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Development of the Borobudur Conservation Archives services with ICA-AtoM

Yannief Asfian[1], Arif Rahman Bramantya[2]*
[1]Inspektorat Kabupaten Sleman
Jl. Roro Jonggrang, Tridadi, Sleman, Daerah Istimewa Yogyakarta, 55511
[2]Vocational College, Universitas Gadjah Mada
Sekip Unit I, Depok, Sleman, Daerah Istimewa Yogyakarta, 55581
)* Corresponding Author, E-mail: arbramantya@ugm.ac.id

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Abstract

The Borobudur Conservation Office as a memory institution manages its archives and disseminates information about preserving the Borobudur Temple. The Borobudur Conservation Archives have also recognized as a Memory of the World by UNESCO in 2017. Therefore, developing a website using the ICA Atom platform based on open source is important for accessibility of the Borobudur Conservation Archives at the Borobudur Conservation Office. The purpose this study is explain how development of the Borobudur Conservation Archives accessed services through the ICA-AtoM platform with analysis the process of integrating digitized data and the development of the Borobudur Conservation Archives. This study used a qualitative approach with data collection methods: literature study, participatory observation, and interviews. A literature study used library sources related to the research topic. The participatory observation was conducted through fieldwork practices for two months, from 21 December 2020 to 26 February 2021, at the Borobudur Conservation Office. This study used structured and unstructured interviews. The study result was that the development of the ICA-AtoM design had been adapted to the needs of the Borobudur Conservation Office. From the aspect of usage, the developed website https://arsip.borobudurpedia.id has met user needs with standards issued by the International Council on Archives (ICA) and metadata standards. In conclusion, the development of the ICA AtoM platform version 2.5 and the creation of archival information contextualized as shared content for users with evidentiary value, informational value, and intrinsic value are uploaded to the website, including archival descriptions, authority records, and archival institutions.

Keywords**:** ICA-AtoM; Borobudur Conservation Archives; Memory of the World; Borobudur Temple

Pengembangan layanan Arsip Konservasi Borobudur dengan ICA-AtoM

Abstrak

Balai Konservasi Borobudur sebagai institusi memori memiliki tugas mengelola khazanah arsip dan menyebarkan informasi terkait konservasi Candi Borobudur. Arsip Konservasi Borobudur telah diakui sebagai Memory of the World *oleh UNESCO di tahun 2017. Oleh karena itu, proses pengembangan* website *dengan platform ICA AtoM berbasis* open source *penting dilakukan untuk tujuan aksesibilitas khazanah Arsip Konservasi Borobudur di Balai Konservasi Borobudur. Penelitian ini bertujuan untuk menjelaskan bagaimana pengembangan layanan arsip konservasi Borobudur dengan ICA AtoM melalui analisis proses integrasi data dan pengembangan layanan arsip konservasi Borobudur. Metode penelitian menggunakan pendekatan kualitatif melalui metode pengumpulan data antara lain studi pustaka, observasi partisipatif, dan wawancara. Studi pustaka menggunakan sumber pustaka terkait topik penelitian. Observasi partisipatif dilakukan melalui Praktik Kerja Lapangan selama dua bulan, dari tanggal 21 Desember 2020 hingga 26 Februari 2021, bertempat di Balai Konservasi Borobudur. Wawancara yang digunakan pada penelitian ini mengacu pada wawancara terstruktur dan tidak terstruktur. Hasil penelitian adalah pengembangan desain ICA-AtoM telah disesuaikan dengan kebutuhan Balai Konservasi Borobudur. Sesuai aspek penggunaan,* website *https://arsip.borobudurpedia.id yang dikembangkan telah memenuhi kebutuhan pengguna dengan standar yang dikeluarkan Internasional Council on Archives (ICA) dan standar metadata. Kesimpulan penelitian adalah pengembangan platform ICA AtoM versi 2.5 dan pembuatan informasi arsip yang dikontekstualisasikan sebagai konten bersama untuk para pengguna memiliki nilai kebuktian, nilai informasi, dan nilai intrinsik yang diunggah ke dalam* website*, mencakup* archival description, authority records, *dan* archival institutions.

Kata Kunci: ICA-AtoM; Arsip konservasi Borobudur; Memory of the World*; Candi Borobudur*

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INTRODUCTION

The increase in the documentation form is directly proportional to the development of information technology, which demands a change in records management from conventional to electronic. In addition, information and memory institutions, archival communities, archival activists, and archival actors are also required to carry out documentation work concerning the interests of information preservation, mainly social and cultural phenomena and events considered of historical value. Not all information is preserved or remembered because not all activities or events are documented. What is documented is only sometimes archived; what is archived is only sometimes preserved. Memory is only partially reliable in preserving cultural heritage because it is abstract and intangible. Therefore, the phenomena and events surrounding them must be documented in various mediums. The medium forms content that contains information. At the same time, the archive is a medium that forms content. In a broader context, the importance of cultural heritage preservation is to maintain archives and documents so that it can be accessed and utilized by the community (Khadijah, Khoerunnisa, Anwar, & Apriliani, 2021).

