcher to collect data from doctorate theses in various fields submitted to the UDSM Library from 2000 to 2008. The data compiled included years of publication of the theses and journals. At OUT, all doctorate theses submitted were analysed and transferred onto the spread sheet. Since all theses available had been included in the sample, there was no sampling error.

Apart from doctoral theses, a sample of journal articles published by these two universities was analysed, taking into account the number of citations that appeared in each issue in relation to the number of total citations appearing in these articles.

The information collected through citation analysis was supplemented by a follow-up interview conducted with the authors of the theses and journal articles. These journals were analysed because they constitute a major medium through which academics and other researchers disseminate information among peers as well as through which they were able to publicise their research findings. The journals were purposively selected by using the following criteria:

- (i) The journals needed to have a wider coverage and not limited to a country.
- (ii) Journal selected must be based in either of the two universities under study.
- (iii) The journal must be a popular referred journal with a known board of editors.
- (iv) The frequency of the publication should be known.

These guidelines were followed selecting the following journals for this study.

- (i) HURIA: Journal of the Open University of Tanzania;
- (ii) University of Dar es Salaam Library Journal 2001-2007;
- (iii) Journal of Issues and Practices in Education;
- (iv) Tanzania Journal of Science;
- (v) Open University Law Journal; and
- (vi) Tanzania Journal of Engineering and Technology.

Thus basic data was collected from this group of selected academic journals published by the UDSM and OUT. The bibliometric references in each article in the sample were first examined and classified into the following sources: theses, reports, unpublished conference proceedings, and faculty working papers. Then the data was counted and recorded on a sheet, tabulated and analysed to determine the usage of grey literature in public universities in Tanzania. Besides the citations, the year of the

cited journal was also included. The analysis was based on unpublished theses, unpublished conference proceedings, and working papers. The document cited as published was not included even if it was classified as a thesis.

4.9.6 Post-Citation Analysis Interviews

Post-citation interviews were conducted with 25 individuals, whose theses were submitted to the libraries of the OUT and the UDSM. An additional criteria used was the availability of papers published by respective staff from 2001-2007 in the selected academic journals published by the UDSM and the OUT.

4.9.7 Pre-testing of the Research Instruments

According to Brink (1996), a pre-testing of the research instruments is a small-scale version or trial-run of the major study. The aim of the trial-run is to obtain information that would ultimately improve the research instruments. In this study, prior to the commencement of the main study, pre-testing of the questionnaires was carried out at the University of Dar es Salaam. The draft questionnaires were distributed to 10 Masters Students in the Department of Information Studies and five others to members of faculty. The aim was to test the clarity, validity and relevance of the questions to the study objectives. The researcher also sought inputs from other library members of staff. In all, 15 questionnaires were distributed to the library members of staff ranging from assistant librarians to senior librarians based at the UDSM Library. For the interview guide, the questions were distributed to directors of library and the directors of research and postgraduate studies. The aim was to solicit their views on the clarity of the questions. The pre-testing of the FGD guide was conducted at the OUT, with eight academic staff taking part.

The UDSM and OUT were chosen for pre-testing of the instruments because these institutions have features obtainable in other universities represented in the sample. As the first public university to be established in the country, the UDSM has a long history of research the literature review section has illustrated. The pre-testing stage gave the researcher an opportunity to test the validity of the instruments and further improve on their clarity. The findings from the pre-testing phase were used by the researcher and project supervisors to revise some of the research instruments. Some of the issues raised by group during the pre-testing phase were connected with the length of the questionnaire, newness of the topic and the fact that many of the respondents were not familiar with the terminology of grey literature. The resultant modification improved the structure, clarity as well as the validity of the final instruments deployed in the field.

4.9.8 Administration of the Research Instruments

The researcher in collaboration with the research assistants recruited from the research sites administered the questionnaires and the FGDs as explained above.

4.10 Data Analysis

The purpose of analysis in a study is to reduce data to a form where the relationships of research problem can be studied and tested (Kerlinger, 2000). The information collected through survey questionnaire produced both qualitative as well as quantitative data. The data has been analysed in line with the stated research questions and objectives. Rwegoshora (2006) explains that data analysis involves the ordering of data into constituent parts to obtain answers to the research questions. After data collection, the open-ended questions in the questionnaire were pre-

recorded. This process was followed by creating a computer data file in which the data was entered. As the study combined both the qualitative and quantitative data collection techniques, it was necessary to go over the data for the purpose of organising and categorising it into themes and sub-themes. Glaser (1995) termed this exercise as constant comparative analysis. Quantitative data was analysed using the Statistical Packages for Social Sciences (SPSS). The programme produced percentage and frequencies as presented in this thesis.

The data generated through interviews and FGDs (qualitative data) was transcribed by listening to the tape and reading the fieldwork notes. The researcher had listened to the audio tapes beforehand and had also re-read all the transcriptions. This was done to get a sense of the whole data; ideas were written down as they emerged. The data collected were transcribed and analysed immediately after each interview. Under the grounded theory methodology, the incoming information from the participants determines the orientation of the information sought, a process referred to as theoretical sampling (Straus and Corbin, 1990). The data that emerged from interviews and FGDs was coded, sorted into identified patterns and organised according to emerging themes. The themes together with the statistics, figures and tables formed the basis of discussion. In addition, verbatim statements from participants have been included to support the ideas expressed during the data collection period.

4.11 Data Quality Control

The quality of the data depends on the extent to which it satisfies the requirements of its intended use (Olsom, 2003). To satisfy the intended use, the data must be

accurate, timely, relevant, complete, understood and trusted. In this study, data quality control was used to ensure the correctness of the information obtained from the respondents. Towards this end, the following methods were used:

3.11.1 Triangulation

Triangulation basically involves the use of multiple data-gathering techniques to investigate the same phenomenon (Berg, 2004). Triangulation serves as a means that authenticates the measures and validates the findings. To collect data for this study, various methods were used. The instruments were pre-tested before fieldwork to establish validity and reliability of the instruments. Another reason for doing so was to determine whether the instruments are in line with the objective of the study. Views and criticisms arising from the test were incorporated in the questionnaire wherever deemed necessary. The questionnaires were administered with eight library staff at the UDSM and seven academic staff at OUT for the Focus Group Discussions.

4.11.2 Rigorousness and Seriousness in Procedures

The study was rigorously and seriously conducted to ensure the data collected was accurate and reliable.

4.11.3 Ethical Issues

Prior to the main survey, the respondents were informed about the purpose of the study and were assured of confidentiality. As Rubin and Rubin (1995: 93) note, "When you encourage people to talk to you openly, you incur serious ethical obligations to them". As such, the researcher assured them that the information

collected would be used for academic purposes. The questions were also carefully structured to avoid embarrassing questions or those that would annoy the respondents. Taking part in the interviews and in responding to the questionnaires was on voluntary basis.

4.11.3.1 Trustworthiness, credibility and transferability

Trustworthiness, credibility and transferability of the findings were important criteria in judging the results of this study. The results of a study are considered trustworthy when they accurately represent the experiences of the study participants (Streubert and Carpenter, 1999). According to Beck (1993: 264), "credibility" is a term that relates to how vivid and faithful the description of the phenomenon is. The findings thus become credible when they are believable and transferable and can be applied to other settings or group of people. Credibility is demonstrated when participants recognise the research findings as their own experiences (Streubert and Carpenter 1999). To ensure credibility in this research, the researcher employed the following measures:

- (a) All the respondents were taken through the same questions;
- (b) The researcher interviewed the participants to the point at which there was data saturation;
- (c) The interviews were tape-recorded and transcriptions were made of each interview;
- (d) The enquiry process was guided by the participants;
- (e) The researcher returned to some of the participants to ascertain whether the transcribed data was a trustful version of their experiences. Indeed, according to

Glaser (1978:4), results must “fit the data”, meaning the findings must emerge from the data and not follow preconceived ideas or theories predating the analysis.

4.11.3.2 Transferability

Transferability refers to the extent to which the research findings can be applied in other contexts/situations or with other participants (Montorn, 2001). Such transferability is determined by the processes deployed for data collection, sampling, pilot project, and determining the accuracy of the data. If done efficiently and systematically, transferability implies that the methodology employed in the study when simulated in a similar environment with similar conditions, the results could be replicated. In this context, the researcher provided the description of the research methodology, the participants’ background, and the research context to provide the necessary information that would facilitate transferability. The study also ensured the trustworthiness, credibility and transferability through the selection of respondents who had experience in handling and using grey literature. In addition, the study adhered to all the data collection, analysis and write up processes as outlined in the grounded theory method. This included the use of comparative methods of analysis to check whether the categories were grounded in the data as well as the application of the triangulation methods. Furthermore, the findings were discussed with other people with expertise or who had experience with the phenomenon under investigation. The researcher also ensured trustworthiness, credibility and transferability by setting the findings of this study within the context of the existing scientific literature.

4.12 Summary

This chapter has discussed the research approach and the methods employed during the data collection as well as analysis processes. The chapter has also provided the rationale of using both qualitative and quantitative, or mixed-method approaches in this study. On the whole, the chapter has described and justified the processes followed during sampling, administration of the questionnaires, interviews, FGDs and observations, as well as the steps taken to ensure the study findings had validity and reliability. Furthermore, it has delineated ethical considerations that were taken into account in this study to ensure the respondents had the confidentiality and safeguards they deserved even as they participated in the study on voluntary basis.

CHAPTER FIVE

5.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF THE RESEARCH FINDINGS

5.1 Introduction

This chapter presents the data, analysis and discussion of the research findings according to the research objectives. The research objectives of this study were to:

Determine the types and manner in which grey literature is generated in public universities in Tanzania:

- (i) Determine the types and manner in which grey literature is generated in Tanzania's public universities;
- (ii) Examine the systems of grey literature acquisition and management in Tanzania's public universities;
- (iii) Find out how grey literature is accessed and used;
- (iv) Identify the barriers to access and use of grey literature in Tanzania; and
- (v) Examine the potential of ICT as a tool that could be deployed in enhancing the accessibility and use of grey literature in the country.

As already noted, the methods used to collect data were questionnaires, which were administered with library staff, postgraduate students, academic and research staff; interviews with directors of libraries, and directors of postgraduate studies; FGDs with librarians at the SUA and UDSM libraries; and bibliometric data sheet, which was deployed to collect data from citation references in doctorate theses defended and submitted to OUT and UDSM libraries. Apart from theses, a sample of refereed

journal articles published by these two universities were also analysed, taking into account the number of citations of grey literature that appeared in each issue weighted against the number of total citations in the articles.

5.2 Characteristics of the Respondents

5.2.1 Distribution of Respondents by Category and Gender

Out of the 848 respondents, 629 (74.2%) were males and 219 (25.8%) females. The library staff constituted 11.8 percent (7.8% males and 4% females) whereas postgraduate students accounted for 29.2 percent (21.1% males and 8.1% females) of the respondents; research and teaching staff comprised 59 percent (45.3% males and 13.7% females) of all the respondents (For details see Table 5.1).

Table 5.1: Distribution of Respondents by Category and Gender (N=848)

Gender	Category of Respondents							
	Library Staff		Research and Teaching Staff		Postgraduate Students		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Males	66	7.8%	384	45.3%	179	21.1%	629	74.2
Females	34	4%	116	13.7%	69	8.1%	219	25.8
Total	100	11.8%	500	59%	248	29.2%	848	100

Source: Field research 2006/7

The majority of the respondents were from the user category because the study focused primarily on access to and use of grey literature from the users' perspective. The study ended up with more male than female respondents because there were far more males than females at all the institutions under study.

At the time, the research was conducted in the 2006-2008 period, Tanzania had five public universities and two constituent colleges, UCLAS and MUHAS, which are now full-fledged universities as they have been reconstituted as Ardhi University and the Muhimbili University of Health and Allied Sciences (MUHAS), respectively. By 2011, the country had eight public universities. Of the five public universities involved in the research, OUT had 43 (17.3%) postgraduate students, the UDSM had 137 (55.2%), Mzumbe University 26 (10.5), SUA 23 (9.3%), and MUHAS 13 (5.2%). More than 50% of the respondents were drawn from the UDSM because it had the biggest number of postgraduate students in the country.

5.2.2 Distribution of Library staff by Academic Qualifications

Generally, the knowledge or understanding the value of grey literature starts with the level of education one has, especially at the postgraduate level. At this level, it is expected that the librarians have settled in their profession and have acquired experiences and exposure to various types of information needed by researchers, postgraduate students and academicians in addition to the traditional sources of textbooks and other published books normally used in teaching. The assumption was that professionals with postgraduate qualifications had used grey literature in the course of their study, thus were more likely to take keen interest in promoting access to and use of such literature.

The findings of the study indicate that there was a dialectical relationship between the level of education and the acquisition, organisation and dissemination of grey literature. It was noted here that the management processes of grey literature were

more elaborate at the UDSM which had a comparatively larger number of highly qualified staff than any other public university. This was followed by SUA and Mzumbe University. Table 5.2 presents the distribution of library staff at these public universities by qualifications:

Table 5.2: Distribution of Library Staff by Academic Qualifications (N=100)

Name of Institutions	Academic Qualifications				
	First degree or its equivalent	Masters	PhD	Diploma	Total
OUT	2	4	0	5	11
UDSM	0	13	10	5	28
Mzumbe	4	2	0	4	10
UCLAS	3	3	1	5	12
SUZA	0	2	0	4	6
SUA	3	8	9	5	25
MUHAS	0	2	1	5	8
Total	12	34	21	33	100

Source: Field Research 2006/7

5.2.3 Library Staff by Institutions

The researcher was interested in establishing the number of library staff in each university. The number of staff has a direct bearing on the process of collecting and managing grey literature. As most of the grey literature does not come from traditional sources such as bookshops, it needs people/staff who will keep on tracing such literature from various institutes, faculties and other institutions. The more qualified library staff members an institution has, the more likely that institution will have staff dedicated to collecting and managing grey literature (see Table 5.3).

Table 5.3: Distribution of Library Academic Staff by Institutions (N=100)

Name of Institution	Frequency	Percent
Open University of Tanzania	11	11
University of Dar es Salaam	28	28
Mzumbe University	10	10
Ardhi University	12	12
State University of Zanzibar	6	6.0
Sokoine University of Agriculture	25	25.0
Muhimbili University of Health and Allied Sciences	8	8.0
Total	100	100.0

Source: Field Research 2007-2009

5.3 Types of Grey Literature Generated in Public Universities and Usage

The findings obtained from interviews with directors of four public university libraries and two constituent colleges and five directors of postgraduate studies, as well as through two FGDs which involved eight librarians from SUA and eight others from the UDSM indicated that the types of grey literature generated in their institutions comprised theses and dissertations, reports, unpublished conference proceedings, research and consultancy reports, lecture notes, technical notes, annual reports, commission reports. Others are minutes, seminar papers, and faculty discussion papers, manuscripts such as (Ki)Swahili-Arabic manuscripts, inaugural lectures, public lectures and newsletters. Through the non-participant observation at the UDSM library, the researcher noted that the library has a rich collection of Hanscory Papers on the Anglican Church and translations. In addition, the researcher was shown a collection of research papers of Henry Fosbrook who was conducting research in the famous Ngorongoro Crater and Maasailand. The collection is

dedicated to the UDSM library. However, documents emanating from inaugural lectures and public lectures were not classified as grey literature, when such documents merit inclusion in the list of grey literature as they are produced in limited numbers with severely limited circulation.

5.3.1 Theses and Dissertations

The interviews with the directors of library and directors of research revealed that theses and dissertations in Tanzania's universities constitute a major source of primary data resulting from academic research as requirements of degree programmes (Kiondo, Mbago, and Msuya, 2007). At OUT, UDSM, SUA, MZUMBE and SUZA, finalists undertaking Masters and PhD studies are required to produce theses or dissertations as evidence of having successfully completed research in their fields of interest (Mbago, 2007). There are also undergraduate programmes that require students to produce dissertations. Also university faculty, who undergo further training at home or abroad, are also required to produce such theses or dissertations. The UDSM deposits in its library theses from other universities written by Tanzanians as well (Kiondo, 2007). Normally, the copies deposited in libraries are in print format and are limited in number. At OUT and the UDSM students are also required to deposit an electronic version in addition to the hard copies (Kiondo and Kiwanga, 2007).

The directors of research and publications, and directors of postgraduate studies at the UDSM, SUA and OUT underscored the value of these materials as sources of research information for prospective graduate students, researchers, policy-makers and other practitioners who are beneficiaries of research findings contained in such

documents. In fact, Msuya (2007) asserts that these theses and dissertations help students to understand how new knowledge is acquired and communicated in their respective disciplines. These materials contain important ideas, methodologies, literature reviews, successful hypotheses, and records of experimentation. Msuya (2007) and Kiwanga (2007) also stress that it is time local universities stopped teaching students by employing borrowed ideas, hence the need for universities in Tanzania to put emphasis on the usage of grey literature to make the courses they teach relevant to the local needs and conditions. The observations made by these directors are also shared by Vijayakumar (2005) and Kiondo (2007:). Theses and dissertations also help students to demonstrate a quick understanding of the subject and research methodologies used.

5.3.2 Research and Consultancy Reports

Research and consultancy activities constitute a fundamental and vital component of a university's activities in Tanzania. Through consultancy, researchers produce reports also known as technical reports. Scholars, academicians and students write research reports to communicate the results of the research undertaking tailored to a specific professional audience with vested interest. On this point, Mbago (2007) notes:

Such reports have significant analytical content as they are designed to dig out the important pieces of the problem and point out the future course on how to solve various societal problems. It provides a body of knowledge, expertise, research materials and case studies which may be incorporated into taught courses in universities.

5.3.3 Unpublished Conference Proceedings

Interviews conducted on the unpublished conference proceedings show that often the proceedings fall under the category of grey literature in the sense that not all conference proceedings get published. Mbago (2007) reports that universities in Tanzania, especially the UDSM, host a number of scientific conferences, seminars, workshops, symposia and courses which draw participants from within and outside the country. At these gatherings, papers are presented and discussed by experts. In addition, universities also support their staff so that they can present papers at various conferences. Normally, these conferences are used as vehicles and forum for initial scholarly communication cycle for specialists on new discoveries and inventions (Mbago, 2007). Therefore, conference papers must be collected and made available to users. Mbago (ibid.) notes with concern that these papers are sometimes not collected and tend to vanish soon after the conference. His recommendation is that organisers of such workshops should make sure that these conference papers are neatly bound and placed in the library. The materials can also be scanned and deposited in the university website or library database.

