



ROLE OF MUSEUMS IN CREATING ENVIRONMENTAL AWARENESS AMONG MASSES

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Abstract: As the world is changing toward globalization, various environmental issues are also increasing. Augmentation of transportation, urbanisation, coal-fueled power plants, burning of fossil fuels, wildfire, and ocean acidification are some of the causes of environmental degradation. These issues have adverse effects on animals, plants, and human beings. Environmental awareness must be the first factor that should be taken into consideration to resolve these problems. To create environmental awareness various conferences, conventions, and programmes are organized at international, national, and regional levels. Various projects and acts are also adopted to safeguard the environment. Environmental issues have also long been a topic in education to create awareness, especially among youngsters. Active learning techniques are necessary for environmental education to be more effective. Museums, as non-formal centres for education, create awareness effectively in fun-filled ways among different sections of society. Natural history museums, natural history sections, and some other sections in different museums are the ones which specifically made for environmental education. They create awareness through original specimens using dry or wet preservation techniques, various display methods, and different environment-related programs such as out-reach and in-reach programmes. Various sustainable development goals related to the environment are also interpreted in museums. Museums encourage people's environmental knowledge, attitudes, abilities, and awareness, so that they can become capable problem-solvers and socially responsible citizens with a sustainable outlook on the environment. If today we do not pay attention to environmental education, the day is not far when living a disease-free life is possible. It is important to raise environmental consciousness and ensure that the next generation has the knowledge in order to take preventative measures. This paper focuses the role of museums in creating environmental awareness among people and tells how museums address different global environmental issues and interprets natural resources and biodiversity to different sections of society. Different in-reach and out-reach programmes through which museums create awareness are also highlighted. It is high time when the role and potential of museums in creating environmental awareness should be well recognized by the education system. As a result, more collaborative programmes between Museums and different educational institutions, including schools, colleges, and universities, should be planned.

Keywords: Museums, environmental awareness, environmental issues, educational programmes, society.

INTRODUCTION

We are all nurtured by our environment. "Environment" refers to the factors that influence human, animal, and plant growth and development, as well as living and working conditions. The relationship between man and the environment was quite symbiotic in the beginning, but it changed significantly due to growing industrialization, consumerism, fast mode of communication, and new technologies, which started to erode the current balance. The environment is not the same as nature; in order for the environment to exist, it needs to contain living things, and in order for live things to exist, they need to have an environment. As the world is changing towards globalization, we face many problems, one of them being unprecedented environmental changes. Various environmental changes, such as different kinds of pollution, smog, global warming, biodiversity depletion or deforestation, ecological destruction, draughts, storms, cyclones, and other severe weather phenomena, etc. lead to climate change. Increasing temperatures cause widespread variations in ocean currents and atmospheric circulations, which in turn harm the environment and human health by causing irregular and erratic distribution of precipitation. If we do not pay attention towards this

global problem, the day is not far when living a disease-free life is possible, although various untreated diseases have already occurred in our life. To live in a disease-free environment firstly we need to understand the factors which are causing this problem. Human activity is the main factor behind several environmental problems. No environmental summit, treaty, or convention by itself can ensure that the environment is protected on a worldwide scale. Only the public's engaged participation and awareness can make it happen. As a result, humanity must act quickly to address these concerns (Bacolod, 2021). It is widely acknowledged that environmental challenges, such as ozone depletion, acid rain, pollution of various natural resources, and decline in biodiversity, are of international relevance. As such, they must be addressed through international collaboration and efforts. Conservation of the environment and sustainable development must therefore be a hot topic at all levels, from the village to the United Nations. Environmental awareness is crucial for everyone; even those who are educated may not be aware of contemporary dangers including the dumping of e-waste, medical waste, and other waste. "Environment studies" is a term that refers to a variety of academic fields, including science of matter, medical sciences, life sciences, agronomy, community health, engineering, and others. To protect our environment many international bodies, governmental and non-governmental organizations of different nations are actively participating and museums are also at the forefront in this cause. Museums are non-formal centres for education which educate the masses through its various kinds of displays, guided tours, and many activities such as- summer programmes, discovery rooms, lectures, film shows, workshops, dioramas etc. to create awareness. They work all around the world to educate, employ, and empower people from all walks of life with the aim of giving equal access and high-quality education to everyone. In recent years, educational institutions have admitted that museums can make great learning environments that encourage active learning.

