

Potential Pesticide Contamination in Repatriated Artefacts in African Museums: The Need for the Adoption of Safety Protocols for Access and Use of Hazardous Artefacts

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Abstract

This article discusses the issue of potential pesticide contaminants in artefacts that are being repatriated by museums from the global north to Africa. It highlights that the issue of scientific testing of artefacts for harmful pesticide contaminants is missing from the repatriation discourse in African museums. Consequently, safety protocols for handling and use of these potentially contaminated artefacts have not been established in some African museums. This is worsened by a lack of legislations that enforce the testing of the artefacts and the establishment of safety protocols for accessing them. As a consequence, museum staff, researchers, and other visitors may be exposed to the health effects caused by toxic chemicals in artefacts. In light of this, the article recommends that repatriation of artefacts to African museums should be preceded by scientific testing of artefacts to determine the possible toxic pesticide contaminants on them, and to establish safety protocols for their handling and use. Further, it argues that qualified collections care staff and conservators from African museums should be involved in repatriation negotiations to enforce scientific testing of artefacts and establish safety measures for their handling and use before they are repatriated to Africa. The article also recommends that pesticide treatment information should accompany repatriated artefacts.

Keywords: Africa; Decolonisation; Pesticides; Repatriation; Restitution; Safety Protocols.

Introduction

The current decolonisation discourse in museums has set the tone for the repatriation of looted artefacts from museums in the global north to the global south. Repatriation of looted artefacts from countries in the global north to Africa is a topical issue and it has gained

prominence following the commissioning of the 2018 Sarr-Savoy report on the restitution of African artefacts by French President Emmanuel Macron and the subsequent call he made in 2020 for the return of looted artifacts from France to Africa. Prior to this, at least since the end of the colonial period, African countries have been demanding the return of artefacts looted by countries in the global north during the colonisation of the continent. However, what is missing from the decolonisation and repatriation discourses for museums in the global south is the issue of dealing with artefacts from museums in the global north that are potentially contaminated with harmful pesticides. Some historic pesticide contaminants on artefacts such as arsenic and mercury can result in diseases such as cancer, and lung, kidney, and heart failures among others (Dawson 1992; Osorio 2001). The legacy of pesticides continues to pose problems for staff and various collections users, especially the recipients of repatriated objects (Hawks 2001). Organic artefacts are contaminated through direct application of pesticides by soaking, painting, rubbing, or spraying, whereas inorganic artefacts such as metal or stone artefacts may be accidentally contaminated through spraying of pesticides in museum storage and exhibition places. The issue of scientific testing of repatriated artefacts to determine pesticide contaminants and to establish safety protocols for their handling and use is largely missing in current decolonisation debates in Africa.

Some countries in the global north, such as Germany and France have responded to the repatriation demands by African countries by agreeing to return the looted artefacts to Africa. Germany has agreed to return many bronze artefacts held in its museum collections, with the deal reportedly including the training of Nigerian museum staff, archaeological excavations, and assisting with the construction of a new museum in Benin that has been designed by the Ghanaian-British architect David Adjaye (Bakare2021; Mcgreevy 2021). In 2020, France approved the restitution of 26 artefacts from the Kingdom of Dahomey, located within present-day Benin, which had been pillaged in 1892 (Shemang 2021). The University of Aberdeen in the United Kingdom has agreed to return to Nigeria a Benin bronze sculpture depicting the Oba, or king of Benin, that was looted from Benin city in 1897. Benin City is the capital of Edo State in Southern Nigeria, and it is different from the Republic of Benin found in West Africa. The bronze sculpture was part of thousands of artefacts taken when British forces looted Benin city in south-eastern Nigeria in 1897 (Bakare 2021). Aberdeen University principal and vice-chancellor Professor George Boyne and Ministers of Culture and Foreign Affairs in Germany Monica Grutters and Heiko Maas cited moral obligations and justice behind the reason for the repatriation of looted artefacts

to Nigeria.