Archives connect the present with the past. It works as a tool to evoke memories. It is inseparable from efforts to preserve archives, a form of the nation's cultural heritage. Humans must find ways to maintain memory consistently from generation to generation (Rigney, 2018; Asfina & Ovilia, 2016). Cultural memory is needed to be consistent in maintaining memories. Cultural memory is a tool for all the knowledge that directs behavior and experience in the interactive framework of society that is acquired from generation to generation in repeated social practices and initiations. In this context, archives can find their place in the memory process as evidence and a memory trigger that should be preserved, acculturated, and mediated by society to contribute to collective knowledge. Therefore, the archivist has a responsibility to recognize that memories will, at the same time, be forgotten and identities diluted, reduced, or excluded by their actions (Brown, 2013).

Memories related to the Borobudur cannot be separated from the context of world heritage. Borobudur has twice undergone significant restoration with the involvement of parties. It is the most extensive intervention in Southeast Asia. Historically, Borobudur is a site of memory and cultural heritage. However, Dutch involvement with the Borobudur based on colonial heritage tends to need to be more relevant in its attempts to establish heritage engagement (Bloembergen & Eickhoff, 2015; Ardiyansyah, 2022).

In the context of historical sources, the Borobudur Conservation Archives is the result of documentation of a conservation project in the form of restoring the Borobudur Temple. The restoration of Borobudur Temple was carried out twice. The first restoration was carried out from 1907-1911. The second restoration was carried out from 1973-1983. The restoration of Borobudur is conducted to save the cultural heritage that has historical, aesthetic, religious, and spiritual values for the Indonesian and the international community. Not only for the Borobudur site but the results of the restoration documentation can also be considered an invaluable cultural heritage.

The Indonesian government made various efforts until 2017 when the Borobudur Conservation Archives was recognized as a Memory of the World. In this context, the strengthening of identity formed through documentation and archive management work leads how to forming and maintaining cultural memories that can be linked to contemporary relations so that the nation's collective memory remains firmly rooted in society (Bramantya, Darajat, & Hidayat, 2021).

The restoration of Borobudur is the most extensive cultural heritage conservation activity of the 20th century, involving many experts from various disciplines. The archiving of the restoration of Borobudur is carried out to document events and activities that include initial project preparation activities, international campaigns for project funding, temple renovation, temple rock maintenance, cleaning of microbiology and chemical substances, and other activities. This documentation was conducted in detail and gradually under international recommendations.

The Borobudur Conservation Office as the administrator of the Memory of the World of Borobudur Conservation Archives, also has the responsibility to provide access to users on the legal basis that the Borobudur Conservation Archives have become a good value and can be accessed by the public under the mandate of Archival Act Number 43, 2009, Paragraph 4, Archive Access (Akses Arsip Statis) Article 65 paragraph 1, Government Regulation Number 28, 2012 concerning Implementation of Archival Act Number 43 2009 Paragraph 5 concerning Archive Access and requirements from UNESCO which refer to efforts to publish the Borobudur Conservation Archives to the public that has the status of Memory of the World (Edmondson, 2016; International Conference on Reconstruction the Challenges of World Heritage Recovery, 2018; Heaney, 2016). Following Archival Regulation Number 43 of 2009 concerning Archival, archives can be interpreted as material with historical and continuing value and permanently categorized (Republik Indonesia, 2009). In this context, the Borobudur Conservation Archives has evidential, informational, and intrinsic values.

By looking at the relationship between public interest and archives, it will provide opportunities for the public to understand and appreciate archives more inclusively through the archive's function. With the legal basis of Archival Regulation Number 43 of 2009 concerning Archival, the Borobudur Conservation Office is not included as an Archives Institution (*Lembaga Kearsipan*) (Republik Indonesia, 2009). However, in the context of memory institutions, the function of the Borobudur Conservation Office is equal to galleries, libraries, archives, and museums. The Borobudur Conservation Office is a memory institution that manages and preserves cultural heritage. Thus, the Borobudur Conservation Archives is indirectly related to the nation's memory and becomes an integral part of the managed cultural heritage of Borobudur objects. The Borobudur Conservation Office has the right and authority to manage archives, including terms of providing and facilitating access to the Borobudur Conservation Archives.

Some previous research has been carried out as a reference in this research, especially those discussing technology and the use of ICA-ATOM. With the development of Information and Communication Technology (ICT), the

need to obtain information quickly, effectively, and efficiently for users is one element that needs attention. In the context of digital humanities, the collection and management of digital materials, as well as providing them in the form of hypertext, hypermedia, data visualization, and statistics with historical values, are one of the efforts that must be taken by memory institutions (Uljaeva, Rakhmonberdieva, Kuyliev, Rakhmonov, & Yunusova, 2020). A study on digital preservation conducted by Maryono and Pramono (2020), explains that the preservation of Rare Digital Collections at the Universitas Gadjah Mada Library can be done through institutional websites which include making new designs with historical nuances, installing infographic flipping book viewers, adding links, indexes, annotations, recommended searches, as well as adding a review column and linked to social media.