ROLE OF MUSEUMS IN ENVIRONMENTAL EDUCATION

The environment is now a global concern which needs to be protected and maintained. Environmental education refers to systematic initiatives to spread knowledge about how ecosystems and natural environments work, and more specifically, how people may control their behaviour and ecosystems to live sustainably. It is a learning process that broadens people's understanding of the environment and it develops the knowledge and abilities needed to deal with the problems, and nurtures attitudes, motives, and commitments to make wise choices and act responsibly. Sometimes, it is used more generally to refer to all initiatives made to educate the general public and other audiences. The origin of environmental education can be found as far back as the 18th century, when Jean Jacques emphasised the value of environmental education. Louis Agassiz, a Swiss-born naturalist who advocated for students to study nature instead of literature, repeated Rousseau's idea a few decades later (Zarrin, & K. 2015). Learning about environmental issues could raise students' knowledge of related topics and make them more conscious about the impact of their activities. Active learning techniques are necessary for environmental education to be more effective. There are also many acts adopted and conferences held at international level to safeguard our environment. Many programmes are organized for environmental education among people worldwide. Museum is also one of the organizations which create environmental awareness among people through its various kinds of exhibits. They established for the development of society and often considered as the guardians of cultural and natural heritage. Museums attract a wide range of visitors worldwide and educate them, they enhance learning by providing creative and collaborative thinking, teamwork, and communication. There are various Natural History Museums and different museums having Natural History Section or some other sections which are designed to impart environmental education among visitors. International Council of Museums (ICOM) defined Natural History Museums as institution which gather, exhibit, and study things artefacts that have been taken from or obtained from the natural world. Natural history refers to the scientific study of all natural objects, including Botany, Zoology, Geology, Palaeontology, and Physical Anthropology. Museums play an important role in imparting environmental education by creating awareness among masses through its creative and innovative displays. They also play an essential part in nonformal environment education because of their skilled people, equipment, and original work orientation requirements. Environmental ethics, environmental management, interrelations, population and quality of life, and resource conservation are all part of the linked educational plan. Additionally, they can encourage more people to value the environment and take steps to safeguard it.

Collection and preservation of natural history specimens began in India with the establishment of Indian Museum previously known as Oriental Museum of Asiatic Society of Bengal having two primary

sections: one including objects from archaeological and ethnological research and the other containing specimens from Zoology and Geology. Natural history collections are crucial to environmental science teaching, as many Indian institutions and colleges have realised since the late 19th century. This led to the establishment of departmental natural history museum. In 1874, a Zoology Museum was established at Maharaj's College in Ernakulam. In 1978, India appropriately observed World Environment Day on June 5 by inaugurating the National Museum of Natural History (NMNH) in New Delhi. The museum owes its inception to Smt. Indira Gandhi, former Prime Minister, who decided to establish a natural history museum in 1972 on the 25th anniversary of India's independence, primarily to depict the rich biodiversity of the nation and to raise environmental awareness among the general public through exhibits and activities. The NMNH is run by the government's Ministry of Environment, Forest, and Climate Change. Sadly, a significant portion of the NMNH had been destroyed by a large fire in the early morning hours of April 26, 2016. Between 1995 and 2014, the NMNH New Delhi opened four natural history museums in four different regions of the nation. Regional Museum of Natural History in Mysore (1995), Regional Museum of Natural History in Bhopal (1997), Regional Museum of Natural History in Bhubaneswar (2004), and Rajiv Gandhi Regional Museum of Natural History in Sawai Madhopur (2014). Together, these four regional Natural History Museums contain exhibits that are always open and cover a variety of subjects, including biodiversity, ecology, life through the ages, marine creatures, nature's network, etc. Additionally, these museums offer particularly created activities such as out-reach programmes, heritage walk, workshops, gallery tours etc. for school children and their teachers (Sthanapati, 2016).