In all the repatriation cases cited above, testing of potential pesticide contaminants on artefacts from museums in the global north and the establishment of safety protocols for their handling and use in museums and communities in the global south are missing in the literature. It is not known whether such issues are addressed in repatriation negotiations. With the current decolonisation discourse that is unfolding across the globe, and as more artefacts are set to be repatriated to Africa, it is likely that some objects being repatriated may be contaminated with toxic pesticides from historical use, as many museums and collectors in the global north with traditional artefacts widely used pesticides for pest control.

Debates on the Repatriation of African Artefacts: The Restitution of African Knowledge and Objects

Debates on the repatriation of African artefacts have mainly addressed the issues of reparation to African countries and bilateral negotiations between countries involved. On 25 May 2021, the Stellenbosch University Museum held an online discussion entitled “Just Conversations: The Restitution of African Knowledge and Objects”, where two speakers presented on this issue, namely Dr. Laura Van Broekhoven (the director of the Pitt Rivers Museum of the University of Oxford in England) and Dr. Olusegun Morakinyo, (Research Associate, Centre for Transdisciplinary Studies, University of Fort Hare, South Africa). The former highlighted that Pitt Rivers Museum has an extensive number of artefacts from Africa. These collections were looted from Africa during the colonial period. She highlighted that the museum is involved in discussions with communities from countries such as Kenya and Tanzania (Maasai), Uganda (Bunyoro), and Benin. These discussions are focused on the repatriation of the artefacts held by the museum to communities that are the owners of the artefacts. The latter presented about the need for justice and reparations to communities that lost their artefacts through looting by African colonisers. He also proposed the setting up of a museum of guiltiness, which can be in the form of a virtual museum that showcases looted African artefacts. None of these discussions addressed the issue of the possibility of contamination of repatriated artefacts and the need for testing to ensure the safety of the recipients and users of the artefacts and to prevent cross-contamination with other artefacts that are free from contamination.

The issue of *Museum International* (Volume 61. No.1-2) published proceedings of a conference entitled "Return of Cultural Objects: The Athens Conference". The conference was held on 17 and 18 March 2008 in Athens, Greece, and focused on discussions regarding the issue of the return and restitution of cultural property. The conference covered case studies of the successful repatriation of artefacts across the globe. The deliberations of the conference addressed the issues of dialogue, inter-governmental and inter-museum cooperation on the repatriation of cultural property as well as ethical and legal considerations on the repatriation of illicitly trafficked artefacts. The issue of testing of repatriated artefacts for possible hazardous pesticide contaminants and the safety of the recipients was not highlighted at this conference.

The Discovery of Pesticide Contaminants on Artefacts in Museums in the Global North.

Harmful pesticide contaminants have been discovered on artefacts in some museums in Europe, the United Kingdom, the United States, Canada and Australia. Analyses conducted at the Germany Historical Museum between 2005 and 2012 revealed that some of its artefacts were contaminated with pesticides such as eulan, naphthalene, moth-killing paper, hylotox, DDT, DDE, lindane, methoxychlor compounds, lead, chlorine, arsenic, mercury, and toxic substances used in the manufacture of the artefacts (Falkenberg 2015, Hahn and Krug 2015, Lang and Zimmer 2015).

At the National Museum of Wales Herbarium, specimens were found contaminated with arsenic, mercury, barium, and naphthalene. Further tests conducted on selected museum staff indicated slightly elevated arsenic and mercury levels in their blood and urine, above the normal standard set by the Super Regional Assay Laboratories under the Health and Safety Executive (UK) (Purewal 2001). At the National Museum of Denmark, DDT was discovered on artefacts that were due for repatriation to the Greenland National Museum and Archives in Greenland. (Schmidt 2001). In Australia harmful pesticides such as arsenic, mercury and lead have been found in some indigenous artefacts in the Museum Victoria State collection (Goodall *et al* 2013). These discoveries are proof that some artefacts that are being repatriated from the global north to Africa may potentially be contaminated with hazardous pesticide contaminants.

