

PRESERVATION POLICY FOR DIGITAL COLLECTIONS: A PROPOSED CONCEPT TO LIBRARY OF STATE ISLAMIC UNIVERSITY OF SUNAN KALIJAGA YOGYAKARTA

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Abstrak

Kemajuan teknologi informasi yang semakin canggih telah membawa perubahan yang cukup signifikan terhadap pengelolaan dan pelayanan koleksi perpustakaan. Dalam sejarah perkembangan perpustakaan di Indonesia, perpustakaan perguruan tinggi merupakan salah satu jenis perpustakaan yang cepat memberikan respon untuk mengimplementasikan hasil perkembangan teknologi informasi. Pengembangan sumber-sumber informasi digital sebagai dampak kemajuan teknologi informasi juga segera menjadi perhatian utama jenis perpustakaan ini karena sumber-sumber informasi ini menawarkan kemudahan akses lokal dan akses jarak jauh. Melalui penyediaan sumber-sumber informasi digital, perpustakaan dapat mengembangkan program yang memungkinkan para penggunanya, dimanapun mereka berada, untuk mengakses basis data perpustakaan. Mengingat pentingnya sumber-sumber informasi digital ini, sejumlah perpustakaan perguruan tinggi, termasuk Perpustakaan UIN Sunan Kalijaga, dalam beberapa tahun terakhir ini bekerja keras untuk meningkatkan kapasitas informasi elektronis mereka terutama untuk local content. Meskipun demikian, perkembangan teknologi informasi itu sendiri selain memberikan keuntungan juga mendatangkan masalah terhadap pengelolaan sumber-sumber informasi digital. Untuk mengurangi dampak negatif akibat perkembangan teknologi terhadap sumber-sumber informasi ini, perpustakaan perlu mempunyai kebijakan tertulis pengelolaan sumber-sumber digital khususnya yang berkenaan dengan masalah preservasi. Hal ini patut menjadi bahan pemikiran bagi

Perpustakaan UIN Sunan Kalijaga yang hingga kini belum merumuskan kebijakan tertulis mengenai preservasi koleksi digital. Oleh karena itu, tulisan ini menguraikan konsep kebijakan preservasi koleksi digital yang dimaksudkan sebagai bahan pertimbangan dan perbandingan bagi Perpustakaan UIN Sunan Kalijaga ketika akan merumuskan kebijakan tertulis tentang preservasi koleksi digital.

Keywords: digital library, preservation policy, Library of UIN Sunan Kalijaga

I. Introduction

To understand how a policy needs to address digital material specifically is a very important issue. At the simplest level, a collection management policy is a document (or a series of document) that addresses the broad topics including selection, acquisition, organization, storage, access, de-selection, and preservation as they relate to specific library materials whether digital or non-digital.¹ Collection management policies that address digital material present the most critical challenge that libraries have ever had to face as custodians of scholarly and cultural heritage. The challenges presented are no limited to technical issues. Even the technical issues cannot be fully understood without some reference to collection management policies, skill requirements, intellectual property rights, or costs. Preservation of digital materials cannot be considered as an isolated activity conducted a single isolated department within an organization. Preservation of digital materials needs to be an integral part of digital collection management and must be incorporated into the overall management of an organization digital's assets from creation or acquisition through to preservation.

The significance of preservation is also based on one of the major crises facing libraries throughout the world in which the rate of deterioration of their collections far exceeds the possible rate of preservation. The materials that make up library collections are composed primarily of organic materials which are subject to natural deterioration. In addition, much paper made since the middle of last century has been made by processes which leave harmful components in the paper, giving it a much reduced useful life.

Keeping in view the importance of preservation as mentioned earlier, this writing attempts to expose on various preservation issues discussed on Library and Information Science. Furthermore, it is proposed a set of preservation policy that

¹ The Cedars Project. *Cedars Guide to Digital Collection Management*. (London: The Cedars Project and JISC, 2002), hlm. 14.

can be considered the Library of State Islamic University of Sunan Kalijaga. The institution provides digital materials to the users; however, there is no written preservation policy as guide how to manage the collection. For the reasons mentioned above, this paper just focuses on preservation aspects in terms of digital collection proposed as preservation policy to the institution.

II. Background of Institution

The Library of State Islamic University of Sunan Kalijaga is the only library in the university that has seven faculties comprising *Adab* (Letters), *Ushuluddin* (Theology), *Dakwah* (religious proselytizing), *Syariah* (Islamic Law), *Tarbiyah* (Education), Social Sciences, and Science and Technology. In this regard, this academic library plays an important role as dynamic partner in the university community. The library supports and enriches the university's mission and its commitment to learning, teaching, scholarly research and community outreach. It provides both a physical space and a virtual environment in which students and researchers can explore and acquire knowledge and develop lifelong information-seeking skills. Library services address the information needs of the university community and keep abreast of developments in the information environment.

To support the scholarly activities in academic environment, the library provides a wide array of collections in various formats:

- Books: available in the General Collection more than 100,000 titles (including reference collection, corner's collection and special collection).
- Digital collections: comprising 790 titles of e-theses, 456 articles of e-journals, and 13 papers of proceeding.
- Serials: available 2 titles of journal databases, 40 titles of printed journals, 16 titles of printed magazine, and 5 titles of printed newspaper
- Multimedia collections: video cassette, audio cassette, CD-ROM, and DVD-ROM consisting of 200 titles.²

To give well-situated means to users, the library completes numerous facilities as follows: carrel rooms, corner rooms, baggage rooms, discussion rooms, OPAC workstations, electronic information access room, open reading areas, seminar room, and book stores.

