

25. The Role of Museums in Planetary Health Bioethics: A Review

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25.1. Abstract

This chapter delves into the museological side of “the way forward” to conservation for planetary health bioethics. Specifically, it highlights the crucial role that museums play – their curatorial or exhibition interventions, conservation operations, development policies, or practices – which present or represent the vital relationship of human and planetary health. While it is not new to stress the significance of museums’ link to the environment and environmental education, it is necessary to re-examine recent cases in light of the rapid changes brought about by climate change and the constant call for sustainability. We thus offer a review of some recent works that appraise the museum’s role for bioethically considering the health of our living planet in three important areas: the environment, climate change, and sustainability.

Keywords: *Museums, Planetary Health, Bioethics, Environment, Climate Change, Heritage*

25.2. The Role of Museums in Planetary Health Bioethics

Moving forward in planetary health bioethics through museums is not about the museology of the planets. Rather, it is about understanding how to live and love the planet through the interventions and developments of museums. Zywert (2021) claims that we live in a time of social-ecological transformation where it is no longer possible to decouple economic growth and ecological destruction so that we need sustainable real-time futures-thinking economies within planetary boundaries. The lesson of oneness to the earth is a fundamental ontology that can be seen in the

indigenous knowledge of nature (Kahambing, 2021). Planetary health can be sustained through systems thinking where public health can promote a definition of health that co-benefits humans and natural systems together (Iyer, et. al., 2021). This is because “human health is fundamentally dependent on the health of the Earth’s biophysical systems” (Zywert, 2021).

Macer (1998) alternatively proposes a definition that decenters the concern of bioethics in anthropocentric terms and fits planetary health very well: bioethics is “love of life.” This embraces the planet, its species, and its cosmological form as a living entity, connecting everything into an integrated whole. Planetary health bioethics, therefore, is not a subcategory of bioethics, but an essential feature of bioethical thinking. Indelicato (2021) says in ‘Bioethics and Ecopedagogy’ that “the benefit of health will be the building of a *friendly environment*.” Elsewhere she mentions the backdrop that “the emergence of ecological problems of living beings implies the development of boundless problems in bioethics” (p. 156). This is why Waller (2021) recommends that ‘ecology’ education must be “imbibed with the principles of bioethics ... at different levels of education.” Global health and global bioethics speak of universal vulnerability. From an ecological perspective, it speaks of humanity's health and its relationship to planetary health. Hence, “if vulnerability is a symptom of the growing precariousness of human existence and is exacerbated in certain conditions, the social and environmental context can no longer be ignored in bioethical analysis” (ten Have, 2021, p. 55). Museums can definitely represent this pedagogical cause by showing how to love our living planet.

With the shifting needs and desires of society, development not only takes place in sectors that are business and technology-related. The sector of heritage and museums also modifies its way of operation to follow the trend of development. The roles of museums have been reviewed and reexamined over time. Museums have also experienced developmental changes together with society and proactively react with the effort of being multi-functional (Dabirinezhad, 2013). Therefore, it is essential to understand the shift in the definition of museums since it is always able to reflect the latest directions of their usages and how the functions of museums can suit within the framework of the promotion of planetary health.

By definition, a museum is traditionally an institution that houses “all collections open to the public, of artistic, technical, scientific, historical or

archaeological material, including zoos and botanical gardens, but excluding libraries, except in so far as they maintain permanent exhibition rooms.” (ICOM, 1947) The traditional focus is on the purpose of opening to the public for exhibiting its collections. Then it has been redefined as “a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment” (ICOM, 2007). Here, the focus shifts to serve society and consider its development for wider purposes: from understanding museums as presenters of objects to understanding them as tools of explaining lives and societies. The most recent definition in 2019 is much more comprehensive and has emphasized the vital wellbeing of the planet. Accordingly,

Museums are democratizing, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artefacts and specimens in trust for society, safeguard diverse memories for future generations and guarantee equal rights and equal access to heritage for all people.