The Standard Procedure for Repatriation of Cultural Property: The Native American Graves Protection and Repatriation Act (NAGPRA) (1990)

Contamination of museum collections is a global issue. The United States has demonstrated good practice in this area through the enactment of legislation that addresses the issue of contamination of artefacts in museums. Human safety from the use of contaminated museum collections has been formally recognised and enforced through the passage of the Native American Graves Protection and Repatriation Act (NAGPRA) (1990) in the United States. Section 10.10 (e) of the 1996 NAGPRA Final Regulations specifically requires museums and federal agencies to inform the recipients of repatriations of any “presently known treatment of human remains, funerary objects, sacred objects of cultural patrimony with pesticides, preservatives or other substances that present a potential health hazard to the objects or the persons handling the objects (Loma’ Omvaya 2001; Nason 2001; Osorio 2001; Tsosie 2001 Sirois *et al* 2008). Handling and use of the objects may expose users to pesticides that may still contaminate the objects (Sirois *et al* 2008). The passage of the Native American Graves Protection and Repatriation Act has led, since 1990 to extensive collection review and object handling (Nason 2001). Repatriation has not only raised awareness of pesticide contamination of objects in museums but has also created a more urgent need to find ways to identify and quantify the extent of contamination (Sirois *et al* 2008). The enactment of NAGPRA was a positive formal step in raising awareness about the safety of Native Americans from the use of contaminated museum collections that have been repatriated. It established a legal basis for the adoption and implementation of safety measures in the handling and use of contaminated collections for Native Americans.

Review of Conventions, Principles, and Legislations that Dictate Standards Impacting Repatriation to Africa

While the NAGPRA acknowledges the problem of contamination of repatriated collections from museums in the United States and the need for subsequent protection of museum staff and communities from handling and use of contaminated collections, this is not the case with other international conventions, and heritage legislations in Africa. A review of UNESCO’s international conventions, principles and frameworks of action on repatriation in Africa, and selected heritage laws from African countries in general, has shown that the issue of safety of museum staff and users of repatriated collections that are potentially

Operational guidelines of the UNESCO 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property

- Article 7 (b) (ii) highlights that at the request of the country of origin, state parties should take appropriate steps to recover and return any stolen cultural property imported.
- Article 5 (c) specifies that state parties should promote the development or establishment of institutions such as museums, archives, or laboratories required to ensure the preservation and presentation of cultural property.

The 1977 United Nations General Assembly Secretary General's report on the Restitution of Works of Art to Countries Victims of Expropriation

- Addressed bilateral issues on the return of artefacts to their country of origin.

Intergovernmental Committee for Promoting the Return of Cultural Property to its Countries of Origin 1986 Guidelines

- Section A.6 on guidelines for the use of the "standard form concerning the request for return or restitution indicates that with regards to conservation, museum staff from the holding country should give all relevant information about the past and present care of artefacts, including storage, display, light, microenvironments, climatic conditions of the storage area and other supports.
- It also states that the staff should provide information about mutilations, restorations, and conservation treatments.
- With regards to the requesting country, section C.4 on museum facilities specifies that clear indications should be given on the range of curatorial services available at the place of display, the quality of the museum's architecture, security conditions, conservation infrastructure, and the number of staff available.

The 1995 UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects

- Article 3 (1) obliges the possessor of a cultural object which has been stolen to return it.

The 2006 Charter for African Cultural Renaissance

- Chapter V for the protection of cultural heritage, articles 26, 27, and 28 calls for the return to Africa of looted cultural property and the establishment of appropriate physical and environmental conditions for safeguarding the returned cultural property.

The Southern African Development Community (SADC) Protocol on Culture, Information, and Sport

- Article 13 on the preservation of cultural heritage specifies that state parties shall establish policy guidelines for the preservation and promotion of the cultural heritage in the region in all its multi-various facets formulated in close collaboration with relevant stakeholders and shall seek to harmonise such guidelines in the interest of mutually beneficial integration of the region.
- Article 14 (1) & (2) on cultural industries highlight that state parties shall undertake to make cultural industries a major cornerstone of their national economies and that they shall take such measures as are necessary to nurture, protect and promote their infant cultural industries.

