

17. Heritage Management Issues of the Shore Temple, Mamallapuram, and the Airavateswara Temple, Darasuram: A Case Study

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Abstract

Heritage is the legacy of physical artefacts and intangible attributes of a group or society that is inherited from the past generations. Cultural heritage management is traditionally concerned with the identification, interpretation, maintenance and preservation of significant cultural sites and physical heritage assets, i.e. monuments, apart from the intangible aspects of heritage such as culture, tradition and languages. The Archaeological Survey of India (ASI) is a premier institution in the country tasked with the identification, interpretation, maintenance and preservation of significant cultural sites and monuments. This paper deals with heritage management issues of the monuments under the jurisdiction of ASI, more particularly pertaining to the case studies of Shore Temple at Mamallapuram and Airavateswara Temple at Darasuram in Tamil Nadu.

Keywords: Heritage Management; Conservation; Mamallapuram; Darasuram

Introduction

Cultural heritage includes the tangible and intangible aspects and also components of natural heritage associated with a particular group or society, which is inherited from the past generations. In India, more than 3680 ancient monuments, archaeological sites and remains of national importance are under the administration of the Archaeological Survey of India (ASI), the nodal agency for managing the heritage sites and monuments of India. There are 411 centrally protected monuments and sites under the jurisdiction of Chennai Circle of the ASI. The primary objective of ASI is to preserve and conserve the country's cultural heritage for the benefit of the future generations

(Marshall 1923; Lal 1953). In the recent decades, the subject of heritage management has received more attention due to rapid growth of urbanisation, cultural tourism and several other developments in the global context. The protective management of standing monuments and historic sites depends upon the knowledge of geological sub-surface conditions of sites and monuments and the human-induced processes that affect the stability and degradation of these cultural vestiges.

Group of Monuments, Mamallapuram

The group of monuments at Mamallapuram dating back to as early as the 7th century CE (Srinivasan 1958, 1964) is one of the important architectural edifices of India. Located close to the east coast of India and within the urban sprawl of the metropolitan city of Chennai, these monuments face the onslaught of both natural and human agencies.

It is a well-known fact the Sangam Tamil and other early literary works refer to many types of temples, presumably built using perishable materials such as wood, bricks, mortar and with stucco or painted images as objects of worship (Srinivasan 1983a: 11). Stone was mainly used for funerary practices in Tamil Nadu in the Iron Age and as such it was not preferred for religious edifices in the early period. This trend was perhaps changed by the Pallava king Mahendravarman I (c. 580–630 CE) with the excavation of a cave-temple at Mandagapattu near Villupuram as attested by the famous inscription there (EI, XXVII: 14ff) referring to the traditional construction materials. Perhaps the early Pandyas too ventured into creating rock temples in the early period. This tradition of scooping rock-cut caves was continued by Mahendravarman's successors too. During the reign of his son Narasimhavarman I (c. 630–668 CE), the whole architectural activities were confined mainly to Mahabalipuram (or Mamallapuram). In addition to the tradition of excavating cave temples, monoliths and structural temples were also patronised by Narashimavaraman I and Narashimhavarman II (Rajasimha), respectively.

Mamallapuram (12° 37' 36.937"; N 80° 11' 33.76" E) is located 45 kilometre from Chennai on the East Coast Road, in

Thirukazhukundram taluk of Kanchipuram district. The temples in this coastal town represent the crucial phase in the development of religious architecture of Tamil Nadu. It has been famous as a sea-port even from the beginning of the Common Era. The modern name Mamallapuram, 'the city of Mamalla', derives from a title of Narasimhavarman I (ca 630–670CE), the great Pallava ruler of the 7th century, who was responsible for erecting most of rock-cut cave temples at this place.

The monuments of Mamallapuram could be divided into two groups; (i) those forming part of the natural charnockite formation like the cave temples, monolithic temples and the bas-relief, and (ii) the structural temples, particularly the Shore Temple and Mukund Nayanar and Olakkannesvara temples. The different types of rocks of softer and less compact textured raw materials were used for early construction. The leptinite reddish sandstone and whitish grey granite stone blocks were used for the construction of Shore Temple (Narasimhaiah 1995). In 1984, this group of monuments at Mamallapuram was declared as World Heritage Monument by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

Shore Temple, Mamallapuram

The shore temple (*Alaivay-k-kovil*) is built on the shore, a few feet away from the sea. On plan the temple consists of three shrines, one behind the other. The main cell (the Ksatriyasimhesvara), facing east enshrines a fluted Siva-linga, and the other facing west (the Rajasimhesvaram) also has a fluted Siva-linga. Behind the Siva-linga, there is a bas-relief panel representing Somaskanda which is also repeated on the either side on the walls of the porch. The walls of the cells have traces of lime plaster. There are rampant lions at intervals dividing the carved panels of the outer walls of the temple; of which many have been obliterated by the continuous spray of sea-water. In between these two Siva temples, is a third shrine (the Narapatima Pallavagriham) containing a large image of Vishnu in form of *anantasayana*. The superstructure of the Kstraiyashimesvaram is large than that of Rajashimesvaram and it also has an additional prakara of low height with small gopura-dvara at the east. The whole temple

complex is surrounded by an enclosure along with rows of sculpted Nandis arranged on the top. Opposite to this temple, at some distance, is a *balipitha* and the pedestal of a *dhvaja-stambha*.

