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Archival Preservation and Public Information Sustainability: Staff Perceptions at Semarang City Archives and Library Agency

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Abstract

Archival preservation should be viewed as a governance mechanism that supports the sustained availability, integrity, and accessibility of public information. This study aims to analyze the implementation of archival preservation in support of public information sustainability at the Semarang City Archives and Library Agency, examining both staff perceptions and preservation governance practices. The study employed a mixed-methods case study design. Data were collected through interviews with two archivists, questionnaires administered to 12 respondents, and reviews of relevant documents. Questionnaire data were analyzed using descriptive statistics, while interview and document data were analyzed qualitatively. The findings indicate that institutional readiness supported by policies, human resources, facilities and infrastructure, and organizational backing, forms the foundation for archival preservation activities. Preventive and curative preservation measures are implemented in an integrated manner, thereby protecting the integrity of the archives and ensuring the continuity of the information they contain. The study concludes that archival preservation at the Semarang City Archives and Library Agency serves as a governance mechanism for maintaining public information sustainability, rather than merely a technical document maintenance activity. Preventive and curative preservation strategies are applied complementarily to safeguard the availability, authenticity, integrity, and accessibility of public information. Archival preservation acts as a governance mechanism that not only protects archives as institutional memory but also reinforces the sustainability of public information through systematic and integrated management, with a focus on accountability and the quality of public services.

Keywords: *archival preservation, governance, public information, information sustainability, archives management*

Abstrak

Pelestarian arsip perlu dipandang sebagai mekanisme tata kelola yang mendukung ketersediaan, integritas, dan aksesibilitas informasi publik secara berkelanjutan. Penelitian ini bertujuan untuk menganalisis pelaksanaan pelestarian arsip dalam mendukung keberlanjutan informasi publik di Dinas Arsip dan Perpustakaan Kota Semarang, ditinjau dari persepsi staf serta praktik tata kelola pelestarian arsip. Penelitian ini menggunakan desain studi kasus dengan metode campuran. Data dikumpulkan melalui wawancara dengan dua orang arsiparis, kuesioner kepada 12 responden, dan penelaahan dokumen yang relevan. Data kuesioner dianalisis menggunakan statistik deskriptif, sedangkan data wawancara dan dokumen dianalisis secara kualitatif. Hasil penelitian menunjukkan bahwa kesiapan kelembagaan yang didukung oleh kebijakan, sumber daya manusia, sarana dan prasarana, serta dukungan organisasi, menjadi landasan bagi kegiatan pelestarian arsip. Langkah-langkah pelestarian yang bersifat preventif dan kuratif dilaksanakan secara terintegrasi sehingga integritas arsip terlindungi dan keberlangsungan informasi di dalamnya tetap terjaga. Penelitian ini menyimpulkan bahwa pelestarian arsip di Dinas Arsip dan Perpustakaan Kota Semarang berfungsi sebagai mekanisme tata kelola untuk menjaga keberlanjutan informasi publik, bukan sekadar kegiatan teknis pemeliharaan dokumen. Pelestarian preventif dan kuratif diterapkan secara saling melengkapi untuk menjaga ketersediaan, autentisitas, integritas, dan aksesibilitas informasi publik. Pelestarian arsip merupakan mekanisme tata kelola yang tidak hanya melindungi arsip sebagai memori institusional, tetapi juga memperkuat keberlanjutan informasi publik melalui pengelolaan yang sistematis dan terintegrasi, dengan fokus pada akuntabilitas dan kualitas layanan publik.

Kata Kunci: pelestarian arsip, tata kelola, informasi publik, keberlanjutan informasi, pengelolaan arsip

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INTRODUCTION

Archives serve as vital sources of information in government operations, documenting the execution of functions, duties, and responsibilities of public institutions. Every governmental activity generates records that capture administrative processes, decision-making, public services, and the policies that shape an institution's history (Boufounou et al., 2024). Archives serve as a source of public information that holds administrative, legal, historical and accountability value. Therefore, the sustainability of their management is vital for effective public administration. Ensuring the continuity of public information depends not only on storage, but also on preservation practices capable of protecting archives from various risks, such as physical damage and the loss of information.

Archives function not merely as administrative tools but also as sources of information that underpin accountability, serve as evidence, inform decision-making, and act as a collective memory of a region's development. Consequently, the continuity of the information contained within archives must be safeguarded to ensure its ongoing utility for both the government and the public (Ncube & Ngulube, 2025). The informational value of archives cannot be fully realized if their physical condition or storage media deteriorate. Over time, archives face various threats that can compromise quality or even lead to the loss of the information they contain. Such damage may result from aging, environmental conditions in storage, disasters, pests, or improper handling (Wagner et al., 2023). Without sustained preservation efforts, this damage risks the loss of information holding administrative, legal, historical, or cultural value. This underscores the fact that preserving archives is not solely about maintaining the physical medium; it is equally about ensuring that the information within remains intact, authentic, and accessible when needed. Borgerud (2026) states that successful implementation requires a shared understanding of the value of records, the practical feasibility of archiving, and institutional commitment.

In the administration of archives, preservation plays a crucial role in ensuring the continuity of the information contained within the records. Preservation entails efforts to maintain the condition of archives so that they remain usable in accordance with their functions and informational value (Martínez-Cardama & Pacios, 2022). This activity is an integral part of archival management, as it aims to prevent damage, slow down the deterioration of records, and undertake remedial measures for archives that have already sustained damage. Thus, preservation is not merely focused on the physical

protection of archives but also serves to ensure that the information within them is safeguarded and remains accessible for long-term use (Seila et al., 2026). The state is responsible for the protection and preservation of records designated as state records. Law of the Republic of Indonesia Number 43 of 2009 stipulates that such protection and preservation shall be carried out through both preventive and curative measures (Republic of Indonesia, 2009).

The importance of archival preservation makes it a responsibility shared by all parties involved in the creation, management, and storage of archives. This obligation extends beyond archival institutions to include government agencies, civil society organizations, and individuals holding archives of specific informational value. Preservation is a key aspect of the responsibility to safeguard information continuity, ensuring that archives continue to function as authentic and reliable sources of information (Dube, 2025). Therefore, preservation should not be viewed merely as a technical task, but rather as part of an effort to achieve sustainable archival management capable of meeting both current and future information needs. This perspective aligns with the research focus, which positions preservation as a central aspect due to its close link to archival management implementation and its goal of preserving the information contained within the records (Franco & Mauri, 2024).