The Borobudur Conservation Office, as a memory institution, manages the Borobudur Conservation Archives and has provided an online access service for the Memory of the World Archives through the address *https://arsip.borobudurpedia.id/*. The open source-based ICA-AtoM platform developed by International Council on Archives (ICA) was selected, adapted, and modified by the Borobudur Conservation Office to improve access service. This platform has met the criteria in archives management, especially as a tool for effective and efficient online-based archives retrieval (Grahito, 2014). However, it still needs to meet the criteria in the usability assessment of a system (Rifqi, 2017). From the technical aspects of system security, Karunarathne and Wimalarathne (2014) explain that system vulnerabilities and fixes can be applied effectively to improve ICA-AtoM security.

The ICA-AtoM platform supports the description standards required by memory institutions and users. Even France has used ICA-AtoM to produce standard authority records that are used nationally through the Association of French Archivists (Chave & Sibille-de Grimoüard, 2015). Developing archive description software in the ICA-AtoM platform and presenting an overview of community engagement may be an exciting issue. The latest version of ICA-AtoM has been released with significant improvements and new features. The new version of ICA-AtoM has simplified the archiving workflow and allowed repositories to launch their collections online. New features in the use of ICA-AtoM, which are implemented as a multi-institutional portal and repository instance, have been included to provide flexibility and scalability to the software. The integration of digital archives with ICA-AtoM carried out by The Australian National University Archives has contributed to the development of further data entry projects and digitalization frameworks in the future (Shapley, 2013). In addition, the ICA-AtoM Platform is included in a single-level display that can contextualize information in the appropriate description hierarchy. The system of ICA-AtoM reduces the amount of text presented in a given view and gives access to information at the item level. It can reduce information overload for users and meet their need for digital materials view.

The development of ICA-AtoM by the Borobudur Conservation Office is based on the responsibility to provide access to the Borobudur Conservation Archives as a knowledge product. This

study attempts to investigate how the development of ICA-AtoM, in the context of the life cycle of the archive at the access service level, relates to the Borobudur Conservation Archives. This study aimed to explain development of the Borobudur Conservation Archives accessed services through the ICA-AtoM platform with analysis the process of integrating digitized data and the development of the Borobudur Conservation Archives.

RESEARCH METHODS

This study used a qualitative approach. Qualitative research is a method for exploring and understanding the meaning that comes from social problems (Moleong, 2018). Therefore, the issues raised in this study come from social issues which refer to the importance of disseminating the information contained in archives as a cultural heritage through the use of information technology.

Data collection methods in this study refer to literature study, participatory observation, and interviews. The author uses library sources obtained from the UGM Library, Magelang City Library, Open University Digital Library (*https://pustaka.ut.ac.id*), Archivaria journal (*https://archivaria.ca*), JSTORE, ICA-AtoM website (*https://accesstomemory.org*), Borobudur Conservation Archive website *https://arsip.borobudurpedia.id/*, UNESCO website (*https://en.unesco.org*), and UNESCO Digital Library.

The participatory observation method in this study was carried out through a two-month Field Work Practice (From 21 December 2020 to 26 February 2021) located at the Borobudur Conservation Office. The author observes, analyzes, practices, and involves himself in archives management, using and managing applications from the Memory of the World Borobudur Conservation Archives website administrator. The purpose of this method is to obtain appropriate data and to know about the implementation of ICA-AtoM used at the Borobudur Conservation Office and the obstacles faced. The author is also involved in managing photo archives, measuring and calculating archive storage areas, and calculating the number of archives.

The interview method used in this study refers to structured and unstructured interviews. Determination of resource persons based on the field of expertise and adjusted to the topic of study. The author interviewed the topic of the Borobudur Conservation Archives and Memory of the World to source persons at the Borobudur Conservation Office to find out the operational management of the Memory of the World website. The type of sampling used in this research is purposive sampling by using certain considerations of the desired criteria to determine the number of samples to be studied. The source persons interviewed comprised six people from different backgrounds, including the Head of Documentation and Publication Working Group, IT section, and World Heritage Working Group.

Referring to Moleong (2018) the data analysis in this study refers to improving the data obtained from literature studies, participatory observations, and interviews. Data reduction is carried out on irrelevant data, while data is added if data is lacking. The data is then arranged by category or group of data. After presenting the data, the researcher interprets the data, which is descriptive and qualitative, which will then conclude to answer the problem.