Furthermore, to conduct all library activities, the library has 45 personnel with qualification as follows:

- Two personnel hold Master degree in Library and Information Science
- Two personnel hold Master degree in Islamic Studies and Education
- Six personnel hold double degrees in Bachelor of Library and Information

² <http://perpus.uin-suka.ac.id> accessed on October 27, 2008

Science completed by other degree background.

- Three personnel hold Bachelor in Library and Information Science only.
- Five teen personnel hold Bachelor in other degree background
- Seven teen personnel graduate from Senior High School.³

2.1. Vision Statement

Library of State Islamic University of Sunan Kalijaga's vision proposed for the next five years (2007-2016) is to provide excellent learning resources and information literacy programs to support members of the college community in achieving their academic goals, and in navigating the increasingly complex world of information.⁴

This vision supports the State Islamic University vision that will deliver education of the highest standards enabling a diverse Muslim community of life-long learners to achieve their maximum potential in a global society. In other words, the library vision is in line with the university vision by assuring the resources needed to support the abilities of learners to achieve their maximum potential.

2.2. Mission Statement

The Library of State Islamic University of Sunan Kalijaga's mission proposed is to support and enrich the educational curriculum by:

- Selecting, acquiring, organizing, and providing resources, in all formats, that meet the academic needs of a diverse Muslim community
- Providing sufficient, qualified professional and support staff and resources
- Providing library information literacy instruction to help students develop critical thinking skills and become independent life-long learners
- Providing professional research assistance and consultation.⁵

Librarian in the Library of State Islamic University of Sunan Kalijaga will accomplish this mission in collaboration with the State Islamic University community. This mission supports the university mission as a public, comprehensive institution of higher education that empowers Muslim students to excel through its superior teaching and service in an innovative learning environment. Thus, the library mission is in line with the university mission by providing the resources and services needed to sustain an innovative learning environment.

³ Interview with Head of Library Administration on October 27, 2008

⁴ UIN Sunan Kalijaga. *Rencana Induk Pengembangan Perpustakaan UIN Sunan Kalijaga (2007-2016)*. (Yogyakarta: UIN Sunan Kalijaga, 2007)

⁵ UIN Sunan Kalijaga. *Rencana Induk Pengembangan...*

2.3. Population

The major customers of the library are university fellows who consist of various categories i.e. undergraduates, postgraduates, academic staff, and administration staff. They number about 11,000 users.⁶

2.4. Core Subject Area

As mentioned earlier, the library vision is to provide excellent learning resources and information literacy programs to support members of the college community in achieving their academic goals. In line with the library vision, core subject area developed is Islamic Studies. In more specific, the subject area will be emphasized on local Islamic history. This is related to name of university in which Sunan Kalijaga is one of nine pious leaders who spread Islam in Java.

2.4. Digital Collection

Materials placed in digital collections are those that are unique to the university, on specific subjects and for specific reasons considered important by the library. These include faculty publications, theses and dissertations, research reports, examination papers, university's documents, proceedings, and photos. These collections are called as local contents that will be preserved for purpose of access and long-term usage.

2.5. Justification

Initiative in preserving the digital collections is based on some reasons.

- 2.5.1. Institutional memory. Digitization programs can raise the profile of an institution. Projects to digitize valuable scholarly materials, if done well, can bring prestige to the whole institution. Raising the profile of an organization by displaying digital collections can be a useful public relations exercise. Digital collections can also be used as leverage with benefactors and funders by demonstrating an institutional commitment to education, access and scholarship.
- 2.5.2. Community cultural heritage and historical archives. These materials are significant to the study of early Islam spreading in Java Island in which nine Islamic pious leaders (*wali songo*) have played an important role. Through digitization of these materials, they can usefully be presented to the public and to researcher. The historical materials may be used for local history or genealogical research that can be one of the main attractions offered by the Library of State Islamic University of Sunan Kalijaga.
- 2.5.3. Fragility of materials. Some sources are too fragile to be consulted such as manuscripts. Preservation of these materials is intended to reduce handling

⁶ Interview with Head of Library Administration on October 27, 2008

of the original materials. Besides that, to make a digital copy of manuscript available can improve access and ensure long-term survival. Briefly, developing a digital surrogate of a rare or fragile original object can provide access to users while preventing the original from damage by handling or display.

- 2.5.4. Demand from the users of the information institution. High demand upon certain materials poses a reason why they have to be digitized. Academic library is increasingly under pressure to provide access to materials in response to user requests. Examination papers are one of special collections that students frequently require and order. Providing access to the digital materials can facilitate this shift to on-demand delivery.

III. Literature Review

Many libraries of institutions of higher learning are developing their digital resources. The rapid advances in information technology and the exponential increase in digital information enable academic libraries to improve their range of services to their remote clients. In many cases, top priority is given to develop strategies and systems that will maximize access by students and staff to library's information resources and services.⁷ Through the digitized resources, the libraries can develop a program that allows authenticated users, regardless of location, to access the libraries' databases. Keeping in view the importance of digital resources, in recent years, some academic libraries are working to increase their pool of electronic information, whether these are electronic databases, full-text journals, or electronic books.