South Africa's National Heritage Resources Act Number (SAHRA) 25 of 1999

- Provides for the return of cultural property taken from the country. Article 33 (4) specifies that the South African Heritage Resource Authority with the consent of the Minister of Foreign Affairs may liaise and cooperate with the authority responsible for the protection of cultural property in any reciprocating state and may enter into agreements with such authority concerning the return to the country of origin of an artefact or cultural property which is illegally imported into South Africa or the reciprocating state.

Zimbabwe's National Museums and Monuments Act [Chapter 25:11]; National Gallery of Zimbabwe Act [Chapter 25:09]; and National Archives of Zimbabwe Act [Chapter 25:06]

- The acts do not address the repatriation of artefacts to Zimbabwe

Table 1. Frameworks of Action and Legislations that Dictate Standards Impacting Repatriation to Africa.

contaminated has not been addressed. See table 1.

It is acknowledged that these international conventions, African set of principles and frameworks on repatriation, and heritage legislations in Africa mostly became operational at a time when pesticide use in museums was commonplace and its negative effects on human health were not given enough consideration. This could be a factor in why the testing of artefacts and adoption of safety protocols for their handling and use was not addressed. The situation is even dire with Zimbabwe's heritage legislations which do not address the issue of repatriation of Zimbabwe's artefacts that are in foreign lands. International conventions, African set of principles and frameworks on repatriation, and heritage legislations in Africa must be reviewed and address the issue of hazardous pesticide contaminants on artefacts. They must provide for the scientific testing of repatriated artefacts to determine toxic pesticide contaminants and pave the way for the establishment of safety protocols for their access, handling, and use in museums and communities. Without the legal basis to enforce the testing of the repatriated artefacts from the global north to Africa, museums in Africa should acknowledge that pesticide contamination of artefacts is real and they should take the initiative to address this issue in bilateral negotiations for the repatriation of artefacts with museums from the global north. Documentation of pesticides used in the treatment of artefacts should be included as a requirement in agreements or memoranda of understanding between the two parties.

Repatriation of Artefacts from the Global North to the Global South: The Zimbabwean and Republic of Benin Case Studies

Zimbabwe has received some of its looted artefacts from Britain and Germany. For instance, a walking stick owned by Mukwati (Mukwati was a spirit medium believed to possess supernatural powers who led the 1896-1897 Shona uprisings against British colonial rule) was repatriated back to Zimbabwe in 1998. After Mukwati's death, his wooden stick was confiscated by Lord Baden Powell, who was an officer in the British army and founder of the Boy Scout Movement during the colonisation of Zimbabwe. The stick was repatriated from Boy Scout Movement Headquarters in London to Zimbabwe where it was deposited at the Zimbabwe Museum of Human Sciences (Matenga 2011).

In an interview that was conducted with Professor Munjeri (formerly the Executive

Director of National Museums and Monuments of Zimbabwe (NMMZ), the Permanent Delegate of Zimbabwe to UNESCO and Vice President and Rapporteur of the World Heritage Committee, and a negotiating committee member for the return of Mukwati stick) and Mr. Chipunza (the chief curator of the National Museums and Monuments of Zimbabwe and the head of Zimbabwe's negotiating committee for the return of the Mukwati stick), they both confirmed that no testing was done to determine whether the wooden stick was contaminated with harmful pesticides. They highlighted that the issues of testing of the stick and safety protocols for its handling, use, and storage were not discussed during negotiations for its repatriation to Zimbabwe. As well, it was indicated that the repatriation process and condition assessment of the stick was done in the absence of a specialist conservator from Zimbabwe. However, the stick came with a condition report which indicated that it was in a good state of conservation and that no remedial conservation work had been carried out. No chances should be taken on the possibility of chemical contamination of repatriated artefacts and a condition assessment report alone cannot substitute real testing. Some repatriated collections may lack adequate documentation on pesticide application and others may have been contaminated inadvertently during the application of pesticides by repatriating museums. Such artefacts pose a danger of cross-contamination when they are stored or displayed together with uncontaminated ones, and they are also a health hazard to staff, researchers, and visitors who access them.