RESULTS DAN DISCUSSION

Through archival research, Bloembergen and Eickhoff (2013); Bloembergen and Eickhoff (2015) investigate and compare the involvement of colonial and postcolonial heritage in the historical context of the Borobudur, related to the level of loss regarding moral and material ownership claims, aspects of decolonization that accompany it, and memory connections by looking at various perspectives. On the other hand, the narrative of the Borobudur being included in the World Heritage list in 1991 also shows how the concept of cultural landscape has developed and its impact on cultural heritage policies in Indonesia (Nagaoka, 2015).

In this context, the cultural landscape has significantly related to elements such as trees, mountains, water, myths, and rituals in Javanese beliefs that will affect the formed landscape (Nagaoka, 2015). From the humanities perspective, these elements can be interpreted as archives because of their nature. Following Lowry and MacNeil (2021), archivists must know that archives are epistemological sites to form an archival discourse. The form of this landscape is identic with the representation of collective memory.

From the memory aspect, the Borobudur Conservation Archives can be interpreted as a cultural heritage that contains knowledge across generations and disciplines. Even in the context of traditional conservation knowledge, the Borobudur Conservation Office strives to integrate their traditional knowledge, both in terms of materials and tools, through oral traditions and manuscripts, into the scope of research. It continues to socialize as an effort to develop the preservation of Indonesian cultural heritage (Bakhri, 2020).

The restoration of Borobudur Temple in its time was a form of intervention that involved parties. Countries involved in the Borobudur temple conservation project include Australia, Netherlands, Belgium, Myanmar, Cyprus, Ghana, India, United Kingdom, Iraq, Iran, Italy, Japan, Germany, Kuwait, Luxembourg, Malaysia, Mauritius, Nigeria, Pakistan, France, Philippines, Qatar, New Zealand, Singapore, Spain, Switzerland, Tanzania, and Thailand. Private institutions that are also involved include the American Committee for Borobudur Inc., the Japan Association of Borobudur in Cooperation with the Asian Cultural Office for UNESCO, the Commemorative Association of the Japan World Exposition, The Netherland National Committee for Borobudur, General Lottery in the Netherlands, Borobudur Restoration Supporting Group in Nagoya, JDR 3rd Fund New York, and International Business Machines Corporation. This form of intervention in the contemporary context appears as a moral engagement with cultural heritage, according to the term used by Bloembergen and Eickhoff (2015).

Researchers and historians also consider how they create models that address context and its essential role in cultural heritage contexts. Building new theoretical and methodological approaches to archival work can bridge the gap between historians and archivists in representing archives, databases, and visualizations. This work process is interpreted as an interdisciplinary study of the interaction between digital technology and historical practice.

As an institution engaged in conservation and preservation in table 1. The Borobudur Conservation Office seeks

to introduce its archives for public access service. The first restoration of the Borobudur is documented in *Beschrijving van Barabudur* (BARABUDUR I-III) by N.J. Krom and T. van Erp, published in 1931, contains a collection of photos before and after the restoration. *Beschrijving van Barabudur* contains an explanation of the Barabudur I-III manuscripts. The second restoration of Borobudur Temple was carried out from 1973 – 1983. The archives in the second restoration of Borobudur consisted of several forms, including textual archives, maps, technical drawings, tracing, black and white photos, glass negatives, photo negatives, film rolls, and sound recordings. The Borobudur Conservation Archives are stored in the MoW (Memory of the World) room. This room is specifically used to store the archives of the Borobudur Conservation Archives.

The digitization project of the Borobudur Conservation Archives was carried out from 2011 to 2015 for photo archives, glass negatives, and tracing. With limited tools and resources, the Borobudur Conservation Office submitted a digitization project with assistance from a third party. The archive digitization project is carried out to preserve and save the information and physical archives from damage, such as being eaten by termites, fading, and foxing.

The results of digitizing the archive are in the format (.tiff) with a file size of approximately 50 MB (Megabite), with a total size of 8 Tb (Terabyte). Federal Agencies Digitization Initiative (FADGI) (2023), from the Federal Agencies Digitization Guidelines Initiative (FADGI), explain that the selection of the format and file size is based on considerations of resolution quality, ease of transfer between platforms, and support file compression without compromising quality. Ethics in digitization also promotes an understanding of the role of memory institutions to recognize that technology has both inclusive and exclusive effects on cultural heritage services (Manžuch, 2017).