The digital library movement is the most perplexing and promising development for libraries since library automation began almost seven decades ago. Nevertheless, advances in digital library development require that libraries pay close attention to the digital production arena whether or not any local activity is occurring. In this regard, one example pointed out by Pace is how the demand for digital content predates any establishment of the best practices for the creation of such content.⁸ This indicates that everyday decisions, in today's library world, are based on the availability of the content, rather than on the quality or longevity of it. It is true that the main goal of digitization of resources is to improve access to a central part of the scholarly literature and perform well preservation aspects, in which the goal enable to be achieved by adherence to prescribed standards and practices.⁹ To emphasize

⁷ C. H. Hoo, *Managing the Library: Delivering an Effective Library Service in a Global Environment* (Dewan Bahasa dan Pustaka Brunei: Bandar Seri Begawan, 2003), hlm.77

⁸ A. K. Pace, *The Ultimate Digital Library: Where the New Information Player Meet* (Chicago: American Library Association, 2003), hlm. 9.

⁹ S. Cramme & W. Schwartz, *Digitising of Journals in Europe*. Retrieved August 26,

the importance of the goal, Pace claims that local digital libraries, in their early years, tended to take off without paying much attention to best practices, standards, or the benefit of good business-model planning.¹⁰

The issue of best practices for purpose of long-lasting usage is an area that confronts digital library initiatives since several libraries that had no long-term strategy for their locally created digital collections are now faced with major decisions concerning the long-term viability of those collections.¹¹ In this context, the standards should be emphasized in the digital library environment as important as they have been implemented traditionally for libraries.¹² A single set of prescribed standards and rules will be very helpful to the project manager who is building for digitization of resources.¹³ The projects for digitizing the actual material for online presentation and preserving the material for long-term archiving can only be attained by referring to something known as standard.¹⁴ For that reasons, the digital libraries are necessary to adhere to a number of standards for various activities.¹⁵ The same case also takes place on best practices that play an important role to perform practices and procedures that can provide a safety net for practitioners as they do all aspects of digitization workflow.¹⁶

Based on aforementioned explanations, it is undoubted that preservation aspect in digitization of collections plays an important role for the sake of long-term access. Pertaining to preservation, there are two other terms close to it namely conservation and restoration. Preservation and conservation are part of collection management function concerning with aspects to protecting the collection. There are several aspects to protecting the collection namely proper handling of materials, environmental control, security to protect against theft and mutilation, disaster preparedness planning, conservation, and insurance.¹⁷ Other opinion mentions that preservation and conservation refer to the processes of monitoring the physical condition of the library's material and taking action to prevent further deterioration. To distinguish both,

2006, from <http://www.sub.uni-goettingen.de/liber-wg/wgliber3.doc>, hlm. 1.

¹⁰ A. K. Pace, *The Ultimate Digital Library...*, hlm. 10

¹¹ A. K. Pace, *The Ultimate Digital Library...*, hlm. 11.

¹² Lucy A. Tedd dan Andrew Large, *Digital Library: Principles and Practice in a Global Environment*. (Munchen: K.G Saur, 2005), hlm. 85.

¹³ Lorna M. Hughes. *Digitizing Collections: Strategic Issues for the Information Manager*. (London: Facet Publishing, 2004), hlm. 200.

¹⁴ Anderson C. G. and Maxwell D. C. *Starting a Digitization Center*. (England: Chandos Publishing, 2004), hlm. 156-157.

¹⁵ G. G. Chowdhury & S. Chowdhury, *Introduction to Digital Libraries*. (London: Facet Publishing, 2003), hlm. 80.

¹⁶ Anderson, C. G. and Maxwell D. C. *Starting a Digitization Center...*, hlm. 67.

¹⁷ E. Evans & Zarnosky. *Developing Library and Information Center Collections*. Fifth Edition. (Library Unlimited: Greenwood Village, Colorado, 2005), hlm. 488.

preservation issues relate to longevity of materials while conservation ones include handling and storage.

According to Evans, as quoted from Settani, there is a hierarchy of activity in protecting collections: conservation to preservation to restoration. He further points out that preservation is “the overall or general attempt to prevent further damage and deterioration”. Moreover, conservation is signified as “the specific effect to not merely stop but reverse the various negative and unwanted effects of destructive chemical and other agents that can destroy”. However, the definition eventually is revised as “attempt to prevent damage and deterioration, or further damage and deterioration”. Then, regarding restoration, he mentions it as “the ideal goal of attempted reconstruction toward achieving the entire renovation of documents, artifacts, or physical structures to their original condition”.¹⁸

Neil Beagrie and Maggie Jones¹⁹ wrote a handbook on the subject of digital sources preservation entitled *Preservation Management of Digital Materials: A Handbook*. The book further is maintained and updated by the Digital Preservation Coalition (DPC) until now. The work emerges to respond the trend of digital information that is increasingly important to our culture, knowledge base, and economy. The handbook also provides an internationally authoritative and practical guide to the subject of managing digital resources over time and the issues in sustaining access to them. It will be of interest to all those involved in the creation and management of digital materials.

Beagrie and Jones’s work above is interesting enough due to a wide range of experts’ comments and reviews delivered in optimistically assessment. This is true because this publication amply demonstrates their skills at bringing together the best information, analyzing it and synthesizing it to produce practical advice, and adding their own highly valued ideas. In brief, the handbook provides some of the most pragmatic information addressed to digital preservation threats. It does not only offer scrutinized guidance on available resources, but encourages the reader to think carefully about the issues, through a combination of case studies, commentary, checklists, and decision trees.

