

Preservation Strategies In Nigerian Museums: A Comprehensive Examination Of Preventative And Remedial Conservation Practices

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doi: <https://doi.org/10.37745/gjahss.2013/vol12n43347>

Published May 21, 2024

Citation: Uche K.Z. (2024) Preservation Strategies in Nigerian Museums: A Comprehensive Examination of Preventative and Remedial Conservation Practices, *Global Journal of Arts, Humanities and Social Sciences*, Vol.12, No.4, pp.33-47

ABSTRACT: *The museums located in the North-Western part of Nigeria use both preventive and curative conservation in preserving the collections in their custody. In applying preventive conservation, the museums manage the risks to collections through the lens of the agents of deterioration. The REORG method, adoption of proper collection management practices, passive method of indoor climatic management and good house-keeping were the preventive conservation methods used in the museums. Dry cleaning, wet cleaning and chemical treatment were used in curative conservation. Although the two conservation methods were used in the museums, each has its peculiar benefits. The preventive conservation method aims to prevent or reduce damage while curative conservation is the method of choice when damage has occurred. This study discusses both types of conservation as applied in North-West museums.*

KEYWORDS: Museums, corrosion and deterioration, preventive conservation, remedial conservation, curative conservation, Northwest Nigeria,

INTRODUCTION

The museums tagged as North-West museums in this paper are the museums located in the North-West region of Nigeria. They are National Museum, Kano (Gidan Makama), National Museum, Kaduna, National Museum, Katsina, National Museum, Sokoto, National Museum, Kebbi and Rock Art Interpretive Centre Birnin-Kudu. Generally, the climatic conditions of the museums are warm or hot during most part of the year. The annual average temperature is 29°C but could be as high as 33°C while relative humidity is 80% (worlddata, 2024). However, November is the sunniest month while the sun shines least in August. Rain usually falls between May and October with August having the most rainfall. The North-West region has a Sahelian climate — sunny, dry and humid in most part of the year. Being in the Sahel region, the climate is also characterised with dust, especially during the harmattan when the dust deposition rate by wind is as high as 99g/m² (Ochei and Emmanuel, 2018; Wilke et al., 1984). The collections in the museums were made from different types of materials such as leather, wood, metal, textiles, paper and clay. Some of the historical buildings which house the collections are part of the tangible heritage and have been declared national monuments.

Preventive conservation includes all actions and measures taken to mitigate or reduce deterioration of heritage collections. These actions are not targeted directly on tangible heritage but mostly on environmental factors to which they are exposed (Perles et al., 2024). The environmental factors consist of temperature, humidity levels, illumination, pollutants, and vibrations. On the contrary, curative conservation are actions performed directly on objects to stop deterioration, it requires expertise and use of treatment materials (Anuradha, 2015).

The present study aims to identify the collections in North-West museums in Nigeria, discuss the conservation care employed in their preservation and compare the preventive and curative conservation used to preserve them.

North-West Museums

As mentioned above, the North-West museums are National Museum, Kano (*Gidan Makama*), National Museum, Kaduna, National Museum, Katsina, National Museum, Sokoto, National Museum, Kebbi and Rock Art Interpretive Centre Birnin-Kudu. In general, the materials from which the collections were made are metals, wood, raffia, leather; should be conserved as much as the collections within them.

National Museum, Kano

National Museum, Kano, also called *Gidan Makama*, was constructed in 1975. It was the temporary palace of *Sarakunm* House (Kings of Hausa). The building is a national monument. It is a museum of traditional architecture with vernacular features typical of Hausa. It has eleven galleries that have different collections of historic and cultural importance (Sayo et al., 2017). The objects in the museum include Nok objects, metal plate and statuette of Oba of Benin (Plates 1-4).

National Museum, Kaduna

The museum which was inaugurated in 1975 has objects of archaeological and ethnographic importance under its custody. A traditional craft village is located within the museum's premises where craftsmen and women with ingenuity of creativity produce different types of indigenous craftwork. The collections in the museum include masquerade costumes, *arugba Sango*, metal pots and dane gums (Plates 5 and 6).