Table 1
Estimated quantity of Borobudur Conservation Archives

Archive	Size/type	Quantity
Positive photo archives	3 R and 10 R	71851
Textual archives	A4 (varied)	425 folder
Map and drawings archives	A4 ~ A0	6043
Glass negative	9 x 12 cm	7024
Positive slide film	-	13512
Negative film	3,5 x 2,5 cm, 5 x 5 cm, and 8,5 x 6 cm	65741
Celluloid film archives	16 mm/35 mm	21 roll
Sound recordings archives	CD and Magnetic Tape	100s

Source: Results of research, 2021

The Borobudur Conservation Archives and the Borobudur object are an inseparable part of the cultural heritage. So the management of the archives is also held by the Borobudur Conservation Office. As a memory institution engaged in the preservation of cultural heritage, archival practice is placed in a central position for holistic archival preservation. The synergy and collaboration with various parties pursued by the Borobudur Conservation Office in the field of cultural

heritage preservation make it a significant research and study Office for the development of science. This heritage, recognized as an MoW in the form of the Borobudur Conservation Archives, can be accessed by users worldwide using the most appropriate technology, both within and outside the country of the heritage. The Borobudur Conservation Archives is managed by the World Heritage Working Group (*Kelompok Kerja Warisan Dunia*) under the Coordinator Development (*Koordinator Pengembangan*). The World Heritage Working Group was formed in January 2021, and its function is to manage essential objects related to world heritage in the Borobudur area.

Borobudur Conservation Office uses the ICA-AtoM version 2.5 platform. This application is based on the provisions of UNESCO as the party holding the Memory of the World Program. ICA-AtoM is used to access documentary heritage by applying international standards (Edmondson, 2016). The development of ICA-AtoM is used for a memory of the world program. ICA-AtoM is an open-source archive description software jointly developed under the International Council on Archives organization and funded by several parties, including UNESCO. The development of ICA-AtoM refers to a web-based application used as a legacy documentary portal. In the concept of archive publication, ICA-AtoM was created for publishing documentary heritage related to the Memory of the World.

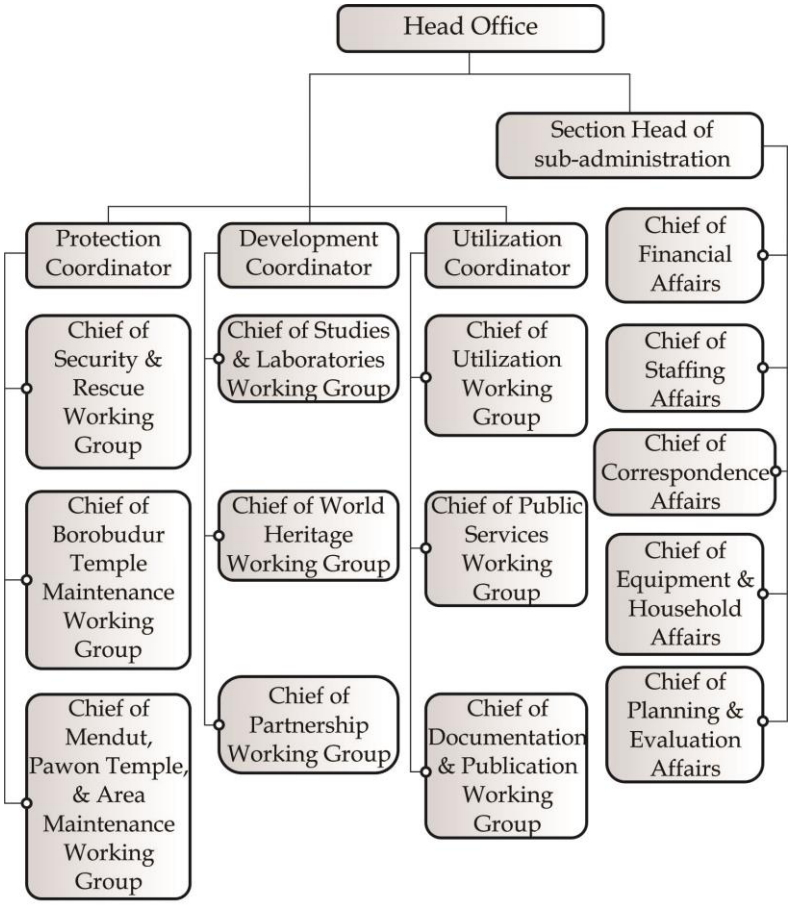


Figure 1. Organization structure at the Borobudur Conservation Office
Source: Borobudur Conservation Office, 2022

ICA-AtoM is an open source where all AtoM code is released under the GNU Affero General Public License (A-GPL 3.0). The license allows users to study, modify, improve, and distribute ICA-AtoM freely. In addition, the code contained in ICA-AtoM is freely available and released under a Creative Commons Share-alike license. Under these licenses, ICA-AtoM is recommended for memory institutions. The use of ICA-AtoM by the Borobudur Conservation Office has been recommended by UNESCO, considering the value of the Borobudur Conservation Archives, which is useful for the world community. As a memory of the world, the Borobudur Conservation Archives needs to be adapted and managed to have a uniform description of the archive as a documentary heritage registered in the Memory of the World program.