Museums are not for profit. They are participatory and transparent and work in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality, and planetary wellbeing. (ICOM, 2019)

However, this definition is still riddled with criticism because it has removed an essential term that must be explicit—*education*. Chiovatti (2020) argues that although the 2019 definition may presuppose an ‘implicit’ pedagogical role, the purpose of education must be clearly indicated. An updated museum definition will be consulted this coming summer of 2022 at the ICOM General Conference in Prague. It is believed that the definition of the museum will be amended to present a better description of the functions of museums which must explicitly state a role in relation to the environment, especially in thinking about climate change and sustainability.

The museum is one of the key institutions that could not and should not be omitted in moving forward and approaching planetary health. David Attard, in this

sense, identified “climate” as “a shared global heritage” as early as 1988 (McGhie, 2020). The roles of museums and heritage in conceiving and presenting topics related to human civilizations have significant impacts on the enhancement and enlightenment of planetary health. This chapter will expound on the relationships between museums – their curatorial or exhibition interventions, conservation operations, development policies, or practices – and the three core areas in understanding and loving the planet: the environment, climate change, and sustainability.

25.3. Museums and the Environment

The term “environment” can be understood with two meanings. Lexically, it is considered ecologically in “complex of physical, chemical, and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival” or in peripheral situatedness as “the circumstances, objects, or conditions by which one is surrounded” (Merriam-Webster, 2022). The museum sector usually refers to the second definition mentioned above to discuss the atmosphere given to the audience during the exhibition. The importance of this idea has been analyzed by Forrest’s (2013) *Museum Atmospherics: The Role of the Exhibition Environment in the Visitor Experience*, which mainly demonstrates the interplay between visitors, the museum, and its exhibition environment. However, since the roles of museums are flexible and multi-functional, the emergencies on global warming and climate change catch the eyes of curators and the sector itself. Hence, unsurprisingly, attention is brought toward the ecological definition of environment. It is still arguable whether the practices of exhibiting will recognize organizations in other fields as part of the museum sector. Mostly because exhibitions are one of the duties of being a museum. If so, overlapping in this characteristic, many organizations, including non-profit organizations exhibit collections of their concerns nowadays can be considered having a role in the museum sector. For example, the Climate Diplomacy (2022) and the Environmental & Society Portal (2021) have presented various exhibitions about the environmental health of the planet to raise awareness from the public. With a broader sense of acknowledging these exhibitions as other forms of presentation, the connection between museums and the environment is no longer as implicit as we assume at the very beginning.

Although we can find in Oliver (1971) that the role of museums in environmental education is an *emerging* one, the idea that museums are interpreters of the environment is nothing new. This idea is common in the 19th century and has been commonly practiced in the 21st century (Barrett & McManus, 2021). Against the common stereotype of ‘museums as mausoleums’ containing skeletons and the labor of taxidermists, Barrett & McManus (2021) argue otherwise on the complexity of museum cultures, display, research, education, and environmental issues. Part of the effort to incorporate pedagogical mechanisms into the museum is the thrust on understanding the environment as in the case of the High School students visiting the Norwegian Museum of Science and Technology exhibition on radiation-related environmental issues (Henriksen & Jorde, 2001).

Environmental issues are, however, not just topics that lie outside of the museum but the museum itself as a building is affected by environmental conditions. Pavlogeorgatos (2003) lists some crucial environmental parameters such as “pollution (chemicals and noise), the humidity, the temperature, and lighting.” Energy-saving strategies have been put in place especially the air-conditioning in museums (Ascione, 2009). These strategies may vary according to different indoor environment qualities (IEQs) (Sharif-Askari & Abu-Hijleh, 2018). Management of IEQs won’t be easy as there are conflicting needs of the thermal indoor environment. Hence, practical compromises may inevitably happen (La Gennusa, et. al., 2008) and these arise in the context of environmental design (Bitgood & Loomis, 1993). For instance, “immovable historical relics in some archeology museums of China suffer deterioration due to their improper preservation environment” (Gu, et. al., 2013). Environmental management then needs principles and proper planning so that here, it is critical to emphasize “the role of the building as the first line of defense against environmental instability” (Cassar, 2013).