Archives can be viewed quite differently through the lens of our disciplines (Cook, 2011). The same applies to the Semarang City Archives and Library Agency. Regional archival institutions play a strategic role in carrying out preservation activities as part of archival management at the local level. This role encompasses the management of archives, the maintenance of their physical condition and informational integrity, and the provision of services that support the continued existence of archives as sources of public information (Wessell & Thorpe, 2023). Preservation at the regional level is vital because archival institutions are responsible for safeguarding various types of archives that hold administrative, legal, historical, and social value for the community. Through continuous preservation efforts, archival institutions are expected to ensure that records remain in good condition, thereby allowing the information they contain to be utilized optimally by various parties (Balogun, 2026).

Archival preservation plays a vital role in safeguarding the longevity and accessibility of documents of historical, legal, administrative and cultural value for future generations. Research findings by Faedah and Ulum (2025) at the Archive Depot of the Malang City Library and Archives Office indicate that archival preservation strategies involve maintaining room temperature in accordance with standards, using appropriate storage media, controlling

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humidity, preventing damage caused by external factors, providing disaster mitigation training, implementing technology through digitization, and managing digital archives. Fatmawati et al. (2026), in a previous study, found that preventive and curative preservation strategies are implemented through a combination of technical and educational practices, institutional training programs, community outreach, archival exhibitions, public services, institutional support, infrastructure and human resources, all of which serve to strengthen preservation outcomes. In this context, archival preservation serves as an educational platform that supports lifelong learning and awareness of cultural heritage.

One of the institutions charged with this responsibility is the Semarang City Archives and Library Agency, which serves as the local archival authority responsible for managing and maintaining various archives. The preservation practices at this agency are a compelling subject of study because they are directly linked to efforts to ensure the continuity of information stored within the various types of archives under its management. Beyond merely serving as a repository, the agency provides services that support preservation activities as part of the local government's archival operations. Consequently, a study of archival preservation at this agency is expected to provide insight into how preservation activities are carried out as a means of safeguarding public information through effective archival management. This aligns with the research introduction, which states that the study focuses on archival preservation activities at the Semarang City Archives and Library Agency to gather information on how preservation is implemented within the institution. Archives are understood as a collection of records or documents stored systematically due to their utility or value, ensuring they can be quickly retrieved whenever needed. A record is defined as any written or pictorial note containing information about a subject or event, created by an individual to aid their memory. Bajwa and Rafiq (2025) explain that archives and records are important resources for individuals, organizations and the country.

Previous research has extensively explored archival preservation primarily from a technical standpoint. For instance, several studies have emphasized the physical conservation of deteriorating records to combat environmental and biological damage (Olteanu et al., 2023). Meanwhile, other literature has heavily focused on the transition to digital archiving systems and media conversion to enhance document accessibility (Kiambati et al., 2024). While these technical approaches are crucial, empirical research examining preservation comprehensively as a strategic public governance mechanism at the municipal

level remains limited. There is a significant gap in studies exploring how regional archival institutions integrate institutional readiness, policies, and both preventive and curative practices to sustain public information. This study addresses this gap by positioning archival preservation not merely as a technical administrative task, but as a strategic governance mechanism.

Based on this context, the study aims to analyze the implementation of archival preservation in support of public information sustainability at the Semarang City Archives and Library Agency, examining both staff perceptions and preservation governance practices. By assessing the implementation of these activities, the research focuses on gaining a comprehensive overview of the agency's institutional readiness. This approach fosters an understanding of the importance of preservation in maintaining the continuity of information contained in archives, thereby strengthening the role of archival institutions in the sustainable management of public information.

Conceptually, framing archival preservation as a governance mechanism requires understanding archives as essential assets for institutional accountability, public transparency, and democratic governance. Governance in public administration encompasses the legal frameworks, organizational structures, procedural controls, and resource allocations that ensure public institutions fulfill their mandates effectively. Within archival science, preservation governance transcends mere physical document repair; it represents a systematic framework linking institutional policy adherence, human resource competence, risk-mitigation protocols, and digital accessibility to safeguard the integrity and continuity of public records. When regional archival institutions embed preservation into their core governance workflows, archives remain authentic, legally valid, and continuously accessible as reliable evidence of public administration.

Despite the recognized importance of archival governance, existing empirical literature on preservation in regional archival institutions has remained largely fragmented. Previous research has primarily focused on isolated technical aspects, such as physical conservation techniques for paper decay, digital repository compliance with metadata standards, or general records management practices in academic settings. Few studies have empirically examined how a municipal archival agency comprehensively integrates regulatory compliance (such as ANRI guidelines), preventive environmental controls, curative restoration practices, and inter-agency digital collaboration into a cohesive governance mechanism. This study addresses this critical gap by evaluating preservation practices at the Semarang City Archives and Library Agency as an

integrated governance framework, offering empirical insights into how regional institutions operationalize preservation to ensure the long-term sustainability of public information.

METHODS

This study adopts a descriptive mixed-methods case study design (Creswell & Creswell, 2018; Yin, 2018) to provide a comprehensive analysis of archival preservation practices as a governance mechanism at the Semarang City Archives and Library Agency. A mixed-methods case study approach was selected because it enables the integration of quantitative empirical measurements (staff perceptions) with qualitative contextual depth (institutional policies and operational workflows), offering a holistic understanding of preservation implementation.

Data collection involved two groups of participants selected according to the requirements of each data collection technique. Two archivists responsible for preventive and curative preservation were purposively selected as key informants for the interviews. The selection criteria included a minimum of three years of operational experience in archival preservation, direct involvement in policy implementation, and technical authority over preservation workflows at the Semarang City Archives and Library Agency. For the quantitative component, a census (total sampling) was conducted involving all 12 personnel (N = 12) directly involved in daily preventive and curative preservation activities at the agency. The survey population comprised all active archival staff and technicians handling physical and digital archives within the facility.