Another example is a Zimbabwean soapstone bird fragment that was being kept at Museum für

Volkerkunde in Berlin, Germany for approximately 100 years after it was looted from Great Zimbabwe. It is possible that this artefact may have been contaminated with pesticides. It is important to remember that in older storage areas, the application of a pesticide targeted at an organic object may have also affected nearby artefacts that were not intended targets such as stone and metal artefacts, thus collateral damage from pesticide applications can impact and leave residues on very unexpected artefacts (Nason 2001b). This artefact was kept in different countries owing to the Second World War, firstly it was moved from Germany to a castle in Schrabisdorf in Silesia Poland in 1944. It was then taken by the Russian army as spoils of the war and was deposited in the Leningrad Museum of Ethnography and Anthropology. The bird was taken back to Germany in 1978 and deposited in the Leipzig ethnographic museum,

and in 1992 it was then sent to the Berlin Museum (Dewey n.d; Renold *et al* 2013). It was returned to Zimbabwe and is now kept alongside other soapstone birds at the Great Zimbabwe Museum.

The handover ceremony of the repatriated part of the bird was done on 14 May 2003 at the statehouse and it was presided over by the then president of Zimbabwe, Robert Gabriel Mugabe, cabinet ministers, politicians from the ruling party, traditional leaders, historians, war veterans, members from the diplomatic community and the former German ambassador to Zimbabwe Dr. Peter Schmidt (Munjeri 2009; Matenga 2011; Renold *et al* 2013). The image of the president receiving part of the bird shows him holding it with bare hands without wearing protective clothing; no safety protocols were observed in the handling of the artefact. See Figure 1. During interviews that we conducted with Professor Munjeri and Mr. Chipunza, they both confirmed that no testing was done to determine whether the Zimbabwean bird fragment was contaminated with chemicals and no conservator was involved in the assessment of the artefact or in formulating safety protocols for its handling, display, and storage. Discussions on the repatriation of the object focused only on negotiations about its ownership between the Trustees of the Prussian Cultural Heritage Foundation, who are the “legal owners” and the Zimbabwean government. Authorities of museums in Zimbabwe, Germany, and Belgium and their respective diplomats were involved in the negotiations (Munjeri 2009).



Figure 1. Former president of Zimbabwe receiving the Zimbabwe bird repatriated from Germany: Source: Humboldt21

The Republic of Benin celebrated the repatriation of 26 artefacts in November 2021

from the Quai Branly-Jacques Chirac Museum in France. The artefacts are on display at the presidential palace in the Salle du Peuple, in Cotonou Benin, awaiting transfer to a new museum that is under construction. Gaelle Beaujean who is a curator at Quai Branly-Jacques Chirac Museum and Imorou Abdoulaye who is a Site Manager of the Royal Palaces of Abomey, and was also involved in the repatriation process indicated that the 26 artefacts returned consisted of organic, inorganic, and a mixture of both organic and inorganic elements in some artefacts. Eleonore Kissel who is the current Head of Preservation at Quai Branly-Jacques Chirac Museum confirmed that 25 artefacts were tested for arsenic and they were all negative, save for one artefact which until repatriation was conserved in off-site storage. She further explained that this artefact is part of a subgroup of 18 artefacts inventoried in 1895 which all tested negative for arsenic, thus there was no reason to be worried about the contamination of this particular artefact. However, it seems the testing for arsenic on the repatriated artefacts was done in the absence of museum staff from Benin and they were not aware of it. Imorou Abdoulaye indicated that he was unaware of chemical testing on the artefacts, but he confirmed that as a precautionary measure they handled the artefacts wearing gloves and face masks. This suggests that there was inadequate briefing between the museum staff from these two countries about pesticide treatment and testing, and underscores the need to address the issue in repatriation negotiations between countries and their respective museum staff. While it is commendable that the Quai Branly museum tested the artefacts for arsenic contamination, other equally harmful inorganic pesticides such as mercuric chloride and lead, and organic pesticide contaminants should also be considered for testing to allow recipients of the repatriated artefacts to make informed decisions on safety protocols which must be taken in the handling, use, and storage of such artefacts.

