

**CONSERVATION OF HERITAGE MONUMENTS FROM ENVIRONMENTAL
CHANGE: A CASE STUDY****Dr. J. Muthukumar**

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Abstract

Monuments are the treasure house of a country and a society, which supply us with ample information on religion, society and cultural significance of the region in which it is found. Taj Mahal has been under constant threat due to the Black Carbon and Organic Carbon emitted by industries and vehicles. Further the 8th century Shore Temples of Mahabalipuram which is a legacy of ancient Pallava Dynasty and the 17th century Danish Monuments of Tranquebar are threatened by the climatic change induced by human activity. The three prominent Chola Temple in Thanjavur Region are the living testimony for the pinnacle of Saivism. These temples are under threat either due to unrestricted activity in the vicinity, mining or deep bore wells which destabilizes the structure. The structures face the problem of rising water level, pollution, structural instability etc. The Archeological Survey of India has planned sprucing 100 Monuments under ‘*Adarsh Monuments*’ throughout the country. The paper envisages an attempt to look in to the imminent threat posed to the Monuments of India taking into example some of the significant ones in to consideration.

Keywords: Monuments, Conservation, Temples, Climate, Buffer Zones.

Introduction

The word monument is derived from the Latin word ‘*monumentum*’. Monument is a structure usually a building or statue, built in memory of a person or an event. National monuments are places of historic, scientific or scenic interest set aside by a Government as public property. It has always been customary in monarchies to erect monuments to Kings or Princes after their death. India houses one of the world’s great artistic traditions, a heritage of art, architecture and sculpture that is dated back to thousands of years. Most of the monuments of India are religious in nature and still enjoy a greater significance in the sense of religion, culture and historical value. India is a repository of ancient cultural and natural treasures of exceptional value; United Nations Educational, Scientific and Cultural Organization (UNESCO) General Conference of 1972 has adopted a resolution on ‘*Convention Concerning the Protection of this World Cultural and Natural Heritage*’. Archaeological Survey of India (ASI) is the body responsible for the preservation and protection of about 5000 monuments of national importance in India. Conservation and preservation of monuments helps us to understand our own ancient culture and find out similarities and dissimilarities between the modern and medieval cultures, it also helps the people of other parts of the world to learn and adopt our culture.

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The monuments of our country give us good scope for study of the development of religion endowed as it is, with a large number of religious monuments, monumental sculptures helps in supplementing the indigenous literature when there is a lag. The religious monuments of India further help us to understand the growth and evolution of some religious creeds and iconography. The monuments by their nature of construction would have involved the efforts of the entire community of those days. Great Temples stand as testimony of the past to the present, with the contemporary structures that have perished with onslaught of time, weather and other natural agencies.

The ancient monuments means any structure, erection or monument, or any tumulus or place of interment, or any cave, rock-sculpture, inscription or monolith, which is of historical, archaeological or artistic interest and which has been in existence for not that one hundred years. Some of the ancient heritage monuments of India include The Taj Mahal, The Red Fort, Qutub Minar, Sanchi, Ajantaa, Eloora Caves, Jagannath Temple, Sea Shore Temples of Mahabalipuram, The Brihadeshwara Temple etc. The important factors that are posing threat to Monuments in India are

- i) Increase in Water Level of Sea due to Climate Change
- ii) Natural Disasters such as Tsunami
- iii) Air Pollution due to Climate Change
- iv) Natural Weathering
- v) Poor Civic Sense
- vi) Vandalism

Taj Mahal

Taj Mahal the testament of love located in the banks of the river Yamuna is considered as greatest architectural achievement of the Mughal Empire built in an Indo-Islamic style. Studies conducted by various environmental research agencies and educational institutions have revealed that the monument which is a four centuries old mausoleum has been greatly damaged by the change in climate. Research conducted by Georgia University, University of Wisconsin, Indian Institute of Technology, Kanpur and Archaeological Survey of India have brought out the impact of Air Pollution on the historical heritage. Researchers have found 3% deposit of Black Carbon and 30% deposit of Organic Carbon. Black Carbon is emitted mostly by the 8,00,000 Vehicles in Agra town and on burning fossil fuels. Organic Carbon is due to burning of biomass, garbage and large scale emission from the industries in and around the monument. Studies have revealed that the discoloration of the monument has started in a rapid manner after 1970's. The project to clean up the air in and around the vicinity of Taj was started in 1998 after a Supreme Court direction with the American Funding. The then President of USA Bill Clinton while stating the project commented that

“what 350 years of wars, invasions and natural disasters have failed to do [and] begun to mar the magnificent walls of the Taj Mahal”

The issue doesn't stop with the discoloration of the monuments but there is a greater concern on the structural stability of the large foundation of the mausoleum. Conservationists are a bit worried about the receding ground water level and drying up of the Yamuna for a few months in a year. Barriers built along the Yamuna to cater the drinking water of a large population and the industrial intake may result in the disintegration of *sal* wood used in the foundation due to lack of moisture.

Shore Temples of Mahabalipuram and Danish Monuments of Tranquebar

The Ports that existed in the earlier days such as the Arikamedu, Mahabalipuram, Kaveripattinam, Tharangampadi, Korkai, Alangulam and Periyapattinam have found their place in Periplus, which had strong trade relations with the Roman Country. Most of these port towns are nonexistent in present day due to repeated natural disaster or coastal erosion. A few which exists in the present day are also facing extinction as a result of rising sea level and climate change induced by human intervention.