In developing ICA-AtoM, the Borobudur Conservation Office cooperates with third parties. The IT department of the Borobudur Conservation Office is responsible for the system installation and configuration process and then works as a website administrator. The installation refers to server environment creation. The creation of the Borobudur Conservation Archives data was carried out from August to November 2019. Then, for the Borobudur Restoration Project, the Archive Data Preparation team was formed (Asfian, 2021). The hardware specifications used by the Borobudur Conservation Office administrator are an Intel Xeon processor, 32GB RAM, and 2 TB disk storage. The software used for ICA-AtoM installation includes Ubuntu Operating System, Nginx web server, PHP programming, and MariaDB (database).

The description of the Borobudur Conservation Archives uses standards from the International Council on Archives (ICA), namely the General International Standard Archival Description (ISAD(G)), the International Standard Archival Authority Records for Corporate bodies, Persons and Families (ISAAR (CPF))), and the International Standard for Describing Institutions with Archival Holdings (ISDIAH). The standards issued by the ICA must be fully understood as a continuity in order to create a mutual agreement (Pratama, 2018).

ISAD(G) is a standard that provides general guidance in preparing archive descriptions to identify and explain the context and content of archives regarding their accessibility. The description process begins before the archive creation and continues throughout the archive life cycle. This process allows the intelligent control necessary for archive description. ISAD(G) standard can be applied to various archival forms and media. The general guidance contained in this standard does not guide the description of specific mediums such as seals, sound recordings, or maps.

ISAAR (CPF) is a standard that provides guidelines for preparing authority records that describe an entity, such as a company, person, or family. The entity is associated with responsibilities in the creation and maintenance of records. Authority records are helpful for (1) describing a legal entity, person, or family as a unit in a descriptive records system, (2) controlling the creation and use of access in record descriptions, and (3) documenting relationships between different record makers, and between entities and archive. The primary purpose of the ISAAR standard (CPF) is to provide general rules for standardizing archive descriptions and context creation for

archivists and institutions. As a standard description for legal entities, persons, or families, the ISAAR (CPF) allows for (1) access to records based on the provision of a description of the context in which the archive is associated with descriptions that are often diverse and physically scattered, (2) user's understanding of the underlying context for the creation and use of archives so that they can better interpret their meaning and significance, and (3) the accuracy of identification by the archivist.

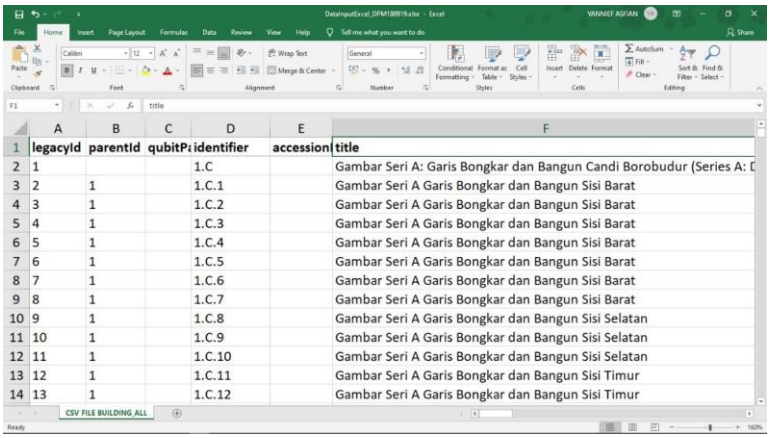
ISDIAH is a standard that provides general rules for standardizing the description of institutions with archive ownership. The ISDIAH standard allows for (1) the provision of practical guidance for identifying and linking institutions with archive ownership, ownership access, and services, (2) the creation of a directory of institutions with archive ownership and/or a list of authorities, especially establishing links with a list of library and museum authority and/or development of general directories of cultural heritage institutions at regional, national, and international levels (3) statistics production for institutions with archival ownership, at regional, national, or international levels.

The ISDIAH standard is used to (1) describe an institution as a unit in a descriptive record system, (2) provide access for institutions with archive ownership in directories, archive information systems, or networks, and (3) provide document relationships between institutions and these entities with managed archives. The primary purpose of the ISDIAH standard is to facilitate the description of archival institutions. The primary function is to provide standards in archives storage and make them available to the public. There are 3 data elements used in the development of ICA-AtoM for the needs of the Borobudur Conservation Archives service, including Archival Description, Authority Records, and Archival Institution. These elements refer to the instructions for creating and describing the archive (Asfian, 2021).

The Archival Description is a collection of information about the archives. This description provides contextual information about archival materials organized into hierarchical levels (fonds, series, files, items, and their variations according to institutional standards). The primary purpose of the Archival Description is to facilitate the identification, management, and understanding of archival materials.