Primary data were gathered using two complementary techniques to achieve method triangulation. Structured questionnaires were administered to the 12 preservation staff members to quantitatively measure baseline operational readiness and staff perceptions regarding preservation execution. The questionnaire used a five-point response scale comprising strongly disagree, disagree, somewhat agree, agree, and strongly agree. The instrument was structured into three primary operational dimensions: (a) Institutional Readiness (policies, HR competence, facilities, and budget); (b) Preventive Preservation (environmental control, fumigation, storage media, digitization, and encapsulation); and (c) Curative Preservation (damage assessment, cleaning procedures, standardized conservation materials, documentation, and work safety). Semi-structured interviews were conducted with the two key informants to explore the qualitative "how" and "why" behind the quantitative survey results. Interviews examined the regulatory frameworks utilized, inter-agency collaborations, specific technical constraints, and public outreach programs.

Secondary sources, including archival management standard operating procedures (SOPs), preservation logbooks, internal inventory reports, and relevant statutory regulations, were analyzed to corroborate the primary findings.

Quantitative data from the questionnaires were analyzed using descriptive statistics to calculate percentage distributions and frequency patterns for each indicator. Qualitative data from interviews and document reviews were analyzed using the interactive data analysis model by Miles, Huberman, and Saldaña (2014), comprising data condensation, data display, and conclusion drawing/ verification. The quantitative perception percentages and qualitative narrative insights were jointly integrated during the discussion phase to provide a robust evaluation of archival preservation governance.

RESULT AND DISCUSSION

A. Institutional Readiness for Archival Preservation in Supporting Public Information

Archives must meet requirements such as being authentic, reliable, intact, and usable. Interviews conducted on April 16, 2026, with two archivists from the Semarang City Archives and Library Agency revealed that several initiatives have been undertaken. These include focus group discussions aimed at preserving records of historical value to Semarang City, services for preserving community records, the handling of disaster-affected records, history-focused workshops, and archival exhibitions showcasing the city's historical documents and photographs. Additionally, efforts involved technical training on active records management to enhance archivists' competencies and records preservation through the publication of lists of sought-after records. Furthermore, measures were taken to strengthen record protection, specifically in disaster-prone areas, through digitization and media conversion. Collectively, these activities demonstrate a commitment to implementing good, transparent, and accountable governance while supporting the transformation toward digital archives.

Successful archival preservation depends not only on technical interventions for damaged records or preventive measures against factors that degrade record quality, but also on the institutional readiness of the body responsible for archival functions. Such readiness reflects the organization's capacity to provide the necessary support elements for sustainable preservation. These elements include policies serving as operational guidelines, competent archival personnel, adequate facilities and infrastructure, and sufficient budgetary support to sustain preservation activities. These four interconnected aspects form an institutional foundation that enables systematic archival preservation, ensuring that the

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information contained within the records remains intact and accessible for the long term.

Policy plays a crucial role in establishing institutional readiness by serving as the foundation for all preservation activities. Policies provide direction regarding procedures, the division of responsibilities, and the standards to be applied at every stage of the preservation process. Without clear policies, preservation efforts risk inconsistency, making it difficult to achieve the goal of safeguarding the continuity of public information (Lee, 2024). Therefore, a policy functions not merely as an administrative document but as a governance instrument that ensures all preservation activities are conducted in accordance with established regulations.

Archives play a strategic role as a source of information, a basis for performance accountability, and evidence of accountability in the administration of government. The Semarang City Archives and Library Agency, as the supervisory body for archival matters, plays a vital role in promoting the establishment of an archives management system that is resilient to potential disaster risks. Institutional readiness at the agency is anchored in formal regulatory frameworks and structured operational workflows.

Quantitative survey data indicate unanimous alignment among staff regarding policy implementation (33% strongly agree, 67% agree), establishing a strong empirical baseline of institutional compliance. Operationally, this readiness is executed through adherence to the Regulation of the Head of the National Archives of the Republic of Indonesia Number 23 of 2011 concerning Guidelines for Static Archival Preservation (National Archives of the Republic of Indonesia, 2011). In the absence of a localized municipal regulation, the adoption of national standards serves as a critical governance mechanism, ensuring that both preventive and curative routines maintain procedural consistency and legal accountability across municipal public service units.

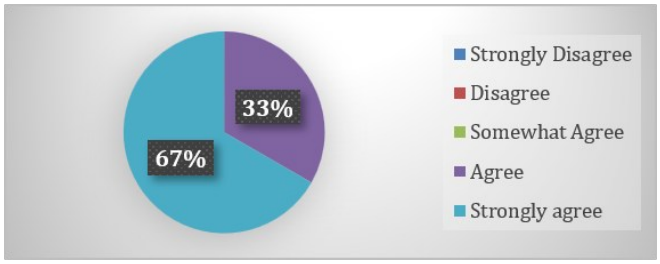


Figure 1. Percentage of Respondent Responses Regarding the Implementation of Preservation Policies as a Reference for Preventive and Curative Preservation

These findings are reinforced by interview results indicating that preservation activities at the Semarang City Archives and Library Agency are

guided by the Regulation of the Head of the National Archives of the Republic of Indonesia Number 23 of 2011, as there are currently no specific regulations regarding archival preservation at the Semarang City Government level. The existence of these guidelines demonstrates that preservation efforts have a normative foundation serving as a reference for carrying out various archive maintenance and protection activities. Although the regulation is national in scope, its application provides clear direction for the local archival institution to conduct preservation consistently.

Beyond policy, institutional readiness is also influenced by the quality of the human resources responsible for preservation. Archivists are required not only to understand archive maintenance techniques but also to possess the ability to identify various forms of damage, determine appropriate preservation methods, and execute preservation actions in accordance with established procedures. Such competence is a crucial factor because different types of archives possess distinct characteristics, thereby requiring different handling approaches. The higher the capability of an institution's human resources, the greater the likelihood that preservation will be carried out correctly, thereby minimizing the risk of information loss.

Regarding human resource readiness, archival preservation requires specialized technical competencies to identify physical decay and execute appropriate conservation interventions. Operationally, archivists manage complex media preservation tasks requiring technical precision to prevent permanent information loss. Survey findings validate the operational importance of human resource quality and quantity, with 92% of staff affirming its decisive role in preservation success (25% strongly agree, 67% agree, 8% somewhat agree). This demonstrates that human resource development is a strategic governance investment necessary to sustain institutional memory.