In his article, Anderson²⁰ states that fire and wire are the two great threats for library’s collections and records. Now they have been joined by other, more insidious, but just as disastrous threats: computer viruses, hackers, file format obsolescence, storage media degradation or obsolescence, platform dependence, catastrophic

¹⁸ E. Evans & Zarnosky. *Developing Library...*, hlm. 488-489.

¹⁹ Neil Beagrie and Maggie Jones. *Preservation Management of Digital Materials: a Handbook*. (The Digital Preservation Coalition: London, 2006), hlm.2

²⁰ C. Anderson, “Digital Preservation: Will Your Files Stand the Test of Time?”, *Library Hi Tech News* 22 (6), 2005, hlm. 9.

system failure, natural disasters, terrorist attacks, and simple neglect. All of these threats are being faced by digital collections. He further proposes some solution, as concluded, how to cope with the threats. First, it is very important to make planning. It means that we need to develop an overall digital preservation plan and find the funding to support it. In addition, we are also necessary to build cooperation with another institution working out a similar arrangement. There are a number of research libraries taking part in a program called LOCKSS (Lot of Copies Keeps Stuff Safe) to backup the digital collections. Finally, we need to know to turn for experts that specialize in data recovery. Two institutions that he mentions are OCLC and Amigos Library Services in which both provide guidance in data recovery.²¹

The Ideas of how to make metadata as a more useful and powerful tool to contribute to the technical solution of digital preservation are stated by Calanag, Tabata, and Sugimoto in their paper entitled "Linking Preservation Metadata and Collection Management Policies".²² This paper tried to synthesize the preservation metadata elements common to the three projects i.e. the CURL Exemplars in Digital Archiving (Cedars) project, the National Library of Australia's PANDORA project, and the Networked European Deposit Library (NEDLIB). The authors consider that the preservation metadata elements are essential for long-term preservation of digital resources. Furthermore, they conclude that is essential to lay down a collection management guide in the form of requirements analysis matrix for general applicability where preservation decisions can be assigned according to local requirements. The concepts and models such as, the Flexible Extensible Digital Object and repository Architecture (FEDORA), the Archival Information Package (AIP) in the Open Archival Information System (OAIS), and Michael Nelson's dissertation on buckets as smart objects for digital libraries, are as steps forward to enable policy-enforced preservation metadata. Whatever the longer term preservation methods adopted for digital resources, they all need to be wrapped for preservation in linking the resources to adequate metadata.

Cedars (the CURL Exemplars in Digital Archives) cooperation with JISC (the Joint Information System Committee of the UK higher education funding councils) published book entitled *Cedars guide to digital collection management*. The work is a project run from April 1988 until March 2002 that discusses on guidance for collection managers on issues relating to digital preservation such as policies on the housing, preservation, storage, as well as weeding and discard of stock.²³ The importance of preservation of digital materials as core of digital collection management

²¹ C. Anderson, "Digital Preservation...", hlm. 10.

²² M. L. Calanag, K. Tabata, and S. Sugimoto, "Linking Preservation Metadata and Collection Management Policies", *Collection Building* 23 (2), 2004, hlm. 56-58.

²³ The Cedars Project. *Cedars Guide to Digital...*

poses one of the underlying focuses of the book. There are two reasons why preservation of digital materials to emphasize. First, reliance of digital materials on specific technology, which is rapidly obsolete, delays in taking preservation decisions so it can obstruct effective preservation. Second, integration of preservation into the everyday management and organization of the library will achieve the most effective economies of scale. Furthermore, the work also discusses some cost implications about preserving digital objects. It takes a pragmatic stance that it is misleading to attempt to make meaningful comparisons of the costs of digital versus traditional preservation. It recognizes that many of the same issues relate to the way in which libraries will need to manage their growing aggregate of institutional electronic records.

Milnor²⁴ interviewed some working librarians about the impact of Internet on collection development. Even though she observes cases occurred at public libraries, commonly they have a variety of similarities with types of other libraries. Based on her exploration, there are four ways in which use of Internet impacts selections in the public libraries. First, the use of Internet as selection tools shows one of the most significant ways that it affects collection development. Second, the Internet use in collection development can provide alternative sources of information. Third, librarians keep informed on subjects of interest to them and seek out information on book titles available in specific subject. The last impact, the library can reduce the material budgets for the costs of technology because for some materials should bring in new technology and upgrade the old.

Regarding some problems faced digital collections, Graham points up them in the form of several questions that confront the user of any electronic document (whether it is text, hypertext, audio, graphic, numeric or multimedia information). The questions are how can I be sure that what I am viewing is what I want to see? How do I know that the document I have found is the same one that you used and made reference to in your footnote? How can I be sure that the document I now use has not been changed since the last time I used it? And how can a reader be sure that the document being used is the one intended?²⁵

In his article, he further reveals difference between *artifactual* information and electronic information. *Artifactual* information is kind of information which is associated with a material object (books, for example, or engravings): it has weight and occupies space. If an *artifactual* object has been preserved, we have done the job of preserving the information associated with it. However, with electronic information, this relation is no longer so true. Electronic information is easily separable

²⁴ N. Milnor, "Cyber Selection: The Impact of the Internet on Collection Development in Public Libraries. *The Acquisitions Librarian*, 20, 1998, hlm. 101-103.