Concerning the description which implied the relationship between museums and the first sense of the term environment, Conn (1998) defines museums as “sites of intellectual and cultural debate where the prevailing cultural ideas and assumptions of society were put on display and where changes in those assumptions were reflected” (pp. 12-13). He does not clearly stress the role of museums in environment protection or any kind of related issues. However, he clarifies that museums are not limited to indoor venues and he considers them as part of the

environment which are the sites of living evidence, especially referring to open-air museums. Open-air museums are valuable heritage sites with implicit values that associate with the entire human-made environment as well as representatives in the context of the world's ecology (Pedram, et. al., 2018). Conn's statement literally expands the general perceptions about what should be displayed in museums, from the idea of exhibiting single or group objects and artifacts to a wider concept of being on the site with the artifacts, techniques, buildings, and landscapes to experience a certain theme. This immersive experience provides a better context for exhibitions, where audiences can be engaged with the contents deeper within such an environment which is similar to the concept of a theme park. Another important factor, then, in the relationship between museums and the environment is not just built heritage but also the general aesthetics of indoor, outdoor, and even digital space.

In terms of experience, aesthetics may be situated in different contexts and the influence of the environment plays a critical role (Mastandrea, et. al., 2021). The interplay of indoor and outdoor loci of the environment pertains to physical places while cyberspace and virtual platforms pertain to non-physical or more specifically, digital spaces. The physical environment in museums influences visitors' satisfaction (Jeong & Lee, 2006) and forms a suitable learning setting (Maxwell & Evans, 2002). Orhan & Yilmazer (2021) stress the importance of soundscapes to provide harmony of context and the built environment. There are multiple ways to capture students' views through the learning environment (Bamberger & Tal, 2009). Protecting the environment by changing the way of the presentation should be an ideal practice in supporting and promoting planetary health. Open-air museums are recognized as more eco-friendly than traditional museums (Pedram, et. al., 2018). One of the key reasons is that it consumes less electricity. Compared to indoor museums which constantly required monitoring on humidity, light, temperature, and security, open-air museums are presented within a considerably authentic environment, particularly in the way of handling and displaying artifacts or replicas more naturally. Cultural heritage, which becomes one of the display objects within open-air museums, indicates the testimony of human activity of a certain area over time. The development or changes of the area, as detailed as altering the materials of tableware or as enormous as changing in use of the landscape, are records of allocating natural

resources in a specific period. A better sense of connection with the environment has been provided through this immersive experience. This immersion is not limited to physical environments but also digital environments. The communication element proves instrumental in solving appropriate positionings to exhibit digital copies of the original environment in some heritage sites like the Viking Ship Museum in Oslo and the Calmecac Museum in Mexico City (Liestøl, 2021). Quality management can then also benefit from a “locally-focused” yet “digitally-oriented” perspective as well (Palumbo, et. al., 2021).

This shift in orientation to the wider environment makes museums rethink a lot of their role in climatic changes as well as operating on sustainable means. In Kamba’s *Environmental Protection and the Role of Museums* (2022), while the protection and role aim for carbon-free societies, there is a large impact on 1) energy conservation, global warming countermeasures, and environmental security laws, 2) energy reduction in the museum from storage environment adjustments due to seasonal changes, and 3) crisis management before and after natural disasters. Amid the changes in the global economic environment, management strategies in museums grapple with enhancing competitive advantage and sustainable development (Tsai & Lin, 2018). All mentioned above might then advocate further discussions on interactions between museums and climate change, and sustainability as well.

25.4. Museums and Climate Change

Climate change is “one of the most significant and fastest-growing threats to people and their heritage worldwide” (García, 2019). Mahfoodh & AlAtawi (2021) contextualize this, for instance, in the Cooperation Council for the Arab States of the Gulf (GCC), where “anthropogenic climate change poses a serious threat to the intangible cultural heritage.” Despite this, Bikovska (2021) finds that albeit limited only to 10 museums in English-speaking countries, the museums’ Facebook pages did not focus on the causes of climate change and the call to action from audiences. The crucial lesson that museums are critical of showcasing is the fact that climate change is real. How museums educate visitors about it and how they adapt to it is a matter of being agents for social change.

