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Conservation and Preservation of Library Resources in Indira Gandhi National Centre for the Arts and National Archives of India: A Comparative Study

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The field of library and information science has been greatly influenced by technological advancements, revolutionizing the way libraries manage and preserve their resources and materials. Information is now predominantly available in digitized format. However, Libraries and archives face the challenge of preserving their physical collections while embracing the benefits of technology for creating digitized collection. The objective of this research is to examine the methods utilized by NAI and IGNCA in using technology for the purpose of conservation and preservation. The goal is to identify effective strategies and areas that can be enhanced through a comparative analysis. The assistance provided can contribute to the improvement of preservation initiatives in specialized libraries, guaranteeing the enduring existence and availability of cultural heritage for future generations. The primary objective of this study was to delve into the exploration of the process which delves into various preservation and conservation methods such as the selection and organization of materials, plans for digitalization, the significance of preserving old materials and the allocation of budget.

The study examines the collection process of two chosen institutions, focusing on materials, digitalization policies, and the significance of preserving old

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materials. The findings of this research offer valuable perspectives on library conservation and preservation practices, as well as future initiatives in this area. To gather data, we utilized a questionnaire, as well as the annual report, pamphlets, and the official website. Through our research, we discovered that the National Archives of India (NAI) and the Indira Gandhi National Centre for the Arts (IGNCA) share a mutual commitment to preserving historical artifacts. While IGNCA focuses on specialized preservation sections, the National Archives of India provides access to digitized resources through the Abhilekh Patal Portal. Both institutions strive to improve accessibility to historical and contemporary resources, fostering intellectual growth and cultural understanding for future generations. By combining their unique strengths, these institutions can cultivate a vibrant heritage.

Key words: *Conservation, Preservation, NAI, IGNCA.*

1 INTRODUCTION

The National Archives of India (NAI) is a repository for preserving the records of enduring the value of the Government of India and the Indira Gandhi National Centre for the Arts (IGNCA) has the responsibility to preserve various forms of art, i.e., written and audio, visual materials related to India's diverse art and culture. Both the organisations have proven their effectiveness in utilizing modern technology to preserve and sustain their library resources. The application of technology helps to ensure that precious resources are maintained for future generations, facilitating better organization, digitization and cataloguing. Through these initiatives, the institutions have been able to broaden access to their collections, making them available to a wider audience and enhancing research and education.

However, a number of positive impacts of these technological implementation can be seen through the library services, but, at the same time there are also some significant challenges in maintaining the authenticity and accessibility of their holdings. One of the main obstacles is the risk of digital degradation and the complexities associated with long-term storage and archiving of digital materials. Additionally, ensuring equitable access to these collections, particularly in remote areas, remains a challenge. Furthermore, the evolving nature of technology and the need for continuous updates to digital preservation techniques present an ongoing hurdle in safeguarding these valuable resources.

2 REVIEW OF LITERATURE

The world's cultural history is gradually shifting to a digital format, making preservation a demanding task. Several recent studies emphasise the need of digitalization and digital preservation in protecting India's literary legacy and

national cultural heritage. Preservation of cultural heritage is a crucial aspect of maintaining the rich legacy of India. Ahmad and Sharma (2020) highlight the importance of digitizing India's cultural legacy to ensure accessibility and protection for future generations. They suggest the need for national standards to guarantee successful digitalization, access, and protection of cultural treasures. Albeena (2019) discusses the preservation of artwork, sculptures, paintings, and audiovisual works of art at the Indira Gandhi National Centre for the Arts. The author emphasizes the delicate nature of paper and the distinctions between handmade and machine-made papers, as well as the role of cellulose in supporting research.

Bakhshi (2016) examines the digitization and digital preservation practices of the Indira Gandhi National Centre for the Arts in India. The study highlights the development of a digital library, KALASAMPADA, to make cultural resources accessible online. Barman et al. (2020) discuss the challenges faced in preserving Arunachal Pradesh's Buddhist libraries, including climatic conditions, lack of preservation policies, and limited technical knowledge and manpower. Blahová et al. (2020) present a new barrier coating made of Laksil lacquer and parylene C polymer for use on iron archaeological artefacts, exhibiting exceptional barrier qualities against corrosion.

Duran-Casablancas et al. (2020) investigate the use of agent-based simulation in evaluating conservation tactics for paper collections, highlighting the importance of considering individual characteristics to simulate chemical degradation. Fatima and Fatima (2021) discuss proactive preventive conservation procedures in place at the National Library of India, including effective pest control, climate control, digitization, and catastrophe planning. Lone et al. (2021) assess the state of preservation of rare materials in private libraries and religious establishments in Srinagar, Jammu and Kashmir, emphasizing the need for conventional preservation techniques and suggest measures to protect these priceless treasures for future generations.