²⁵ P. S. Graham, "Long-term Intellectual Preservation", (1995). Retrieved August 7, 2006, from <http://www.ifla.org/documents/libraries/net/dps.htm>, hlm. 3.

from its medium with no loss of content, requiring us to think differently about its preservation: the medium becomes of less intrinsic interest and preserving the intellectual content becomes more complex.²⁶

In relation to the second type of information aforementioned, one of methods to cope with various digital preservation problems is that a library needs to draw up written policy of digital collection. Woodyard²⁷ elaborates in deep pertaining to needed aspects of digital preservation at the British Library. She brings up that preservation of the UK national published output is one of the British Library's key responsibilities. A significant proportion of the Library's cultural heritage collections will be in digital formats and require long term access, so the Library has to be at the forefront of national and international efforts to develop digital preservation. The library is addressing digital preservation by establishing policy, negotiating and legally obtaining the rights to preserve and provide access digital publications. It is participating in research and test-bed projects, and working collaboratively in research and distributed archiving with other national and international organizations with similar interests.

IV. The importance of Preservation and Conservation to Information Resources

The long-term preservation of those resources is one of the most important issues facing the library community. In light of the importance of the preservation, Cedars insists that there are two critical reasons why preservation of materials has to be paid attention. First, reliance of digital materials on specific technology, which is rapidly obsolete, delays in taking preservation decisions so it can obstruct effective preservation. Second, integration of preservation into the everyday management and organization of the library will achieve the most effective economies of scale. Accordingly, the long-term preservation of digital resources is one of the most important issues facing the library community. In particular, a preservation strategy for digital objects, since digitization alone provides access but no preservation.²⁸

The long-term preservation of digital resources is one of the most important issues facing the library community. In particular, libraries need a preservation strategy for digital objects, since digitization alone provides access but not preservation. Anderson reminded us the importance of the preservation in which he said, "maintenance is always cheaper than recovery or re-creation, so it makes good

²⁶ P. S. Graham, "Long-term...", hlm. 1-2.

²⁷ D. Woodyard, "Digital Preservation at the British Library", *Library and Information Research News* 26 (84), 2002, hlm. 27-28.

²⁸ The Cedars Project. *Cedars Guide to Digital...*

business sense to plan for and fund preservation”.²⁹ Likewise, the Public Record Office (PRO) also suggests that digital resources need to be actively managed according to established procedures, to ensure that they retain qualities of integrity, authenticity, and reliability.³⁰

The Preservation on damage of digital collections caused by technology in terms of file formats, storage media, and technology infrastructure (including security) is that nothing can be done without support at the highest levels such as organization stability, financial sustainability, and administration and accountability. Digital collections deal with digital objects and we have to make sure that they remain available and readable over time. The best we can do is to educate the higher levels of management about the necessity of maintaining these files, and the resources and funding required doing so. In addition, precautions can, and should be taken, which will greatly reduce the risk of inadvertently losing access to a resource because of changes in technology.³¹ These include using standard file and media formats, as recommended by reputable sources and providing detailed documentation to enable both contexts to be determined and to facilitate successful management.

4.1. File Formats

To cope with deterioration related to file format, we are supposed to choose proprietary software with open specification. If we must use a proprietary format, prefer one with open specifications. If they are widely implemented, like PDF³² and TIFF³³ (which is often treated as a standard for image files), they become a de facto standard, and we can be relatively certain that we will be able to read them five years from now.

Another solution is use of standard file formats are certified by the ISO³⁴ or another standard-making body. These files are platform and software independent; they do not require a certain brand of software or a particular operating system to be usable. ASCII³⁵ text, XML³⁶, and SGML³⁷ are examples of standard file formats.

²⁹ C. Anderson, “Digital Preservation...”, hlm. 9.

³⁰ Public Record Office (PRO). *Guidelines on the Management, Appraisal, and Preservation of Electronic Records*, (Public Record Office: Kew, 1999). Retrieved August 10, 2006 from <http://www.pro.gov.uk/recordsmanagement/eros/guidelines>

³¹ Neil Beagrie and Maggie Jones. *Preservation Management...*, hlm. 21.

³² PDF (Portable Document Format) is a page description language developed by Adobe Corporation to store and render images of pages

³³ TIFF (Tagged Image File Format)

³⁴ ISO (International Organization for Standardization)

³⁵ ASCII (American Standard Code for Information Interchange) is a coding that represents individual characters as seven or eight bits; printable ASCII is a subset of ASCII.

³⁶ XML (eXtensible Markup Language) is a simplified version of SGML intended for use with online information.

³⁷ SGML (Standard Generalized Markup Language) is a system for creating markup

Work is underway to develop a standard for PDF files. When choosing a file format, the safest choice for preservation purposes is a standard. While there are no absolute guarantees – bits and bytes can degrade over time – standards are the best insurance we have.

For any proprietary file, make sure that our file does not fall more than two versions behind the current software. Files created with version 5 of software X should be updated when version 7 is complete. Software manufacturers do not always make new versions backward compatible with files created with older versions of the software for the simple economic reason that they want users to upgrade. When we have word processing files that we want to keep but do not want to update when new versions are released, consider saving them as ASCII text. We will lose the formatting but we will still have our content. With other proprietary files, try to eliminate the macros, animation, etc. and keep the file as plain as possible.