Natural history museums house scientific collections of the natural world as objects of study, which cater to both academic and recreation purposes about “the most diverse types of materials” (Costa, et. al., 2021). However, “most of the current contributions come from scholars covering climate control practices in developed nations” and “the bibliography related to museum environmental and climate management in other regions is comparatively limited” (Elkadi et. al., 2021). Henry & Carter (2021) show that in Michigan, rural areas where climate change is not part of the curricula especially in informal education and outreach, small and mid-sized museums, even if they are not primarily science museums, can help by becoming sources of climate change contents. The responsibility of protecting collections from increasing climate change risks is the responsibility of museums as “stewards of cultural heritage” (Gombas, 2021). Gombas identified that adaptation strategies can be successful if they focus on these required key themes of “institutional mission, values, and policies, research, education and training, physical prevention, and collaboration.” These themes provide consistency and identity, which are significant components in understanding cultural patterns and heritage.

Important edited collections about climate change and heritage on various issues have been taken up by Rushfield (2021) who edited *Stemming the Tide: Global Strategies for Sustaining Cultural Heritage through Climate Change*, which covered topics from archaeological sites and resilience to arts and culture. What is important is that this collection is followed up by the inputs from the breakout workshops about cultural and historic urban landscapes, archaeological sites, built heritage, cultural communities, intangible cultural heritage, and museums and collections. McGhie (2021), founder of *Curating Tomorrow*, claims in the final essay from the museums and collection workshop that there are good intentions on climate education but there is also a “Lack of Momentum.” Museums must have commitment and action to operate in a “circular economy”, reducing Greenhouse Gas (GHG) Emissions and waste with environmental controls for a sustainable environment. Even a simple exercise of reflecting on climate change through artworks can mean a lot to the visitors who must be deemed as participants rather than just guests. In the case of South Florida Museums, multi-scale institutional changes have to be made in changing the museum climate, that is, to integrate environmental issues in the exhibits and educational programs (Riopelle, 2021). An analysis of climate change

impacts on preserving the heritage elements of The Chapel of the University of Seville is one such way to monitor optimal preservation values and find out the most effective strategies like cooling and dehumidification in their case (Bienvenido-Huertas, et.al., 2021).

For museums, then, to adapt to climate change they must also be agents of change themselves. Eid & Forstrom's (2021) collection *Museum Innovation: Building More Equitable, Relevant and Impactful Museums*, treats the museum as "a social innovator" that is "purposeful in turning the static objects and distant histories into forces of good that helps elevate communities and advance environmental and social justice causes." Indeed, in another important collection on museum activism, collaborative involvements, and inclusion, museums are "agents for social change" (Chipangura & Mataga, 2021).

The emphasis on participation and collaboration can be connected to the reimagining of museums in their possible futures. The role of museums for the future covers the diversity and creativity of resituating the field in various fora of conversations, "transdisciplinary alliances," and "strange deviations," which can offer collaborative, even subversive, and nomadic characteristics to the climate action projects (Harrison & Sterling, 2021). Part of the reimagination of possible museum futures is to radically think of museums within biodiversity. Li et. al. (2021) have taken the term 'museum' in the field of evolutionary biology in claiming that "mountains can play the roles of museums and/or cradles in the evolution of biodiversity" in their study of hemipteran insects (p. 1081). The challenge is to extend the imagination beyond biodiversity because the "concepts of cradles and museums have outlived their utility in studies of biogeography and macroevolution and should be replaced by discussions of actual processes at play" (Vasconcelos, et.al., 2022).

In the case of intangible cultural heritage, Mahfoodh & AlAtawi (2021) explore the sustainability of oral folklore through mobile museums, UN partnerships, and national policies. In the context of the COVID-19 pandemic, thinking about a "radical, sustainable future" means preparing to challenge the status quo and "fostering collaborations" (Cobley, 2021). Transatlantic collaboration such as the U.S. and German museums can create "a cooperative network for the future" and the vital point is that while this is between well-established huge natural history museums,

the themes in the framework are also relevant for smaller and even non-science museums (Stauffer & Horstmann, 2021).