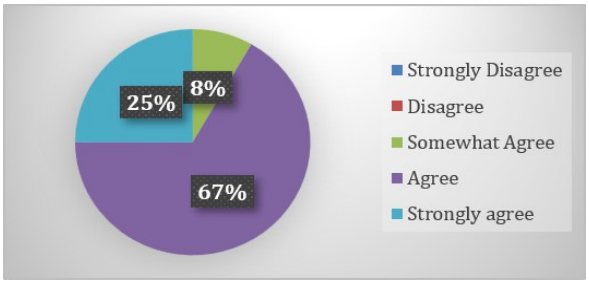


Figure 2. Percentage of Respondent Responses Regarding the Influence of the Quantity and Quality of Human Resources on the Success of Archival Preservation

Ultimately, human resource readiness not only relates to the individual capabilities of archivists but also reflects the organization's capacity to establish

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a sustainable preservation system. Archivist competencies ensure that every stage of preservation is carried out according to procedure, thereby maintaining the quality of records management. In this context, investing in human resource competency development is a crucial element of institutional strengthening, as the success of preservation fundamentally hinges on the capabilities of the personnel directly executing these activities.

Another key factor determining institutional readiness is the availability of supporting facilities and infrastructure. Optimal records preservation cannot be achieved without facilities that meet specific management needs. A range of assets, including storage equipment, conservation tools, security systems, and digital technology, work in tandem to safeguard both the physical condition and the informational content of the records. Consequently, the provision of such facilities and infrastructure serves as a tangible demonstration of the institution's commitment to supporting sustainable preservation efforts.

Infrastructure adequacy directly governs the physical lifespan of public archives. The agency maintains functional preservation assets, including lamination and encapsulation equipment, Japanese tissue, standard scanners, archival boxes, storage cabinets, cartographic storage units, and mobile shelving systems (roll-o-packs). However, operational gaps remain, such as the absence of A0-sized scanners, slide record projectors, cold storage, document-drying equipment, and a specialized restoration laboratory. Survey responses reflect this operational reality: while 75% of staff agreed that current facilities support baseline activities, 25% somewhat agreed, highlighting the necessity of infrastructure upgrades to handle specialized records and disaster recovery scenarios. Financial allocation underpins program sustainability. While survey results reveal mixed perceptions regarding budget constraints, with some personnel viewing limited funding as an operational bottleneck and others prioritizing legal mandates regardless of funding levels, effective governance requires integrating dedicated preservation budget lines into municipal annual planning to guarantee continuous archive protection.

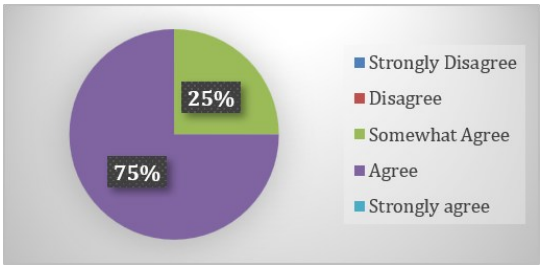


Figure 3. Percentage of Respondent Responses Regarding the Adequacy of Facilities and Infrastructure for Archival Preservation

Interview results provide a more detailed overview of the facilities possessed by the institution. Available resources include lamination and encapsulation equipment, Japanese tissue, scanners for standard-sized records, archive boxes, storage cabinets, shelving units, mobile shelving systems, and storage units for cartographic records. Conversely, certain facilities remain unavailable, such as equipment for drying records, cold storage, A0-sized scanners, and projectors for slide records. This information indicates that existing infrastructure supports the majority of preservation activities. However, facility upgrades are still required to ensure that all types of records receive preservation treatments appropriate to their specific characteristics.

Institutional readiness is also linked to the budget support available for preservation efforts. The budget serves as a resource enabling the institution to provide facilities, conduct routine maintenance, enhance staff competence, and develop preservation-supporting technologies. Nevertheless, questionnaire results reveal diverse respondent perceptions regarding the impact of budget constraints. While the majority of respondents acknowledge that limited funding can hinder preservation efforts, others maintain that such constraints should not impede these activities, as the protection of records remains a fundamental responsibility of the archival institution.

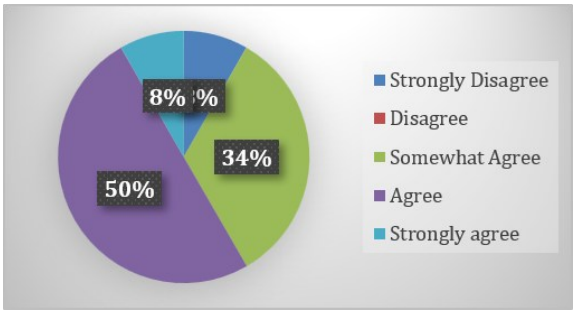


Figure 4. Percentage of Respondent Responses Regarding the Impact of Budget Constraints on the Implementation of Preservation

An institution's readiness to support archival preservation is built upon the integration of policies, human resource competence, the availability of facilities and infrastructure, and budgetary support. These four aspects are inseparable, as each contributes to shaping a preservation system capable of safeguarding the continuity of public information (Ngoepe et al., 2024). When policies provide implementation direction, human resources execute procedures professionally, facilities support the preservation process, and the budget ensures program continuity, the institution gains a stronger capacity to protect archives as sources of public information. Thus, institutional readiness serves not merely as an administrative prerequisite for records management but as a fundamental basis

for preservation practices that effectively sustain public information over the long term.

B. Preventive Archival Preservation for Maintaining Information Sustainability

Preventive preservation is a key component of archival preservation, as it focuses on averting damage before the records suffer a decline in quality that could compromise the information they contain. Unlike remedial measures taken after damage has occurred, preventive preservation emphasizes controlling risk factors that could accelerate the degradation of records. Through this approach, archival institutions strive to create secure storage environments, implement regular maintenance procedures, utilize appropriate storage media, and develop digital technologies to extend the protection of archival information. Consequently, preventive preservation aims not only to maintain the physical condition of records but also to ensure the continuity of public information, keeping it authentic, accessible, and usable in the long term.

Preventive preservation is implemented as a proactive risk-mitigation strategy designed to prevent physical decay and information loss before deterioration occurs. Environmental control within storage facilities serves as a primary measure to reduce preservation risks. The agency regulates ambient storage conditions using air conditioning systems, temperature monitoring tools, surveillance cameras (CCTV), fire alarms, and portable fire extinguishers, combined with restricted room access. Survey data indicate positive staff perceptions of these environmental controls, with 92% of respondents expressing agreement that temperature regulation and physical security are adequate (17% strongly agree, 75% agree).