Some of the first techniques that we can do to cope with deterioration upon file formats, as stated by Anderson³⁸ are:

- Inventory all files and make a list of format.
- Convert older materials to newer versions (word processing files, spreadsheets, etc.).
- Try to limit the number of file formats you support.
- Watch the technology market for news affecting file formats (new standards, product updates).

4.2. *Storage Media*

To avoid deterioration for storage media, we must take into account the best we can afford. It is true what Anderson reminds, “this is not the place to pinch pennies...you get what you pay for, so buy the very best you can afford whether you are purchasing CDs or security software”.³⁹

Types of storage media include hard disks, tape, and optical media. Hard disk is convenient and high capacity. Nevertheless, it will last only about five years. If we choose tape for backup, we go with high-density tapes like DLT, which have proved to be the most reliable. Gold CDs are the best choice among optical media, and have a shelf life of five to ten years. DVDs have a higher capacity (sometimes it is only possible to get one TIFF file on a CD) but have not yet been proved dependable for long-term storage. We cannot rely on our backups to cheap CDs or DVDs. How we store the media is as important as the media we choose. The storage environment is critical. The same thing can happen to your storage media. The optimum environment for long-term storage is 688F with 40 percent humidity.

languages that represent the structure of a document.

³⁸ C. Anderson, “Digital Preservation...”, hlm. 9

³⁹ C. Anderson, “Digital Preservation...”, hlm. 10

The most important thing is to keep the temperature and relative humidity stable. The storage area should be protected from dust, magnetic fields, fumes, smoke, food, and drink. We have to treat our storage media as if it were a rare manuscript, as in many ways it is.

Moreover, another way to preserve our storage medium that will help significantly to reduce the danger of loss and include:

- storing in a stable, controlled environment;
- implementing regular refreshment cycles to copy onto newer media;
- making preservation copies (assuming licensing/copyright permission);
- implementing appropriate handling procedures; and
- transferring to “standard” storage media.⁴⁰

4.3. Technology Infrastructure

The changes in information technology can be solved if we have good planning for it. Since only protection we have is planning, we have to develop an overall digital preservation plan and find the funding to support it. A digital preservation plan should include scheduled migration of materials to new media, offsite backup, a disaster recovery plan and scheduled regular testing of media and backups. Offsite back is important in case of a disaster that destroys our entire facility. A number of research libraries participate in a program called LOCKSS (Lot of Copies Keeps Stuff Safe) to backup their digital collections. Perhaps we can work out a similar arrangement with another institution in our region.⁴¹

Migration, as part of a digital preservation plan mentioned above, is one of strategies how to preserve digital resources because it is a means of overcoming technological obsolescence by transferring digital resources from one hardware/software generation to the next. The purpose of migration is to preserve the intellectual content of digital objects and to retain the ability for clients to retrieve, display, and otherwise use them in the face of constantly changing technology. Migration differs from the refreshing of storage media in that it is not always possible to make an exact digital copy or replicate original features and appearance and still maintain the compatibility of the resource with the new generation of technology.⁴²

If the worst happens, having a disaster recovery plan in place will make all the difference in the outcome. This plan should be part of our library’s overall disaster plan. We have to know where to turn for experts that specialize in data recovery. OCLC and Amigos Library Services both provide guidance in this area.

Regarding technology infrastructure, Feeney⁴³ suggest three approaches how

⁴⁰ Neil Beagrie and Maggie Jones. *Preservation Management...*, hlm. 20.

⁴¹ C. Anderson, “Digital Preservation...”, hlm. 10

⁴² Neil Beagrie and Maggie Jones. *Preservation Management...*, hlm. 94.

⁴³ M. Feeney (ed), *Digital culture: Maximizing the Nation’s Investment*. (London: The

to preserve digital resources.

- Preserve the original software (and possible hardware) that was used to create and access the information. This is known as the technology preservation strategy. It also involves preserving both the original operating system and hardware on which to run it.
- Program future powerful computer systems to emulate older, obsolete computer platforms and operating systems as required. This is the technology emulation strategy.
- Ensure that the digital information is re-encoded in new formats before the old format becomes obsolete. This is the digital information migration strategy.

V. A Proposed Concept of Preservation Policy

Preservation is a library wide activity, involving all staff. Preservation activities include selection of the most appropriate format for acquisition, conserving and repairing the collections, creating preservation surrogates, controlling the environment, and establishing conditions of use.

As mentioned earlier, to support the scholarly activities in academic environment, the Library of State Islamic University of Sunan Kalijaga provides a wide array of collection in various formats such books, electronic collections, serials, and multimedia. Those materials are meant to be used. They are vital sources of information which cannot be conserved and stored away in an ideal and secure environment to arrest their decay. This is the dilemma of library preservation - to make information accessible, while still ensuring its ultimate survival. A preservation policy for library materials has, of necessity to take account of this fact.