5.3.4 Faculty Discussion Papers and Working Papers

During the interview with one director of research and postgraduate studies at the Open University of Tanzania, it emerged that faculty discussions and working papers normally represent an initial stage of the development of a topic set for eventual publication in a journal or book, or research in case of a proposal. Traditionally, in these universities, papers are informally distributed to colleagues for review and discussion, or are presented during seminars in the case of postgraduate studies especially at the doctorate level: 'The idea is to help the authors or researchers to

refine and develop the ideas before final publication or going to another stage of research in the case of masters or doctoral research (Masenge, 2007). Ideally, these papers should be deposited and made available at the departmental or faculty level, and even in the libraries for reference (Kiwanga, 2007). However, this is generally not practised in Tanzania's public university libraries.

5.4 Grey Literature Acquisition and Management in Public Universities

5.4.1 Acquisition of Grey Literature in Public Universities

Grey literature materials can be obtained through various means. The methods of acquisition of grey literature identified by the directors of libraries at SUA, MU and UDSM were donations, complimentary copies, through legal deposits. Otherwise these were made available through direct purchase and internal regulations of relevant institutions in the case of academic programmes' award conditions for the students, academicians and researchers.

Table 5.4: Regulations for Depositing Theses and Dissertations in Public Universities in Tanzania

University	No. of copies for deposit	Distribution of deposited theses/dissertation			
		Library	Dept/Postgraduate Directorate	Faculty	Others
Sokoine University of Agriculture	4	2	1	1	
Mzumbe University *					
University of Dar es Salaam	4	2	1	1	1 **
The Open University of Tanzania	4	2	1	1	1 **
Zanzibar State University*					

* Regulation not in place

** Some individuals from OUT and UDSM deposit their theses and dissertations in each other's university for more visibility of their works.

Source: Prospectuses of UDSM (2006/07); OUT (2007); SUA (2007)

5.4.1.1 Institutional Regulations

The study findings indicate that most of the grey literature in the form of theses and dissertations were acquired through institutional regulations. All the sampled institutions require their postgraduate students to deposit a certain number of copies of their theses and dissertations with their respective institutions. Details of the required copies and places of deposition have been presented in Table 5.4.

Staff and students of these universities were generally aware of the regulations regarding the depositing of their work with their respective libraries. Table 5.5 portrays the distribution of responses in respect to the depositing theses and dissertations in the university libraries:

Table 5.5: Deposition of Dissertations and Theses by Teaching Staff and Postgraduate Students

Response	Teaching Staff		Postgraduate Students	
	Frequency	Percentage	Frequency	Percentage
Yes	362	72.4	169	68.1
No	114	22.8	55	22.2
Don't Know	24	4.8	24	9.7
Total	500	100	248	100

Source: Field Research, 2006/2007

Responding to the question regarding the deposition of dissertations and theses, 72.4 percent of the academic staff indicated that they deposited their publications with the university library while 22.8 percent indicated they did not do so, and 4.8 percent did not provide any response. Further probing of those who deposited their publications

with their university's library revealed that they did so because the library required them to. In response to the question regarding whether they were bound to do so, 52.8 percent of the academic staff indicated that they were, 42.2 percent indicated that they were not while 5.0 percent were not sure.

In the case of postgraduate students, a total of 248 responded to the question that required them to indicate whether they deposit their dissertations and theses with the library. According to their responses, 169 (68.1%) of the postgraduate students indicated that they deposit their theses and dissertations, and 55 (22.2%) students responded negatively, whereas 24 (9.7 %) indicated they did not know despite being postgraduate students. This could be because the students tend to submit their theses to the Director of Postgraduate Studies for onward delivery to the library. When asked whether they were bound to deposit their works with the library, 161 (64.9%) students out of the 248 were affirmative, while 49 (19.8) were not and 38 (15.3%) did not know.

The overall picture suggests that the majority of the students know that they are required to deposit their work with the library. However, through checking in the Online Public Access Catalogue (OPAC) at the OUT, it was revealed that despite the existing regulations requiring staff to deposit their theses in the library, some members of staff, who had completed their studies within and outside the country, had not complied with the requirement. Therefore, the researcher decided to conduct a post-research interview with 10 staff whose dissertations/theses were missing from the OPAC to establish the reasons behind their failure to comply with the university

regulation. Seven out of the 10 respondents reported that their scholarship did not provide funds to produce extra copies for depositing in the university library. The remaining three indicated that they neither had the money nor the time to do so. All the 10 respondents argued that it was OUTØ responsibility, as a training and research institution, to ensure that the dissertations/theses generated by its staff from within or outside the country were made available in the university library for reference.

The responses from these interviews indicate that there is a need for public universities to provide funds for the production of extra copies of theses and dissertations for those members of faculty whose scholarships did not cover production expenses of their research exertions. In addition, there also appears to be loopholes in the enforcement mechanism of the regulation making it mandatory for members of faculty to deposit their theses and dissertations.

5.4.1.2 Legal Deposit

Through FGDs held at the UDSMØ Library it was reported that grey literature materials are not covered by TanzaniaØ legal deposit legislation. The problem that such literature faces is that it is not likely to be produced in the conventional manner and is produced in limited copies, hence the difficulty inherent in pushing for the agenda of including such materials under this legislation (FGD, 2007).

During the survey, it was noted that although the UDSM, SUA and OUT were all beneficiaries of the Legal Deposit requirements, only SUA can legally benefit from this aspect. During the discussion with the library directors, it was revealed that only one academic library in the country, the Sokoine National Agriculture Library

(SNAL), was currently a recipient of the legal deposit materials. This status became a reality in 1991 in the aftermath of the enactment of the Act of Parliament No. 21. In the case of the other two universities, it was noted that publishers were not aware that they were not currently required to deposit their works with these universities. Nevertheless, most of the publishers were still doing so because depositing their works with these institutions helps to publicise their research output and productions (FGD, 2007).

5.4.1.3 Complimentary Copies

Some of the researchers such as those who have completed their doctoral studies and those doing commissioned research feel obliged to deposit their research reports with the libraries for various reasons. There are those who believe that the visibility of their work to the general public will be enhanced once they deposited their documents with the library. By depositing their reports in the libraries, individuals believe that much of the knowledge and information contained in these reports is likely to have longer value to the society (Director, MU Library, 2007).

5.4.1.4 Direct Purchase

The UDSM, OUT, SNAL, MU, and SUZA libraries, to some extent, also allocate budgets dedicated to purchasing grey literature that cannot be acquired through the legal deposit law and/or donations. This initiative is aimed at meeting the needs of researchers and to preserve them for future use. However, these budgets did not show specific amounts allocated solely for the purpose of acquiring grey literature. It is likely the amount set for this purpose was included in the overall library budget or

it was paltry, or insignificant, bearing in mind that library budgets, as indicated by library directors, were generally low, ranging from less than 50 million to 100 million Tanzanian Shillings as Table 5.6 indicates. The general observation is that grey literature acquisition is not included in the overall library budget; in fact, its acquisition is conducted in an ad hoc manner.

Table 5.6: Library Budget in Surveyed Public Universities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 50 million	50	50.0	50.0	50.0
	Between 51 and 100 million	4	4.0	4.0	54.0
	More than 100 million	4	4.0	4.0	58.0
	Do not know	42	42.0	42.0	100.0
	Total	100	100.0	100.0	

Source: Field Research, 2006-2007

5.4.1.5 Seminar, Workshop and Conference Attendance

Seminars, workshops and conferences were mentioned by the library directors of SUA, MU and UDSM as one the sources of acquiring grey literature. Conferences normally bring together specialists of a similar profession for the purpose of sharing ideas and informing others on new developments in their field. This occasion enables those who attend the conference to acquire conference proceedings and other promotional materials such as newsletters. The papers presented at these gatherings can add to the library collection of grey literature. As there is no binding regulation to deposit some of the grey literature materials in the library such as conference

papers, various universities visited indicated that they had special arrangements in place to monitor relevant seminars, conferences, and symposia taking place in their universities and within the country. This was further confirmed through interviews with the directors who reported that sometimes they had to write to the organisers to request for papers:

Every day, myself and members of staff scan on the notice-boards looking out for information on seminars, conferences which are taking place in our university. We also monitor conferences with academic nature which are taking place in other universities (Director of UDSM Library, 2007).

The methods applied to acquire grey literature by public universities in Tanzania correspond well with those from the study conducted by Osayande and Ukpebor (2012).

5.4.1.6 Internal Policies in Relation to the Acquisition of Grey Literature

At the time of conducting the study, all the universities, except SUZA, had instituted internal policies aimed at keeping track of the grey literature generated within their institutions and collecting them. Various efforts have subsequently been made to take stock of what is available in various university institutes, departments and faculties. However, what was not clearly spelled out was whether the libraries surveyed had functional policy guidelines on grey literature. Indeed, there are a lot of research activities going on in faculties and institutes that generates a lot of information in the form of grey literature. And yet, the library directors of these institutions reported that the generated information seldom reached the main libraries of these universities.

5.4.1.7 Follow-up

To redress this problematic situation, these libraries normally assign specific staff to make a follow-up on the reports and other grey literature produced in the departments and faculties for the purpose of acquiring and processing them. In the case of the University of Dar es Salaam Library, the researcher was informed that in each region, the library had a contact person whose main duty was to collect grey literature emanating from that particular region on behalf of the university.

5.4.1.8 Internal policies

At OUT, it was revealed that there was an internal policy, which guided the collection of grey literature. Such literature, which is covered under the policy, includes theses and dissertations, reports and conference proceedings. According to the Director of Research and Postgraduate Studies, the guide was issued by the then Research, Publications and Consultancy Committee (RPCC). The guide requires staff/students of the OUT pursuing further studies within or outside the university/country, to deposit their dissertations/theses with the library. The same condition applies to reports of researches, conference papers registered by the university's Consultancy Bureau. As reported by the Director of Research at OUT during the interview, "Besides theses and dissertations, academic members of staff are required to deposit the publications they [submitted] for promotion in the university library." It also emerged from the interview with the directors of research and postgraduate studies that some of the new universities such as SUZA so far had no internal policy which bound researchers and academicians to deposit their publications with the university's library.

5.4.1.9 Zones for Collection of Published and Unpublished Materials

At SUA, it was revealed by the library director that there are internal policies which guide the collection of grey literature at the institution. One of such policies gives the university the mandate to collect both published and unpublished materials generated within the country. In fact, SNAL has set up zones which serve as collection points. Such network involves all agricultural institutes, training and research in the country. As a national library, SNAL collects, preserves and affords access to research papers produced by students at all levels. The materials collected include theses and dissertations as well as special students' projects. This condition also applies to university staff and researchers, who are required by regulations to submit their theses and dissertations to the university library upon completion of their studies: 'Actually, for those members of staff that have done their higher degrees, they are certainly required by university regulations to present certificates and their copies of dissertations/thesis' (Director of Library, SUA). Through the FGDs involving both librarians and academic staff at SUA and UDSM libraries, however, what emerged was slightly contrary to what the directors had said.

Whereas the FGD participants did agree that their universities kept track of the grey literature, they strongly believed that those charged with this responsibility were not aggressive enough: 'Although many of the research activities take place in these universities, one may be surprised to note that documents in the form of grey literature hardly find their way into the university libraries. Most of them gather dust in faculties, institutes, departments and office shelves... We fail to collect even the information which is generated within the university departments' (FGD, 2007).

In relation to this observation, most of the potential consumers of research results in grey literature format are not aware of what research projects have been done. Ideally, the research results are supposed to be known to other researchers, scientists and end-users of research results such as the industrialists, farmers, policy-makers and members of the public. However, there is lack of publicity of the research findings. In consequence, little is known about these findings, and thus they hardly find practical use in the society. The exceptions are theses and dissertations for which deliberate efforts have been made to raise their visibility profile.

Also through FGDs, it emerged that the effective tapping of such information would form the basis for the country to prepare a national bibliography of its intellectual output. A national bibliography makes the research output of the country, including grey literature generated in the university, known to users, thus improving the use of such material. However, as noted previously, since library members of staff are not aggressive enough in keeping track of grey literature, one wonders how the country is going to prepare the national bibliography without a serious input stemming from the distinguished library staff. The directors of research and postgraduate studies interviewed also made similar observations as those obtained from the FGDs. Indeed, one of the directors, citing experience derived from the University of Dar es Salaam, said:

Very unfortunately, we as a university don't seem to have regulations in place to cater for research reports and unpublished conference papers which you expert in the field refer to as grey literature. In my opinion, this is an area where probably we have failed to have definite regulations, so faculties

may wish to send copies of reports and conference papers to the library but they are not bound by any regulation.

It is, however, significant to note further that in some circumstances, when the conference is funded or sponsored by the university, the regulations require them to send copies to the Directorate of Research and Publications. In my experience, the copies are deposited with the Directorate of Research and Publications as evidence and for audit purposes. In an ideal situation, these documents are supposed to be sent to the library because this is where the users are mostly likely to make use of the materials since there is a classification system and many users go there to seek for information. This specific director further elaborated, “It is my conviction that such grey literature information once are well-documented, organised and easily accessed, they can actually boost the research agenda and teaching programmes in the country.”

5.5 Management of Grey Literature in Public universities

For grey literature to be accessed and used effectively, it needs to be managed properly. The directors of the libraries surveyed reported that they were using various methods to manage the grey literature generated within the university as well as those acquired from other institutions. The methods used to manage grey literature include classification and cataloguing, creation of databases, digitisation of East Africana collections and the formation of institutional repositories.

5.5.1 Processing of Grey Literature

The Director of SNAL said during an interview that Grey literature documents are often processed like any other library materials such as books and journals using

various classification systems such as Dewey Decimal Classification, or the Library of Congress and uploaded onto the OPAC; others are processed into microfilm and microfiche format and shelved at a particular location according to their nature (Kiondo, Dulle, Sarah, and FGD, 2007). For example, all the materials originating from within the country, or any East African member state, are deposited in the East Africana Section. However, during the FGD at the University of Dar es Salaam Library, it emerged that with the exception of theses and dissertations, which are routinely processed immediately upon submission to the East Africana Section, the processing of other types of grey literature takes longer (FGD, 2007). The theses are processed promptly because those who submit them were eager to see their works available on the OPAC and sometimes they directed their students to read the materials (FGD, 2007).

5.5.2 Electronic Bibliographic Databases

Some of the libraries surveyed such as those at the UDSM, SUA and MU have created electronic bibliographic databases which are often subject-based for their grey literature. Indexed documents in a particular database are normally shelved in one location in boxes, shelves and filing cabinets for easy retrieval (Directors, SUA, UDSM, Mzumbe, 2007).

5.5.3 Digitisation Projects

Digitisation of the library collection is one of the methods employed by the university libraries to manage their collection. Some of the libraries such as the UDSM Library have created research repositories for the collection of research works emanating from the university. The project, known as ULERE, is under the

Directorate of Research and Postgraduate Studies. During FGD conducted at the university library, it was established that, the UDSM library which is a custodian of information was not involved in creating ULERE and neither is the library involved in running it. In an ideal situation, the library should take a leading role in developing the contents of such a system.

5.6 Access to Grey Literature

5.6.1 Mechanisms used by Public Universities to Disseminate Information on Grey Literature

This section presents the findings pertaining to the question: “What mechanisms are used by public universities to disseminate information on grey literature?” The canon law of library and information science states that books are for use. Such a rule is also applicable to grey literature. Therefore, libraries should strive to see the maximum utilisation of every resource in the library, including grey literature.

Three main approaches were used to gather information on pertinent issues regarding the acquisition and management of grey literature. Structured questionnaires distributed to librarians, teaching and research staff as well as postgraduate students, were used to gather primary data that helped to generate information that provided an overview of the status of grey literature and the general impression on access to and use of grey literature. In-depth interviews were also held with the Directors of Libraries, Research and Publications staff on the status of acquisition and access to grey literature in their respective institutions. The interviews were followed by two FGDs held at SUA and the UDSM.

It was noted that access to grey literature was facilitated by library catalogues, accession lists and research bulletins. To make grey literature accessible to the users, libraries use various techniques: classifying and indexing the materials (12%), providing current awareness services (3%), compiling bibliography (2%), and all of the three services (60%). Twenty percent (20%) of the respondents said they did not provide any of the three services whereas a minority of three percent did not know whether any of these services were provided. In general, the results show a positive response from the library staff in affording access to grey literature (see Table 5.7 below for details).

Table 5.7: Services Provided by Public Universities to Facilitate Access to Grey Literature

Service	Response	
	Frequency	Percentage
Classifying and indexing the material (using Library Catalogue)	12	12%
Raising awareness on the current service (using accession list)	3	3%
Compiling bibliography (using Research bulletins)	2	2%
All of the above	60	60%
Do not provide any of the service	20	20%
Do not know	3	3%
Total	100	100%

Source: Field Research, 2006-2007

The library websites were used to facilitate access to grey literature. At OUT, for example, Tanzania's various unpublished/ unreported cases from the High Court and the Court of Appeal are scanned and put on the library website page. The library

directors during the interviews mentioned the following additional services offered to facilitate access of grey literature: electronic clipping service whereby staff especially research and academicians receiving the listing of research papers, including grey literature on their subject of interest (Directors UDSM and SUA Libraries, 2007).

To make grey literature accessible to the users, the libraries provide several basic services as Table 5.7 illustrates: classifying and indexing the material (12%), provision of current awareness service (3%), compilation of bibliography (2%), all of the above (60%). Those that did not know amounted to only three percent. Also, it emerged that, not those respondents who said the libraries did not provide any of such a service accounted for 20 percent of the respondents. Overall, the results appear to indicate that the libraries have some kind of mechanisms in place to facilitate the accessibility of grey literature stocked in their respective universities. The question that remains, therefore, was why then was access to such literature still very limited?