National Museum, Sokoto

National Museum, Sokoto is concerned with the story of the former Sokoto Caliphate: its birth, creation, rise, expansion, interaction with British colonialists and sudden fall. The museum has relics and other items used by Usman Dan Fodio such as Koran, maps and thrones. Other objects include raffia basket, metal shield and gourd pot (Plates 7-9).

Objects from National Museum, Kano



Plate 1: Nok Terracotta statue



Plate 2: Nok terracotta statue

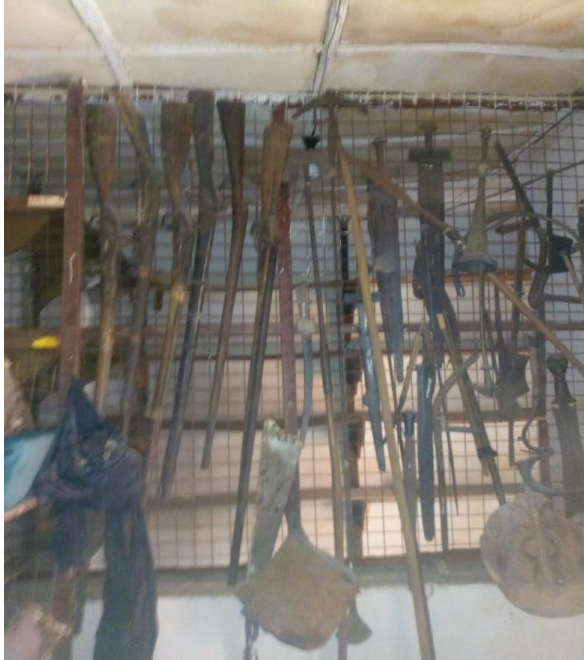


Plate 3: Metal plate



Plate 4: *Oba* of Benin

National Museum, Kaduna



Plate 5: Masquerade costume



Plate 6: a: *Arugba Sango* b and c: seated human figure d and e: metal pot

National Museum, Katsina

National Museum, Katsina was formerly, the Katsina Training College. Its collections include archaeological and ethnographic artefacts from the Northern part of the country. Some of the collections include the collections of Durbin Takusheyi of Katsina Emirate kings and queens and collections of Emir Dikko. Other objects in the museum are war implements, stools, mortar, pestle, raffia works, garments, royal chair and pottery. The royal chair and pottery are shown in Plates 10 and 11. Objects donated as gifts by the Emirate Council of Katsina and Dawa such as royal regalia, traditional war and music instruments are in the museum. Portraits of ancient rulers of Katsina are also in the museum.

National Museum, Kebbi

The building which served as a museum presently was the old palace of the Emirs of Kabi Kingdom. It was built in 1831 but opened as a museum in 1958. It is usually called Kanta Museum or Gidan Nabame. Similar to National Museum, Kano, it has eleven galleries. The objects on display are charms, spears, swords, stones, bows, arrows, local guns and arrows. Tools used in fishing festival are also part of the collections (Plates 12-15).

Birnin Kudu Rock Art Interpretation Centre

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Birin Kudu Rock Art Interpretation Centre is located in Birnin Kudu Local Government Area, Jigawa State. It protects the rock paintings in this region. The paintings which were made on rock caves, shelters and gong have images of cattle, sheep and geometric signs. Plates 16-19 show the rock caves and collections that are part of the intangible heritage of the museum