1. Museums addressing global environmental issues

Museums act as a powerful tool to highlight and solving many problems related to the well-being of society, such as environmental issues. They are well-positioned to educate audiences about current environmental issues as well as to offer environmental justice, equity services, and training to their communities because they are reputable educational institutions. Anthropogenic climate change is now universally acknowledged as the root cause of the recent increase in national and international crises and disasters. The idea behind environmental education is to provide response through education to the environmental issues. One of the proposals previously implemented in the Tbilisi Conference 1977 is "helping people and communities to realise the complexity of the built and natural environment as a result of interaction with their physical, biological, economic, social, and cultural components" or acquire the knowledge, attitudes, values, and practical abilities to contribute in a responsible and effective way in anticipating and solving environmental problems, including "aesthetic values". Since its inception at the Stockholm Conference in 1972, this discipline has evolved. Over the course of their more than forty years of existence, countless plans, strategies, and programmes have implemented, multiple measures intended to rebuild an appropriate person-nature relationship. This enables the ability to address the fundamental causes of this environmental crisis (Echarri, 2020). As credible educational institutions, museums are in a unique position to illustrate the effects of current environmental and social challenges effectively and openly. The foundation for many different activities, including learning, research, and creativity, can be found in museum collections. Museums contribute to the safeguarding of collections, as well as the protection of cultural and natural heritage throughout the world through the effective and sustainable use of their collections as well as the exhibitions, events, and other programmes. ICOM-NATHIST (International Council of Museum's Committee on Museums and Collections of Natural History) is the international committee for museums and collections of natural history which encourages the collection, preservation, study, and interpretation of various biological, geological, and paleontological collections, as well as the scientific investigation of the natural world's heritage and ecosystems. NATHIST is concerned with the conservation of biodiversity in both museum collections and the surrounding environment, the scientific research of the world's natural heritage, and the education of a larger audience through museum exhibits, conferences, field trips, etc. Through multimedia displays, interactive programmes, and hands-on exhibits for all types of visitors, museums are raising environmental awareness. They are highlighting various environment related issues we face such as global warming, depletion of wildlife due to human interference, different types of pollution, deforestation, ozone layer depletion, soil erosion, waste disposal, climate change, landslides, endangered plants and animals, industrialization, etc. as well as measures required to be taken for protection of wildlife and different measures to maintain ecological balance through various dramatic exhibits. It is crucial to educate the nation about these issues so that their actions will be environmentally beneficial. They also address the significance of different conservation projects or programmes for environmental/wildlife

conservation such as- project tiger, project elephant, sea turtle project, Namami Gange Programme, National Clean Air Programme etc. as well as different movements for the protection of nature such as Chipko Movement, Bishnoi tradition of nature conservation, Jungle Bachao Andholan, Appiko movement etc. are also highlighted through various display techniques.