Biological risk management is systematically executed through twice-yearly fumigation protocols. Rather than responding reactively to pest infestations, periodic fumigation functions as a scheduled preventive routine to protect paper-based records against insects, mold, and microorganisms. Staff survey responses unanimously confirm the consistent execution of this twice-yearly routine (50% strongly agree, 50% agree). Complementing biological control, storage media selection plays a vital role; archives are systematically organized using acid-free archival folders, standardized boxes, and mobile shelving units, an operational practice supported by 100% of respondents (42% strongly agree, 58% agree).

To enhance information accessibility and safeguard physical originals, the agency integrates digital media conversion into its preventive strategy. Media conversion is operationalized through cloud-based digital repositories managed in collaboration with the Semarang City Communication and Informatics

Agency, as well as the "Early Archive Awareness" (Sadar Arsip Sejak Dini) document scanning initiative. Survey findings indicate strong institutional adoption of digitization (42% strongly agree, 50% agree, 8% somewhat agree). Furthermore, for physical documents requiring long-term protection without structural modification, the agency utilizes reversible encapsulation techniques rather than permanent lamination, a choice endorsed by 100% of staff (58% strongly agree, 42% agree) to preserve document authenticity.

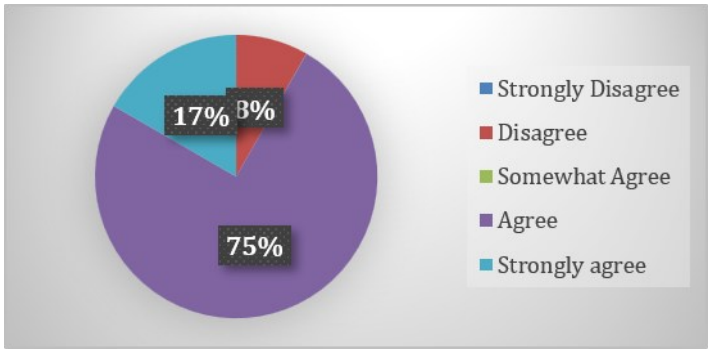


Figure 5. Percentage of Respondent Responses Regarding the Condition of the Archive Storage Room in Terms of Meeting Temperature Control and Security Aspects

These findings align with interview results indicating that archive protection involves not only room temperature control but also various security measures, such as CCTV, fire alarms, and portable fire extinguishers, alongside storage systems designed to maintain stable conditions for the records. The implementation of these facilities demonstrates that preventive preservation is understood as a comprehensive effort to minimize the risk of damage caused by environmental factors or emergencies.

In addition to controlling the storage environment, fumigation is a crucial component of preventive preservation. Infestations of mold, termites, insects, and other microorganisms are among the primary causes of damage to paper-based archives. Such biological damage often progresses gradually and may not be immediately apparent, yet it can lead to the partial or total loss of the information contained within the records. Consequently, fumigation is employed as a preventive measure to control destructive organisms and safeguard the archives before serious damage occurs.

Questionnaire results indicate that respondents view the practice of periodic fumigation positively. Half of the respondents strongly agreed, and the other half agreed, that fumigation is routinely conducted as part of preventive preservation. According to the respondents, this activity is a vital procedure for maintaining the cleanliness of storage areas and preventing the proliferation of organisms that could damage the archives.

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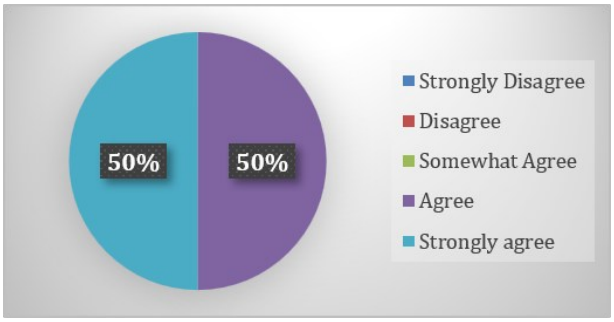


Figure 6. Percentage of Respondent Responses Regarding the Implementation of Periodic Fumigation in Archival Preservation Activities

Interview results reinforce these findings by indicating that fumigation is carried out twice a year as part of a routine maintenance program. This periodic execution demonstrates that preventive measures against biological damage have become a planned procedure rather than an action taken only when signs of damage appear. This approach offers more effective protection, as the risk of damage can be mitigated before it affects the physical condition or informational content of the records. Preventive preservation also involves the use of storage media suited to the specific characteristics of the records. Storage media serve to protect records from exposure to dust, light, physical impact, and environmental fluctuations during storage. The use of archival folders, boxes, shelving units, and other specialized containers is part of a strategy to minimize the risk of physical damage while facilitating records management. Thus, storage media not only support protection efforts but also enhance the efficiency of managing the archival collection.

Questionnaire results indicate that the majority of respondents believe storage media are being utilized effectively. Specifically, 42% of respondents strongly agreed, and 58% agreed that records are stored using media appropriate for preservation needs. These assessments demonstrate that the selection of storage media is viewed as an integral part of efforts to maintain the condition of the records over the long term.

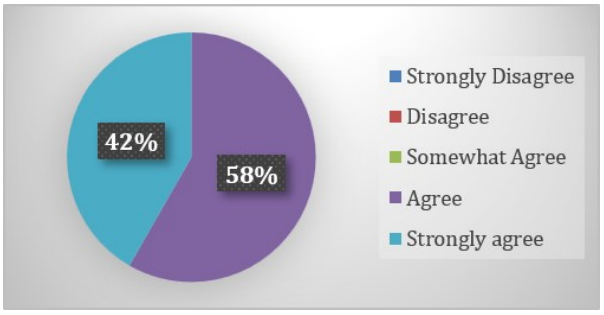


Figure 7. Percentage of Respondent Responses Regarding the Use of Appropriate Archival Storage Media

Advancements in information technology have driven a shift in approaches to preventive preservation through the implementation of media conversion, or the digitization of archives. Digitization is not intended to entirely replace physical archives but rather to provide an additional layer of protection for the information contained within them. Should physical archives suffer damage due to age, disasters, or other factors, digital copies ensure that the information remains accessible, thereby maintaining the continuity of information services. Consequently, digitization has emerged as an increasingly vital strategy for ensuring the sustainability of public information.