In the same time, collections of modern materials such as sound tapes, CDs, DVDs and recently digital information such as full-text materials, metadata sources, and websites are growing rapidly. Almost all of its collections are essentially impermanent. As a matter of fact, this issue has been considered attentively since the past decade that has seen a great change in approaches to the preservation of library collections. This change is based, in part, on the realization that not all material within the collections can or even should be maintained forever, and that the preservation of information may be more important than the preservation of the artifact. This is consonant with Lesk's opinion describing the rapid changes in the means of recording, in the storage formats and in the software that allows electronic information to be of use. Urging what might be called technology preservation he asserts that for electronic information, "preservation means copying, not physical preservation." That is, the preservation of electronic information into the indefinite

National Preservation Office, 1999), Retrieved August 10, 2006 from <http://www.pro.gov.uk/recordsmanagement/eros/guidelines>, hlm. 41.

future requires its being “refreshed” from old to new technologies as they become available and as the old technologies cease being supported by vendors and the user community.⁴⁴

The main aim of any preservation program is to maintain and preserve items consistent with their use and significance to the collection. This may require the preservation of the physical format of the item, the preservation of the intellectual content in another format, or the preservation of both the information and the physical format. Generally, the on-going cost of maintaining an item over its lifetime will far exceed its initial purchase price. Resources are such that not all materials can be treated equally. Decisions for preservation have to recognize that not all items need to be given the same level of care, security and attention.

Before a preservation policy can be developed and implemented, it is first necessary to have a realistic collection development policy. The publishing of the collection development policy of the Library of State Islamic University of Sunan Kalijaga has enabled the production of a written preservation policy where decisions on the preservation and retention of any material can be directly related to its importance to the Library’s collections. In the way, preservation decisions will have an impact on most areas of the Library. Cross program administration of the preservation policy is necessary. The mechanism to monitor the effectiveness of this policy is through the Library’s collection development and management committee. However, staff library-wide have an important role in ensuring the longevity of the collections. This preservation policy should be read in conjunction with the Library’s collection development policy.

In line with the ideas mentioned above, generally preservation function can be categorized into four tasks i.e. 1) planning and policy making; 2) the development and application library wide of preservation procedures, including selection, housing, storage, disaster response and staff and user education, to prolong the useful life of library materials by minimizing harmful effects; 3) the treatment of library materials by minor repair,⁴⁵ conservation,⁴⁶ restoration,⁴⁷ and substitution;⁴⁸ 4) the recording of information about preserved items, including location of ‘last copy’ and details of

⁴⁴ M. Lesk, *Preservation of New Technology: A Report of the Technology Assessment Advisory Committee to the Commission on Preservation and Access*. (Washington, DC: CPA, 1992), hlm. 92.

⁴⁵ *Minor repair* is repairing of material which is slightly damaged or deteriorated, in order to preserve and/or further extend its use.

⁴⁶ *Conservation* is a range of activities which involve physical treatment of individual items by professional conservators.

⁴⁷ *Restoration* is conservation treatments designed to return an item to a condition as close to possible to original.

⁴⁸ *Substitution* is production of a copy or surrogate.

master microforms, as well as preservation intentions in the bibliographic record.

5.1. Purpose of the Preservation Policy

The purpose of the preservation policy of the Library of State Islamic University of Sunan Kalijaga is to provide a comprehensive statement on the preservation of the Library's collections, dealing with all aspects of preservation and applying to all collections held by the Library. In this regard, the preservation policy provides direction to the Library staff in carrying out their collection management responsibilities relating to preservation. It forms the basis of communication with those outside the Library concerning both internal preservation policies and activities, and the Library's national responsibilities.

In addition, the preservation policy also identifies related Library policies, and those documents which contain the detailed interpretations and procedures derived from it. Implementation of the policy is achieved through the normal channels of the Library planning process, in particular through the operation of the Library's strategic and operational plans, under the guidance of the collections development and management committee. This policy defines organizational roles and responsibilities associated with the preservation of the collections.

5.2. Authorities of the Preservation Policy

The functions and powers of the Library of State Islamic University of Sunan Kalijaga are defined by Indonesian Government Act of National Educational System No: 2/1989 section 35. The Act states that each educational institution both carried out by government and private should make learning sources available and one of the most important learning sources is library. If the statement is detailed in more comprehensive, the Act provides the following provisions.

- a. Any learning institution, including State Islamic University of Sunan Kalijaga, should provide and establish library as center learning.
- b. The Library of State Islamic University of Sunan Kalijaga has to provide facilities reference, information, referral, reprographic, and lending services.
- c. The Library of State Islamic University of Sunan Kalijaga has to provide and promote the development and use of the library resources both local and national.

5.3. Related Documents of the Preservation Policy

The Library of State Islamic University of Sunan Kalijaga's collection development policy is a key document in interpreting the preservation policy. The summary preservation and retention policy of the Library is recorded in this document.

5.4. Statement Policy

According to Indonesian Government Act of National Educational System

No: 2/1989 section 35, each educational institution both carried out by government and private should make learning sources available and one of the most important learning sources is library. Besides that, referring to the principles stipulated by State Islamic University of Sunan Kalijaga, the Library has the responsibility of collecting, preserving and providing access to university members such as teaching staff, researchers, administration staff, and students. It will endeavor to preserve unique materials to the university, on specific subjects and for specific reasons considered important by the library. These include Islamic History both in Muslim world generally and in particular Islam of *Nusantara* (local), faculty publications, theses, research reports, examination papers, manuscripts, and archives. These collections will be preserved for purpose of access and long-term usage.