5.6.2 Library Website

The growth of ICT and the Internet has had an impact on almost every field of human activity. In fact, university websites can be effectively used to enhance the accessibility of grey literature. Questionnaire results indicate that all the five public universities under study had centrally updated websites. In facilitating access to grey literature, the Library websites can be used not only for promoting such literature but also for making the grey literature accessible in a user-friendly manner.

Existing evidence especially based on experiences from abroad shows that libraries and universities enhance access even for traditional sources such as peer-reviewed journals once they were made available electronically on the website. Thus, public libraries in Tanzania could take the advantage of the availability of ICT and use it as a tool for communicating the availability of grey literature such as theses and dissertations, reports, faculty discussion papers and unpublished conference proceedings among libraries and the public in addition to providing such materials online. In the case of informing the users of the availability of such materials, the university libraries could, for example, use services such as e-mails and e-mail lists to raise the level of awareness and ultimately the accessibility of grey literature available in these institutions. Figure 5.1 provides a composite picture of the responses on the availability of websites in the five public universities under study, an overwhelming affirmative response regarding the issue of website availability that raises the prospect of actually using these websites to enhance access and usage of grey literature in these universities.

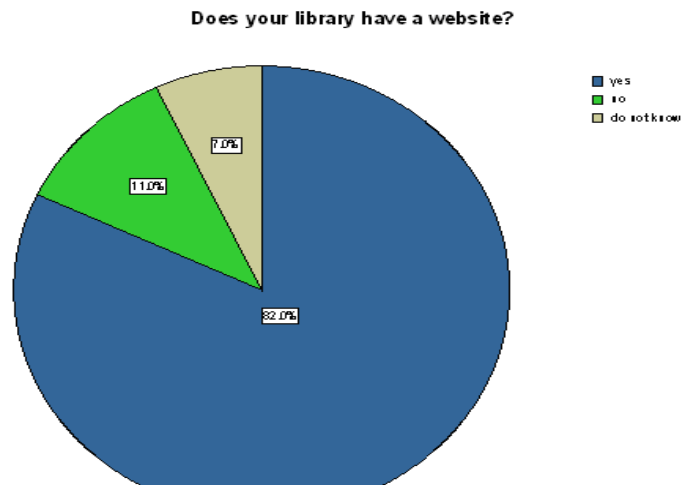


Figure 5.1: Existence of Websites in University Libraries

Source: Field Research, 2006-2007

5.6.3 Theses and Dissertations Abstracts

One of initiatives used to raise the profile of theses and dissertation is through the issuing Theses and Dissertations Abstracts [1996-2001] published, for example, by the UDSM through the Directorate of Postgraduate Studies. The abstracts cover a variety of themes and a period of six years. As an essential initial step, this publication has helped to publicise studies that have been conducted; it has helped to inform academic staff, researchers and the general public on the availability of such materials. Before this document was issued, none of these themes had ever been synthesised into a single document (Mbago, 2007).

The most important contribution of this publication appears to be the dissemination of information on the available research findings held in stocks at the UDSM Main Library. The publication also envisages facilitating the writing of papers, books and monographs as well as research development in areas scholars were working on (UDSM, Director of Research and Postgraduate Studies 2007).

5.6.4 Research Bulletins

According to the directors of research at OUT and SUA, these two institutions issue research bulletins as well as an inventory of research documents, which highlight the bibliographic information of their intellectual contribution to society. The bulletins provide a comprehensive list of theses accepted by universities under various subject headings. Another method used by these universities to publicise their holdings is through the use of accession lists, which furnish users with details regarding what is available. The UDSM, for example, produces accession lists of theses and

dissertations available in the East Africana section. The Director of the UDSM Library said: '[T]he list is circulated without charges to leading libraries in Tanzania'. This is a very positive move in making users aware of the existence such grey literature.

SUA publishes Research Achievements of the university in Agriculture, Forestry and Animal Health. Its publication is overseen by the Directorate of Research and Postgraduate Studies. This bulletin facilitates the exchange and dissemination of agricultural research results on matters of common interest in the development of the stated subject areas (Director of Research, SUA, 2007). However, the directors of libraries under study also informed the researcher that one of the problems associated with these initiatives is that they tend to appear irregularly and in limited numbers of copies for circulation. Indeed, these universities frequently lack the resources to produce them on regular basis. Most of them are normally 5-10 years behind schedule, hence updating of information is almost non-existent or embarrassingly irregular. The last issue of research bulletin from the OUT was in 2006. In fact, it can take up to three or four years for the bulletin or accession list to appear, when the researchers need current information to solve a particular problem. The implication is means that information contained in most of the undocumented materials will not reach users at the right time. After all, the users may never receive the necessary information when they actually need it (Directors, UDSM, SUA, 2007). The library directors suggested that the Tanzania Commission for Universities (TCU) should look into the possibility of publishing the bulletin showing the list of theses accepted and completed by all public universities in Tanzania.

5.6.5 Access through the use of ICT

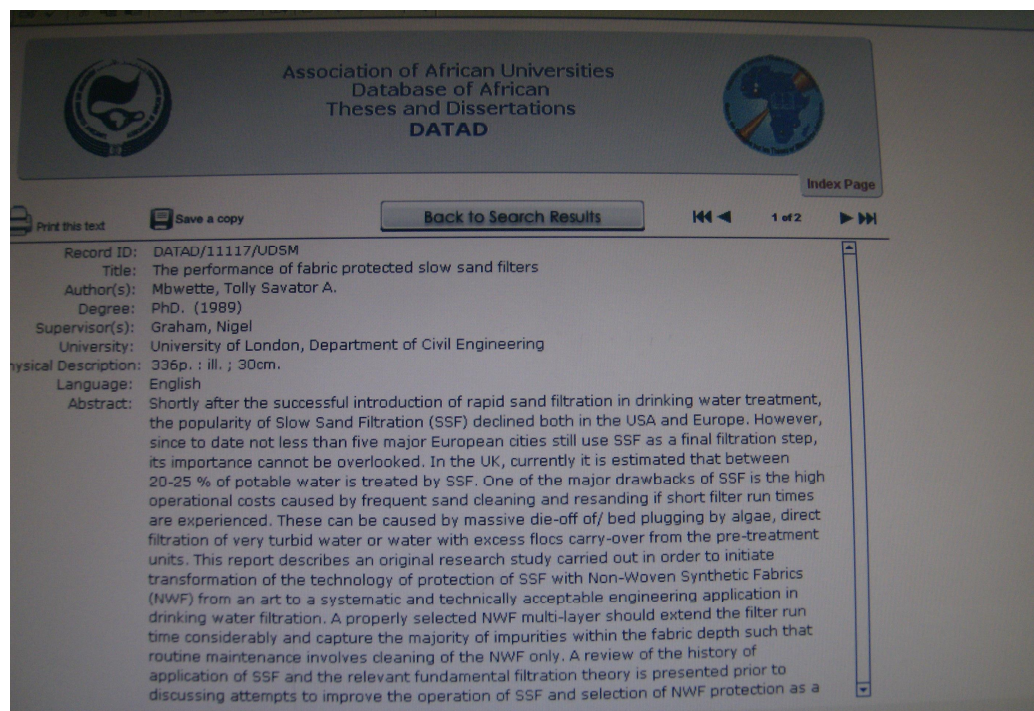
Initiatives taken by some of the public universities in the country in a bid to control the bibliographic information of theses and dissertations produced by respective institutions include the use of ICTs. Indeed, several universities have created databases to preserve, organise, and make these materials accessible: “Before that, theses and dissertations were mainly accessed through manual (card catalogues) information systems” (Director SNAL, 2007). As a result of ICT development, catalogue information for the theses and dissertations as part of the library collection can be accessed through Online Public Access Catalogue (OPACs), a development that also benefits remote users. However, it emerged during the discussions from the directors of libraries that the system has some limitations: “The online catalogue provides only minimal access to the contents [as] full text access of these documents is not immediately available, without the user visiting the library physically and go through the contents of each identified document”. Similarly, Tripath (2007:2), who conducted a research on Open Access to Grey Literature, entitled “Challenges and Opportunities at the Banaras Hindu University in India”, also came up with a similar conclusion.

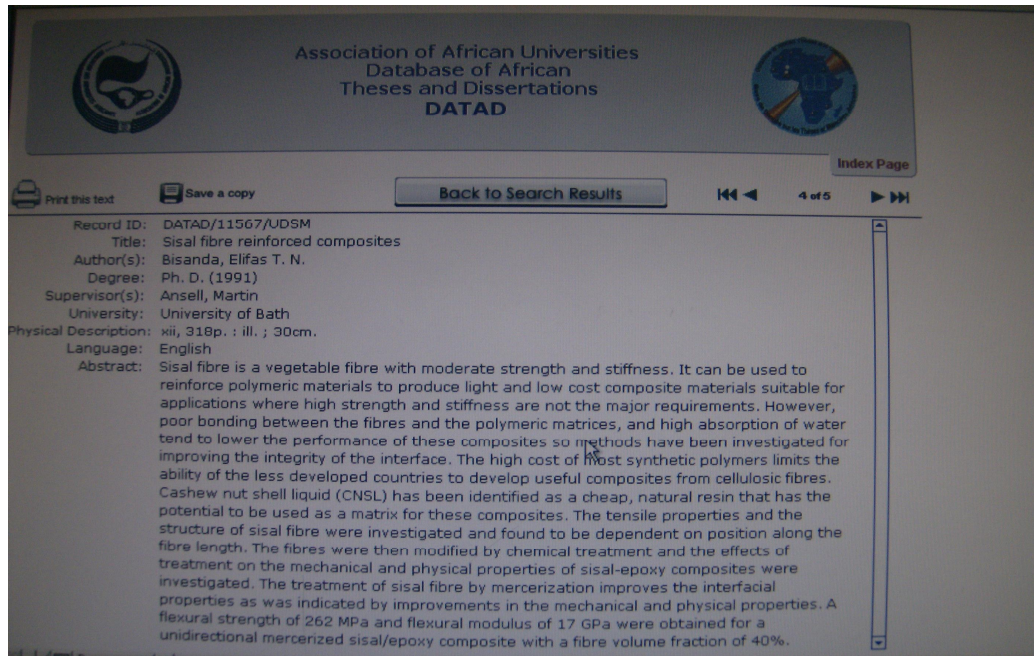
5.6.6 Database of African Theses and Dissertations

The UDSM Library has been participating in a project known as Database of African Theses and Dissertations (DATAD) under the auspices of AAU. The regional initiative was conceived to address the problem of production, management, access and dissemination of research contained in theses and dissertations. The director of the UDSM Library reported that through this project, over 2,000 titles of theses and

dissertations dating up to 2006 submitted to the University have since been abstracted, and digitised, with online database created for them. This project in this direction helps the researchers to get the abstracts and bibliographical details of available dissertations. During the FGDs at the UDSM Library, however, it emerged that the project should also be duplicated in other universities in Tanzania to make the output from these universities also known to users (FGD, 2007). Kiondo (2007) said that the UDSM Library, as a participating institution in the DATAD project, has developed expertise from which other universities in Tanzania can benefit. Furthermore, some Universities such as OUT and SUA were contemplating requesting submission of theses and dissertations in both hard and soft copy to their university libraries (Kiondo, 2007:7, OUT Research and Publication, 2006/7).

Plate 5.1: Database of African Theses and Dissertations



Continued

Source: Field Research, 2006-2007

5.6.7 Deposition of Theses and Dissertations in Soft Copies

At the time of writing this report, the University of Dar es Salaam reported that they required their students to deposit both hard and soft copies of their dissertations and theses. The soft copies were supposed to be uploaded into the library OPAC where users can access them without necessarily visiting the university library (FGD, 2007). But the searcher failed to locate the said full text theses and dissertations through library database. In fact, some of the students had been requested to submit their MA dissertations in soft copy as well since 2001 but only their hard copies appear to be available in the library's East Africana Section.

5.6.8 Exhibitions

The directors of Research and Postgraduate Studies at the UDSM and OUT said during interviews that they also used the trade fair to expose members of the public

to their research output. For the fair, university staff prepared posters, research bulletins and hard copies of theses and dissertations, fliers and CD-ROMs to be displayed at the exhibitions. This is one of the ways through which they sought to raise public awareness on the availability of grey literature in Tanzania's public universities.

5.7 Opinions of Library/Academic Staff Regarding Access to Grey Literature

One of the primary constraints to accessing grey literature generated in public universities is lack of awareness of what has been produced and available for use. Out of the 100 library staff interviewed, 54 percent indicated that it was easy to access grey literature in their libraries with 30% indicating otherwise. The remaining 16 percent said did not know. Out of the 248 postgraduate students interviewed, 142 (57.3%) indicated that access to grey literature was easy whereas 67 (27.7%) indicated otherwise and 39 (15.7%) noted that they did not know. Out of the 500 users (teaching and research staff) interviewed, 173 (34.6%) said that it was easy to access grey literature while 266 (53.2%) others did not concur and 61(12.2%) did not know. Generally, the pattern of responses differed from institution to institution. Among the five public universities surveyed, the UDSM had the highest number of teaching and research staff who said access to grey literature was difficult. About 32 percent reported difficulties inherent in getting access to grey literature materials at the UDSM, 30 percent at OUT and 20 percent at SUA. In other universities, access to grey literature was slightly better. At MUHAS, for example, only 10.8 percent indicated that it was difficult to access grey literature, at MU it was only 6.8 percent, at SUZA State a paltry 1.4 percent and Ardhi University an even more negligible 0.6

percent. Through FGDs held at the UDSM and SUA libraries, the researcher was informed of the following:

“Information generated in the university needs to be organised and made accessible. The process includes registration of documents, indexing and uploading it to the library database. Since much of the information generated is unpublished, it ends up on the shelves of the researcher or their sponsors (FGD, 2007).”

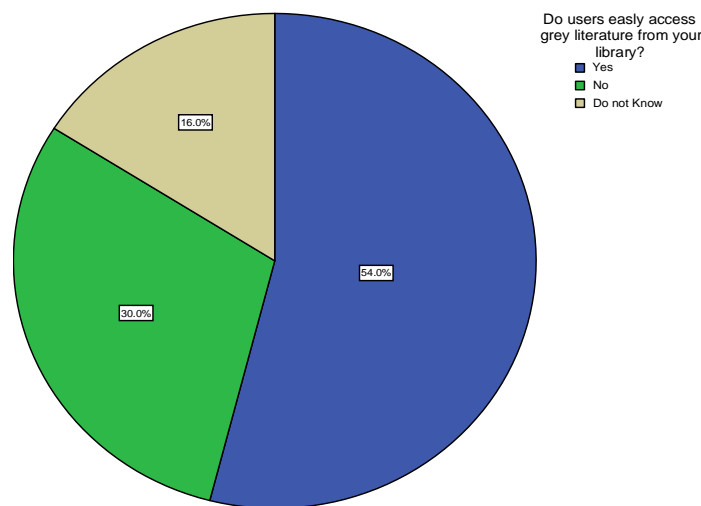


Figure 5.2: Opinions of Library Staff Regarding Access to Grey Literature

Source: Field Research, 2006-2007

These results suggest that although more than a half of the respondents indicated that it was easy to access grey literature, in reality what emerged out of the findings contradict this view. To illustrate this discrepancy, Figure 5.2 signifies the responses from Library staff on grey literature access and Table 5.8 presents the opinions of teaching/research staff on ease of access to grey literature.

Table 5.8: Opinion of teaching/research staff on Access to Grey Literature

Name of Institution	Responses			
	Yes	No	Do not Know	Total
	Frequency	Frequency	Frequency	Frequency
OUT	57	66	25	148
UDSM	21	136	1	158
MZUMBE	1	32	1	34
UCLAS	1	0	2	3
SUZA	1	5	1	7
SUA	79	16	0	95
MUHAS	13	11	31	55
Total	173	266	61	500

Source: Field Research 2006-2007

5.8 Usage of Grey Literature as Revealed by Bibliometric Analysis

To establish the usage and access levels of grey literature generated in these universities, the researcher used bibliometric analysis and survey. The first survey was followed by a bibliometric analysis whereby samples of publications were drawn from the theses, dissertations and selected journals. Tables 5.9 and 5.10 provide details of the bibliometric survey conducted at the OUT and the UDSM. The results indicate that the use of grey literature varies considerably and that consultation of such materials is influenced by the processes and tools used in accessing grey literature. Members of staff, who cited grey literature in their works, were interviewed on the processes they followed to access grey literature. Respondents were also asked on the reasons for consulting such literature and whether they faced any barriers in accessing, retrieving, and using grey literature.

5.8.1 Post-bibliometric interviews

Post-bibliometric interviews revealed that the grey literature users mainly depended on recommendations from their colleagues or supervisors. Sometimes users accidentally stumbled upon those references from the literature they consulted. These respondents also cited their involvement in conferences, seminars, workshops and visiting various institutional websites, which made them aware of the existence of such grey literature.

The findings presented in Tables 5.9 and 5.10 on citations in the 14 theses submitted at OUT show that 7.9 percent of the 2,577 citations comprised grey literature. Although this proportion seems comparatively minimal, it reaffirms the importance attached to grey literature by researchers. It also indicates that this category of information is not easily accessible.

Table 5.9: Grey Literature Citation in Theses and Dissertations at OUT

Table 5.9.1: Faculty of Arts and Social Sciences

YEAR TYPE OF GREY LITERATURE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Thesis		2	-	4	0	-	-	-	-	11	17	34
Reports		7	-	1	7	-	-	-	-	8	7	30
Conference Proceedings		3	-	0	0	-	-	-	-	5	0	8
Working papers		2	-	0	1	-	-	-	-	2	5	10
Published Materials (Books & Journals)		166	-	85	232	-	-	-	-	278	112	873
Total		180		90	240					304	141	955

Source: Field Research, 2006-2007

Categorisation of citations based on the types of material revealed that on aggregate theses and dissertations are preferred by researchers (3.4%), followed by reports (2.7%), working papers (0.93%) and unpublished conference proceedings (0.69%). These findings are consistent with the results of other studies such as Manda (1989) and Aina (1987).