Causes of Decay

Since the rock-cut cave temples and *rathas* are part of the natural formation, there are no structural problems as such. The stone used for construction of Shore Temple is identified as leptinite (Srinivasan 1983: 56), porphyritic in texture with indistinct to well-developed foliation. The chief mineral constituents are quartz, feldspar and biotite with small amounts of accessory minerals such as magnetite apatite, garnet, sphene and zircon. However, granite was used only for the *pattika* moulding of the *adhishtana* with a specific purpose of serving as a damp roof course besides taking the load and its even distribution on the plinth. The monument did not have much structural disturbance owing to the solid foundation over the bedrock. The lashing waves and direct contact with the saline wind and also due to capillary action, the soluble salts from atmosphere and the ground are being deposited continuously on the surface of the stones. The accompanying pressure, and heat and cold at alternate intervals in course of a continuous dissolution and re-crystallisation of salt cause stress, leading to the exfoliation of the upper surface, resulting in a fragile, porous and even powdery over matrix. As a result of this dual action the features of the sculptures and other ornamentations face a higher degree of erosion. Another problem is the accumulation of drift-sand all around the monument (Narasimhaiah 1995).

Conservation Efforts of ASI

The earliest reference to a conservation measure of a monument of Mamallapuram is found in Dandin's *Avanti-sundari-katha-sara* (Sastri 1946) and it mentions that the author was invited to inspect the restoration of a broken hand of the *Anantasayi* image at Mamallapuram. During 1880–83, the Government of Madras Presidency, through its public works department carried out several works at Mamallapuram like the removal of drift sand in the vicinity of the five *rathas*. Alexander

Rea made a remarkable contribution to the conservation of monuments in Mamallapuram, in particular the Shore Temple. In 1905–06, the *mahadvara* of the Shore Temple was reconstructed and the see-through joints of the masonry were pressure grouted and pointed. Further in 1906–07, a further excavation of the buried structures was carried out on the western side of the Shore Temple. Rea provided approach pathways to the monuments (Fig. 1).

Following the reorganisation of the survey by Wheeler, the structural conservation was transferred to the survey itself. Nevertheless, 1940s was an important decade for Mamallapuram. By then, it had become certain that the monument's surrounding had deteriorated because of sea inclusion. The best method that was perceived suitable at that point of time was the construction of a groyne-wall well inside the sea to prevent inroads into the sediment in the context of the monument. The effort to construct a groyne wall was started in 1939–40 by dumping 2 ft cube concrete blocks on the north-eastern side of the temple. The wall took its present shape in the early 1980s. The casuarina trees were also planted inside the line of groyne wall to control the speed of the wind.

Even though the periodical chemical treatment is being provided like paper pulp treatment to the surfaces, due to salt crystallisation action, the effect of erosion is so high that in ranges from few centimetre to 20 centimetre, thereby reducing the structure to critical balance at few locations. At most of the places, sculptures have been eroded to the base level, making it difficult to recognise the original features (Fig. 2).



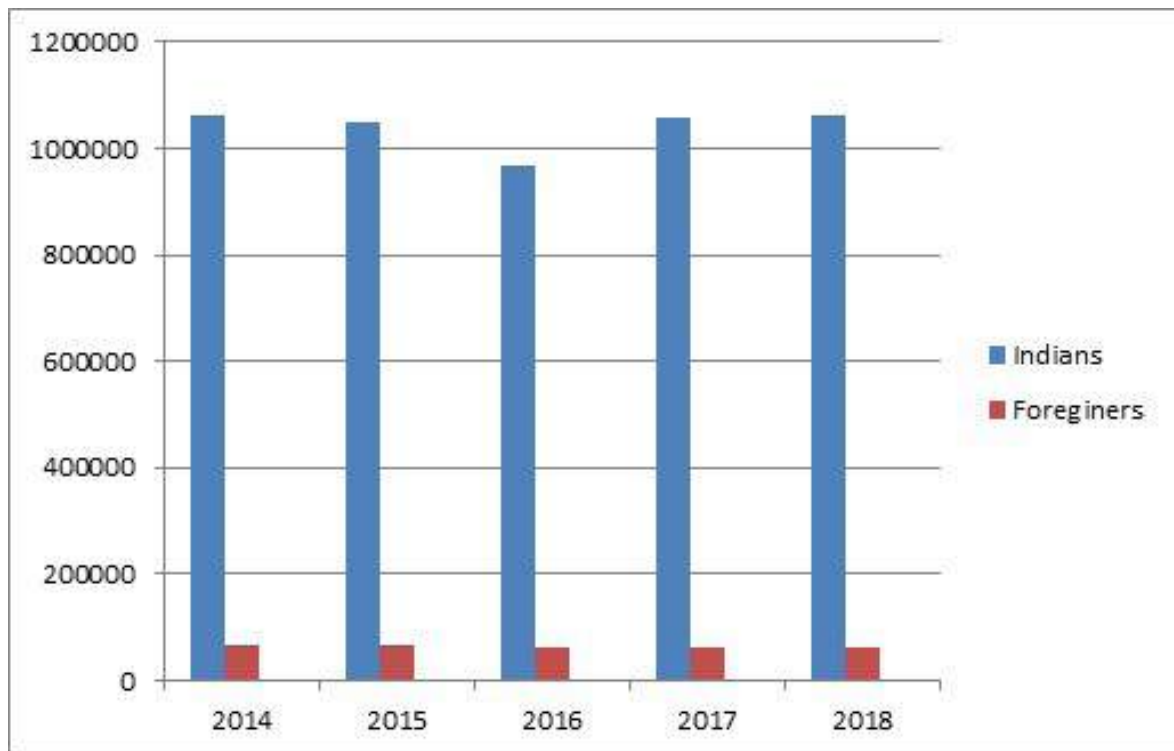
*Fig. 1 a, b. Shore temple then and now at Mamallapuram
(Source : ASI)*