Objects at National Museum, Sokoto



Plate 7: Raffia basket



Plate 8: Metal shield



Plate 9: Gourd pot

Objects at National Museum, Katsina



Plate 10: Royal chair



Plate 11: Pottery collection

Objects at National Museum, Kebbi



Plate 12: Calabash and ceramic artworks



Plate 13: *Shantu* and drums



Plate 14: Drums used at fishing festival
Rock art Birnin-Kudu



Plate 15: Fishing and calabash and raffia



Plate 16: Mesa Rock Painting site



Plate 17: Murufu Rock Painting site



Plate 18: Habude Rock Painting site

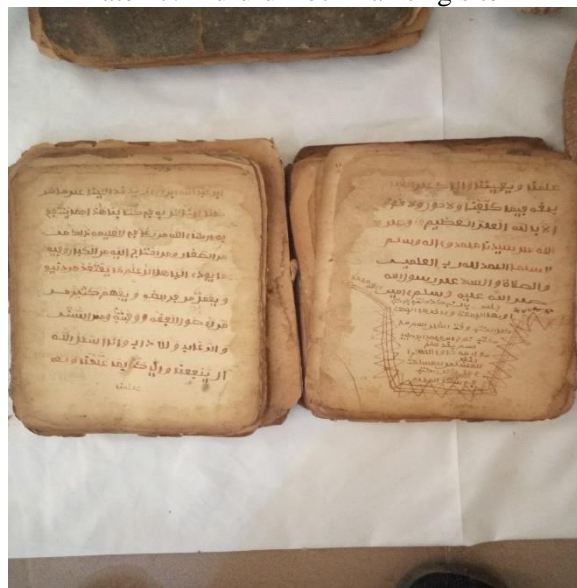


Plate 19: Islamic book written during Danfodio time

Preventive Conservation in North-West Museums

“Preventive conservation is defined as all measures and actions aimed at avoiding and minimizing future deterioration or loss” (ICOM-CC, 2008, 1 25). Preventive conservation processes are conducted on the environment surrounding an object or a collection of objects. This means that preventive conservation measures are not done directly on the object. The preceding explanation suggests that the goal of preventive conservation is to avert or reduce the likelihood of permanent harm to cultural artifacts caused by environmental or external influences (Perles et al., 2024). The North-West museums accomplish this objective by controlling the hazards to their collections according to the ten agents of deterioration outlined by the Canadian Conservation Institute (CCI Notes, 2017). These ten agents include physical forces, fire, pests, light, improper relative humidity, improper relative temperature, theft, vandalism, water damage, pollutants, and dissociation. The preventive conservation approach is used not only for the moveable heritage in these museums but also for the immovable ones, the museum building itself, as some of them have been declared national monuments. This is because of the importance of preventive conservation in the preservation of monuments and built heritage (Wirilander, 2012).

Physical force: Physical force is any force that damages an object when it touches it. Physical force can be caused by abrasion, handling, earthquakes, explosion, accidental fall and anything hitting an object. Some of the effects of physical force include compression, tears, cracks, abrasion and dents. Damage caused by physical force is minimized or prevented in these museums by arranging the objects properly and orderly in the storage areas to avoid fall, abrasion or anything falling on the objects. Proper handling techniques are practised/adopted by ensuring that the proper gloves are worn during handling and objects carried in trolleys or boxes when moved from one place to the other.

Fire: Fire is a rare event, hence, it is usually designated a C-score (percentage of the value of heritage affected if the event occurs) in risk management (Pedersoli and Michalski, 2016). As such, the museums do all it could to prevent its occurrence. Fire extinguishers and sand buckets are always in place and routine checks of the storage areas and galleries done. Smoking is prohibited in the storage areas and galleries.

Pests: Pests, especially insect infestation is a major risk in North-West museums because of their location (in a tropical climate). Wooden artefacts and written heritage (books) in these museums are at greater risk of damage. Regular condition survey of the storage areas, galleries and the museum environment are done for early detection of presence of pest in the museum. Eating and drinking are not allowed in the storage areas and galleries. Traps were kept at strategic places to catch pests (rodents) (Child et al., 2011). Broken walls and roofs were repaired once they are noticed to prevent entrance of pests into storage areas.

Light: Light is a major agent of deterioration for textiles and paper, it causes irreversible damage (Ballaard, 2015). Light discolours objects made from these materials and makes them to fade. This type of deterioration does not only cause aesthetic damage but makes textiles fragile. North-West museums have historic textiles worn by Emirs and they have valuable

ancient manuscripts, too. Damage by light is prevented by using only LED light in the storage areas and galleries and preventing exposure to light for a long time. Paper materials and textiles displayed in the galleries are left there only for a short period (four months) after which they would be removed. This is done to prevent long-term exposure to light.