Table 5.9.2: Faculty of Education

YEAR TYPE OF GREY LITERATURE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Thesis	3	-	2	3	-	-	1	-	10	-	-	19
Reports	7	-	2	3	-	-	1	-	10	-	-	23
Conference Proceedings	1	-	1	8	-	-	1	-	0	-	-	11
Working papers	2	-	3	3	-	-	0	-	1	-	-	9
Published Materials (Books & Journals)	137	-	122	153	-	-	147	-	139	-	-	698
Total	150	-	130	170	-	-	150	-	160	-	-	760

Source: Field Research, 2006-2007

Table 5.9.3: Faculty of Science

YEAR TYPE OF GREY LITERATURE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Thesis	-	-	-	-	-	-	-	-	-	19	-	19
Reports	-	-	-	-	-	-	-	-	-	5	-	5
Conference Proceedings	-	-	-	-	-	-	-	-	-	4	-	4
Working papers	-	-	-	-	-	-	-	-	-	0	-	0
Published Materials (Books & Journals)	-	-	-	-	-	-	-	-	-	132	-	132
Total	-	-	-	-	-	-	-	-	-	160	-	160

Source: Field Research, 2006-2007

5.9.4 Faculty of Business Management

YEAR TYPE OF GREY LITERATURE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Thesis	-	-	-	-	2	-	-	-	-	9	-	11
Reports	-	-	-	-	0	-	-	-	-	1	-	1
Conference Proceedings	-	-	-	-	0	-	-	-	-	5	-	5
Working papers	-	-	-	-	4	-	-	-	-	0	-	
Published Materials (Books & Journals)	-	-	-	-	235	-	-	-	-	181	-	416
Total	-	-	-	-	241	-	-	-	-	196	-	437

Source: Field Research, 2006-2007

Table 5.10: Status of Citation of Grey Literature in Selected Theses and Dissertations Submitted to the UDSM Library

5.10.1 General subjects

Summary of Total Citations	Thesis	Report	Conf.	Working Papers	Government	Date
140	-	1	2	-	-	2001
294	8	18	9	1	-	2002
140	5	3	5	1	-	2002
274	20	-	2	-	-	2003
204	3	7	7	-	-	2004
140	4	5	1	1	1	2004
195	9	6	-	1	1	2005
222	9	6	-	1	1	2006
264	5	5	1	-	-	2006
332	4	-	2	1	-	2007
212	12	-	3	1	-	2007
158	4	5	4	3	-	2007
2575	83	52	41	10	10	

Source: Field Research, 2006-2007

Table 5.10.2: Faculty of Science

Summary of Total Citations	Thesis	Report	Conference Proceedings	Working Papers	Government	Date
573	5	5	21	3	-	2000
550	20	31	24	26	-	2001
140	1	10	4	5	-	2002
280	1	10	4	5	-	2003
144	4	14	5	11	-	2003
400	8	31	6	4	-	2003
128	7	2	15	1	-	2004
150	3	4	8	30	-	2004
220	3	4	8	29	-	2005
196	4	10	3	10	8	2006
154	0	25	-	14	-	2007
180	-	1	1	11	6	2007
3115	56	144	98	145	14	

Source: Field Research, 2006-2007

5.10.3 Faculty of Arts and Social Sciences

Summary of Total citations	Thesis	Report	Conference Proceedings	Working Papers	Government	Date
212	7	12	-	4	8	2000
130	4	7	6	4	13	2000
258	5	14	5	2	7	2000
128	7	2	15	1	9	2001
124	-	17	10	4	7	2001
144	-	10	20	3	-	2001
368	16	9	5	1	-	2002
73	8	1	1	5	-	2002
210	24	-	11	-	16	2002
180	12	35	17	10	21	2003
230	6	18	7	5	6	2003
200	1	10	10	14	13	2003
170	5	5	3	3	7	2004
199	8	24	16	2	8	2004
200	7	7	-	2	8	2004
93	1	8	10	6	20	2005
195	5	-	2	-	-	2005
105	8	-	3	1	-	2005
256	8	17	36	5	19	2006
200	-	3	1	2	1	2007
220	-	3	1	2	1	2007
220	10	8	12	6	21	2007
112	2	-	2	1	0	2007
3488	144	207	192	81	172	

Source: Field Research, 2006-2007

5.10.4 Faculty of Business Administration

Summary of Total Citations	Thesis	Report	Conference Proceedings	Working Papers	Government	Date
185	3	1	2	2	-	2003
203	5	1	-	-	4	2004
189	14	16	1	4	3	2005
128	7	2	15	1	9	2006
104	-	17	10	4	7	2007
105	-	9	-	1	-	2007
914	29	46	27	12	23	

Source: Field Research, 2006-2007

At the UDSM, data was collected from 53 theses submitted to the main library. The theses submitted were from the Faculty (now College) of Arts and Social Sciences, Faculty (now College) of Science, and Faculty (now School) of Business Administration and Management (Table 5.10). Theses analysed were those submitted from the 2000-2007 period. They were scanned and the citations provided from each thesis were calculated and the rate of citations derived. The 53 theses contained 10,092 citations of which 449(4.49%) referred to theses, 358 citations (3.5%) to unpublished conference proceedings, 248(2.4%) working papers and 219 (2.17%) referred to government publications. The total number of citation of all grey literature in these scholarly productions stood at 1,228(12.14%). Out of all the cited grey literature, reports topped the chart, accounting for 4.44 percent followed by unpublished conference proceedings (3.09%), theses (3.09%), working papers (2.45%), and government publications (2.17%).

This citation analysis indicates that there was generally a comparatively low use of grey literature in teaching and research in public universities in Tanzania despite

these being scholarly outputs generated by these same institutions. This low use of grey literature could be attributed to poor accessibility of grey literature, or the absence of mechanisms for promoting these materials to the users. Another discouraging result had to do with the citation patterns and usage of theses. Although these theses are definitive products of academic rigour and are generated and deposited in the university libraries, they rank low among materials cited.

Table 5.11: Distribution of Citations in Journals by Format and Use Frequency

Year	Journal	Forms	No	Number of Journal Articles	Total Citation
2001	UDSM Library Journal	Thesis	7	9	78
		Reports	19		
		Conference proceedings	2		
		W. Paper	2		
		Thesis	9		
2002	UDSM Library Journal	Reports	8	8	112
		Conference proceedings	9		
		W. Paper	1		
2003	UDSM Library Journal	Reports	8	8	64
		Conference proceedings	9		
		W. Paper	3		
2007	UDSM Library Journal	Thesis	2	10	120
		Reports	18		
		Conference proceedings	7		
		W. Paper	2		
2001	Huria Journal of the Open University of Tanzania	Thesis	1	4	82
		Reports	7		
		Conference proceedings	4		
		W. Paper	2		

Source: Field Research, 2006-2007

The general picture from the citation patterns revealed that information on the type of grey literature was cited in almost every thesis submitted to the university library regardless of one's area of specialisation. Table 5.11 presents the findings on the citation patterns in the six refereed journals published by the two selected universities: OUT and the UDSM from 2001 to 2007.

Table 5.11: Con't Distribution of Citations in Journals by Format and use Frequency

Year	Journal	Forms	No	Number of Journal Articles	Total Citation
2003	Tanzania Journal of Science	Theses	12	11	186
		Reports	12		
		Conference paper	5		
		W. Papers	0		
		Books	17		
		Serials	140		
2006	Tanzania Journal of Science	Theses	17	14	357
		Reports	19		
		Conference paper	14		
		W. Papers	1		
		Books	45		
		Serials	261		
2006	Tanzania Journal of Engineering Technology	Theses	7	10	104
		Reports	4		
		Conference paper	3		
		W. Papers	0		
		Books	23		
		Serials	67		
2007	Tanzania Journal of Engineering Technology	Theses	10	10	104
		Reports	10		
		Conference paper	1		
		W. Papers	0		
		Books	25		
		Serials	58		
2007	The University Open Law Journal	Theses	16	25	545
		Reports	16		
		Conference paper	30		
		W. Papers	3		
		Books	10		
		Serials	500		

Source: Field Research, 2006-2007

A total of 145 research articles were identified in 14 issues as shown in Table 5.11. Out of 2,300 cited articles, 114(5%) were for theses and dissertations, 159(6.91) reports, 117(5.1 %) unpublished conference proceedings constituted, and 68(3%) for working papers. Overall, grey literature consulted in refereed journals constituted only 19.9 percent of all types of the materials consulted by the authors of journal articles. As Table 5.11 illustrates, the citation patterns revealed that there was low usage of grey literature in journals published in these two universities. The root cause of such situation could be inadequate accessibility of the grey literature and lack of publicity despite these materials having been produced within the universities. Elsewhere, the analysis of references cited in US Geological Survey publications made by Butkovich and Musser in 1993 established that grey literature was frequently incorporated in the text but often omitted from bibliographies, a finding that hints at how devalued the materials are in the research process.

5.8.2 Barriers to Access and use of Grey Literature

This section presents the findings of the study on the barriers to accessing and use of grey literature. All the respondents considered grey literature as crucial in supporting research and teaching, particularly for students undertaking postgraduate programmes. The respondents consulted included library staff, research and teaching staff, postgraduate students and library directors and directors of postgraduate studies. Table 5.12 presents the barriers to access and use of grey literature. The factors mentioned by teaching and research staff included restricted access (12%), difficulty in locating grey literature in libraries (5.8%) and lack of knowledge of their existence (0.4%). Also 35% of the staff and 18.1% of the student respondents also

reported all the three factors mentioned earlier, whereas 34.6 percent of the staff and 73 percent of the student respondents mentioned other inhibiting factors such as lack of bibliographic control, production of limited copies and unavailability of grey literature in bookshops (See Table 5.12 for details). These results are consistent with what Bichteler (1991) and Scott (2004) established. These scholars listed limited distribution, poor bibliographic control, and non-standard format as the primary challenges that undermine efforts to make grey literature more accessible. In fact, the findings of this study are in tandem with the conclusions that Bitchler and Scott made in their studies.

Table 5.12: Respondents' opinions on barriers to accessing grey literature

Response	Staff		Students	
	Frequency	Percentage	Frequency	Percentage
Difficult to know their existence	2	0.4	1	0.4
Difficult to locate	29	5.8	6	2.4
Restricted access	60	12.0	13	5.2
All of the above	175	35.0	45	18.1
Do not know	61	12.2	2	0.8
Others*	173	34.6	181	73.0
Total	500	100	248	100.0

Source: Field Research, 2006-2007

* Confidentiality, flimsy nature, non-availability in bookshops, limited number of copies available and lack of bibliographic control.

5.8.3 Respondents' Opinions on Barriers to Accessing Grey Literature

5.8.3.1 Lack of Bibliographic Control

According to the library directors, the factors that restrict access to grey literature included lack of bibliographical information, as these materials were not assigned ISBN or ISSN; they also needed original cataloguing (unlike most published materials which have CIP numbers). In addition, the information provided in the OPACs for catalogued and classified grey literature was only limited to bibliographic information. This information was found to be too limited for one to make an informed decision on whether to consult the document or not. This means that users from outside the campuses would have to visit the library physically to go through the content of each identified publication (FGD UDSM, 2007). Specifically, the Director of the UDSM Library explained that the Tanzania Library Services Board is empowered by law to have all publications generated within the country should publish annually a national bibliography which should also include grey literature. At the time of the interview, she was not aware of whether the Tanzania Library Services Board was presently doing so.

5.8.3.2 Restricted Access

As a rule, such grey literature materials do not circulate outside the libraries as there are only a few copies in circulation. Hence, the users are only allowed to use them within the library premises and for a short duration so that other users can have access to them. In fact, all the theses and dissertations were located in the closed access section of the library. Access to other types of grey literature materials such as reports, unpublished conference proceedings, and faculty discussion papers was also

difficult. The respondents also mentioned other factors such as the flimsy nature of grey literature materials, confidentiality, and lack of awareness on their existence therefore they were difficult to handle.

In all the universities surveyed, it was reported by library directors and directors of Research and Postgraduate Studies that those theses and dissertations were treated as a national heritage of the country. Therefore, several rules and regulations governing their use have been formulated for posterity, so that future generations can also come and build upon what has been generated by researchers in the earlier generations in a particular discipline. Unnecessary restrictions, however, generally pose problems when it comes to accessing and using these materials. Indeed, restricted access to theses and dissertations has subsequently led to their under-utilisation. Free access to them is either through the university libraries or through other organisations. At the UDSM, for example, access to theses and dissertations is strictly limited to a short loan service within the East Africana Section and for a special category of users, normally postgraduate students, researchers and academicians. Undergraduate students need to get permission under a special dispensation (UDSM Library Director, 2007). East Africana access regulations are attached in Appendix 10 (c).

According to the library directors and the directors of Research and Postgraduate Studies as well as observations drawn from FGDs, one major obstacle to accessing theses and dissertations was restricted access. There are still no clearly spelt out guidelines on full-text access online of dissertations and theses in the universities under study.



Plate 5.2: The East Africana Collection at the UDSM Library

Source: Field Research, 2006-2007

5.8.3.3 Lack of Marketing Strategies

The directors of Postgraduate Studies and Research attributed the grey literature's poor accessibility to lack of marketing strategies by universities to publicise their research output to the community and lack of clear policy guidelines on grey literature deposition. Thus, there is an urgent need to raise concern among information specialists as well as users in general on how to make such information accessible by incorporating grey literature into the overall library information body to facilitate access for the users. Mbago (2007) notes that mass media could be used to promote accessibility as well as the use of grey literature generated in public universities by informing the potential users even among the public ranks on what had been accomplished in research and direct them to where to can retrieve these

materials. However, the public universities have not done much in making this a reality; conversely, the mass media appear not to have developed interest in highlighting research output of these public universities (Mbago, 2007).

5.8.3.4 Lack of appreciation of the value of grey literature

In addition to the factors mentioned above, it was noted during the FGDs that there was lack of appreciation of the value of grey literature by the producers of grey literature, especially the universities themselves. In fact, they asserted that the universities produced information which they do not consume.

5.8.3.5 Self-centredness

The respondents during discussions mentioned factors such as the self-centredness behaviour of some of the researchers who obstinately did not want to share their publications with others. These egocentric researchers tend to hide these documents for fear that their work might be stolen and published by others without their knowledge. These researchers also hide their research proposals (Msuya, 2007).

5.8.3.6 Number of copies deposited

Due to the limited number of copies deposited in the library (as Table 5.4 illustrates) coupled with the absence of downloadable full-text access, FGD participants noted that the information users in many cases had to visit the library physically to access the information. Furthermore, there was normally a resistance to include theses and dissertations in interlibrary loan system because of few copies available in any one collection. They fear that these documents could not be replaced once they were lost in the inter-library loan process. The directors of research at the UDSM and the OUT

also noted that many conference proceedings were never published and neither were they made available to the libraries. In fact, only few copies are made available to specific people.

5.8.3.7 Copyright and Intellectual Property Rights

Another problem cited regularly during the discussion with respondents on grey literature access constraints was the issue of copyright and intellectual property rights. Ownership of the copyright to such materials remains a matter of dispute. To protect intellectual creation, a number of intellectual property rights have been created. These include copyright, trademark law, designs and models of patent law. According to the 1999 Tanzania Copyright and Neighbouring Act, theses and dissertations fall under the category of unpublished work and are protected under the Act. The Act prohibits the re-publication of any significant part of a thesis without the copyright owner's consent.

In so far as public universities in Tanzania are concerned, it was only SUA and the UDSM that currently have an IPR policy in place. OUT, on the other hand, is in the process of putting in place such an operational IPR policy. Through this policy, copyright issues relating to individual creations such as theses and dissertations will be addressed (Mbago and Kiwanga, 2007). These policies seek to balance the interests of the users as well as the creators. For instance, the policy stipulates in part that ownership of the theses or dissertations rests on the candidate, but upon submission of the theses or dissertations, the authors are required to grant their respective universities the royalty and free licence to reproduce and publish the work with proper authorship acknowledgement. In cases where the research project has

been financed by a scientific organisation or commercial firm with vested interest in maintaining security, the policy provides for the candidate to delay publication of such theses until an appropriate time.

5.8.3.8 Confidentiality and Terms of Contract

It was noted by the directors of research in the universities surveyed that the distribution of the reports may be restricted under the contractual terms and the distribution is thus relatively limited. The Director of Research and Postgraduate Studies at OUT explained that for politically-sensitive research findings, the University would not sign such contracts which leads to an indefinite embargo on the publication. Also, many researchers do not want to disclose their research or register them with the faculty or university as the condition requires them to pay a certain percentage to the university. In consequence, it becomes difficult to know the existence of the reports for those who do not register with their respective research and consultancy bureaus (Director of Research and Consultancy OUT, 2007). Indeed, during the FGD held at the UDSM, one of the participants noted, “[T]hose academic libraries which have ventured in collecting them from various faculties and institutes such as those from the Institute of Research Assessment (IRA) and Institute of Kiswahili seldom bother to register them in their catalogue, thus making it difficult to access them” (FGD, 2007, UDSM).

5.8.3.9 Weak Documentation Mechanism

LaFleur and Rupp (2005) noted that conference proceedings on the current state of research provide a lasting record on what took place at a particular conference. These materials, while of great interest for general academic use, remain difficult to access

due to a number of factors such as the weak mechanisms for the documentation and dissemination of conference proceedings outcomes. The organisation or the university sponsoring the conference may collect the submitted papers and produce a limited number of copies based on the number of registered participants. If the organisers do not arrange to have the conference proceedings published, little can be done for users to know about their existence (Mbago, UDSM, Kiwanga, OUT 2007).

However, some of the papers presented may appear later as book chapters or as journal articles. Individual papers may also be deposited in academic libraries. Sometimes, even those deposited in the libraries are often difficult to access due to poor bibliographic control over the items coupled with poor indexing. Unless information emanating from these conferences is acquired and properly organised, the research findings cannot be of much use to the users. Besides theses and dissertations, academic faculty are required to deposit the publications they had submitted to fulfil their promotion requirements in the university library (Director, SUA Library 2007).

In Tanzania, several strategies are being deployed to make such type of materials accessible. Notable ones include the creation of inventory of research and the publication of research bulletins. SUA, for example, publishes the university's Research Achievements in Agriculture, Forestry and Animal Health. This publication is overseen by the Directorate of Research and Postgraduate Studies. This bulletin facilitates the exchange and dissemination of agricultural research results on matters of common interest in the development of agriculture, forestry and animal health (Director of Research, SUA, 2007). This is also one of the mechanisms

employed in promoting and increasing the visibility of unpublished conference proceedings among users. However, the director of research at the UDSM reported that the bulletin “appears irregularly” because the “research bulletins are mainly financed through donor funding” (Mbago, 2007).