With regards to organic pesticide contaminants, Eleonore Kissel stressed that “Until performing detailed condition reports for these objects, no signs were observed that could lead us to believe that organic pesticides were used on these artefacts, such as stains or the glitter characteristic of specific pesticides that are reported in the technical literature”. In the circumstance of contaminated artifacts, it may be difficult to accurately identify a pesticide contaminant based on the availability and accuracy of the records of the collector or museum. Collections may have been preserved in the field before reaching a museum and this information may not be recorded (Kearney 2001).

Additionally, the object may show no visible sign of previous treatment.

The issue of repatriation of artefacts without testing for possible pesticide contamination, or inadequate briefing of recipients of the artefacts on testing and treatment history of artefacts against pest attack could also be happening in other countries in the global south that are receiving artefacts from the global north. The treatment history against pest attack of the artefacts that have been repatriated or are being repatriated to Africa may not have been well documented. For example, analysis done by the Canadian Conservation Institute showed that five Ornithology specimens that came from Africa in the Democratic Republic of Congo in 1938 had high arsenic concentrations. These specimens were collected around the 1920s-1930s suggesting that specimens from this period should be treated with caution (Sirois 2001). Many artefacts are yet to be repatriated from the global north to Africa. There are 3157 (including the 26 artefacts returned to Benin) artefacts from Benin that are in the Quai Branly-Jacques Chirac Museum's inventory while other African countries also have thousands of artefacts in this inventory, notably Ivory Coast 3951, Mali 6910, Madagascar 7781, Cameroon 7838, Chad 9296, and Zimbabwe 278 (Sarr and Savoy 2018). With repatriation gaining momentum in Africa, more artefacts will be returned to African museums. It is therefore important for collections care staff in African museums to be aware of the issue of pesticide contamination of the artefacts and be involved in discussions for their testing.

Repatriation may create situations where the objects are used in very different ways than they would be in their museum setting. For instance, the objects may move from a controlled environment where the potential hazards are likely known by those handling them, to one where the objects are used by a public unaware of the possible presence of pesticide residues (Sirois *et al* 2008). Further, some artefacts received from other institutions through exchanges or by purchase from dealers may be contaminated, and that one cannot assume that the source did not treat artefacts with pesticides (Nason 2001b).

The Capacity for Testing for Pesticide Contamination of Artefacts in Museums in the Global South

Most museums in the global south do not have the capacity to test for pesticide contamination on artefacts. Testing for inorganic pesticides requires analysis methods such as XRF spectroscopy, Fourier transform infrared spectroscopy (FTIR) and Raman spectroscopy which are very expensive and cannot be afforded by many museums. The same challenge is also experienced in testing organic pesticides which requires expensive processes such as gas and liquid chromatography. The equipment that is required to conduct chemical testing is beyond the reach of many museums in Africa. This is a challenge that may impact the health of museum staff, researchers, and visitors in museums in Africa as well as the conservation of artefacts in the museums. African museums should consider forming regional consortiums and pulling resources together to set up testing centres for artefacts. Alternatively, the museums should consider establishing partnerships with universities for the testing of artefacts. This has been successfully done at the Natural History Museum of Zimbabwe (during Davison's Chiwara's Ph.D. project) where the Department of Tangible Heritage Conservation at the University of Pretoria offered XRF spectrometry and chromatographic resources for the testing of inorganic and organic pesticides on specimens from the museum. The project involved working with museum staff in the testing of the specimens and equipping them with knowledge on testing artefacts for pesticide contaminants. The project is probably one of the few, if not the first of its kind to be conducted in Africa on testing of artefacts for pesticide contaminants. Further, African museums also should invest in training their staff on testing and identification of pesticide residues on artefacts.