Survey results indicate that the majority of respondents view the implementation of media conversion as a component of preventive preservation positively. Specifically, 42% of respondents strongly agreed, 50% agreed, and 8% somewhat agreed that archive digitization has been implemented to support information protection. Respondents noted that media conversion not only enhances information security but also facilitates the storage, retrieval, and utilization of archives when needed.

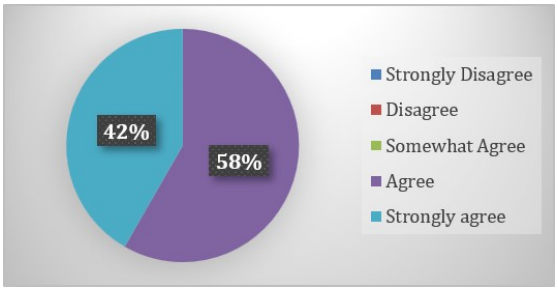


Figure 8. Percentage of Respondent Responses Regarding the Implementation of Media Conversion or Archive Digitization

These findings are reinforced by interview results indicating that the Semarang City Archives and Library Agency has implemented cloud-based digital storage, managed in collaboration with the Communication and Informatics Agency. Furthermore, the institution has developed the early archive awareness program, which includes document scanning activities, as part of efforts to broaden information protection. The implementation of this digital system demonstrates that preventive preservation no longer focuses solely on protecting physical media but also aims to ensure continued access to information through the use of digital technology.

Another form of preventive preservation is the use of encapsulation for archives requiring additional protection. Encapsulation involves enclosing the archive in a transparent protective material without altering the document's original form or structure. This approach was selected because it offers protection while avoiding risks of damage associated with other methods, such as lamination, which utilizes permanent adhesives. Thus, encapsulation provides

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physical protection without compromising the archive's authenticity as a source of information.

Questionnaire results reveal that respondents consider encapsulation more appropriate than lamination for preventive preservation. Specifically, 58% of respondents strongly agreed, and 42% agreed with the use of this method. These findings indicate that the choice of preservation technique balances physical protection with the need to maintain the archive's authenticity, ensuring its continued utility over the long term.

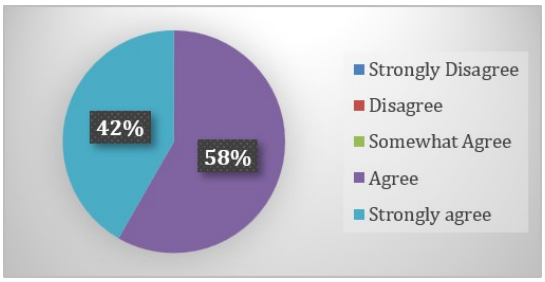


Figure 9. Percentage of Respondent Responses Regarding the Use of Encapsulation Versus Lamination as a Preventive Preservation Method

The preventive preservation measures implemented by the Semarang City Archives and Library Agency demonstrate that safeguarding the continuity of public information does not rely on a single specific action, but rather on a combination of complementary steps. Controls on storage environments, periodic fumigation, the use of appropriate storage media, archival digitization, and the application of encapsulation methods constitute a preventive system designed to mitigate various risks of damage from the outset. This approach illustrates that the success of preventive preservation is measured not only by the ability to maintain the physical condition of the records but also by the capacity to ensure that the information contained within them remains authentic, accessible, and usable over the long term as part of public information management (Ademola et al., 2024).

C. Curative Archival Preservation for Recovering Archival Integrity

Curative preservation is a vital component of archival preservation, focusing on the restoration of records that have already sustained damage. Unlike preventive preservation, which aims to mitigate damage risks from the outset, curative preservation is undertaken when records exhibit physical deterioration that could compromise their legibility, integrity, or the accessibility of the information they contain. Curative preservation efforts aim not only to repair the physical medium but also to safeguard the informational value of the records, ensuring they continue to serve as sources of information, evidence, and institutional memory. Consequently, every curative measure requires a systematic procedure to ensure

the restoration process does not inadvertently cause new damage that could diminish the record's authenticity.

Curative preservation is operationalized through standardized conservation protocols aimed at restoring damaged archives while preserving their original informational integrity. The curative workflow begins with a comprehensive physical damage assessment to identify decay types (e.g., acidity, tears, pest damage) and determine proportionate restorative treatments. All survey respondents confirmed that pre-treatment damage assessment is strictly conducted before restoration (50% strongly agree, 50% agree). Following assessment, surface cleaning procedures are performed to remove particulate contaminants and biological contaminants, a preparatory phase universally practiced by conservation personnel (58% strongly agree, 42% agree).

Restoration execution relies on the use of conservation materials considered appropriate for archival preservation. The agency reportedly utilizes Japanese tissue to repair torn paper records, with the aim of reinforcing the paper while preserving the original text and physical characteristics. Survey results indicate positive staff perceptions of the use of appropriate conservation materials, with 25% of respondents strongly agreeing and 75% agreeing with the relevant statement. However, these responses reflect staff perceptions and do not independently establish compliance with international conservation standards. Accountability in curative operations is maintained through process documentation. Archivists record damage classifications, applied chemical and physical treatments, material specifications, and completion dates in preservation logbooks to support traceability. Survey responses indicate that documentation is an integral component of curative practice, with 42% of respondents strongly agreeing and 58% agreeing with the relevant statement. Additionally, occupational health and safety measures, including the use of protective equipment and safe chemical handling, are incorporated into restoration routines. Survey responses indicate staff endorsement of these measures, with 50% strongly agreeing, 42% agreeing, and 8% somewhat agreeing.

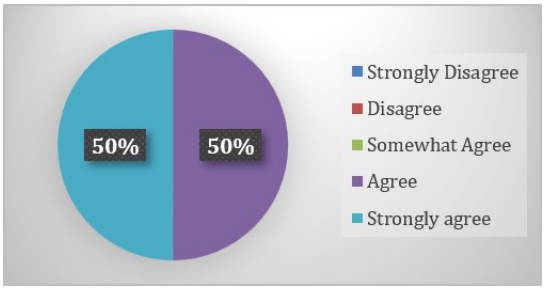


Figure 10. Percentage of Respondent Responses Regarding the Identification of Archive Damage Types Before Curative Preservation Measure

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Following the identification process, the next stage is the cleaning of the archives before repair. Cleaning aims to remove dust, dirt, mold, and other particles adhering to the archival surfaces, ensuring that conservation work is performed on a cleaner and more stable medium. This stage is crucial because the presence of contaminants or destructive organisms can accelerate deterioration if restoration measures are undertaken without prior cleaning. Thus, cleaning serves not merely as a preparatory step but as an integral part of ensuring the overall success of curative preservation efforts.