5.5. *Specific Policy Statement*

Information of specific policy statement includes a number of more detail measures to preserve the Library's collection as follows:

5.5.1. *Accommodation*

A stipulated unit has responsible for preserving the Library's collections through the use of appropriate accommodation. The unit attempts to provide a stable and secure environment for its collections. This is achieved through the establishment and maintenance of specified levels of temperature, relative humidity, lighting, air quality and vibration, recognizing that until there is a major upgrade of mechanical services, the existing main building is not always able to perform at acceptable levels of temperature and humidity control. Special controlled environmental conditions are provided for particularly vulnerable materials.

5.5.2. *Security*

Specific division has responsible for providing security measures that ensure the protection of its collections during use within the building and while in storage. This may be done in consultation with other areas of the Library as appropriate. All staff who handle material need to be aware of basic security provisions. The primary purpose of these measures is to prevent or reduce the risk of damage to the collections from fire, water, natural or man-made disasters, biological or animal agents, war, theft and vandalism.

5.5.3 *Disaster Preparedness*

A set team has responsible for ensuring that contingency plans and procedures are in place to prevent, react to and recover from emergency situations that may have an adverse effect on the Library's collections.

5.5.4. *Use of the Collections*

The Library recognizes that use of its collections is a prime purpose of its existence. However, the nature of the collections will determine type of use as

mentioned and detailed on written collection development policy of the Library of State Islamic University of Sunan Kalijaga.

5.5.5. Handling & Transportation

The Library encourages proper handling of collections by staff and users. In this case, the preservation services unit provides preservation training and advice on handling collection materials to all relevant staff and provides handling guidelines to users. For instance, photocopying is a major source of damage to printed materials, restrictions apply to the copying of at risk materials and guidelines have been developed for the safe copying of other materials. In addition, procedures have to be drawn up to ensure that collection materials in transit within or between its buildings, on loan to external users, or on loan for exhibition is well protected and carefully handled.

5.5.6. Training

The Library encourages its preservation staff to maintain a high level of awareness of developments in conservation practices, materials and procedures. Preservation training is provided by the preservation services division staff to staff and users of the Library of State Islamic University of Sunan Kalijaga.

5.5.7. Exhibitions & Loan for Exhibitions

The Library includes preservation considerations in determining the selection of items and the frequency and duration of their use for exhibition purposes, or for loan for exhibition to other institutions. Materials will be prepared for exhibition and displayed in accordance with accepted national standards. Borrowing institutions are required to comply with the Library's guidelines for exhibitions through the signing of a condition of loan agreement with the Library.

5.5.8. Acquisition

The Library considers physical condition as one criterion in the acquisition of single items or collections.

5.5.9. Collections Preservation

The Library believes that ongoing and routine collections maintenance will reduce the likelihood of serious damage to its collections. Collections maintenance can be carried out by means as follows:

- Monitoring the condition of its collections on an on going basis and taking action to replace or to treat, replace, or reformat, as appropriate, individual items identified as being damaged.
- Using appropriate containers - boxes, sleeves, wrappers and similar materials to protect collections.
- Maintaining cleanliness in the storage areas and endeavoring to clean collections on a systematic basis using appropriate methods.

- Providing appropriate storage conditions for the collections.

5.5.10. Preservation Treatments

Preservation treatments are undertaken to prolong the useful life of material or the information it contains by repair, conservation or the creation of surrogates when collection material is at risk, damaged or deteriorated. All treatments are undertaken to a high standard and use appropriate materials. In accordance with conservation ethics, all treatments are judiciously minimal, and wherever possible involve minimal sacrifice of bibliographic, historic or aesthetic integrity. Appropriate measures carried out at the Library include the following techniques:

- Minor repairs on individual items when required. Such repairs are undertaken by conservators or by persons who have been given appropriate training.
- Conservation treatments on individual items requiring special attention
- Surrogates of appropriate national and international standards are created for preservation purposes and for access when inherent fragility or heavy use threatens the survival of the original material.

5.5.11. Preservation Research

The Library applies preservation standards for materials and procedures where they already exist and is actively involved in the development of national and international standards.

5.5.12. Distribution of Policy

As one component of the Library's collection management policy, this document will be communicated to all staff of the Library of State Islamic University of Sunan Kalijaga.

5.5.13. Monitoring and Review of Policy

This policy will be monitored and reviewed by preservation services division and the Library's collections development and management committee on a regular basis to ensure it addresses current developments in the Library.

5.5.14. Roles & Responsibilities

All staff of the Library of State Islamic University of Sunan Kalijaga have a responsibility to implement preservation policies and directives approved by the Library's collections development and management committee. Preservation services division staff will take an active role in assisting and encouraging the implementation of the preservation policy Library wide.

VI. Concluding Remarks

Based on the explanations mentioned above, there are some points to conclude.

- Digital information resources have to be preserved for purpose of providing

- knowledge and accessible by our next generations because the resources cannot be read when they face storage media degradation or obsolescence.
- Preservation of digital materials needs to be an integral part of digital collection management and must be incorporated into the overall management of an organization digital's assets from creation or acquisition through to preservation.
 - The long-term preservation of digital resources is one of the most important issues facing the library community so that the Library of State Islamic University of Sunan Kalijaga needs to prepare a preservation strategy for digital objects which are formulated in written preservation policy as guide how to manage the digital collections.
 - The written preservation policy provides direction to the library staffs in carrying out their collection management responsibilities relating to preservation so identification the elements of deterioration as well as measures of preservation on digital information resources can be conducted as soon as possible. By this way, the staffs have an important role in ensuring the longevity of the collections.

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