Conclusion

Pesticide contamination of museum artefacts is an urgent problem that also beyond repatriation, directly affects the potential future uses to which we can safely put the objects in our collections, including research and education (Nason 2001). The approach to addressing the issue of pesticide contamination in museums in Africa should be holistic, encompassing both the repatriation process and in-house collections conservation. The issue should be tackled both at the international and local levels. The period that artefacts were

looted from Africa (colonial period) coincided with the widespread use of harmful pesticides in the global north. An estimated 95% of artefacts from sub-Saharan Africa are kept outside the African continent and they have been lost through violence over many centuries (Godonou 2007 cited in Gofswald 2009). Possibly some of these artefacts could have been treated with harmful pesticides as a way of preserving them and they could be repatriated back to Africa. This is an important issue that deserves urgent attention at international forums on repatriation and negotiations for the return of artefacts between museums in the global north and African museums. Addressing the issue at such forums helps in alerting people on precautionary measures which must be taken during repatriation to protect staff, researchers, and other users of the artefacts from the hazardous effects of chemical contaminants on the artefacts as well as prevent cross-contaminating artefacts in local museums. Professor Munjeri (the former Permanent Delegate of Zimbabwe to UNESCO and Vice President and Rapporteur of the World Heritage Committee) indicated that the issue can be taken up to ICOM's Ethics Committee, which is better positioned to recommend to UNESCO's Intergovernmental Committee for promoting the return of cultural property to its countries of origin so that it can be mandated to address it during repatriation negotiations. International conventions, charters, and treaties on repatriations should be reviewed to address the issue of pesticide contamination of artefacts.

At a local level, African countries must urgently review their respective heritage legislations and address the issues of repatriation, testing of artefacts for pesticide contaminants, and human safety from contaminated artefacts. The United States has demonstrated good practice by enacting an enabling legislation (NAGPRA 1990) which addresses the issue of pesticide contamination of artefacts. For instance, since 1995 the Arizona State Museum with guidance from the NAGPRA regulation has been involved in an in-depth review of possible pesticides residues on all traditional artefacts undergoing the repatriation process. This review was based on the NAGPRA repatriation check sheet which addressed the following aspects on pesticides: evidence of prior infestation; evidence of residual pesticides; evidence of museum repairs, restorations, and alterations; written records suggestive of pesticides use; and based on past storage locations, which pesticides might typically have been used on or near an artefact (Odegaard and Sadonge 2001). These same issues must be addressed in heritage legislations in Africa to enforce good practices in collections care with regards to testing for contamination and repatriation.

Bilateral negotiations for repatriation of artefacts between countries and museums should include collections care staff from the outset so that they influence deliberations on testing of artefacts for repatriation and the establishment of safety measures for their handling, use, and storage. Collections care staff must be fully briefed about the treatment history of the artefacts for pest control and establish whether the artefacts were tested for pesticide contamination and what type of tests were done. During repatriation negotiations, respective countries and their museums' collections care staff should sign memoranda of understanding (MOUs) that include testing of collections for pesticide contamination, and the documentation of pesticide treatment of artefacts. Addressing these issues will enable them to take necessary measures that prevent cross-contaminating local artefacts and protect museum staff, researchers, and community members from possibly contaminated artefacts.

In cases where repatriations are done without testing of artefacts and with inadequate documentation of pesticide treatment applied on artefacts, the safest course of action is to assume that some artefacts in a collection are contaminated with pesticide residues, and there is a need to consider implementing new procedures for collection handling and collection management based on that assumption to be prudent (Nason 2001b). Safety protocols for the handling and use of potentially contaminated collections must be instituted in museums in Africa for the protection of staff and users from toxic chemicals on artefacts.

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Declaration

This article is part of a Ph.D. thesis titled "Collections Conservation Practices and Possibilities of Contamination by Hazardous Pesticides: Towards a Non-Pesticide Approach of Conserving Organic Collections at the Natural History Museum of Zimbabwe.