In practice, the description of the Borobudur Conservation Archives uses the ISAD(G) standard. Filling in the Borobudur Conservation Archive data uses Microsoft Excel software adapted to the template contained in AtoM version 2.3 based on ISAD(G). Data entry must follow these standards, without writing errors, both words and letters. This is related to the programming process, which will affect the system's performance, so capital letters, numbers, symbols, and lowercase letters must be considered in detail. The impact that arises if there is a programming error is the failure to download data into the system or the disconnection in the system (Tim Penyusunan Data Arsip Proyek Pemugaran Candi Borobudur, 2019). The template used in data entry is in the form of a table containing 55 columns, consisting of: <legacyId>; <parentId>; <qubitParentSlug>; <Identifier>; <accessionNumber>; <tittle>; <levelOfDescription>; <extentAndMedium>; <repository>;

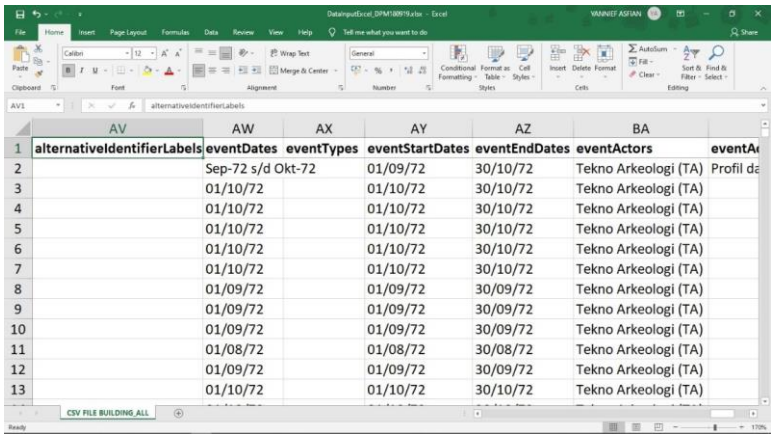
<archivalHistory>; <acquisition>; <revisionHistory>; <scopeAndContent>; <appraisal>; <languageOfDescription>; <accruals>; <arrangement>; <scriptOfDescription>; <sources>; <accessConditions>; <archivistNote>; <publicationStatus>; <reproductingConditions>; <Language>, <physicalobjectname>; <script>; <languageNote>; <physicalObjectLocation>; <physicalCharacteristics>; <findingAids>; <physicalObjectType>; <locationOfOriginals>; <alternativeIdentifiers>; <locationOfCopies>; <alternativeIdentifierLabels>; <relatedUnitsOfDescription>; <eventDates>; <eventTypes>; <publicationNote>; <digitalObjectURI>; <eventDates>; <eventActors>; <generalNote>; <subjectAccesspoints>; <eventActorHistories>; <culture>. <placeAccessspoints>; The Borobudur Conservation Office refers <nameAccessPoints>; to this template, but not all are filled in, <genreAccessPoints>; depending on their needs. Below is a <descriptionIdentifier>; screenshot of the Microsoft Excel data <Institutionsidentifier>; <rules>; entry carried out by the Borobudur <descriptionStatus>; <levelOfDetail>; Conservation Office in figures 2 and 3.



	A	B	C	D	E	F
1	legacyId	parentId	qubitP	identifier	accession	title
2	1			1.C		Gambar Seri A: Garis Bongkar dan Bangun Candi Borobudur (Series A: D
3	2	1		1.C.1		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
4	3	1		1.C.2		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
5	4	1		1.C.3		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
6	5	1		1.C.4		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
7	6	1		1.C.5		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
8	7	1		1.C.6		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
9	8	1		1.C.7		Gambar Seri A Garis Bongkar dan Bangun Sisi Barat
10	9	1		1.C.8		Gambar Seri A Garis Bongkar dan Bangun Sisi Selatan
11	10	1		1.C.9		Gambar Seri A Garis Bongkar dan Bangun Sisi Selatan
12	11	1		1.C.10		Gambar Seri A Garis Bongkar dan Bangun Sisi Selatan
13	12	1		1.C.11		Gambar Seri A Garis Bongkar dan Bangun Sisi Timur
14	13	1		1.C.12		Gambar Seri A Garis Bongkar dan Bangun Sisi Timur

Figure 2. Inputting data in the column of legacy id, parent id, qubit parent slug, identifier, accession number, title

Source: Asfian, 2021



	AV	AW	AX	AY	AZ	BA	
1	alternativeIdentifierLabels	eventDates	eventTypes	eventStartDates	eventEndDates	eventActors	eventA
2		Sep-72 s/d Okt-72		01/09/72	30/10/72	Tekno Arkeologi (TA)	Profil da
3		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	
4		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	
5		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	
6		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	
7		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	
8		01/09/72		01/09/72	30/09/72	Tekno Arkeologi (TA)	
9		01/09/72		01/09/72	30/09/72	Tekno Arkeologi (TA)	
10		01/09/72		01/09/72	30/09/72	Tekno Arkeologi (TA)	
11		01/08/72		01/08/72	30/08/72	Tekno Arkeologi (TA)	
12		01/09/72		01/09/72	30/09/72	Tekno Arkeologi (TA)	
13		01/10/72		01/10/72	30/10/72	Tekno Arkeologi (TA)	