Questionnaire results indicate that 58% of respondents strongly agreed, and 42% agreed, that cleaning archives is a necessary procedure before repair work is carried out. These findings demonstrate that the conservation process is understood not simply as the repair of damaged archives, but as a series of interconnected stages designed to ensure effective preservation outcomes. Through the cleaning stage, the archives are better prepared to undergo conservation treatments tailored to the specific extent of the damage.

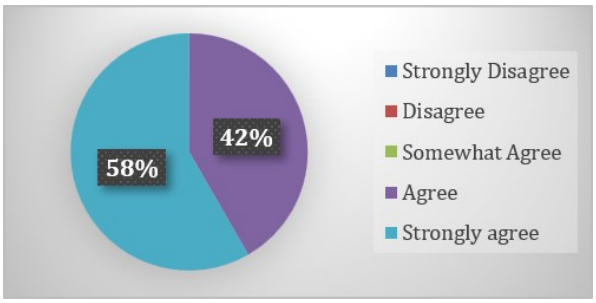


Figure 11. Percentage of Respondent Responses Regarding the Execution of Archive Cleaning before the Curative Preservation Process

The success of curative preservation also depends on the use of conservation materials that meet archival preservation standards. Selecting the appropriate materials aims to preserve the authenticity of the records while avoiding the negative effects that can arise from using unsuitable materials. Therefore, the selection of any material used in the restoration process must take into account the characteristics of the archival medium to ensure that the repair work does not diminish the record's authenticity or the information contained within it.

Questionnaire findings indicate that 25% of respondents strongly agreed and 75% agreed that the use of materials meeting preservation standards is a crucial aspect of curative preservation. This assessment reflects an understanding that the success of restoration is determined not only by the archivist's skills but also by the quality of the materials used during the conservation process.

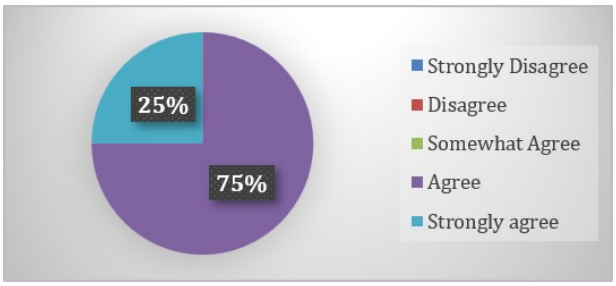


Figure 12. Percentage of Respondent Responses Regarding the Use of Conservation Materials in Accordance with Preservation Standards

Interview results provide a more detailed explanation of the curative preservation practices at the Semarang City Archives and Library Agency. One of the materials utilized in the restoration process is Japanese tissue, a conservation material used to repair damaged archives without compromising the documents' original characteristics. The use of this material demonstrates that the restoration process incorporates long-term conservation considerations. Thus, repair efforts focus not only on restoring physical condition but also on safeguarding the informational value contained within the archives.

In addition to conservation measures, documenting every repair process is a crucial component of curative preservation. Documentation ensures that any action taken on the archives can be traced back if needed in the future. Records detailing the type of damage, methods employed, conservation materials used, and the timing of the work form part of the preservation audit trail, thereby supporting accountability in records management. Such documentation enables a more systematic evaluation of preservation effectiveness and serves as a reference should the archives require further treatment in the future.

Questionnaire results indicate that 42% of respondents strongly agreed and 58% agreed that documenting the archive repair process is a necessary procedure within curative preservation. These findings reveal that preservation is understood not merely as a technical activity, but as a process requiring systematic record-keeping to support sustainable archives management.

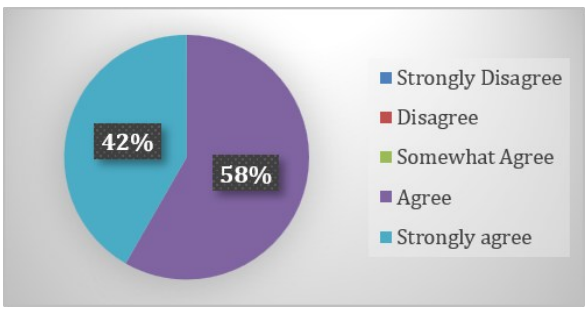


Figure 13. Percentage of Respondent Responses Regarding the Documentation of the Curative Preservation Process

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Another equally important aspect is the safety of both the archives and the archivists during the preservation process. Conservation work involves the use of specific equipment and materials, and implementing safety procedures is an integral part of preservation activities. Protecting the archives aims to prevent further damage during restoration, while protecting the archivists ensures that every stage of preservation is carried out safely and in accordance with established work procedures.

Questionnaire results indicate that 50% of respondents strongly agreed, 42% agreed, and 8% somewhat agreed regarding the importance of implementing safety measures in curative preservation activities. These findings demonstrate that preservation is understood not merely as an activity focused on the restoration outcome but also as a process that prioritizes the safety of the entire conservation process.

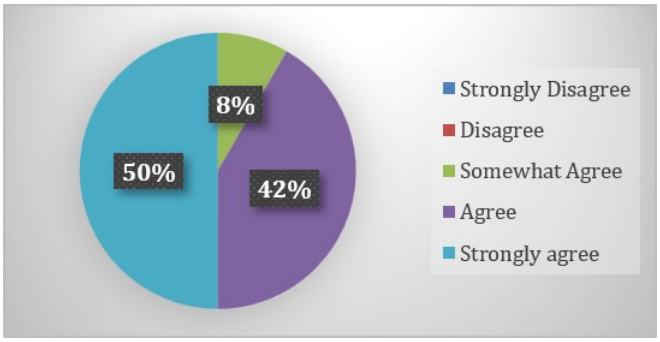


Figure 14. Percentage of Respondent Responses Regarding the Implementation of Safety Measures for Archives and Archivists During Curative Preservation

Curative preservation at the Semarang City Archives and Library Agency is carried out through a series of interconnected stages, ranging from assessing the condition of the archives and pre-conservation cleaning to using appropriate restoration materials, documenting every repair action, and implementing safety procedures throughout the conservation process. These activities demonstrate that archival restoration aims not only to repair physical damage but also to safeguard the integrity of the archives as authentic and reliable sources of information. Thus, curative preservation plays a vital role in ensuring that damaged archives continue to support the continuity of public information through a restoration process that is systematic, documented, and aligned with archival preservation principles (Manis et al., 2026).