3 OBJECTIVES OF THE STUDY

The study aims to achieve the following objectives:

i. to undertake a comprehensive examination of the preservation and conservation practises including methodologies, technologies and infrastructure implemented at the libraries of IGNCA and NAI
ii. to explore the collection and organization of library material at IGNCA and NAI
iii. to know about the type of materials selected for the conservation and preservation

iv. to assess the strengths and challenges of conservation and preservation strategies and user facilities in both institutions

v. To offer suggestions based on the results, with the aim of enhancing the user experience

4 NEED OF THE STUDY

The library has unique resources that should be used with extreme caution and require appropriate digital preservation. The collection housed within the library showcases the Digital Library-Rich Indians Cultural Heritage (DL-RICH) and its glory components, which are a testament to the past and present that, must be properly maintained via the use of technology. Thus, the study aims to examine the current state of the IGNCA and NAI library with a particular focus on the digital preservation policy of the resource. Recommendations of the study considered a number of variables, such as the development of electronic resources, employee training programmes, infrastructure improvements and the application of user engagement tactics.

5 SCOPE

This research extends to exploring the digital preservation strategies adopted by Indira Gandhi National Centre for the Arts (IGNCA) and the National Archives of India (NAI), only including digitization, digital storage and the innovative technologies used for physical preservation, such as environmental control systems, pest management, and conservation treatments. These have been selected as they are two premier institutions at the national level working for the historical & cultural development.

6 METHODOLOGY

This kind of study is required to know how library preserve and digitalize the document which they acquire by spending lakhs of rupees. Study has been chosen as the research method to get the relevant and accurate data. Questionnaire for Librarian and Chemist was prepared for collecting the data of IGNCA and NAI library through the study of relevant literature. However, Investigator personally visited and interacted with the operational in charge of labs of the respective institutions where the practical work is going on, to get the questionnaire filled up. Annual reports, pamphlets, brochures, unprocessed internal data, website and other records of the centre were also referred for official data such as collection, finance and other activities of the institutions.

Table 1: Institutional Profile of NAI and IGNCA.

Name	National Archives of India	Indira Gandhi National Centre for the Arts
Head	Shri Govind Mohan (Member Secretary)	Dr. Sachchidanand Joshi (Member Secretary)
Director	Shri Arun Singhal	Shri Arun Sinha
Librarian	Smt. Anumita Banerjee	Dr. R.C. Gaur
URL of website	http://nationalarchives.nic.in	http://ignca.gov.in
Postal address	Janpath Road, Opposite IGNCA, near Shastri Bhavan, Delhi-110001	IGNCA, Janpath Road, Building, Delhi-110001
Year of establishment	11 March 1891	19 November 1987
Status of library	Autonomous institution	Autonomous institution

Table 1 is all about library set up including librarians, address, year of establishment, parent organization and website etc. of National Archives of India and Indira Gandhi National Centre for the Arts.

7 LIBRARY MATERIALS

A variety of information sources are included in library materials, often known as library documents or collections, including print, non-print, digital and ancient/archival items. Because of their deteriorative qualities, these materials must be properly preserved in order to last a long time and be useful to library patrons.

7.1 Type of Library Materials:

Library Materials are available in the library in different forms and formats. These include:

a. Ancient/Archival Materials: Ancient or archival materials are a variety of information sources that libraries maintain and preserve. These materials can take many different forms, including paper, coins, artworks, manuscripts, rare books and more.

b. Print Materials: Printed materials are the materials that are created on paper which includes books, newspapers, periodicals, drawings and pictures. Non-print resources, such as digital information, are not included in this category.

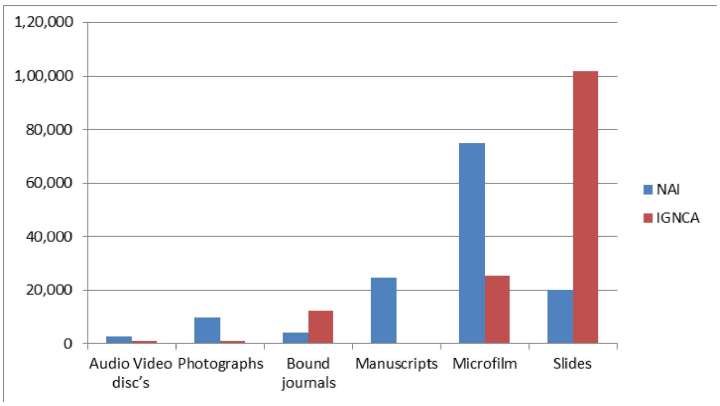
c. Non-Print Materials: Libraries also have "non-book materials", such as audio and video cassettes, CDs, DVDs etc.

d. Digital Materials: Digital materials encompass both digitised analogue materials and born-digital content and can be accessed through computers and mobile devices. Libraries support accessibility and preservation efforts by preserving historical materials through digitalization programmes.