Museum exhibit, showing endangered species



Museum exhibit, showing Chipko Movement

2. How museums interpreting natural resources and biodiversity to visitors coming from different sections of society?

Museums are institutions founded for the purpose of educating and serving the communities in which they are located, both in idea and frequently in practise. They are known for their non-formal education. The objective of non-formal education in a museum is to develop a plan of learning environment with measurable goals for both students and adult visitors. Non-formal education also aids in understanding museum's exhibits and information so that it is easily accessible and comprehensible to a variety of audiences. The audience that museums can reach is larger and more diversified, and they can utilise a variety of approaches and platforms to reach people where they are. Museums develop content and experiences that respond to their viewers' requirements to increase their audience reach and engaging local communities. Communities are directly impacted by global environmental problems such as climate change, pollution, sea level rise, deforestation, soil erosion, species extinction etc. Natural history museums are specifically made for environmental education, where importance of all natural resources and biodiversity has been explained using original specimens such as stuffed animals (birds, mammals), reptiles, nests, osteological collection, insects, fossils, dry preserved plants (herbarium) as well as wet preserved animals and plants. These specimens are exhibited using multimedia presentation in an intriguing way. Visitors' interpretation and understanding of concepts may be significantly influenced by both exhibits and instructional practices. Dioramas display fossils, the origin of life, evolutionary changes of earth, classification of plants and animals, life in different ecosystems (desert, mountains, ponds, under sea), adaptations of animals, different food chains and food webs, ecological pyramids, bio-geochemical cycles, energy conservation, life cycle of various animals and plants, different biomes of the world such as- oceans, deserts, grassland, forests, polar regions, forms of energy in environment such as wind energy, hydropower energy, solar energy etc., water management system, economic uses of plants, are some of the subjects which are interpreted to provide environmental awareness. A number of conferences, workshops, seminars fairs, puppet shows, bird and insect watching, and nature study camp are also organised by museums. They have a critical role in developing sustainable solutions in the future. Museums also organize numerous competitions as well as temporary exhibitions on significant days related to the environment and biodiversity such as wildlife Conservation Day, International Day for the Preservation of the Ozone Layer, World Nature Conservation Day, World Environment Day, World Water Day, Earth Day, International Tiger Day, World Wetlands Day etc. as part of its regular educational programmes. They can assist audiences in imagining themselves as part of the solution rather than victims of unassailable systems by empowering and bringing people together from a variety of backgrounds and interests, both similar and unlike. So that young generation may understand the significance of biodiversity, natural resources, and result of habitat loss etc. The establishment of museums as places where people feel welcome, regardless of their ethnicity or financial class, requires the creation of a setting where visitors feel safe and comfortable.

By giving people the chance to express, experience, and take part in expressions of their own and other cultures, museums assist to maintain and safeguard our natural heritage. Since apathy and concern about the environment are prevalent among younger generations, giving audiences examples of practical solutions that may be implemented both individually and collectively can give audiences control.



Exhibits showing biodiversity, RMNH, Sawai Madhopur



Exhibits showing biodiversity, RMNH, Mysore

3. How museums creating awareness towards environmental protection and sensitize masses for the same?

Museums impart knowledge to audiences to attain the educational benefits by using exhibits, collections, environmental elements, and other factors to reach a professional level. Through numerous educational programmes over the years, museums reach out to wide number of individuals. As a result, more people may be motivated towards environmental protection and take action to conserve nature. These initiatives fall under the categories of extension (out-reach), interpretation, and in-reach activities. In-reach programmes are offered within the museum for individuals who may visit them, whereas out-reach programmes are designed for persons who cannot physically visit museum. Various galleries offer special services like interpretation programmes. Some of the important programmes through which museums create awareness and sensitize masses are given below;

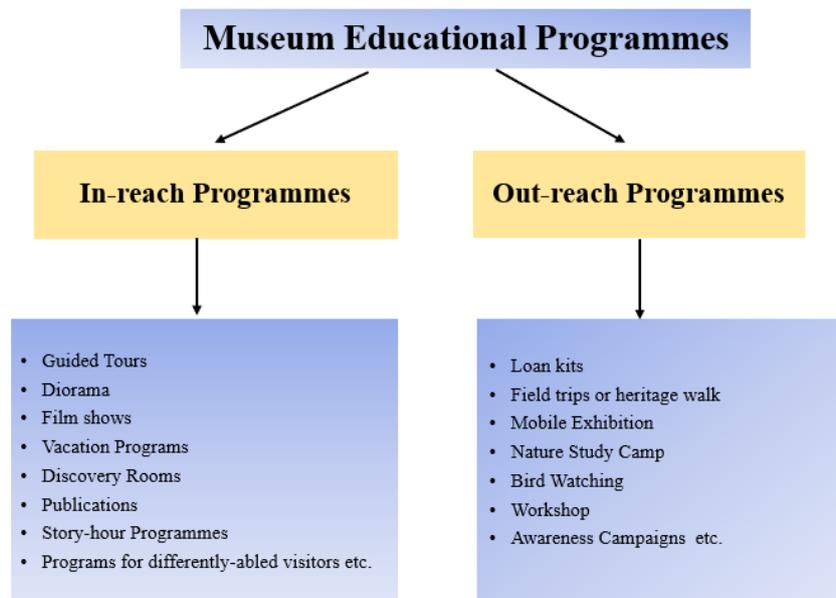


Figure showing classification of Educational Programmes in Museums

I. IN-REACH PROGRAMMES

i. Diorama or participatory exhibits; A walk-through diorama of a forest, complex food chain, deforestation, various movements related to our environment or other interactive exhibitions are examples