In terms of planetary health, soil science is one critical area that museums must take up. As such, “museums, collections, and exhibitions of soil play an important role in educating the population about this finite natural resource that maintains life on the planet, and for this reason, they must be increasingly supported, extended, and protected” (Richer-de-Forges, et. al., 2021). The development of sustainable museums and consequently, of sustainable tourism merely requires “minimum renewable energy potential necessary’ in solar and wind energies ‘for its transformation” (Calderón-Vargas et. al., 2021). It is, however, not safe to say that countries with strong environmental reputations can guarantee their future-proof security on climate change impacts, especially on cultural heritage and landscape, so that, like Sweden’s case, necessary recommendations have to be made (Antonson, et. al., 2021). Antonson, et. al. (2021) have five recommendations. First, the highest national authorities working on climate change, cultural heritage, and landscape and transport infrastructure should clarify the roles and mandates to have planning consistency. Second, the planning should be cross-sectoral or inclusive, representing even the general public, and be clear about the types of cultural heritage that should adapt to the changing climate. Third, standardized methods for heritage risk assessment should be developed, including more accessible advanced Geographic Information System (GIS) tools, to ensure effective procurement and adaptation measures. Fourth, a comprehensive handbook or best-practice manual containing detailed knowledge of cultural heritage and climate change (or climate impact assessments) should be created for various crucial purposes such as providing an essential reference for decision-making authorities and consulting companies. And finally, support has to be initiated by national multisectoral networks that must build knowledge and share experience on practical questions and strategies for solutions to threats.

Climate museums, therefore, are innovations that have been established and opened in the recent decade dedicated precisely to climate change. Newell (2020) highlights five of these each with their own distinct but interconnected missions to step up collective efforts for climate crisis action. Those are, namely, the Jockey Museum of Climate Change in Hong Kong (opened 2013), the Museum of Tomorrow

in Rio de Janeiro (opened 2015), the Climate Museum in New York (opened 2016) (Massie & Reyes, 2021), the Klimahaus Bremerhaven 8° Ost in Germany (opened 2009), and the Klimahuset in Oslo (opened 2020). Although not mentioned by Newell, The Museums & Climate Change Network additionally includes The Museum of Water (begun in 2013), a mobile museum that follows Newell's suggestion including digital museums and networks.

25.5. Museums and Sustainability

Museums and sustainable development have a “bidirectional relationship” (Panagiotis & Stavros, 2021) because they go hand-in-hand for the future. The International Council of Museums (ICOM) supports sustainability by establishing a new working group precisely for such a purpose (ICOM, 2018). However, many museums do not implement sustainability efforts (Hedges, 2021). At the practical level, Hedges (2021) finds that in Arizona museums, museum workers did not implement efforts unless they were “already part of everyday practice,” owing to the factors of whether the efforts are challenging or easy to implement. At the theoretical level, Orea-Giner et. al. (2021) suggest that to achieve sustainability, assessment of economic value and socio-cultural impacts can be theoretically approached through a mixed-method design involving tourists' perception and the local community.

Because tourism is a key factor in job creation and value creation, Lukáč et. al (2021) studied marketing communication as a sustainability tool in castle museums. In the value co-creation process, Piancatelli et. al. (2021) find that in Italian museums, the museum atmosphere affects visitors' perceptions and behavioral intentions. The tourists' quality of perception and visit intention both influence customer interests. Lindsay et. al. (2021) would concur on this by setting a sustainability agenda through media coverage of green science museums. Moreover, Evans & Achiam (2021) work on the operational definition of sustainability that aligns with the idea of museums as out-of-school science education. The impact of activities that must raise awareness carried out within museums should be articulated and communicated properly by the institution so that the perception of visitors goes beyond the information provided by the staff (Betancourt & Camargo, 2021).