Table 2 : Library material collection in NAI and IGNCA.

Sl. No.	Materials Type	NAI No. of Items	IGNCA No. of Items
1.	Books	1,90,000	2,50,000
2.	Photographs	10,000	1,100
3.	Bound journals	4,150	12,340
4.	Manuscripts	24,810	80
5.	Audio Video disc's	2,689	1,000
8.	Microfilm	74,780	25,465
9.	Slides	20,200	1,01,700

Graph 1 This comparative analysis of Table 2 is graphically shown in the pie chart below:



Graph 1 shows that NAI library consists of around 1,90,000 volumes of books and some 2,689 audio and video discs. And has 4,150 bound journals and 24,810 approximately manuscripts, the conservation work of which is still in progress. Also there are around 10,000 approximately Photographs. Furthermore, there are slides approximately 20,200. And

IGNCA library hosts a diverse collection of 2,50,000 books, 1,000 audio video discs. Additionally, the library has 25,465 microfilms, 12,340 bound periodicals, 80 manuscripts, 1,100 photographs, and 101,700 slides.

8 REASONS FOR DETERIORATION OF LIBRARY MATERIALS

Material deterioration occurs when factors of destruction and library materials interact, changing the materials' initial state. Factor of deterioration of library materials at the selected institutions include:

i. Environmental Factors: Environmental deterioration factors are those that are present in the environment and strong enough to harm library resources. These include temperature and relative humidity, light, heat, pollution/dust and dirt and water.

ii. Biological Factors: The biological degradation of library materials is caused by bacteria and macroorganisms that feed on organic compounds. Unsuitable temperature, darkness and lack of ventilation all promote development. White ants, mice, fungi, mildew and mould are a few examples.

iii. Chemical Factors: Library resources are at risk from atmospheric pollutants and chemicals used in the paper manufacturing process. These chemicals cause fading to library items composed of paper, cloth, leather and other materials. They also target inks and harm material bindings.

iv. Human Factors: Human elements of degradation are caused by carelessness, which includes improper handling, abuse, theft, vandalism and mutilation by library employees and patrons, which results in material deterioration.

v. Disasters: Natural or man-made disasters, such as earthquakes and floods, can destroy library materials. For this reason, disaster preparedness plans are essential, and library staff members should get frequent training and simulated exercises as part of their preparation.

Table 3 Methods used in NAI and IGNCA Library for Containing the Resources.

Sl. No.	Methods	IGNCA	NAI
		Yes/No	Yes/No
1.	Shelves	✓	✓
2.	Storage in Container	✗	✗
3.	Storage in boxes	✗	✗
4.	Storage in bundles	✗	✗
5.	Manuscript boxes	✓	✓
6.	Matting for paper documents	✗	✗
7.	Portfolio for documents	✗	✗
8.	Cloth wrappers	✗	✗
9.	Slip book case	✓	✗
10.	File cabinets	✓	✓
11.	Microfilm cabinets	✓	✓
12.	Maps cabinets	✓	✓
13.	Maps files	✓	✓
14.	Microfilms	✓	✓
15.	DVDs	✓	✓

Table 3 titled "Methods used in NAI and IGNCA Library for Containing the Resources" compares storage methods between IGNCA and NAI libraries. Both utilize shelves, manuscript boxes, file cabinets, microfilm cabinets, maps cabinets, maps files, microfilms, and DVDs. However, only IGNCA employs slip book cases.

9 NEED FOR PRESERVATION AND CONSERVATION OF LIBRARY MATERIALS

Regardless of their value, all library resources require conservation and preservation. Due of budget limitations, curative conservation necessitates careful selection; yet, dedication from library staff is crucial for efficient maintenance. Effective strategies and plans that prioritise proactive measures and personnel dedication are essential for the success of preservation and conservation activities.