of participatory exhibits. Dioramas, a type of display that mimics nature, are immensely popular among the general audience. The diorama is the setting of ecological environment in which a natural history specimen can be placed after it has been preserved. Since the ecosystem in which the specimen has evolved has been expedited, the diorama accurately represents the real world. Visitors can replace working models, enjoy interactive exhibitions and find answers to questions themselves, use discovery boxes and quizzes, etc. Such interactive exhibitions are prevalent in most science museums.



Dioramas showing wetland and local avifauna in State Museum, Lucknow

ii.Guided tours; The most popular educational programme in any museum is usually the guided tour. In museums to educate the visitors, guided tours are conducted by trained educational assistants/docents. A museum guide is an artistic, innovative, and enthusiastic person who offers interpretative services to museum visitors through group tours and workshops, as well as special events. By using their knowledge, they bridge the gap between visitors and exhibit. Every activity has a connection to the goals and subject areas of the museum. The visitors can share stories with one another here. Such one-on-one engagement and sharing of ideas between a guide and the visitors are extremely helpful where visitors come from different social, economic, and educational backgrounds.



Guided tour for school children in different Museums

iii.Film shows/ Lecture Theatre; Museums organize various films shows to educate and create awareness among visitors which can be based on ecology, environment, nature, biodiversity, conservation etc. Lecture theatres are fully equipped with movies or closed-circuit television programmes on a large screen, project slides etc. The lecture theatre and auditorium which served as the centre of the museum's teaching programmes for so long, is still critically significant.

iv.Vacation Programs; In-house activities are some of the special programmes/events that museums arrange during the summer and winter breaks. The museums offer a variety of programs on different themes related to environment like painting, quizzes, speech, skit, debate competitions, puppetry shows etc. These programmes helped children to improve their skills and talents while also educating them about cultural and environmental challenges and how they can continue to support conservation efforts.



Educational programme for students organized by Bal Bhavan (National Children Museum), New Delhi

v. Discovery Rooms; Discovery rooms are areas apart from regular museum galleries that include activities, objects/artefacts/specimens, and exhibits to give visitors participatory and exploratory experiences. Collaborative exhibition spaces offer visitors great learning opportunities to develop profound connections and understandings about the museum's collection when adequately planned and run. This section gives children a hands-on opportunity to handle, explore, and engage in a variety of educational activities. They also give differently-abled children the freedom to discover and get acquainted with various items in a comfortable setting.

vi. Programs for differently-abled visitors; Various educational activities are organised by museums so that children with different abilities can experience and appreciate their exhibits. Such programmes consider speech, hearing, and vision problems of these visitors. The museum also arranges specially designed guided tours of its several galleries using audio-aids, Braille materials, and its touch, feel, and discovery programmes. In addition, the museum organizes competitions for these visitors and professional capacity-building workshops for its employees to help them understand the unique requirements of such people.

vii. Publications; A publication is any piece of information disseminated to the public via communications channels, such as: pamphlets, fliers, brochures, or special handouts. The museum frequently releases educational materials for children, like workbooks and worksheets that address environmental issues. For students of senior level, these typically consist of nature research project assignments, and pamphlets on specific museum displays. The general public and academician can also learn about a museum's research through its publications.

II. OUT-REACH PROGRAMMES

i. Loan kits; A school loan kit is simply a box that contains knowledge on particular topics. Typically, each loan kit box includes copies of the original objects/artefacts/specimens, charts, models, colour plates, and an instructors' manual. Loan kit box was designed with a constant focus on how to quickly and clearly communicate concepts related to each topic to users.

ii. Field trips or heritage walk; There are currently several environmental challenges that are endangering human survival on earth. These issues are growing in number and complexity daily. One of the best teaching methods for environmental issues is field experience. Museums organize field trips, nature trail or heritage walk nearby monuments, cultural sites to educate the children/students which foster a deep love and understanding of nature, ecology, wild life, conservation, biodiversity etc. Field studies are an indispensable synergistic tool in the overall learning process and are just as important as classroom activities.

iii. Mobile Services; To ensure that the general public is not deprived of learning about the museum's exhibits and activities, museums have started a trend of bringing themselves to the public outside of the building's surroundings. Displays on particular subjects are made for the mobile exhibition. Children are given an introductory talk and a brief slide show at each location or school they visit. After that, they go through the exhibit and do their worksheets.