The idea of cultural sustainability, taken from independent libraries in the UK and the US, suggests that supporting sustainability must not only focus on heritage preservation, but also on the key areas of cultural identity, cultural diversity, and cultural vitality (Loach & Rowley, 2021). In the heritage sector, a bottom-top approach should be incorporated in the museum accreditation system that should include sustainable development. Upon critical review of the role of cultural heritage within sustainable development, the sustainable development themes, and promoting sustainable museum practices, Vikmane & Lake (2021) review Latvia's nine most popular or visited museums. Important museum priorities in the successful incorporation of sustainable development first include cultural sustainability, precisely on the strengthening of national identity and communication technology sustainability. Second, there is financial and tourism sustainability that refers to image-building without sacrificing economic sustainability. These reflect the highlight of Zutshi et. al. (2021) on Corporate Social Responsibility in museums and galleries through the context of social and economic dimensions, along with the environmental dimension. For instance, Panagiotis & Stavros (2021) present the Open-Air Water Power Museum of Dimitisana as an example of how the traditional community values the power of water through pre-industrial techniques in the creation of various products. This example links social and financial stability and the relationship between man and the environment. Third, there is energy and environmental sustainability where efficient energy is being used in infrastructures and sustainable transportation solutions to support eco-cultural resilience. Muñoz-López et. al. (2021), for example, find that an audiovisual exhibition is more sustainable than a printed exhibition. It does not take many physical resources, logistics, or waste. And finally, there is social sustainability in Latvia's museums that builds on social capital, allowing physical, intellectual, socio-economic, and emotional accessibility. In this sense, the heritage sector, particularly museums, can match and achieve sustainable development goals.

What is becoming important in the relationship of museums to sustainability is not to compromise cultural identity. The premium is put on retaining cultural identity amid all different kinds of developmental goals, which then prioritizes cultural sustainability. Branden & Humphrey's (2021) study on museum visitor preferences according to their university members are neutral on sustainability

(even if they practice it) and suggest the need for social inclusivity and post-pandemic measures during COVID-19. Social inclusion in museums is the incorporation of the community's culture so that a wide range of representations must be seen to allow accessibility. Saad, et. al. (2021) speak of The Grand Egyptian Museum as a unique tool of mass culture and sustainability that enables the revival of traditional crafts and creates platforms for local artists through "sophisticated promotional plans" where the community can advertise their own brands. Silk Road Museums' design of inclusive heritage and cross-cultural education also highlight local factors that emphasize "aesthetic arguments of cultural identity" (Huerta, 2021). In mural art or contemporary muralism in Uruguay, the same bottom-up approach is espoused by De-Miguel-Molina & De-Miguel-Molina (2021) who concluded that for sustainability to happen, different actors must take part in the process, that is, "from conceptualization to the conservation." Indeed, Dwyer (2021) claims that the most influential reason among the unique reasons for museums to adopt sustainability is "that museums have a responsibility as community leaders and change-makers."

25.6. Conclusion

In this chapter, we tried to review the roles of museums in planetary health bioethics. This attempt tends to highlight and delve into the important relationships between the museums and heritage sector and the topics of the environment, climate change, and sustainability. Bioethically, museums are able to correspond to the rapid development of society and show our attentions with love to our beloved planet via the interventions or approaches of adaptation in various eco-friendly practices. In order to have significant impacts on the enhancement and enlightenment of planetary health, the sector should maintain and perform its flexibility and its characteristic of being multi-functional. These impacts are required in coping with the complex relationship between environmental issues with pedagogical mechanisms, developmental policies, and management systems. From soil, water, to tourism, history, architecture, and digitalization, the roles of museums cover a wide range of concerns.

Museums should become agents of change and tools for connection in the time of socio-ecological transformations. Sustaining heritage and cultural identity as part

of the environmental resources throughout the process of working toward planetary health is critical albeit difficult. Incidentally, the ethical act of love is not easy and as sustainable prospects and climate change strategies show, a planetary health bioethics through museums needs commitment, collaborations, and endless negotiations from local to global levels. The challenge is to be able to renegotiate the critical roles that museums have in the past and integrate those in future definitions so that a more inclusive scope can be covered but without sacrificing cultural roots. The interactions among the fields mentioned in this chapter are fundamental to the mission of promoting a definition of health that co-benefits humans and natural systems together and thus to have a brighter future in terms of human lives, the environment for society, and the whole of the planet.

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