Commonly used Conservation and Preservation tools and Practices

i. Preservation/Preventive Conservation: Rather than making immediate changes to the artefacts, preventive conservation focuses on the surrounding environment to prevent degradation and damage. Some of the activities include environmental control, handling and storage, emergency preparedness, security and staff and user education.
ii. Conservation/Curative Conservation: Curative conservation includes directly treating things with chemicals and/or non-chemical methods to avoid future deterioration. This is typically done for fragile materials that are seen as critical to maintain. Expert conservation care attempts to stabilise damaged materials for long-term preservation while maintaining authenticity and integrity.
iii. Restoration: While restoration aims to return objects to their original state, it frequently affects their appearance. Restoring lost value or usefulness due to deterioration calls for taking direct action on specific items, such as restoring paintings or manuscripts and reassembling sculptures.
iv. Encapsulation: Encapsulation protects vulnerable papers from environmental factors and physical harm by enveloping them in clear plastic film, allowing for observation and examination without coming into direct contact with them. This reversible method facilitates the preservation of manuscripts and photographs, among other delicate or sensitive things.
v. Digitization: Digitization converts paper, photographs, and objects into digital formats using cameras or scanners, allowing for both preservation and access to sensitive documents. Institutions prefer it to microfilming because it facilitates the use and preservation of valuable records.

vi. ASCII (Non-Image): ASCII storage enables exceptionally efficient and compact text storage by reducing page sizes to a few bytes of their original size. It is perfect for editing and publishing since it simplifies text reformatting, extraction, and comparison. ASCII also supports a wide range of hardware and software, including speech synthesisers.

vii. Microfilming: By microfilming, a roll film master is made, from which microfiche versions can be made. Although microfiche isn't a common format for preservation, it's more affordable and provides faster access than roll film.

viii. Fumigation: For library resources, fumigation is an essential treatment to get rid of worm, beetle, and fungal infestations. Materials are placed in a wooden chamber with thymol fumigant on wire net-shelves under lights for a few days. After that, they are cleaned and moved to a secure area. Another approach is vacuum fumigation using para dichlorobenzene.

ix. Leaf casting: Leaf casting is a wet procedure that mechanically stabilises paper by filling in missing portions and addressing concerns like holes and ragged borders. This strengthens and repairs weakened and damaged paper.

x. Digital Preservation: Digital preservation is the process of preserving digital materials to minimise changes brought about by media and technological obsolescence, hence ensuring its accessibility. In order to maintain the uninterrupted access and useful life of digital assets, strategies such as migration, emulation, refreshing, metadata generation and data organisation are employed.

xi. Deacidification: The technique of artificially raising the pH of acidic paper is called deacidification. Paper's acids are neutralised by the process, leaving behind an alkaline buffer.

xii. Non-aqueous washing: Non-aqueous washing is a method of washing items without the use of water. Water should not be used to wash badly damaged writing on paper or textile materials that may be damaged by water contact. This method makes use of organic solvents such petroleum, methanol, dichloroethane and diacetone alcohol.

xiii. Lamination: Compared to the reversible sealing method used in encapsulation, lamination involves sandwiching documents between layers of plastic with protective adhesives. Although lamination provides short-term preservation benefits, preservation specialists advocate against using it for expensive resources due to long-term risks such as adhesive breakdown and moisture retention.

xiv. Book Repair and Binding: Experienced conservationists working on book repair and binding aim to restore the structural integrity of damaged volumes by meticulously repairing torn pages, strengthening spines

and fixing physical issues. Books that have been correctly restored remain stable and can be utilised for extended periods of study and access.

xv. Pest Management: Pest management safeguards library resources from insects and rodents via preventative measures. Infestations are more unlikely if access points are cleaned, sealed, and inspected regularly. Holistic pest control solutions, which include non-toxic methods such as trapping, help identify and handle pests in order to protect collections.

xvi. Environmental Control: To prevent decay and protect library materials, environmental control in preservation includes maintaining optimal humidity and temperature conditions. Stable conditions enhance the life of materials through minimising deterioration, pest infestations, and mould growth. This technique requires the usage of monitoring systems as well as HVAC (heating, ventilation, and air conditioning) solutions.

xvii. Handling Guidelines: Materials deterioration can be prevented by educating researchers, library personnel, and users safe handling techniques, such as wearing gloves or washing their hands while reading books. Avoiding bending or leaning on objects increases their life and makes them more accessible to future generations.

Table 4 Conservation And Preservation Facilities And Equipment

Sl. No.	Facility/ Equipment	IGNCA	NAI
		Yes/No	Yes/No
1.	Conservation laboratory	✓	✓
2.	Paper lamination Equipment	✓	✗
3.	Leaf casting Equipment	✓	✗
4.	Bindery	✓	✓
5.	Mass De-acidification Facility	✓	✓
6.	Fumigation Chamber	✓	✓
7.	Microfilming Facility	✓	✓
8.	Others- Please describe	✗	✗

Table 4 titled "Conservation And Preservation Facilities And Equipment," compares facilities and equipment between IGNCA and NAI libraries. Both

have conservation laboratories, binderies, mass de-acidification facilities, fumigation chambers, and microfilming facilities. However, only IGNCA has paper lamination, leaf casting equipment.