Incorrect temperature and relative humidity: Museum objects in Nigeria are not kept at any specified temperature and the North-West museums are not an exception. Objects in the museums are kept at the prevalent temperature and relative humidity of the storage galleries. This passive method of indoor climatic management agrees with ICOM-CC/IIC Declaration on sustainability in museums (Bickersteth, 2016) It stated that museums should seek to reduce carbon footprint so as to mitigate climate change. It went further to urge museums to care for collections in a manner that does not depend on HVAC. The prevailing temperature is about 35°C on the average while the relative humidity could be up to 80% maximum.

Pollutant: The major pollutant that affects tangible cultural heritage in North-West region is dust. This is because of the Sahel climate in which the museums are located which makes dust an inevitable pollutant especially during harmattan (Wilke et al., 1984). Although dust is unavoidable, some preventive conservation measures are put in place, such as, storing some objects in boxes and displaying some objects in glass cases.

Thieves and vandals: This is not a frequent risk, it is a rare event. Security measures are put in place such as security guards and doors which are under lock.

Dissociation: Dissociation arises from the inherent tendency of natural systems to disintegrate gradually over time. It can be a loss of a part of an object, loss of data associated with an object (CCI Notes, 2017). When data is lost, the object loses its value. Information about an object is lost when there is a missing label (tag), accidentally deleted entry on the collections database, interchanging objects, misplacing an object or even writing information in an incomprehensible manner. Good collection management in the museums helps to prevent dissociation and to keep its occurrence at the barest minimum. Labels were properly tagged on objects. Conservators and curators do their best to reduce the other nine risks mentioned above so as to prevent partial or total loss of objects.

Curative Conservation in North-West Museums

Curative conservation encompasses remedial conservation and restoration Resolution on terminology by ICOM-CC (2008) has specific definitions for each of these aspects of curative conservation. Remedial conservation encompasses all interventions directly targeted at halting ongoing damaging processes or strengthening the structure of an item or group of items. In contrast, restoration involves interventions specifically directed at a single, stable item with the goal of enhancing its appreciation, understanding, and usability. Such actions are undertaken only when the object has lost some of its significance or functionality due to previous alteration or deterioration. These definitions imply that curative conservation is done directly on the object and in some cases; it modifies the appearance of the object.

The collections and monuments in these museums are similar in terms of material composition. As such, the curative conservation used for each particular material is the same for all the museums.

Wooden objects: As mentioned earlier, the major risk to wooden objects is insect infestation. The curative conservation method used for this type of damage is chemical treatment. Chemicals used include organophosphates such as dichlorvos, parathion, naphthalene balls and chlorpyrifos. The chemicals are sprayed on the object and left for two weeks in the laboratory after which mechanical cleaning is done with appropriate brushes. Although these chemicals have high efficacy, it is not sustainable because of the toxicity of the chemicals, its use constitute pollution to the environment and it causes aesthetic damage. However, this method can be substituted with a sustainable approach. In view of this, the technique developed by Okpalanozie and Kamndu (2023) is recommended. Apart from insect infestation, wooden objects can get broken. When broken, wooden objects are restored using fish glue (an adhesive); saw dust is also mixed with the fish glue if the need arises.

Paper: Paper deterioration is caused by light, microorganisms air pollution and acid hydrolysis (Area and Charadame, 2011) which results in aesthetic and structural damage of paper. The common and major agent of deterioration of paper heritage in the museums is pollutants, in this case, dust; pest infestation is rare. Deposition of dust on the paper is ascribed to its dominance in the region. The curative conservation used is dry cleaning. The dust is removed with soft brushes and paper towels. Pest infestation causes an irreversible damage on the paper and restoration is difficult.

Photographs: The photographs were put in frames and exhibited in galleries. The frames serve as barriers and protect them from dust and water, although small layers of dust are still found on the objects. This form of preventive conservation has reduced deterioration to the barest minimum, thereby preventing or reducing the use of curative conservation.