Mahabalipuram was very famous for its trading activity through its port and also for the Seven Pagodas among the earlier mariners. The 8th Century Shore Temples of Mahabalipuram which belong to the Pallava Dynasty is a symbol of heritage and art of the Tamil Country. The UNESCO declared Mahabalipuram as World Heritage Site by 1984 which symbolizes richness of the region, further it paves the way for its promotion and conservation. The monument has been under constant threat due to sun light, rising level of sea water, coastal erosion, salinity and sand bearing winds. The major concern however, is the receding coastline which threatens to eventually submerge the structure sooner or later. This has been happening since centuries and is presently under risk of being accelerated due to climate change which has resulted in rising sea levels, beach mining and increased storm incidences. The increase in tourist inflow to the heritage site is also another reason for the damage caused to the structure.

The other historical site which is affected due to change in the coast line change is Tharangambadi which once served as a Danish Trading Centre. The Danish Trading Centre was established in Tharangambadi by 1620, the Danes build the Danesborg Fort, Governors Bungalow, New Jerusalem Church, Zion Church, Printing Press, Schools, Cemeteries and a coastal wall to protect the trading centre. The Coastal Wall has been largely damaged due to shore line shift because of increasing sea water level. The Danish Monuments have been renovated with the assistance and co-operation of Denmark National Museum, Denmark Best Seller Foundation, Tamil Nadu Tourism Department and the Indian Architectural Department. Masilamaninathar Temple which belongs to the 13th century is partially submerged due to coastal erosion. These manmade structures along the coastal area are prone to erosion as a result of heavy storm; monsoon and cyclones which cause the maximum erosion in these monuments. The Annual Sea Level rise in Mahabalipuram is 0.55 metres/year and Tharangambadi is 0.65 metres/year.

Chola Temples in Thanjavur Region

The Chola Temples at Brihadeshwara Temple at Thanjavur, Temple Complex at Gangaikonda Cholapuram and Airavateshwara Temple at Dharasuram serve as a testimony for Cholas Dynasties economic, social, religious and architectural splendor. Further these temples demonstrate the exquisite of the Dravidian Architecture, the progressive development of the Chola architecture, paintings, power of the Chola rulers and the dependence of the medieval Indian economy on the temples. The above mentioned three temples have been declared as Cultural Heritage Property and are under the control of ASI. They were brought under the ASI through the Archaeological Sites and Remains Act in 1922, 1946 and 1954 subsequently. These temples belong to the period from 11th to the 12th Century; the UNESCO lauds these temples as '*the great living chola temples*'. The Brihadeshwara Temple was declared as World Heritage Site in the year 1987 and the other two temples in the year 2004.

The religious structures like the temples are affected due to the climate change and also due to the booming economic activities in and around them. The Vehicular traffic, mining activity and poor management of the drainage in these sites have dented on their structural stability. ASI has joined hands with UNESCO to maintain these structures by creating a buffer zone of 100 to 200 meters around these temples. Buffer Zones are intended to prevent curtail vehicular traffic, stop setting up of new industrial establishment, prevent mining and other activities that would adversely affect the monuments. Further in an attempt to conserve and protect the temple, the Archeological Survey of India has done Chemical Cleaning of the Raja Rajan Gopuram of Brihadeshwara Temple in 2010 to commemorate the 1000th year. Chemical Cleaning and complete replacement of the temple floors have indicated of the need for a Comprehensive Complete Conservation Management Plan without hampering the authenticity of the structure.

These temples which are the historical and religious monuments of the region speak of the efflorescence of Saivism. They are important as they represent the nation's culture and history. The Monuments are the symbols of our cultural legacy which helps us to connect to our past. The conservation of historical monuments helps people to remember the past so they can do even greater things in the future. The conservation of historical monuments from climate change, pollution and poor civic sense etc through awareness campaign to educate the community has become the need of the hour. As per the studies on Indian National Trust for Art and Cultural Heritage (INTACH) the damage done to monuments due to Vehicular Pollution is irreversible.

Conclusion

The Civil Society along with the Government Agencies such as the UNESCO, Archaeological Survey of India and State Archaeological Department should form policy document to preserve the monuments from the Climate Change. The awareness on the necessity to preserve monuments should be imparted to the younger generation by stressing on the cultural and historical value of each and every monument which is located in around their vicinity. The

Government in its reply to the Parliament has stated that it has enumerated a number of steps to conserve the monument like Taj from the impact of Climate change. The Government through the Clean India Mission (Swatch Bharat Abhiyan), National Air Quality Index, Implementation of Bharat Stage IV norms, taxing polluting vehicles, bringing in comprehensive waste management rules, revision of existing pollution norms, levying environment compensation etc has proposed to protect and conserve the historical heritage monuments of the country.

Creating an emission free zone in and around the historical monuments, initiating stringent measures to setup sewage treatment plants by industries near the monuments, regulating the emission level of the large industries, regulating to Tourist inflow in to the monuments, setting up of a consistent monitoring agency to check the level of air and water pollution, setting up of groups to monitor with the participation of NGO's and Government Officials would help curtail the threats of climate change on the monuments of our country. We have to protect the monuments from getting damaged due to climate change since; it has to be passed on to the future generation to protect the pride of our nation.

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