5.8.3.10 Lack of Inventory or Research Register

Faculty discussion papers represent preliminary investigations on a research topic and advocate and stimulate new ideas, as well as extend the frontiers of knowledge. In an ideal situation, these discussion papers are supposed to be deposited in a library (Msuya, 2007). However, some departments or authors fail to appreciate the value of depositing a copy in their university libraries after presentation. As a result, much of the information contained in the papers is lost or is not accessible to the would-be beneficiaries. It is even worse when the student or researcher in question decides to abandon the research project. Such situation could lead to duplication of research undertakings as there are no inventory registers of knowing who is doing what (FGD, 2007). A review of various university documents pertaining to this issue such as university prospectuses revealed the absence of a guiding policy regarding the deposition and retention of these materials.

To solve this problem, the Director of Research at OUT suggested that universities under study could institute a mechanism of putting together those papers in safe custody at the faculty level or in the library. For those in faculty or departmental libraries, they should also be included in the Union Catalogue to ease access and reference. A probable solution is to make it mandatory for all faculty discussion papers generated within the university to be deposited in the library of the respective

institution. Additionally, libraries should endeavour to keep track of conferences, workshops, seminars, faculty discussions held at the university to ensure that the papers presented during such events are acquired and deposited in the library. Also the academic libraries could use ICT to post these materials onto the University websites or develop an Institutional Repository (Director, SUA Library, 2007).

5.8.3.11 Language Barrier

Library directors and directors of Research and Postgraduate Studies observed that language barrier was another obstacle to making some of the grey literature generated by the universities accessible to the users. In Tanzania, for example, English is the language which is used by universities to communicate their research findings while the majority of the people in the country who are supposed to benefit from the research findings communicate in Kiswahili, the country's lingua franca. This poses a big challenge to public in making use of the research output in the form of grey materials from these universities.

As a result, there is a missing link when it comes to sharing knowledge between these universities and the community at large. To overcome this problem, the directors of libraries and research recommended during the interview that universities should consider the possibilities of requesting the researchers to repackage the information in a simpler and more accessible language (i.e. Kiswahili) for the users. Doing so would make research information reach the users at the levels where the information generated can attain practical usage.

5.9 Strategies to Ease Access to Grey Literature

This section presents recommendations given by the respondents on facilitating access to grey literature:

5.9.1 Recommendations from the Respondents

The study also sought to find out from the library staff, research and teaching staff, directors of research and postgraduate studies and the FGDs what they thought constituted the ideal ways of enhancing access to grey literature in their libraries.

These respondents came up with the following suggestions:

(i) Acquisition policy

The library directors and the FGD participants proposed that the university libraries should prepare policies to govern the acquisition of grey literature. In fact, they suggested that each university library should create a database for grey literature generated by faculties and departments within the university. The universities should also institute a policy of exchanging grey literature materials with other universities and set up a budget for grey literature acquisition. Another recommendation in this regard was that the curriculum used by the institutions which prepare librarians should also include grey literature as a source of information and as part of the library collection.

(ii) Creation of websites by an Accreditation Body

During the interview, the directors of Research and Postgraduate Studies suggested that the TCU, which is a body responsible for accreditation of universities in Tanzania, should consider the possibility of establishing a website where research

results and ongoing research activities will be posted to facilitate access to grey literature generated from universities in the country.

(iii) Formation of on-line union catalogue

The library directors and the directors of research proposed the creation of a union catalogue database containing the holdings of grey literature and bibliographical information available in public university libraries. This union catalogue database can be used as a reference point for tracking the document in various formats. The data location available in the union catalogue can help users to easily find and access the information. This union catalogue can also help libraries develop co-operation and inform patrons about the newly available publications.

(iv) Inter-library Loan and Document Delivery Services

Library directors recommended the establishment of an inter-library loan system. Through this system, public university libraries in Tanzania as well as those from outside the country can have an opportunity to request and share documents such as reports, theses, conference proceedings and faculty discussion papers. They could identify a focal point where academic and research staff could deposit their papers in this co-operation. The focal point would collect, store, publicise and afford access to grey literature on behalf of the participating universities. Such an arrangement would place universities in a position to know what was available in a particular university and facilitate the exchange of materials, overcome the problem of access to grey literature and usage.

5.9.2 Research and Teaching Staff Recommendations

Unlike other materials, grey literature makes the library staff innovative in terms of the mechanisms of organising these materials to enable the users to identify and access them. The research staff and academicians, the generators and users of grey literature, were similarly asked to recommend ways they believe could help improve access to grey literature. Out of 500 respondents in this category, 177 (35.4 %) identified the need to promote accessibility of utmost urgency, 100 (20%) said there was a need to impose a research policy, 7.0 percent suggested more training and awareness, 2.2 percent vouched for co-operation with other libraries, and 2.2 percent said there was a need to establish a separate grey literature section (See Table 5.13 for details).

Table 5.13: Respondents' Recommendations on Grey Literature Access and Use

	Frequency	Percent
Promote accessibility and use	177	35.4
Co-operation with other universities	11	2.2
Promote training and awareness	35	7.0
Impose research policy	100	20.0
Establish grey literature section	11	2.2
Update grey literature	4	.8
1 to 4 of the above	63	12.6
All of the above	18	3.6
Not Applicable	81	16.2
Total	500	100.0

Source: Field Research, 2006-2007

5.9.3 Directors' and FGD's Recommendations

5.9.3.1 Policies, Strategies, Recommendations to Improve Grey Literature

Access

This study's findings confirm the challenges that public universities in Tanzania face when it comes to providing access to grey literature. The directors recommended that all public universities should come up with a policy on handling grey literature. They said that authors should be given guidelines on how to put these materials in a presentable format and neat binding to make it easy to handle the documents. In this regard, the libraries were encouraged to prioritise grey literature in terms of acquisition and promotion of its access. In fact, the respondents suggested that grey literature be included as a taught subject in the Library and Information Science curricula. A review of different programmes on offer showed that only the UDSM had accommodated grey literature in their curricula at the Masters level.

5.9.3.2 Database and Institutional Repository

It was suggested by the respondents that all the public academic institutions should work together and establish a database primarily for grey literature. Such a database could allow the libraries to set up an online digital library, or Institutional Repository System to handle all internal grey literature such as dissertations, research reports, unpublished conference proceedings and faculty discussion papers.

5.9.3.3 Registration of Researches at the National Level

At the national level, it was recommended by the respondents that either the government through the TCU or universities under the auspices of Committee of the

Vice-Chancellors and Principles in Tanzania should form a body to oversee the acquisition of grey literature. Such a body could also make sure that all the researches conducted in public universities are registered.

5.9.3.4 Raising Awareness on the Value of Grey Literature

One of the best ways of enhancing the access and usage of grey literature is through raising awareness among the users. For such an awareness raising drive to be effective, it must be undertaken by stakeholders in the given university community. These stakeholders include researchers, academicians, postgraduate students and librarians. Information professionals and universities need to educate and raise awareness on the importance and usage of grey literature to the users. As Kiondo (2007) notes,

Developing such skills would reduce the problem of accessibility to grey literature in the library. Sensitisation could be undertaken through workshops and seminars as well as through in-house training within the faculties, departments and library orientations.

Unfortunately, as we have seen in the discussion and the data presented, knowledge on accessing and using grey literature is very low among the stakeholders as Table 5.7 illustrates.

5.9.3.5 Communication Channels

The respondents also suggested that there was a need to establish channels of communication between the researchers in public universities and policy-makers in every aspect. Furthermore, it was recommended that each public university develop a research agenda. This agenda formulation should involve various stakeholders,

and take into account the country's priority in a bid to ensure that the information from such forums, especially grey literature, is made accessible to users.

5.9.3.6 Dissemination of Research Findings

Researchers/universities were also encouraged to disseminate their findings available in grey literature using various formats. Such efforts should also be reflected in the budget to ensure that no efforts were spared in ensuring that such valuable information was disseminated. The directors of research as well library directors suggested that the academicians, researchers, and students should be assisted in converting their theses/dissertations/reports into normal textbooks or helped to publish them in reputable peer-reviewed journals.



**Plate 5. 3: Theses and Dissertations at the UDSM Library
Field Research, 2006-2007**

For instance, the grey literature materials in the academic libraries (as Plate 5.3 illustrates) could ease the shortage of reading materials in the country once they are

processed into books. In addition, doing so could also do away with the costly over-reliance in Tanzania's universities on imported books and other publications. Such an initiative could also help save the meagre foreign currency spent on importing books by the local universities every year. The authors of these materials could also be remunerated through royalties as the materials could also be exported to other institutions outside the country, hence earn rather than spend foreign exchange.

5.9.3.7 Advocacy through Public/Inaugural Lectures

Other methods to be used to raise the awareness of the users when it comes to grey literature and its accessibility in public universities is the use of public lectures, which provide an opportunity for universities to keep the public informed of the recent research findings, important changes in the world, developments in science and technology, as well as of other knowledge which academicians and students possess. Such forums should be organised both within and outside the university communities to reach a big segment of the population. It would also entail the use of the mass media to publicise such events and the outcomes.

5.9.3.8 Formation of Institutional Repository

It was also recommended that there was a need to institute mechanisms that would enable one university to know about what was happening in another university on issues regarding grey literature. One option is the use of the internet by availing the grey literature on the World Wide Web. Such availability could boost access to grey literature. When one knows that somebody was working on a certain topic, one might contact the other person for more details.

5.9.3.9 Research Policy

The respondents also suggested that there should be a research policy, which among other things would require all those engaged in research funded by the government or donors to deposit their research findings in the library of that particular institution. Similarly, the policy should make it mandatory for every researcher in public universities to disseminate the findings via known media to the targeted group or ministry concerned.

5.9.3.10 Library Consortium to Facilitate Access and Usage of Grey Literature

As public universities are funded by the government, there is a need to think of the possibilities of forming a consortium to deal with the acquisition and processing of grey literature as well as to establish a union catalogue of grey literature generated in their respective universities. In this regard, ICT can be used to make grey literature more accessible to the users. Currently, public universities in Tanzania had established a consortium. During the FGD, however, it emerged that this consortium was mainly dealing with the acquisition of e-journals. The consortium had yet to venture into sharing of grey literature as there was no integrated library management system or union catalogue to support the access of grey literature available in other universities (FGD, 2007).

5.10 ICT Application in Management and Accessing Grey Literature

5.10.1 Status of ICT facilities

All the university institutions under study had ICT facilities, although the numbers were not adequate for the huge populations they served and even for administrative work. Of the 100 library staff asked to state the status of ICT in their respective

libraries, only eight respondents (8%) noted that the status was adequate, 33% indicated that it was satisfactory and 49 percent said that the situation was inadequate. It can be inferred from these results that the universities were not well-equipped with ICT facilities, and that there was a need for more effort to equip these libraries with more ICT facilities to facilitate the access and use of grey literature.

5.10.2 Network Bandwidth

During the interviews, the directors of SUA, UDSM and MU libraries (2007) highlighted the problem of bandwidth as an obstacle to accessing various sources of information online, including grey literature. As most of the public universities relied on government subventions, which were generally quite limited, their acquisition of adequate bandwidth was also limited. As a result, they had to contend with slow internet, which in turn slowed down the process of information accessing online. The library directors could not, however, state what they considered to be the required bandwidth for such institutions. It appears there was no set standard on the actual bandwidth required by these surveyed universities. In an effort to redress the situation, the library directors proposed the following measures:

1. Universities should continue investing in ICT bandwidth;
2. Universities need to conduct regular user-satisfaction surveys to ensure the available bandwidth match with the increased number of users; and
3. Universities to request the government to provide concession rates for non-profit making organisations such as public universities. Doing so would allow the universities to acquire sufficient bandwidth as most universities cannot afford the economic rates due to inadequate funding.

With the advent of the National Fibre Optic and SEACOM, the expectations are that the bandwidth will increase. There is also the possibility of lowering the cost of bandwidth. Consequently, public universities in Tanzania can use ICT as a distribution channel for published and unpublished information. On the whole, all the respondents did acknowledge the crucial role ICT can play in managing and accessing grey literature. In fact, all the institutions surveyed varyingly apply ICT in management of grey literature. Table 5.14 below portrays the status of ICT facilities in the universities under study.

Table 5.14: The Status of ICT (PCs) Facilities (N=5)

Response	Frequency	Percentage
Adequate	8	8
Satisfactory	33	33
Inadequate	49	49
Do not know	10	10
Total	100	100

N= Number of institutions that are involved in this analysis

Source: Field Research, 2006-2007

5.10.3 ICT Skills among Library Staff

Library staff members play a central role in facilitating access to grey literature. For staff to effectively support users in accessing grey literature information available through the Internet or intranet, they need to have relevant ICT skills and information literacy skills in general. In this study, library staff members were requested to state the level of their ICT skills. The majority of the respondents (58%) indicated that

they had acquired adequate ICT skills whereas 36 percent said that their skills were inadequate and six percent of them were not aware of their level of ICT skills. It can be inferred from the results that the current skill level of the library staff could comfortably be serve by the library staff in accessing various databases through the Internet or intranet. Nonetheless, the universities need to further improve the level of ICT skills (as well as access to equipment). Figure 5.3 presents the level of ICT skills of the library staff.

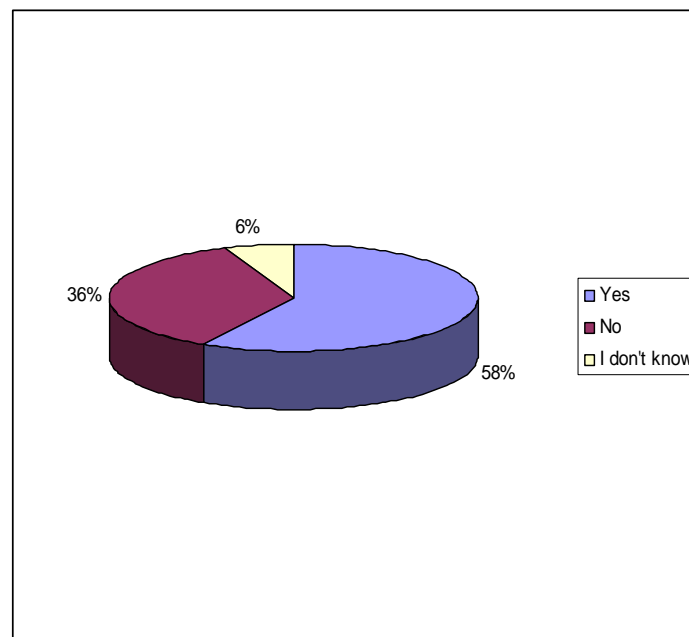


Figure 5.3: Possession of ICT Skills by Library Staff

Source: Field Research, 2006-2007

Also, as Table 5.15 below illustrates, in-service training, attending ICT seminars/workshops, education through colleagues, self-study and long ICT courses were the main sources of acquiring and developing ICT skills by the library professionals in the universities under study.

Table 5.15: Types of ICT training attended by library staff

	No.	%
ICT seminars/workshops	35	35
In-service training	45	45
Education through colleagues	10	10
Self-study	8	8
Long ICT courses	2	2
TOTAL	100	100

Source: Field Research, 2006-2007

In fact 45(45%) librarians out of the 100 respondents indicated that in-service training appears to be a popular mode among librarians for learning and updating their knowledge and ICT skills. This was primarily because the university libraries cannot afford to release them for long-term courses offered outside the university. After all, allowing staff to go for long-term training could lead to a critical shortage of staff. On-the-job training, on the other hand, would allow the members of staff to learn ICT skills while attending to their duties in the library as well. The second popular option was attending workshops and seminars on ICTs (35%), education through colleagues (10%), self-study (8%) and long-term ICT courses (2%). The study shows that the library staff respondents had adequate basic ICT skilled to support ICT-dependent grey literature access and usage. These responses also show the commitment of library staff to embracing ICT training.

Table 5.16: ICT Skills Possessed by Library Staff

Courses attended	No.	%
Database Management	8	8
online Searching and information retrieval	40	40
e-learning	1	1
Web-page design	10	10
MS Publisher	15	15
Power Point	20	20

Source: Field Research, 2006-2007

To function effectively in the library in the ICT era, there has to be a degree of acceptable expertise in various ICT applications. The librarians in the institutions under study were asked about the type of ICT skills they had acquired. According to the responses received, the library staff appeared to have various ICT application skills that can be applied to facilitate access and usage of information such as grey literature as Table 5.16 illustrates. The evidence available suggests that they could perform various ICT-related activities in the library. These results appear to represent the situation in all other universities in the country. However, there is less evidence to confirm that they have the required skills on e-learning, one of the emerging disciplines in the library and information science. In fact, of the 100 respondents only one (1%) indicated to have e-learning expertise.

5.10.4 ICTs Application in Commercial and Grey Literature Database Management

All the libraries of the universities under study had the Open Public Access Catalogues (OPACs) and access to paid databases as well as to those published by NGOs, governments and organisations to provide free access to users of their databases. SUA and the UDSM also had in-house databases. SUA had databases of faculty students' special projects and the UDSM had a Database of African Theses and Dissertations (DATAD) and local content (covering various subjects on Tanzania). However, the users were not very familiar with these databases. The databases had limited publicity as compared to commercial databases, although the general use of databases still remains at elemental levels. This could be attributed to the automation of the library functions being fairly new to both users and library staff.

The findings from interviews with directors and FGDs show that ICT, especially the Internet, provided and increased access to grey literature in Tanzania's higher learning institutions. For example, at SNAL and OUT it was learnt that special projects (SP) by undergraduate students were initially deposited in their respective faculties. During the FGD held at the UDSM, it emerged that in some departments due to lack of space special research projects reports were under the custody of secretaries (FGD, 2007). As a result, it was not easy to access these documents without even knowing they exist in the first place. In fact, due to poor documentation, some students end up duplicating research work without even noticing that they were doing so. To overcome this problem, each university decided to create databases accessible through the web.