Leather: Deterioration of leather is caused by biological and environmental agents, poor storage conditions and careless handling (Florian, 2006, Orlita, 2004). It results in structural and aesthetic damage. When exposed to excessive dryness as during the harmattan season, leather objects get cracked, broken or embrittled. If they are not stored in a good environmental condition and kept in high humidity, there may be mold growth on them. This could lead to staining, odour, surface distortion or softening of leather. This may result in discoloration, odor, surface deformities, or softening of the leather.

Treatment of deteriorated leather is done by a simple traditional method. First, the leather object is cleaned with a suitable brush or vacuum cleaner to remove dust. After this, a cosmetic sponge is used to remove dirt and grime on the leather object. Mahogany oil, a type of lubricating oil, is applied to the outer surface of the leather to manage internal friction between collagen protein fibers and crosslinks formed during the tanning process. This practice is carried out to promote flexibility and longevity (Tuck, 1983). Lubricating oil is applied with

caution because its indiscriminate use could result in swelling, dissolution of original adhesives and distortion of finishes (Storch, 1987).

The treatment of deteriorated leather follows a straightforward traditional approach. Initially, the leather object undergoes cleaning using a suitable brush or vacuum cleaner to eliminate dust particles. Subsequently, a cosmetic sponge is employed to remove dirt and grime from the surface. To manage internal friction between collagen protein fibers and the crosslinks formed during the tanning process, mahogany oil, a form of lubricating oil, is applied to the outer surface of the leather. This application aims to enhance the leather's flexibility and durability, as suggested by Tuck (1983). However, caution must be exercised when applying lubricating oil, as its indiscriminate use may lead to undesirable outcomes such as swelling, dissolution of original adhesives, and distortion of finishes, as noted by Storch (1987).

Metal sculptures

Corrosion is the type of deterioration that takes place on the metals in the museums. Some of the corrosion were inactive while others are active. Active corrosion was made evident on the copper-alloy as green powdery substances on the surface of the objects while brown powdery substances were deposited on iron objects. There are two methods of curative conservation usually used in cleaning the objects: mechanical cleaning and chemical cleaning. In mechanical cleaning, the powdery substance was removed by the appropriate brush. This is the first step in cleaning. If the corroded particles could not be removed with brush, chemicals would be applied on the corroded areas. The chemicals used are methylated spirit and acetone.

Textiles

Textiles, primarily composed of natural fibers, are categorized as organic materials, rendering them vulnerable to various agents of deterioration such as light, incorrect temperature and relative humidity, pests, and pollutants. Among these, light poses a significant risk to textiles, leading to color fading and structural degradation. Incorrect temperature and relative humidity can cause physical degradation of textile fibers and promote microbial growth. When textiles are infested with insects, a common treatment method involves exposing them to sunlight to eliminate the pests. For mold growth, a cotton swab soaked in ethanol is utilized to clean the textile. Given that the effects of light on textiles are irreversible, it is imperative to prioritize preventive conservation practices for textiles.

Preventive Conservation Vs Curative Conservation

The definition given above about these two types of conservation shows that preventive conservation does not act directly on the objects, instead it deals with factors which could affect the condition of the objects, such as light, pests, incorrect relative humidity and incorrect temperature. On the contrary, in curative conservation, actions are applied directly on an object; it does not involve the prevention of any risk of deterioration.

Preventive conservation measures embarked on in the museums were cost-effective. Proper handling of objects, passive climatic management of storage areas and galleries, good housekeeping and collection management are simple inexpensive approaches geared towards

preventive conservation. The methods of curative conservation used in the museum entails the use of chemicals. These museums have poor financial strength and the purchase of the chemicals is not always possible. Curative conservation is therefore expensive in the museums. The steps in preventive conservation are simple and not too difficult to learn. It can be carried out by any museum professional despite the level of education. Curative conservation involves technicalities and expertise, for example, the specific quantities of chemicals to be used for each treatment.