4. Sustainable Development Goals and Eco- Museum

The Sustainable Development Goals (SDGs) are the most significant global initiative ever; they aim to put the world on a sustainable future path by 2030 by addressing a wide variety of social and environmental concerns. They are described in "Transforming Our World: The 2030 Agenda for Sustainable Development." Sustainable development is defined as "development that satisfies the requirements of the present without compromising the ability of future generations to meet their own needs" by the Brundtland Commission (1987), which was founded by the World Commission on Environment and Development. The 2030 Agenda is an action plan for people, planet, and prosperity. With the SDGs, anybody, any organisation, and any area can work together to achieve shared objectives by using their individual talents, competencies, and resources. There is a lot that museums can contribute to the 2030 Agenda, yet without museums, several of the SDGs cannot be accomplished. The SDGs and the 169 targets that make up them serve as a guide for tackling the world's most critical issues. The phrase "the SDGs" refers to the 17 Goals' history, vision, and execution in addition to their specific goals and targets. As stated in the International Council of Museums' founding values, "Protection of culture and the natural environment is a moral duty of individuals, communities, and governments, regional and national," the organisation supports sustainability and sustainable development. ICOM has played a significant role in preserving both the natural and cultural heritage since its founding in 1946. By collaborating with and enabling local communities to enact change that will secure a planet that is sustainable, social justice, and fair economic exchanges in the long run, they can improve sustainability and climate change education. When it comes to "improving the implementation of education, training, public awareness, public involvement, and public access to information so as to increase efforts under the Paris Agreement," museums can be a valuable resource. An Eco Museum is "a locally based museum or heritage initiative that promotes sustainable development." The creation of Eco Museums is a dynamic process that enables local governments to recognise, protect, interpret, and manage their cultural and natural heritage for sustainable development. A community agreement serves as the foundation for an Eco Museum, which is frequently identified by a geographical territory. For both formal and non-formal learning, museums have a large audience coming from different sections of society. It may provide environmental education through number of programmes that are following the SDGs.

CONCLUSION

The survival of societies and our planet's health are at risk due to environmental issues. The rate at which natural resources are being exploited may result in environmental imbalance, ultimately leading to global catastrophe. Reluctance in creating awareness and lack of systematic planning of the environment need to be addressed to overcome these global environmental issues that have affected our lives today. In order to ensure that the next generation has the information to take preventative steps, it is imperative to increase environmental awareness among the general public. Therefore, more museums should come forward to create environmental protection awareness to sensitize the masses for the same. It is also essential that the education system understand and accept the significance of museums in promoting environmental consciousness. Museums provide active learning environment to visitors which give them unforgettable experience. For better interpretation, they need to research more about environmental issues, which helps visitors to understand the concepts easily. It is recommended to develop different programmes and exhibitions in museums focusing on environmental issues for differently-abled visitors also so that they can learn their duties regarding environmental protection in fun ways. The museum authority should also waive their regular admission fees and offer subsidized transportation facilities to make the programs successful and attract the underprivileged section of society. They can plan more outreach programs, especially for rural areas where people need to be benefitted by them to learn about environmental challenges and its solutions. In mobile exhibitions, more working models addressing environmental problems should be added. It is also important to promote the concept of Eco- Museum. Interpretation centres at various national parks, wildlife sanctuaries, bio reserves, etc. may be set up by museums to raise public awareness about nature and sustainable development. Various sustainable development goals related to environment should be learned by the visitors effectively through exhibitions so that they can understand their role in sustainable development. Schools, colleges, and universities need to broaden their collaborative programs with museums to help the young generations to understand the environmental crisis in which they must change their attitude while interacting with nature in order to behave responsibly.

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