D. Strengthening Public Information Sustainability through Integrated Archival Preservation Governance

Archival preservation cannot simply be understood as a series of technical activities focused on maintaining the physical condition of records. In the

context of government administration, preservation serves a broader function, as it relates to an institution's capacity to ensure the continuity of public information generated through administrative, service-oriented, and policy-making processes. Well-preserved records ensure that information remains available and authentic, serving as a basis for accountability and decision-making, as well as a source of knowledge for the public. Consequently, archival preservation is an integral part of institutional governance mechanisms that support the continuity of public information through systematic and sustained records management (Lischer-Katz, 2022).

Research findings indicate that preservation activities at the Semarang City Archives and Library Agency do not operate in isolation but are instead built upon the integration of various institutional components. The existence of policies, competent archival personnel, adequate supporting facilities and infrastructure, and active support for preservation activities demonstrates that the agency has established the organizational foundation necessary to safeguard the continuity of records. These components perform complementary functions, enabling preservation activities to be carried out consistently in accordance with established procedures. This situation illustrates that successful preservation depends not only on the technical ability to perform conservation measures on records but also on the institution's readiness to establish a management system capable of supporting the entire preservation process sustainably.

This institutional readiness is manifested through the implementation of preventive preservation strategies aimed at averting damage to records before it compromises the quality of the information they contain. Measures such as controlling storage room conditions, conducting periodic fumigation, using appropriate storage media, implementing security systems, and digitizing records demonstrate that the agency is committed not only to preserving the physical media of the records but also to mitigating risks that could lead to information loss. This preventive approach highlights that the continuity of public information begins with the institution's ability to anticipate and address factors that threaten the survival of the records. The better the prevention systems implemented, the greater the likelihood that public information remains available, even after records have been stored for an extended period.

On the other hand, this study demonstrates that curative preservation complements preventive efforts in ensuring the longevity of archives. Despite the implementation of various preventive measures, archival damage can still occur due to the aging of media, environmental factors, or other unavoidable conditions. Consequently, the existence of procedures for damage identification,

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cleaning, the use of appropriate conservation materials, documentation of restoration actions, and safety protocols indicates that the institution possesses mechanisms to restore damaged archives without compromising their informational value. Thus, curative preservation ensures that archives experiencing physical deterioration can still be maintained as authentic sources of information accessible to users.

These findings reveal that preventive and curative preservation are not isolated activities but rather form a complementary cycle of archival management. Preventive preservation serves to minimize the likelihood of damage through various control measures, while curative preservation ensures that damaged archives can be restored, thereby preventing the loss of the information they contain. The integration of these two approaches creates a continuous archival protection system, spanning from prevention to recovery. This system demonstrates that the continuity of public information relies not only on successfully preventing damage but also on the institution's ability to restore the functionality of archives after damage has occurred.

Another aspect reinforcing the preservation mechanism is the utilization of digital technology within archival management. Interview results indicate that the Semarang City Archives and Library Agency has implemented media conversion and utilizes cloud-based storage managed jointly with the Communication and Informatics Agency. Furthermore, the early archival awareness program, implemented through document scanning initiatives, demonstrates an effort to extend information protection via digital media. The use of such technology provides an additional layer of protection for archives; information is no longer solely dependent on the physical document but is also available in digital format, ensuring accessibility should the original archives sustain damage. This situation demonstrates that digitization is not merely a form of modernizing archival services, but rather an integral part of a preservation strategy to ensure the continuity of public information.

In addition to managing the archives under its purview, the Semarang City Archives and Library Agency guides various regional government bodies and offers archive restoration services to the public. This guidance is delivered through on-site visits, consultations, and ongoing communication with regional government agencies, schools, community health centers, and other institutions. Meanwhile, the restoration service enables the public to receive assistance in repairing damaged archives. These roles demonstrate that preservation is not solely focused on the agency's internal interests but also contributes to building awareness and capacity for archive management on a broader scale. In other

words, the preservation mechanisms employed extend beyond protecting the agency's own collections. They also support the sustainability of public information across various institutions and for the public as archive users.

Based on the research findings, it is evident that archival preservation functions as a governance mechanism linking institutional, technical, and service aspects within an integrated system. Institutional readiness provides the foundation for preservation activities, preventive preservation safeguards archives against potential damage, curative preservation restores archives that have deteriorated, and digitization and guidance extend the scope of information protection beyond the managing agency itself. The interplay among these components demonstrates that the sustainability of public information depends not only on the existence of archives but also on the agency's ability to establish a preservation governance framework that ensures the continued availability, integrity, and accessibility of information.

Thus, this research reveals that archival preservation at the Semarang City Archives and Library Agency has evolved beyond mere document conservation. Preservation has become an integral part of a governance mechanism that supports public information management by protecting archives as authentic, reliable, and sustainable sources of information. The integration of institutional readiness, preventive and curative preservation, digital technology utilization, and stakeholder guidance demonstrates that successfully maintaining the sustainability of public information requires a comprehensive approach. Through this approach, archival institutions not only preserve the existence of records but also ensure that the information contained within them remains usable to support government accountability, public service delivery, and the preservation of institutional memory for both the present and the future.

CONCLUSION

An analysis of archival preservation practices at the Semarang City Archives and Library Agency viewed through the lens of staff perceptions and governance reveals that preservation serves as a governance mechanism to ensure the continuity of public information, rather than merely a technical activity for maintaining physical documents. This continuity is underpinned by institutional readiness, comprising preservation policies aligned with national archival standards, competent personnel, adequate facilities and infrastructure, and organizational and budgetary support. These elements form the institutional foundation enabling preservation practices to be carried out consistently, accountably, and sustainably.

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The study's findings also indicate that preventive and curative preservation measures are implemented as complementary components within an integrated records management system. The Semarang City Archives and Library Agency plays a vital role not only in safeguarding local archives as institutional memory but also in upholding the availability, authenticity, integrity, and accessibility of public information. Strengthening infrastructure and specialized preservation facilities, ensuring adequate budget allocation, and enhancing human resource capacity remain essential to guaranteeing the long-term sustainability of archival preservation and public information services in Semarang City.

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