Preventive conservation in the museums is concerned with all the objects: objects that are in good condition, deteriorated objects and weak objects. For objects that are in good condition, it aims to prevent damage but for deteriorated objects, preventive actions are geared towards reducing damage or preventing further deterioration. Curative conservation is concerned about damaged or deteriorated objects only.

Due to the technique adopted in preventive conservation (no direct action on collection), it does not alter the appearance or structure of the objects, authenticity is thereby retained. This does not apply in curative conservation because conservative actions are performed on the objects. In doing this, the physical appearance or structure of the objects may be altered. Most often, preventive conservation actions targets a group of objects but curative conservation actions are concerned with individual objects at a time.

CONCLUSION

Preservation of collections in North-West museums were accomplished through preventive and curative conservation. Preventive conservation does not act directly on the objects in the museums, rather it focuses on the factors that affect the preservation of the collections. Curative conservation actions are performed directly on the object. Despite the differences in these types of conservation, both are needed for a successful and holistic preservation, as each serves a definite purpose in the museums.

REFERENCES

- Anuradha, H. R. (2015). New reflections on preventive conservation of manuscripts. *International Journal of Academic Research*. 3(6): 6-14.
- Area, M. C. and Charadame, H. (2011). Paper aging and degradation: recent findings and research methods. *Bioresources*. 6(4): 5307-5337.
- Ballard, M. W. (2015). LED lighting in museums.: conservation and colour of textiles. *Proceedings of AATCC International Conference*. pp. 72-101
- Bickersteth, J. (2016). IIC and ICOM-CC 2014 Declaration on environmental guidelines. *Studies in Conservation*. 61: sup1, 12-17.

Publication of the European Centre for Research Training and Development -UK

- Child, R. E. (2011). The wider use and interpretation of insect monitoring traps **In** *Integrated Pest Management for Collections*. Proceedings of 2011: A Pest Odyssey, 10 years later, English Heritage, London, UK. pp 66-70.
- Florian, M. F. (2006). The mechanism of deterioration in leather. **In** Conservation of leather and related materials. Eds. Kite, M, and Thomson, R. Butterworths.Heinemann. London. pp. 36-54.
- ICOM-CC (2008) Terminology for conservation. Available from: <https://www.icom-cc.org/en/terminology-for-conservation#:~:text=ICOM%2DCC%20adopted%20the%20following,measures%20and%20actions%20they%20encompass>, (accessed 29/01/2024).
- Ochei, M. and Emmanuel, A. (2018). Variability of harmattan dust haze over Northern Nigeria. *Journal of Pollution*. 1(2): 1-8.
- Orlita, A. (2004). Microbial biodeterioration of leather and its control: a review. *International Biodeterioration and Biodegradation*. 53(3): 157-163.
- Perles, A. Fuster-Lopez, L. and Bosco, E. (2024). Preventive conservation, predictive analysis and environmental monitoring. *Heritage Science*. 11(2024).
- Sayo, S. B., Maina, J. J. and Sagada, M. L. (2017). Preservation of cultural heritage through the application of architectural strategies in museum designs. *CARD International Journal of Environmental Studies and Safety Research*. 2(1): 130-142.
- Storch, P. S. (1987). Curatorial care and the handling of skin materials, Part 1: Tanned objects. *Conservation Notes*. 17: 1-4.
- Tuck, D. H. (1983). *Oils and Lubricants Used on Leather*. Northampton: The Leather Conservation Centre.
- Wilke, B. M., Duke, H. J. and Jimoh, W. I. O. (1984). Mineralogy and Chemistry of harmattan dust in Northern Nigeria. *Catera*. 1(1): 9-96.
- Wirilander, H. (2012). Preventive conservation: a key method to ensure cultural heritage's authenticity and integrity in preservation process. *e-conservation*. 33-43.
- CCI Notes (2017). Available from: <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes.html> (accessed 16/03/2024).
- Worlddata (2024). Available from: <https://www.worlddata.info/africa/nigeria/climate.php> (accessed 29/01/2024).