Table 5 Presticides used in the Library

Sl. No.	Presticide	IGNCA	NAI
		Yes/ No	Yes/ No
1.	Naphthalene	✗	✓
2.	Thymol	✓	✓
3.	Para-dichlorobenzene	✓	✗
4.	Others(Vaccum Fumigation)	✗	✓

Table 5 titled "Pesticides Used in the Library," compares pesticide usage between IGNCA and NAI libraries. IGNCA utilizes thymol and para-dichlorobenzene, while NAI employs naphthalene and para-dichlorobenzene. Additionally, NAI uses vacuum fumigation as an alternative method.

Table 6 Methods used to control pest

Sl. No.	Methods	IGNCA	NAI
		Yes/ No	Yes/ No
1.	Use of insecticides and pesticides at restoration level	✗	✓
2.	Spraying of insecticides at storage level	✗	✓
3.	Fumigation chamber	✓	✓
4.	Deep Freezing method	✗	✗

Table 6 titled "Methods Used to Control Pest," compares pest control methods between IGNCA and NAI libraries. Both libraries utilize fumigation chambers, while only NAI employs insecticide spraying at the storage level and at the restoration level. Neither library employs the deep freezing method.

Table 7 Techniques used for Conservation and Preservation of Library Resources.

Sl. No.	Preservation &Conservation Techniques	IGNCA			NAI		
		Very often	Occasionally	Never	Very often	Occasionally	Never
1.	Lamination	✓			✓		
2.	Digitization	✓			✓		
3.	De-acidification		✓		✓		
4.	Basic mending and minor repair	✓			✓		
5.	pH testing	✓			✓		
6.	Binding	✓			✓		
7.	Encapsulation	✓				✓	
8.	Cleaning and dusting of information resources	✓			✓		
9.	Photocopying	✓			✓		
10.	Microfilming	✓			✓		
11.	Provision of adequate security to prevent theft, mutilation, defacing of paper based Material	✓			✓		
12.	Use of insecticide and insect repellent	✓			✓		
13.	Monitoring & Reorganised Of the collection	✓			✓		
14.	Risk assessments of the preservation	✓			✓		

Table 7 titled "Techniques Used for Conservation and Preservation of Library Resources," compares conservation and preservation techniques between IGNCA and NAI libraries. Both libraries frequently employ techniques such as lamination, digitization, de-acidification, basic mending, pH testing, binding, cleaning, photocopying, microfilming, security provision, insecticide use, monitoring, reorganization of collections, and risk assessments. Additionally, IGNCA utilizes encapsulation, while NAI occasionally uses it.

Table 8 Preservation and Conservation Policies

Preservation Policy	IGNCA	NAI
	Yes	Yes
Existence	More than 10 Years	More than 20 Years

Table 8 titled "Preservation and Conservation Policies," compares policies between IGNCA and NAI libraries. Both libraries have preservation policies in place, with NAI's policy existing for over 20 years and IGNCA's policy existing for more than 10 years.

Table 9 Preservation Policy provisions

Sl. No.	Preservation Policy Provisions	IGNCA	NAI
		Yes/ No	Yes/No
1.	Security of library materials	✓	✓
2.	Disaster recovery procedure	✓	✓
3.	Use of library materials	✓	✓
4.	Handling of library material	✓	✓
5.	Training of staff on preservation of library materials	✓	✓
6.	Restoration of degraded library materials	✓	✓

Table 9 titled “Preservation Policy Provisions,” compares provisions in preservation policies between IGNCA and NAI libraries. Both libraries have policies addressing security, disaster recovery, use, handling, staff training and restoration of library materials, ensuring comprehensive preservation measures are in place.

10 CONCLUSION

Diverse but convergent preservation techniques are revealed by the comparison of the NAI and the IGNCA. The IGNCA has dedicated preservation sections, whereas the NAI’s CC Section concentrates on conservation and preservation task. IGNCA is in the forefront of digital preservation with its own procedures, and NAI provides access to its digitised collection through the “Abhilekh Patal Portal”. Both organisations are dedicated to providing extensive collections, protecting historical artefacts, and improving accessibility. The hospitable personnel of IGNCA are a model for improving the user

experience. These institutions libraries can increase their influence and promote intellectual interaction and cross-cultural understanding by making investments in electronic resources and infrastructure. By combining their skills, they may produce a dynamic legacy that will inspire future generations to value culture and think critically.

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