In the same vein, the digitisation process of thesis and dissertations is now a priority to ensure that these documents can easily be accessed and thus reduce the possibilities of plagiarism. In all the universities surveyed, directorates responsible for research are at different levels of developing research-based databases where they will avail ongoing research, research reports, as well as other grey literature emanating from their respective universities faculties and departments, and upload them into the directorate's website. This process has a potential of having an impact on the collection and accessing of grey literature. The directors of Research at the UDSM and OUT noted that for this digitisation process to succeed there was a need to restructuring the operations of the directorate:

What we are proposing is the new structure of the Directorate in order to have a publication sections which will deal with several users. One of its activities will be to collect literature of research value by staff in various units of the university whether it is published or unpublished and upload on the website.

With restructuring, it will be possible to put this kind of literature in the database. Therefore, the role of ICT is very crucial (Mbago, 2007).

The library directors and those of research further observed that, in the face of mushrooming universities in the country, the utilisation of ICT should be given a high priority to curb cheating and duplication of research work. Their recommendations include the following:

- (i) One way is to have a list of ongoing research on the university website for everyone to help scholars and avoid duplication. The Tanzania Commission for Universities (TCU) could also look into the possibility of establishing a database for abstracts or even full-text information of the researches done by the universities.
- (ii) Through the Committee of Vice-Chancellors and Principals in Tanzania, there is a need to institute a mechanism through which researchers in their respective universities are required to submit their work in soft copies. However, this is a question of policy which needs to be discussed with the stakeholders.

5.10.5 Publishing on-line by Academic Staff

The development of ICT has facilitated and opened the door to online publishing, enhanced the availability and accessibility of various sources of information, including grey literature. Publishing online ensures that valuable scholarly information is accessed by the users and helps universities to establish institutional repositories. Moreover, this is a new way of stimulating the production of knowledge and critical thinking. Table 5.17 below presents the findings of library and academic/research staff:

Table 5.17: Staff publishing online

Response	Library staff		Teaching/academic staff	
	Frequency	Percent	Frequency	Percent
Yes	20	20.0	112	24.4
No	58	58.0	360	72.0
Do not Know	22	22.0	8	1.6
Total	100	100.0	500	100

Source: Field Research, 2006-2007

Out of the 100 librarians asked this question on online publishing, only 20 percent indicated their members of staff publish online. A significant number (58%) of the respondents indicated otherwise. Some 22 percent others indicated that they did not know. On the part of academic/research staff, 112 (24.4%) out of 500 respondents indicated that they publish online, 360 (72%) said they do not and eight (1.6%) were not sure. These results show that the idea of publishing online is fairly new to public universities in Tanzania as Table 5.17 illustrates.

To redress the situation, there is a need for universities to take proactive step in sensitising their staff to publish online. Publishing online is the best forum for researchers through which to make their research findings accessible to the users. It can also help universities to form institutional repositories which can, in turn, help the research output of these universities reach wider audience as well as increase the status of the institutions. The interviews with the directors of research and libraries revealed that most of the existing policies are not clear on publishing online when it comes to promotion. To-date only refereed, or peer-reviewed, journals are accepted

as meeting the promotion criteria and career development requirements. There is also a tendency to treat publishing online as mediocre or bearing little scientific knowledge. The emergence of peer-reviewed online journals, however, is gradually changing this perspective. Another factor mentioned, which inhibit publishing online, is lack of skills. Table 5.17 above shows the level at which the members of staff of the universities under study publish online.

5.11 Summary

In this chapter, the primary findings of the study have been presented. The chapter has provided a detailed presentation of primarily qualitative data relating to the problems of accessing and using grey literature. It has also established the realities in the public universities under study with regard to dealing with grey literature, exposing their limitations and highlighting some of their remedial steps, which so far remain inadequate as the libraries face a herculean task of tapping this valuable resource of grey literature. The libraries do have to ensure that grey literature was not only easily accessible but also made available in forms that would enhance their usability value. The chapter has also underscored the significance of publicising these materials in addition to making them accessible. Finally, the chapter has considered the views of those involved in producing and those making grey literature available to the users in a bid to find ways of redressing the situation.

CHAPTER SIX

6.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the summary of the research results, conclusions and recommendations on improving access to grey literature originating from public universities in Tanzania. The purpose of this study was to investigate the problems associated with the accessibility of grey literature originating from public Universities in Tanzania. To accomplish this task, five objectives and five research questions were formulated as presented in sections 1.5 and 1.6 of Chapter One to address the scope of the research.

The literature review section shows that a substantial amount of grey literature is produced every year in the world in general. Such information is an essential source for academic research and other activities. It was noted that universities in developed countries are far ahead in the area of collecting grey literature and making it accessible for their users than developing countries such as Tanzania. Although the grey literature generated from these public universities in Tanzania is generally acknowledged as important in enhancing the quality of teaching and research by providing current thoughts not always available in textbooks, the study has established that much of the grey literature generated in the country remains largely underutilised because of severely limited accessibility.

On the whole, grey literature management in developing countries and especially in Africa, as articulated by Aina (1982,1987, 1997, 2000), Debachere (1995), Raseroka

(1999), Wald (2000), Alemna (2001, 2006), and Kargbo (2005) is not well-appreciated, let alone well-defined, hence the need a fresh critical look. The exploration of access to grey literature generated Tanzania's public universities could help influence universities to appreciate grey literature better and make informed decisions on the management of such literature in public universities to raise its profile and enhance its contribution to research and teaching as well as overall development.

The study area covered six public universities in Tanzania and was guided by five research questions. The study population for this study consisted of directors of public university libraries, directors of research and postgraduate studies, librarians, teaching and research staff, and postgraduate students. The distribution of respondents by category and gender revealed that 74 percent were males and 25.8 percent were females. Library staff constituted 11.8 percent, of which 7.8 percent were males and four percent were females. The postgraduate students accounted for 29.2 percent of the total number of respondents of which 21 percent males and eight percent females, and research and teaching staff contributed 59 percent of the tally, with 45.3 percent being male and 13.7 percent female.

The study used both secondary and primary sources of data. Primary data was collected through the use of a self-administered questionnaire and interviews, FGD guides, and observation guides. To analyse the data, the Statistical Package for Social Sciences (SPSS) version 11.0 was used. Bibliographic data was collected from 53 theses and 14 issues of selected journals submitted to the OUT and UDSM

libraries. This data was subjected to bibliometric analysis which was conducted manually.

6.2 Summary of findings

The summary of this research's findings has been presented under the following themes generated from the study's five research objectives:

6.2.1 Types of grey literature generated in Public Universities in Tanzania

The study established that the grey literature generated from the universities is of various types: internal reports, unpublished conference proceedings, theses and dissertations, faculty discussion papers, research and consultancy reports, newsletters and manuscripts. In fact, faculties and directorates in these universities generate significant amount of grey literature, which in many cases is not stored in the libraries of these institutions for easy retrieval by the users.

6.2.2 Acquisition of Grey literature

During the survey, it was established that acquisition of grey literature in Tanzania's public universities is facilitated by using different methods such as direct purchase, complimentary copies, internal policies, legal deposit, resource sharing and on line search.

6.2.3 Management of Grey Literature

The findings also revealed that the management of grey literature in these public universities remained largely underdeveloped, calling for a guiding policy to revamp the manner of managing grey literature in these institutions. The study identified various factors hampering efforts geared towards the acquisition, organisation,

storage and accessibility of grey literature. These factors include limited knowledge on their existence, poor bibliographic control, lack of well-defined distribution channels, and low level of skilled library personnel, poor publicity, security classification, small print runs, and lack of relevant legal deposit law that would deliberately promote the collection and dissemination of such literature.

6.2.4 Access and Usage Grey Literature

The study has established that grey literature in these public universities are considered to be valuable sources of information for prospective graduate students, researchers, policy-makers and other practitioners who benefit from research findings contained in these documents. Indeed, such literature helps students to understand how new knowledge is acquired and communicated within their chosen field. It also contains important ideas, methodologies, literature reviews, successful hypotheses and records of implementation. As this grey literature largely locally generated, it also provides information relevant to the local context, which can hardly be found in imported materials. Although these materials are products of the universities, their usage pales before the huge potential they have.

Library staff and users offered different views on the issue of the accessibility of grey literature. Out of 100 library staff interviewed, 54 percent indicated that it was easy for users to access such grey literature in their libraries, 30 percent disagreed and 16 percent were uncertain. Similarly, 148 out of 248 (57.3%) of the postgraduate students indicated access was easy, 27.7 percent indicated otherwise and 15.7 percent were unsure.

In contrast, only 34.6 percent of the 500 teaching and research staff said access to grey literature in these libraries was easy with the majority (53%) insisting that it was not easy and 12.2 percent were uncertain. Of the five universities, the UDSM had the highest number of teaching and research staff who said access to grey literature was difficulty. About 53 percent reported difficulty in getting access to grey literature materials at the UDSM, about 30 percent at OUT and 20 percent at SUA. In other universities, the indication from the teaching and research staff was that access to grey literature was slightly better as 10.8 percent at MUHAS, 6.8 percent at MU, 1.4 percent at SUZA, 0.6 percent at and Ardhi University reported difficulty in access.

The study also established, through bibliometric analysis citation patterns, that there was low usage of grey literature in journals and theses submitted to the universities under study. As grey literature is generally highly acknowledged as useful, the study was able to establish that the low usage had more to do with the poor or severely limited access to grey literature.

6.2.5 Barriers to Accessing and Using Grey Literature

The study established that restricted access, difficulties in locating grey literature in libraries, and poor knowledge of their existence were some of the barriers limiting access and use of grey literature in these public institutions. Other factors include lack of bibliographic control, production of limited copies, their unavailability in the bookshops, poor or lack of marketing strategies by universities to publicise their research output, lack of policy on grey literature collection, and the copyright law on the use of research reports and dissertations.

6.2.6 Potential of ICT (PC) as Grey Literature Accessing Tool

6.2.6.1 Status of ICT (PCs) facilities

The study established that ICT facilities and bandwidth were inadequate, hence a need for the universities and the government to increase investment in the acquisition of ICTs and set standard on the actual PC and bandwidth required.

6.2.6.2 ICT skills among library staff

The study has also established that 58 percent of library staff had acquired adequate ICT skills that could be used to facilitate access and use of grey literature. As 36 of the 100 respondents had inadequate ICT skills, there is also a need to continue providing training to these key workers so as to equip all the library staff with the requisite ICT skills. In the long-run, such investments would allow them to help users access the various sources of information available in electronic format, including grey literature once these public universities make optimum use of ICT to effectively manage such literature, which up to now remains largely neglected.

6.2.6.3 ICT Application in Commercial and In-house Databases

The study findings show that all the public universities under study had an Online Public Access Catalogues (OPACs) and also subscribed to commercial databases. In addition, these universities had created in-house databases where much of the internally generated information was deposited. However, as the library directors (2007) noted, users were not yet familiar with the existing in-house databases containing mostly grey literature, hence their severely limited use of such a facility compared to their use of the available commercial databases.

6.2.6.4 Mechanisms Used to Disseminate Grey Literature

The majority of the respondents indicated that they had put mechanisms in place to facilitate access and use of grey literature. These mechanisms include classification and indexing (12%), raising awareness services (3%), compilation of bibliography (3%). In fact, the majority (60%) referred to the use of all these mechanisms.

6.2.6.5 Library websites

The study also established that all the public universities under study had websites which could be used to raise the profile of grey literature, enhance its accessibility and use among users.

6.2.6.6 Publishing On-line by Academic Staff

The majority of academic and research staff, 380 (72.0%) of the 500 respondents in this category indicated that they did not publish on-line despite the huge potential this area has for grey literature. In this case, only 24.4 percent (112) published on-line, hence tapping into this still largely uncharted territory in Tanzania.

6.3 Conclusions

Several conclusions can be drawn from the findings of this study:

- (i) Most of the grey literature generated by the public universities in Tanzania is in the form of research reports, followed by thesis and dissertations and conference proceedings.
- (ii) Not all the grey literature produced within these institutions is stored in the libraries, despite all the stakeholders being aware of the importance of grey literature in research and teaching.

- (iii) Opportunities afforded by developments in ICT have not been fully exploited in the management of in-house generated grey literature in Tanzania's public universities.
- (iv) Grey literature acquisition is not included in the overall library budget; its acquisition is conducted in an ad hoc manner.
- (v) Access to and use of grey literature is influenced by the users' awareness of their existence, ease of location and palatable conditions for access to and use of grey literature. As grey literature is generally highly acknowledged as useful, the study was able to establish that the low usage had more to do with the poor or severely limited access to grey literature than actual absence of such materials.
- (vi) Restricted access, difficulties in locating grey literature in libraries, poor knowledge of their existence, lack of bibliographic control, production of limited copies, their unavailability in the bookshops, poor or lack of marketing strategies by universities to publicise their research output, lack of policy on grey literature collection, and the copyright law on the use of research reports and dissertations are some of the barriers to effective accessing of grey literature in Tanzania's public universities.
- (vii) Users were not yet familiar with the existing in-house databases containing mostly grey literature, hence their severely limited use of such facilities compared to their use of the available commercial databases.

- (viii) Public Universities and the government need to increase investment in the acquisition of ICTs and set standard on the actual PC and bandwidth required.
- (ix) Academic and research staff did not publish on-line to a great extent despite the huge potential this area has in the promotion and use of grey literature, hence the need of tapping into this still largely uncharted territory in Tanzania.

6.4 Recommendations

Based on the above conclusions, it is recommended that:

- (i) Public universities in Tanzania, as institutions, should have policies to guide the acquisition, processing and management of grey literature;
- (ii) Such policies should be harmonised among these public university institutions to facilitate the sharing of resources to minimise duplication of research efforts;
- (iii) Library staff, teaching and research staff must work closely together to facilitate the acquisition and management of grey literature emanating directly or indirectly from within and without these institutions;
- (iv) Efforts should be made to make local content more visible through the establishment of on-line databases and regular production of relevant catalogues and abstracts. Through such databases Tanzania's public university libraries could set up an on-line digital library system to handle the grey

literature generated by in the form of dissertations, research reports and unpublished conference proceedings and upload them into the central server. Communication through the database can also enhance the sharing of resources, increase collaboration. Ultimately, through such concerted efforts, the work of academicians, researchers and students in the form of grey literature can gain greater accessibility and usability among different stakeholders. Indeed, such steps can help to facilitate the location and use of the vital information, whether scientific or otherwise, produced by public universities in Tanzania in the form of grey literature and make the information accessible within and outside of Tanzania in formats appreciated by the end-users. The database can use the existing telecommunication infrastructure in Tanzania.

6.5 Proposed Model of Grey Literature Access and Usage

On the basis of the study findings on the problems relating to the access and use of grey literature in Tanzania, the ideas have been reconceptualised and presented in Figure 6.1 below, as the proposed model of enhancing grey literature access and usage in Tanzania's public universities:

- (i) On the basis of this proposed model, the Tanzania Commission for Universities (TCU) should maintain a website that shows all researches done and those in progress for all the universities in the country;
- (ii) Grey literature information should be included as a subject in Library and Information Studies;

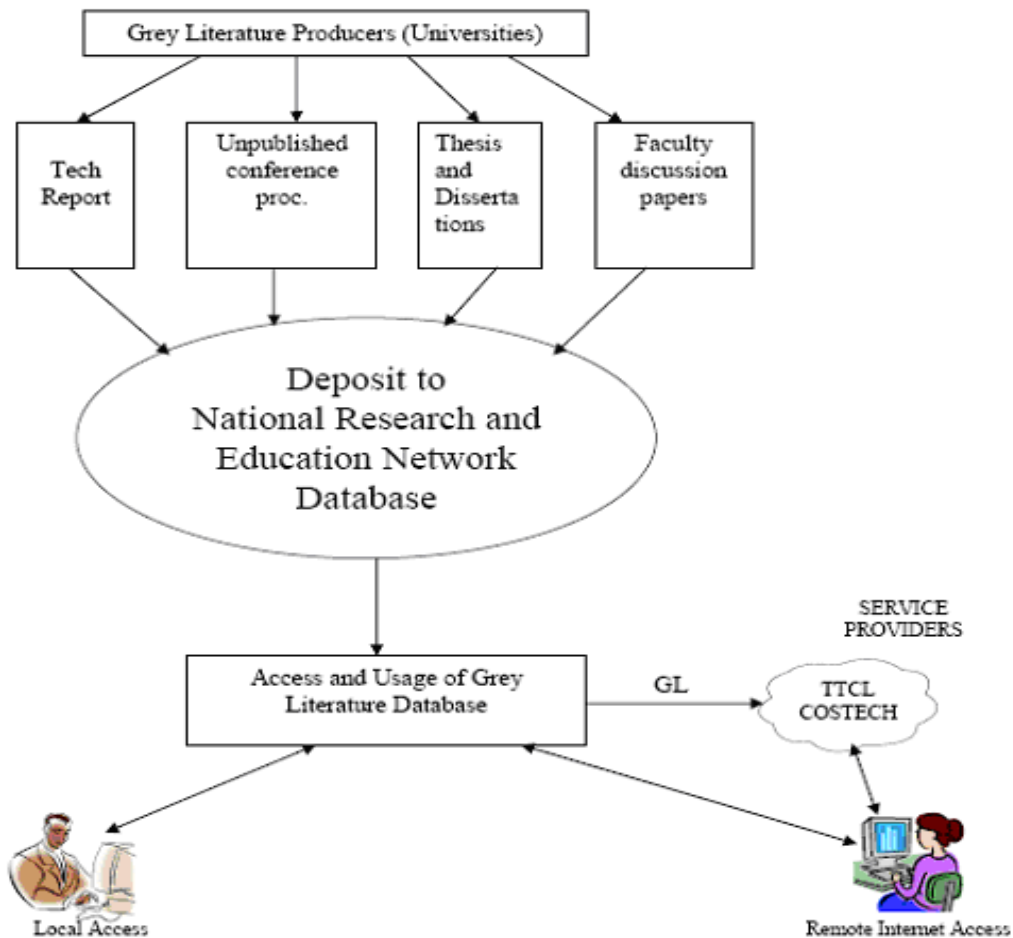


Figure 6.1: Proposed Model of Grey Literature Access and Usage

Source: Field Research, 2006-2007. URT ó Science and Technology Higher Education Project 2008

- GL - Grey Literature
- TTCL ó Tanzania Telecommunications Company Limited
- COSTECH: Commission for Science and Technology

- (i) Channels of communication to be established between researchers in public universities and policy-makers as well as the public in every meaningful aspect;

- (ii) At the national level, either the government or the universities themselves should form a body or strengthen the present COTUL that should be responsible for the acquisition and making grey literature materials from public universities accessible and, therefore, promote its usage. The aim is to make sure that all grey literature generated in these universities through research or commissioned assignments is registered in addition to establishing bibliographical control over such grey literature. Ultimately, the goal of this proposed body should be to help raise awareness, and enhance the access to and sharing of grey literature at the national and regional level.