Figure 3. Inputting data in the column of alternative identifier labels, event dates, event types, event start dates, event end dates, event actors

Source: Asfian, 2021

Authority Records is a type of entity group in the AtoM system that provides descriptions of actors such as corporate bodies or individuals who are related as creators or archival managers. Authority Records used by the Borobudur Conservation Office refer to the International Standard Archival Authority Records for Corporate Bodies, Persons, and Families (ISAAR). Filling in the data in authority records using a Microsoft Excel table according to the template, consisting of 24 columns, including: <culture>; <typeOfEntity>; <authorizedFormOfName>; <corporateBodyIdentity>; <datesOfExistence>; <History>; <place>; <legalStatus>; <Function>; <mandates>; <InternalStructures>; <generalContext>; <descriptionIdentifier>; <InstitutionIdentifier>; <rules>; <actorOccupationNotes>; <Status>; <levelOfDetail>; <revisionHistory>; <sources>; <maintenanceNotes>; <actorOccupations>; <subjectAccessPoint>; <placeAccessPoint>.

An archival Institution is an entity group within the ICA-AtoM system that provides users with information about repositories and institutions that store archives, cultural heritage objects, and other artifacts. The Borobudur Conservation Office uses the International Standard for Describing Institutions with Archival Holdings (ISDIAH) description standards. There is only one Archival Institution for the Borobudur Conservation Archives, namely the Borobudur Conservation Office. It can be carried out in the Archival Institutions by adding institutions through the back-end system by the administrator of the Borobudur Conservation Office.

When the author made participatory observations at the Borobudur Conservation Office, the descriptions of the Borobudur Conservation Archives that had been done amounted to 10,785, covering the fonds, sub-fonds, series, sub-series, files, and item levels, as shown in table 2 and table 3.

Table 2
Quantity of entities by the level of description

Entity	**Quantity**
Fonds	1
Sub-fonds	10
Series	240
Sub-series	120
File	211
Item	10.203

Source: Data processing result, 2021

Table 3
Quantity of level of description by event actors

Event actors	Fonds	Sub-fonds	Series	Sub-series	File	Item	Total
Borobudur Conservation Archives	1	0	0	0	0	0	1
Project Leader Archives	0	1	1	0	0	25	27
Direktorium Archives	0	1	31	0	0	77	109
Contractor Archives	0	1	4	0	0	37	42
Archives of Tecno-Archaeological Sector	0	1	110	35	211	3518	3874
Archives of Archaeological Chemistry Sector	0	1	67	0	0	444	511
Archives of Documentation Sector	0	1	20	85	0	6098	6203
Archives of Regulation Sector	0	1	2	0	0	3	6
Archives of Financial and Material Sector	0	1	2	0	0	1	4
Archives of the Security Sector	0	1	1	0	0	0	2
Archives of the Borobudur Conservation Agency	0	1	2	0	0	0	3

Source: Data processing result, 2021

Routine system maintenance is carried out at least once a month, referring to backups, system updates, and security patch updates. Meanwhile, the Borobudur Conservation Office provides users services such as archive digitization copies and access to the reading room. The request for Borobudur Conservation Archives is carried out by filling out the form provided in the service menu section, which they will respond to via e-mail. As a form of copyright protection, the Borobudur Conservation Office provides instructions for granting credit on behalf of the Borobudur Conservation Office on the archive digitization file.

CONCLUSION

The development of the Borobudur Conservation Archives services with ICA-AtoM in the Borobudur Conservation Office in the context of the role of archives have secondary values. The Borobudur Conservation Archives has been placed in a cultural heritage that is not only owned by the Indonesians but also by the world community. This can be seen from the efforts by the Borobudur Conservation Office in cooperation with other parties to realize the information system needed. From the evidential value, the Borobudur Conservation Archive contains information that explains the processes and activities carried out during the Restoration of the Borobudur Temple. From the informational value, the Borobudur Conservation Archive has practical information value for research, historical, and educational purposes. Regarding intrinsic value, the Borobudur

Conservation Archive is unique in restoration activities of historical and cultural heritage. As a memory institution, the Borobudur Conservation Office has developed an archive service based on online access for users that can be accessed through the address https://arsip.borobudurpedia.id/. System development through the ICA-AtoM platform is a form of validation of the system's usefulness within the scope of memory institutions. This is due to the ease of using the system in archive management. The development of the ICA-AtoM design has been adjusted to the needs of the Borobudur Conservation Office and is good in terms of design. In developing ICA-AtoM, the Borobudur Conservation Office cooperates with third parties. There are 3 data elements used in the development of ICA-AtoM for the needs of the Borobudur Conservation Archives service, including Archival Description, Authority Records, and Archival Institution. The description of the Borobudur Conservation Archives uses standards from the International Council on Archives (ICA). The Metadata of the Borobudur Conservation Archives may be one of the rich and exciting objects of study. It will continue to offer challenges and insights for researchers and practitioners from various backgrounds.

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