6.6 Recommendations for Further Study

This study focused on the accessibility of grey literature originating from public universities in Tanzania. A number of issues related to the study, but which were not covered by this research arose in the course of this investigation. Based on issues raised in the literature consulted for this study, and other issues noted from the survey findings, it is recommended that further studies be conducted in the following areas:

(i) On Establishing an Electronic Theses and Dissertations (ETD)

Focus on the possibility of establishing an Electronic Theses and Dissertations (ETD) among public universities in Tanzania on the lines of those operating in universities in the developed world. The idea of having e-theses is a global agenda. After all, the theses and dissertations emanating from universities in Tanzania are used by postgraduate students and researchers. Once available in ETD formats, even scholars outside Tanzania can benefit from such research. In fact, some revenue

could be raised through the use of token subscriptions from overseas while providing free services to local universities.

Although the publication of the list of theses and dissertations is fairly done in developed countries, in developing countries such as Tanzania more concerted efforts are needed to bring together information on higher degrees of different public universities in the country. Thus, the idea of having e-theses and dissertations can make them easily locatable, readily accessible and widely available to users over the web. The introduction of the ETD can help solve the problem surrounding the dissemination of doctoral research findings, specifically those relating to archiving, retrieval, and publication of PhD theses and dissertations. It is important that every effort be made to retrieve, preserve and provide affordable access to grey literature for the benefit of users.

It is with this context that, there is an urgent need to study the existing situation in Tanzania's public universities, especially with regard to the current development in ICTs and the opportunities the national fibre optic is offering to institutions in the country. Overall, there is a great potential on the ground in terms of ICT possibilities; it is up to the public universities and the government to exploit them to enhance access and use of grey literature.

(ii) On Use Patterns of Grey Literature in Poverty Alleviation in Tanzania

In Tanzania, there are a number of institutions, non-governmental organisations and individuals undertaking research on various aspects of poverty. Such institutions include Research on Poverty Alleviation (REPOA), the Economic Social Research

Foundation (ESRF), and the Economic Research Bureau (ERB). These research institutions generate a lot of published and non-published materials through workshops and seminars proceedings, reports, discussion papers and case studies. This information could be used to inform the public as well as policy-makers on improving the economic situation of the country. It is often assumed that such information is widely gathered, documented or processed for use by the researchers, policy-makers and the community. And yet, access to such valuable information remains severely limited. What is not lost, however, is the fact that these research outputs address issues that hold the key to poverty alleviation in the country, and hence should be given wide circulation so that the results of research can be applied by the interested stakeholder in addressing the problem to which they intend to find a solution.

Thus, there is a need to conduct a study on the manner in which such grey literature is generated, managed and accessed by the users.

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APPENDICES

Appendix 1: Questionnaire on Accessibility of Grey Literature Originating From Public Universities in Tanzania for Library Staff

The aim of this questionnaire is to determine the extent to which grey literature originating from public universities in Tanzania is accessed by users. Grey Literature refers to publications produced at all levels by government, academia, business and industries both in print and electronic formats but not controlled by commercial publishing interests and where publishing is not the primary activity of the organization. They include reports, technical notes, theses and dissertations, conference proceedings, government publications, faculty discussion papers and translations.

Kindly answer all questions as complete as possible.

1. Sex:

Female	1
Male	2

2. Name of institution í .
3. Job title: í .
4. Academic qualification

First degree or its equivalence	1
Masters	2
PhD	3
Other (please specify	4

5. Where did you get your professional training?
 Name of university í í í í í í í í í í í í . Date í ..í í í í í í ..
 Name of country í .
6. For how long have you worked for this university? í í í í í í í í í í ...

7. What is the size of your library users' population?

1000 -3,000	1
3001 65,000	2
5,001 67,000	3
7001 69,000	4
Above 9,000	5

8. What is your library budget in terms of millions in Tz. Shs. (excluding donor support) in the last three years?

☐ less than 50 million

☐ 51- 100 million

☐ More than 100 million

9. How much is budgeted for grey literature collection?

☐ No budget for grey literature

☐ less than 50 million

☐ 51-100 million

☐ more than 100 million

☐ Do not know

10. What are the other sources of your library income?

☐ donor support

☐ income generated by the library

☐ Annual subscription of users

☐ other sources, please specify í í í í í í í í í í í í í í í í í
 í í í í í í í í í í í í í í í í í í ..í í í í í í í í í í ..
 í í í í í í í í í í í í í í í í í í ...í í í í í í í í í í .

11. What is the size of your library collection?

☐ less than 50,000

☐ 50,000 ó 100,000

☐ 100,001 ó 150,000

☐ 150,001 ó 200,000

☐ above 200,000

12. What materials are found in your library collection? Tick all that apply.

☐ books in hard copies

☐ books in electronic format

☐ journals in hard copies

☐ e - journals

☐ theses and dissertations

☐ reports

☐ manuscripts

☐ CD-ROMs

☐ Conference proceedings

☐ Seminar papers

☐ Faculty discussion papers

☐ Government publications

☐ Others, please specify.....

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í í

13. Do you collect grey literature for your library?
☐ Yes ☐ No
14. If your answer is Yes, do you encounter any problems in collecting grey literature?
☐ Yes ☐ No
15. If your answer to question 14 is Yes, what problems do you encounter in collecting grey literature? (Tick all that apply)
☐ Lack of information on them
☐ Inadequate staff to make follow up on them
☐ restricted access
☐ other, please specify
16. Out of all responses that apply which one is very critical?
☐ Lack of information on them
☐ Inadequate staff to make follow up on them
☐ restricted access
☐ other, please specify
17. Do your teaching staff and researchers deposit their publications with the library?
☐ Yes ☐ No

If your answer to question no.17 is Yes, go to question no. 18 and if your answer is No, go to question no. 17

18. Are they required to deposit their publications with the library by any regulation?
[] Yes [] No
19. Do staff at your university publish online?
[] Yes [] No
20. How do you facilitate access of grey literature to your users? Tick all that apply to you.
[] classifying and indexing the materials
[] provide current awareness service
[] other, please specify í
21. Does your library have a website?
[] Yes [] No

If your answer to question no.12 is Yes, go to question no.13 and if your answer is No, go to question

22. Who updates your website?
- ☐ Library staff
- ☐ Library staff working closely with ICT staff
- ☐ ICT staff
- ☐ other, please specify
23. What information is included on your website?
- ☐ OPAC
- ☐ Information on services provided
- ☐ Information on staff
- ☐ Newsletter
- ☐ local content databases created in-house
- ☐ Useful links
- ☐ other, please specify

24. In your opinion what is the status of your ICT facilities?

☐ Adequate

☐ Satisfactory

☐ Inadequate

25. In your opinion, is the level of ICT skills of library staff adequate to use ICT facilities effectively?

☐ Yes

☐ No

26. What types of ICT training attended by library staff? (Tick all that apply).

Attending ICT seminars/workshops
In-service training
Education through colleagues
Self study
Long courses on ICT

18. (Tick all that apply).

Database Management
online Searching and information retrieval
e-learning
Web-page design
Ms Publisher
Power Point

28. If your answer to question no. 25 is No, what do you think can be done to improve their skills?

í ..

í ..

29. In your opinion is the level of ICT skills of your library users adequate to use ICT facilities effectively in performing library functions?

☐ Yes ☐ No

30. If your answer to question no. 25 is No, what do you think can be done to improve their skills?

31. In your opinion, do users easily access grey literature from your library?

☐ Yes ☐ No

32. If your answer is No, why?

í ..í í í í ..
í ..í í í í ..

33. What would you recommend to improve accessibility to grey literature in your library?

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í
í
í í

Thank you for your assistance and time

Appendix 2: Questionnaire for Teaching and Research Staff

1. Gender: Male ☐ Female ☐
2. Name of institution í í í í í í í ...í í í í í í í í í í í í í í .
3. Job title: í .í í í í í í í

18. Academic qualification

☐ First degree or its equivalence

☐ Masters

☐ PhD

18. For how long have you worked for this university?.....í .

18. Do you consult grey literature in your teaching/learning?

☐ Yes ☐ No

If your answer is Yes, go to question no.8; if the answer is No, go to question no.17

18. What type of grey literature do you consult?

☐ theses and dissertations

☐ research reports

☐ unpublished conference proceedings

☐ manuscripts

☐ others, please specify

18. Where do you find grey literature that you normally consult?

- ☐ Your university's library
- ☐ Other libraries
- ☐ from the source (individuals, organizations etc)
- ☐ from a place specifically set aside by your university
- ☐ from the websites
- ☐ other, please specify í .

18. Do you find it easy to access grey literature?

- ☐ Yes
- ☐ No

18. If your answer to the above question is no, why? Tick all that apply to you

- ☐ difficult to know their existence
- ☐ difficult to locate
- ☐ restricted access
- ☐ other, please specify í ..í í ..

11. What problems do you encounter in accessing grey literature?

- ☐ Lack of information on them
- ☐ restricted access
- ☐ other, please specify

12. Do you deposit your research report and other publications with your University Library?

- ☐ Yes
- ☐ No

13. Are you required to deposit your publications with the library by any regulation?

- ☐ Yes
- ☐ No

14. Are you required to deposit your publications at any other specified place?

- ☐ Yes
- ☐ No

15. If your answer to question no. 15 is Yes, where?

í í

16. Do staff at your university publish online?

☐ Yes ☐ No

17. What would you recommend to improve accessibility to grey literature?

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Thank you for your assistance and time

Appendix 3: Questionnaire for Postgraduate Students

1. Gender: Male ☐ Female ☐

Name of institution í í í í í í í í í í í í í í í í í í í

3. Category of student:

☐ Postgraduate

☐ Undergraduate

☐ Other

Programme: í

4. Year of study

☐ 1st Year

☐ 2nd Year

☐ 3rd Year

☐ 4th Year

5. Do you consult grey literature in your learning?

☐ Yes

☐ No

If your answer is Yes, go to question no.13; if the answer is No, go to question no.17

6. What type of grey literature do you consult?

☐ theses and dissertations

☐ research reports

☐ unpublished conference proceedings

☐ manuscripts

☐ others, please specify í í í í í í í í í í í í í í í í í í í .

7. Where do you find grey literature that you normally consult?
- ☐ Your university's library
- ☐ Other libraries
- ☐ from the source (individuals, organizations etc)
- ☐ from a place specifically set aside by your university
- ☐ from the websites
- ☐ other, please specify í í í í í í í í í í í í í í í í
8. Do you find it easy to access grey literature?
- ☐ Yes ☐ No
9. If your answer to the above question is no, why? Tick all that apply to you
- ☐ difficult to know their existence
- ☐ difficult to locate
- ☐ restricted access
- ☐ other, please specify í í í í í í í í í í í ...í í í í í í í ..
10. What problems do you encounter in accessing grey literature?
- ☐ Lack of information on them
- ☐ restricted access
- ☐ other, please specify
11. Do you deposit your research report and other publications with your university library?
- ☐ Yes ☐ No
12. Are you required to deposit your publications with the library by any regulation?
- ☐ Yes ☐ No
13. Are you required to deposit your publications at any other specified place?
- ☐ Yes ☐ No

14. If your answer to question no. 14 is Yes, where?.....
15. Does your university publish online?
☐ Yes ☐ No
16. Why don't you consult grey literature in your learning?
☐ I am not aware of its existence
☐ It is not easily accessible
☐ other, please specify
17. If your answer to question no.17 is 'it is not easily accessible' what would you recommend to improve accessibility to grey literature emanating from institutions of higher learning in Tanzania?

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Thank you for your assistance and time

Appendix 4: Semi-structured interview schedule for Directors of Research and Postgraduate Studies

Below is an outline of some questions I would like to explore with you. The aim of this interview guide is to determine the extent to which grey literature originating from public universities in Tanzania is accessed by users. It is anticipated that because of your involvement in one way or the other in the production of grey literature by the nature of your position you have learnt a lot regarding issues pertaining to creation, storage and access to grey literature. Thus your input will be invaluable to the study I am conducting.

Grey literature for the purpose of this study refers to publications produced at all levels by government, academia, business and industries both in print and electronic formats but which is controlled by commercial publishing interests and where publishing is not the primary activity of the organization. They include reports, technical notes, theses and dissertations, unpublished conference proceedings, government publications and translations.

Any information you give will be treated as confidential and will be used for academic purpose only. I therefore, request you to spare me your valuable time so as to have a short talk on this topic.

1. Research is a fundamental mission and a major function of Universities in Tanzania. What role does your directorate play in making publications such as theses, dissertations, reports, and unpublished conference proceedings accessible to researchers?

2. Is staff at your University bound by any regulations to deposit theses, dissertations, reports, conference papers etc with the library or any other unit/place at the university?
3. What do you consider to be the role of grey literature in supporting core business of your university?
4. Electronic dissemination and access of scholarly works has grown with the use of internet and the World Wide Web. What impact might ICT have in the collection and access of grey literature at your university?
5. One delicate matter relates to access to grey literature such as theses and dissertation is the question of copyright. How do you handle it at your university?
6. What key policies, strategies, recommendations and suggestions would you make to improve accessibility to grey literature emanating from your institution and deposited with your institution/
7. Finally, is there anything else that we have not touched regarding the access to grey literature in public universities in Tanzania that you would like to share with me?

Appendix 5: Research Instruments for Directors of Public University Libraries

Semi-structured interview schedule for Directors of Public University Libraries in Tanzania.

Below is an outline of some of the questions I would like to explore with you. The aim of this interview guide is to determine the extent to which grey literature originating from public universities in Tanzania is accessed by users. It is anticipated that because of your position in one way or the other in the production of grey literature by the nature of your position you would be aware of the extent to which grey literature is used /sought by your library users. Grey literature for the purpose of this study refers to:

Any information you give will be treated as confidential and will be used for only for the purpose of this research. Will you please spare some of your valuable time to respond to the following questions.

1. One of the functions of the university libraries in Tanzania as outlined in the laws which established them is to preserve, and enhance knowledge to people of Tanzania. Does your library keep track of local research in the form of dissertations, reports, unpublished conference proceedings and other related sources of information? If yes, where are these materials kept? In what format are they kept?
2. Does your library has a legal deposit status and therefore expected to collect and preserve all materials published in the country? If so what challenges both policy and others does your library face in the process of collecting and affording access to grey literature materials?

3. How do you process grey literature in your library?
4. What do you consider to be the role of grey literature in supporting core business of your university?
5. Experience worldwide has shown that academic libraries tend to either embrace grey literature or shy away from it. What is your opinion regarding this?
6. Does your library pay a special attention to maintenance of grey literature for research purpose? What does it do?
7. Electronic dissemination and access of scholarly works has grown with the use of Internet and World Wide Web. What impact might ICT have in the collection and access to grey literature at your university?
8. Does your University staff publish in both print and electronic formats? If yes, are there any challenges in handling these? If so, which one?
9. One delicate matter related to access to grey literature such as theses and dissertations is the question of copyright. How do you handle it at your University? In your opinion, is there any problem in accessing grey literature at your institutions? If yes what key policies, strategies, recommendations and suggestions would you make to improve accessibility to grey literature in your library?
10. Finally, would there be anything else that we have not touched regarding the access to grey literature in Public Universities in Tanzania that you would like to share with me?

I thank you very much for your co-operation.

Appendix 6: Focused Group Discussion Guide

The focused group discussion was administered to librarians at Sokoine University of Agriculture Library, and the University of Dar-es-Salaam Library.

The moderator was chosen from the site. The proceedings of the discussions were recorded by the researcher himself. The broad research topic was introduced by the moderator followed by the questions to provoke the discussion. In each University a group of eight participants were involved. This was done in order to abide to the rule of conducting focused group discussions.

The aim of the focused group discussion was to supplement and verify the accuracy of the information collected through questionnaires and interviews.

1. What do you consider to be the role of grey literature in supporting core business of your University?
2. Does your library keep track of grey literature generated within your university?
If yes where are these materials kept and in what format?
3. How do you process grey literature in your library?
4. Does your Library pays a special attention to maintenance of grey literature for research purposes? What does it do?
5. One delicate matter related to access to grey literature such as theses and dissertations is the question of copyright. How do you hand it at your University?
6. In your opinion, is there any problem in accessing grey literature at your institutions? If yes what key policies, strategies, recommendations and

suggestions would you make to improve accessibility of grey literature in your library?

7. What role does ICT play in affording access to grey literature in your University?

Appendix 7: Observation Checklist

1. Types of Grey Literature

Type	P	Score A
<p>Theses & Dissertations</p> <ul style="list-style-type: none"> • Reports • Unpublished • Published Conference Proceedings • Manuscripts • Faculty Discussion Papers <p><u>Others:</u></p> <p>Newspapers</p> <p>Monograph</p> <p>Newsletters</p> <p>Translations</p> <p>Annual Report</p> <p>Case Studies</p> <p>Hansard</p>		

2. Acquisition Methods

Acquisition Methods	P	Score A
<ul style="list-style-type: none"> • Institutional Policies • Donations • Exchange • Purchasing 		

3. Dissemination Mechanism

Dissemination Mechanism	P	A
OPAC Accession List Selective Dissemination of Information Current Awareness Service Brochures Databases		

14. Barriers of Accessing Grey Literature

Barriers of Accessing Grey Literature	P	A
Restricted Access Closed Access Photocopying Borrowing Confidentiality Vandalism		

15. Application of ICT

Dissemination Mechanism	P	A
Facilities Internet OPAC DATAD DATABASES Publishing on-line		

Appendix 8: Research Permission

The Open University of Tanzania
P.O. Box 23409
Tel: 255-22-668992/668820/668445/667455
Dar es Salaam, Tanzania
Fax: 255-22- 668759



Chuo Kikuu Huria cha Tanzania
S.L.P. 23409,
Simu: 255-22-668992/668820
Dar es Salaam, Tanzania
Fax: 255-22-668759

6th May, 2005

ATHUMAN S. SAMZUGI,
THE OPEN UNIVERSITY OF TANZANIA,
P.O. BOX 23409,
DAR ES SALAAM.
TANZANIA

E-mail: Samzugi@yahoo.com
Tel: 2667468, 0744605302, 2846380

Dear Sir/Madam,

I am a librarian at the Open University of Tanzania undertaking doctorate (PhD) studies at the same University.

My study focuses on the accessibility of grey literature originating from public universities in Tanzania. I am investigating the potential of such information in development and its role in problems solving.

The study investigates issues pertaining to users' access to grey literature. It is hoped that the findings of this study will assist public universities under study and others in making efficient use of grey literature.

Completion of this study requires me to collect data from some institutions, yours being one. I kindly request you to complete the attached questionnaire as part of this study. I wish to reassure you that all information provided by your institution will be handled in confidentiality and will be used for research purpose only. I would kindly request you to attach any other material which you may consider relevant to this study.

Thanking you very much and looking forward to your response soon.

Sincerely yours,


A.S. Samzugi
LIBRARIAN

Appendix 9: Research Clearance Letter

The Open University of Tanzania
P.O. Box 23409
Tel: 255-22-2668992/2668820/2668445
Dar es Salaam, Tanzania
Fax: 255-22- 2668759



Chuo Kikuu Huria cha Tanzania
S.L.P. 23409,
Simu: 255-22-2668992/2668820
Dar es Salaam, Tanzania
Fax: 255-22-2668759

OPEN UNIVERSITY OF TANZANIA DIRECTORATE OF RESEARCH AND POSTGRADUATE STUDIES

Ref. No: HD/A/002/T.01

26.09.2005

TO WHOM IT MAY CONCERN

This is to introduce to you

MR. ATHUMANI S. SAMZUGI (REG.NO. HD/A/002/T.01)

a Tanzanian national registered for the Ph. D programme in Library and Information Science at the Open University of Tanzania.

Mr. Samzugi is currently conducting his field work for his research topic titled: *Accessing grey literature originating from public Universities.*

We shall appreciate any assistance extended to him in the form of access to relevant persons for interviews, facilities, information or literature which will enhance his success and efficiency in data collection.

We thank you in advance for your cooperation.

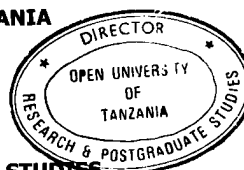
Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Ralph W.P. Masenge

DIRECTOR

RESEARCH AND POSTGRADUATE STUDIES



Appendix 10: University of Dar Es Salaam

THE LIBRARY

Library Rules and Regulations

Introduction

1. Admission to use of the Library:

(a) **Reading:** All members of the University Council, members of the teaching and administrative staff, registered students and alumni of University are entitled to use the library as readers. The Director may admit other authorized persons who are not members of the university to use the library. She/he also reserves the right, subject to the approval of the Senate Library Committee, to exclude from all use of the Library any person owing to persistent disregard of the Library Regulations, or for any other adequate cause which shall be considered to be undesirable in his/her opinion. Suspension of student defaulters shall be effective until such time as their cases shall have been considered by the University Disciplinary committee.

(b) **Registration:** After filling in the registration form, the applicant will be given one borrowing ticket (in a form of a pocket) with which to borrow special reserve materials. The ticket must be retained by the borrower when not in use. The loss of the ticket should be reported to the library at once. Replacement of borrowing ticket will be charged **Shs.500**. Normal books will be borrowed upon presentation of bar-coded identity card. No person may exercise the privilege of borrowing until he/she had filled in the borrower's registration form at the desk, which signifies that the borrower has read these rules and agreed to abide by them.

*(c) **Use of Special Collections:** Special collections with the exception of East Africana are open to all users entitled as under (a) above. East Africana is open to members of the academic staff and graduate students, final year undergraduates and researchers with bona-fide research clearances. Tanzanian graduates are automatically considered to have research clearance. Visitors and other researchers should submit to the Director or his/her designee a valid research clearances/permit

before being allowed to use the collection.

*(d) All international Researchers who are not affiliated with any Faculty, Department or Institute of the University of Dar es Salaam shall pay a non-refundable fee of **USD. 100.00** dollars for the use of the Library. This fee will cover the use of the Library for a three month's period. If the researchers need to use the Library for a longer period, a further fee of **USD 100.00** dollars will have to be paid for every 3 months or fraction of this period. Local Researchers who are not affiliated with the University of Dar es Salaam Shall pay a fee equivalent to US\$ 30.00. This fee is non-refundable.

*(e) All materials of closed access within special collections will be issued for references only against a reader's identity and library card.

2. Borrowing:

(a) The right of borrowing is accorded to the persons mentioned in (a) above; but the prior approval of the Director or his designee shall be necessary in the case of persons who are not members of the University. **They will be classified as "External Users," and may use library facilities upon payment of: TShs. 10,000.00 up to 1 Month; T Shs. 30,000.00 up to 3 Months; T. Shs. 100,000.00 up to 1 Year, as "Library Users Fee".**

(b) All borrowers shall be required to present their identity cards at respective issue points of the Library.

(c) The Director shall reserve the right; subject to the approval of the Senate Library Committee, to prohibit or to restrict the borrowing of certain classes of materials and of individual works. There will be a clear indication in such materials that they may not be borrowed or that borrowing them is restricted.

(d) No material shall be removed from the library until it has been officially issued to the borrower at the issue desk.

(e) For all borrowers, except in the case of certain specified items, the loan period shall be three weeks. Issue may be renewed for a further period if the document is not reserved for other readers.

(f) Readers are requested not to re- shelf books taken from the shelves for consultation. The books should be placed on tables or trolleys to be re- shelved by library staff.

However, during a vacation, the loan period shall be the duration of such a vacation. All materials may be subject to recall by Director.

(g) The borrowers in whose name a book is withdrawn shall be solely responsible for returning it.

(h) Any borrower, including a member of the academic staff, who fails to return books from the general collection on the date due shall be liable to a fine of **TShs. 500.00** per book each day until the book has been returned or two weeks after the Final Overdue Notice. Thereafter, the book will be deemed to have been lost by the borrower and Regulations 6 will apply. The fine for overdue Special Reserve items, however, is **TShs. 500.00** per hour. Any staff member who refuses to pay the fines or replacement cost of lost books will be liable to have these costs recovered from his salary through the Bursar's Office.

(i) There shall be an annual Clearance of Library materials at the end of each Academic Year whereby books held by a borrower shall be returned to the library. Thereafter the borrower who is continuing association with the University by study, or employment may borrow for the vacation only. At the beginning of each academic term readers must clear their vacation and other loans. Readers who do not comply will have their borrowing privileges suspended including that of the use of Special Reserve.

There shall be an annual Library Registration of students, which shall be concurrent with their Registration for courses for that academic year. Any student holding

overdue library materials will not be registered in the library until he/she returns the materials and pays the fine, and will therefore be unable to borrow books.

(j) The refund of deposit due to student whose course terminates at the end of the session and who has not returned library materials will be withheld by the Bursars, until the material has been returned. An amount equal to the fine will then be charged against the deposit. If the book is not returned, the borrower will be charged:

- (i) The total overdue fines
- (ii) The current cost of the book and processing costs
- (iii) A penalty of US\$15. (the equivalent in Tanzania Shillings)

In the case of finalist students, his/her Examination and Statement of results, transcripts and certificate will be withheld by the DVC Academic, until unreturned library items have been recovered, or the amount due to the library in fines, the value of materials and penalty have been paid by the borrower.

(k) The Director reserves the right to recall any books before the date on which it is due. He may require that all books be returned when stock inspection is to take place.

3. Borrowing by University Members

(a) The number of items which an undergraduate may have on loan at one time shall not exceed five (or for graduate students not more than ten volumes), while the number of volumes which an academic member of staff may have on loan from the library at one time shall not exceed twenty.

If sufficient reason is shown, the Director may, upon application, allow an increase in the number of books borrowed

(b) Books may be reserved for borrowing. However they will be returned to the shelves if not claimed within one week after the notice has been sent to persons reserving them.

- (c) Periodicals, East African and Reference materials may not be borrowed. Library materials on restricted loan may be borrowed only for the prescribed period

4. Discipline

- (a) Silence must be observed in the library
- (b) Smoking is not permitted in the library
- (c) The use of matches or open light in any part of the library is prohibited
- (d) No dispatch case/wallet of over 8" x 5" in size or attached cases be brought into the library. The overcoats and Macintoshes must be left in the area provided for them on the ground floor.
- (e) Readers must dress and behave in manner that will not cause either offence or damage. Thus, for example, the removal of shirts, the placing of feet on furniture, and the wearing of high-heeled shoes are forbidden.
- (f) Loose sheets of paper for purpose of taking notes may be taken into East Africana and Law sections. Files folders, papers and other books should not be taken into these sections. Law students may take a limited number of textbooks into the Law section.
- (g) The assistant at the control counter in the entrance lobby will insist that a reader show all his/her books on leaving the library as a precaution against the illegal removal of books. Borrowers are asked to give the assistant their full cooperation in this matter.
- (h) No food may be brought into the Library including all type of drinks and fruits as they attract insects easily.
- (i) Mobile phones must be switched off while in the Library. **Readers found in breach of this regulation shall be liable to a penalty of TShs. 5,000.00.**

[Top](#)

5. Damages and loss of library books

- (a) Readers or borrowers will be held responsible for any injury occurring to books while in their charge, and will be required to pay the full value of such books in

case of damage. Readers are also responsible for their tickets. Any material borrowed against a borrower's ticket shall be the responsibility of the person whose name is on that borrower's ticket. Books represented as lost or missing will be replaced at the borrower's expense and the borrower will be charged:

- (i) The total overdue fines
- (ii) The current cost of the book and processing costs
- (iii) A penalty of US\$ 15.00 (the equivalent in Tanzania Shillings)
- (b) The marking of books will be regarded as injury, and the person responsible will be required to pay the cost of replacement.
- (c) Bottles of ink may not be brought in the library.

[Top](#)

7. Stealing and/or Mutilation of Library Property


If a person is found guilty of and/or mutilating library property, he/she shall be rusticated for three months in the case of students, provided that those three months are within term time and be permanently dismissed for a second offence. In the case of the culprit being a member of staff, appropriate disciplinary action shall be taken against him/her in accordance with the terms and conditions of service.

































MISCELLANEOUS INFORMATION

- (i) Coats, bags, parcels, etc. must be left in the area assigned for them in the entrance lobby and must not be brought into the library.
- (ii) Readers are required to show their identity card at every checkpoint and at the Issue Desk when checking out a book and on request.









Appendix 11: African University Ranking

Those African Universities are ranked depending upon various factors and resources. Some of the factors are Quality of Education, Quality of Faculty, Size and Age of Institution, Student Views.

AFRICAN UNIVERSITIES RANKING			
CONTINENT RANK	UNIVERSITY	COUNTRY	WORLD RANK
1	UNIVERSITY OF CAPE TOWN		349
2	RHODES UNIVERSITY		624
3	STELLENBOSCH UNIVERSITY		653
4	UNIVERSITY OF PRETORIA		686
5	UNIVERSITY OF THE WITWATERSRAND		703
6	UNIVERSITY OF THE WESTERN CAPE		1,115
7	UNIVERSITY OF SOUTH AFRICA		1,307
8	UNIVERSITY OF KWAZULU NATAL		1,309
9	AMERICAN UNIVERSITY IN CAIRO		1,691
10	UNIVERSITE DE LA REUNION		1,705
11	NELSON MANDELA METROPOLITAN UNIVERSITY		2,137
12	UNIVERSITY OF THE FREE STATE		2,383
13	CAIRO UNIVERSITY		2,492
14	UNIVERSITE CHEIKH ANTA DIOP DE DAKAR		3,038
15	UNIVERSITY OF ZIMBABWE		3,453
16	UNIVERSITE ABDELMALEK ESSADI		3,664
17	INSTITUT UNIVERSITAIRE DE FORMATION DES MAITRES DE LA REUNION		3,681
18	UNIVERSITY OF MAURITIUS		3,723
19	UNIVERSITY OF JOHANNESBURG		3,895
20	UNIVERSITE CADI AYYAD		3,962
21	STRATHMORE UNIVERSITY NAIROBI		3,989
22	UNIVERSITY OF DAR ES SALAAM		4,081
23	UNIVERSITY OF NAMIBIA		4,084
24	POLYTECHNIC OF NAMIBIA		4,163
25	UNIVERSITY OF NAIROBI		4,205
26	UNIVERSIDADE EDUARDO MONDLANE		4,266
27	ARAB ACADEMY FOR SCIENCE & TECHNOLOGY AND MARITIME TRANSPORT		4,302
28	AIN SHAMS UNIVERSITY		4,407
29	ECOLE MOHAMMADIA D'INGENIEURS		4,774

30	AL AKHAWAYN UNIVERSITY IFRANE		4,790
31	MANSOURA UNIVERSITY		4,822
32	ADDIS ABABA UNIVERSITY		4,850
33	EGERTON UNIVERSITY		4,962
34	INSTITUT AGRONOMIQUE ET VETERINAIRE HASSAN II		5,149
35	NORTH WEST UNIVERSITY		5,195
36	UNIVERSITE ABOU BEKR BELKAID TLEMCEN		5,331
37	UNIVERSITE DE OUAGADOUGOU		5,422
38	GERMAN UNIVERSITY IN CAIRO		5,719
39	TSHWANE UNIVERSITY OF TECHNOLOGY		5,739
40	UNIVERSITY OF BOTSWANA		5,772
41	ZAGAZIG UNIVERSITY		5,786
42	UNIVERSITY OF BENIN		5,994
43	UNIVERSITE DE BATNA		6,011
44	NATIONAL UNIVERSITY OF RWANDA		6,053
45	CAPE PENINSULA UNIVERSITY OF TECHNOLOGY		6,262
46	UNIVERSITY OF KHARTOUM		6,398
47	MAKERERE UNIVERSITY		6,413
48	MOGADISHU UNIVERSITY		6,445
49	UNIVERSITY OF FORT HARE		6,478
50	ECOLE SUPERIEURE PRIVEE D'INGENIERIE ET DE TECHNOLOGIES		6,492
51	FACULTE DES SCIENCES RABAT		6,496
52	UNIVERSITY OF GHANA		6,576
53	UNIVERSITY OF ZULULAND		6,594
54	ASSIUT UNIVERSITY		6,653
55	UNIVERSITE MOHAMMED PREMIER OUJDA		6,737
56	ECOLE NATIONALE SUPERIEURE D'INFORMATIQUE ET D'ANALYSE DES SYSTEMES ENSIAS		6,790
57	UNIVERSITY OF ZAMBIA		7,016
58	AWOLOWO UNIVERSITY		7,017
59	FACULTE DE MEDECINE & PHARMACIE		7,180
60	UNIVERSITE VIRTUELLE DE TUNIS		7,347
61	UNIVERSITE D'ALGER		7,377

62	ECOLE DU PATRIMOINE AFRICAÏN		7,391
63	AMQUD UNIVERSITY		7,432
64	SOKOÏNE UNIVERSITY OF AGRICULTURE		7,481
65	UNIVERSITE SIDI MOHAMED BEN ABDELLAH FES		7,506
66	AFRICAN VIRTUAL UNIVERSITY		7,532
67	SUDAN UNIVERSITY OF SCIENCE & TECHNOLOGY		7,624
68	MANGOSUTHU TECHNIKON		7,629
69	UNIVERSITY OF MALAWI		7,630
70	UNIVERSITE DES SCIENCES ET DE LA TECHNOLOGIE HOUARI BOUMEDIENE		7,724
71	UNIVERSITE M'HAMED BOUGARA DE BOUMERDES		7,820
72	FACULTE DES SCIENCES TETOUAN		7,825
73	INSTITUT SUPERIEUR DE L'INFORMATION ET DE LA COMMUNICATION		7,877
74	GARYOUNIS UNIVERSITY		7,884
75	MOI UNIVERSITY		7,911
76	UNIVERSITE DE BLIDA		7,962
77	UNIVERSITE SENGHOR D'ALEXANDRIE		8,032
78	KWAME NKRUMAH UNIVERSITY OF SCIENCE & TECHNOLOGY		8,039
79	UNIVERSITY OF BURAO		8,108
80	ECOLE NATIONALE POLYTECHNIQUE D'ALGER		8,114
81	UNIVERSITE MOHAMMED V SOUÏSSI		8,131
82	AL AZHAR AL-SHARIF ISLAMIC RESEARCH ACADEMY		8,135
83	PAN-AFRICAN UNIVERSITY		8,160
84	MONASH UNIVERSITY SOUTH AFRICA		8,228
85	INSTITUT DE FORMATION EN TECHNOLOGIE ALIMENTAIRE		8,229
86	UNIVERSITE HASSAN II AIN-CHOCK		8,276
87	AMERICAN UNIVERSITY OF KINSHASA		8,286
88	Vaal UNIVERSITY OF TECHNOLOGY		8,309
89	UNIVERSITE CHOUAIB DOUKKALI		8,320
90	UNIVERSITE DE NOUAKCHOTT		8,409
91	CENTRAL UNIVERSITY OF TECHNOLOGY		8,445
92	UNIVERSITY OF TANTA		8,480

93	UNIVERSITE DJILLALI LIABES		8,511
94	COLLEGE OF MEDICINE UNIVERSITY OF MALAWI		8,535
95	UNIVERSIDADE CATOLICA DE ANGOLA		8,548
96	CENTRE AFRICAIN D'ETUDES SUPERIEURES EN GESTION SENEGAL		8,598
97	MINIFIYA UNIVERSITY		8,599
98	INSTITUT NATIONAL DE FORMATION EN INFORMATIQUE		8,634
99	UNIVERSITE ABDELHAMID IBN BADIS MOSTAGANEM		8,657
100	UNIVERSITY OF IBADAN		8,661

http://www.webometrics.info/top100_continent.asp?cont=africa
January 2008

Universities 1 to 100 of 100