Fig. 2 a, b. Eroded sculptures at Mamallapuram (Source : ASI)

Recently, the ASI, Chennai Circle, Chennai, made a trail patch in the south-eastern corner of *adhishtana* to counter the deterioration by applying the superficial layer of lime plaster with suitable fine aggregates where the loss of surfaces is around 3 cm. Where the loss of surface is beyond 10 cm, the appropriate sized stone blocks have been fixed for which, if required stainless steel pins and mesh were used.

Another two important problems are mass tourism and rapid growth of the town, due to urbanisation. Though tourism is an important factor that significantly contributes to the development of national economy, it also affects the heritage sites by negative effects such as pollution, changes on environment and destruction of landscapes. In Mamallapuram, during the last five years, the tourist inflow has remained more than a million mark (Fig. 3).



*Fig. 3. Tourist inflow at Mamallapuram during last five years,
(Source : ASI)*

To get rid of all these negative issues, the ASI, Chennai Circle, is monitoring tourist activities at the heritage sites, especially in the Shore Temple, by restricting the tourists entering the monument. The construction/mining activity has been controlled in and around the

monument, i.e. protected, prohibited and regulated areas of the protected monument, by issuing a no objection certification (NOC) and restricting the height of buildings (residential/commercial) for construction under AMASR (A&V) Act, 2010. To control tourists, a visitor movement plan has been prepared. Hence, these problems are mitigated by creating awareness among the public by conducting awareness programmes. However, the conservation effort at Mamallapuram, particularly Shore Temple, portrays the theme of ‘struggle against nature’ (Narasimhaiah 1995).

Airavateswara Temple, Darasuram

Darasuram is a panchayat town located 3 kilometre away from Kumbakonam, in Thanjavur district of Tamil Nadu. This town is known for Rajarajeswaram or Airavateswara temple, which is one among the great living Chola temples along with Brihadeswara Temple, Thanjavur, and Gangaikondacholiswaram at Gangaikondacholapuram, UNESCO’s World Heritage Monument, declared in 2004. Darasuram is close to ancient Palayarai region, which was a part of the urban centre of Palayarai-Kudamukku, a residential capital of imperial Cholas. All the early inscriptions of Aditya I and Parantaka I show that their activities were mainly centred in this area. The tradition of constructing gigantic temples in the middle Cholas period was continued by the later Cholas. Airavateswara temple (Rajarajeswaram at Rajarajapuram) was built by Rajaraja Chola II (1143–1173 CE), who patronised art and architecture like his predecessors. This temple’s grandeur and sheer beauty of sculpting genius are great in its own way and unique. This temple complex faces east and the temple is enclosed within a massive compound wall along east–west and north–south directions, with the *dhvaja-stambha* and the Nandi *mandapa* both being outside this enclosure (Balasubrahmanyam 1975).

Architecture

The main temple consists of the *garbhagriha*, the *ardhamandapa*, the *mukha-mandapa* and the hall (*tiru-mandapa*) of Rajagambhira (i.e., Rajaraja II), which is the *agramandapa* (Figs. 4 and 5). The entire structure, built at the same time, rises from a high plinth (*upapitha*). The square *garbhagriha* has a thick wall on which the *vimana* tower

risers gracefully. There is no circumambulatory passage immediately round the *garbhagriha*, making it a *nirandara*-type *vimana*.

The *ardhamandapa* linking the *garbhagriha* to the *mukha mandapa* is in two parts. The first chamber, which is close to the sanctum, is an closed one with an entrance from the eastern side only; it is supported by four pillars and has almost all the features of an *antrala*. The other half of the *ardhamandapa* is a continuation of the *mukha mandapa* and has two side entrances, resting on four pillars.

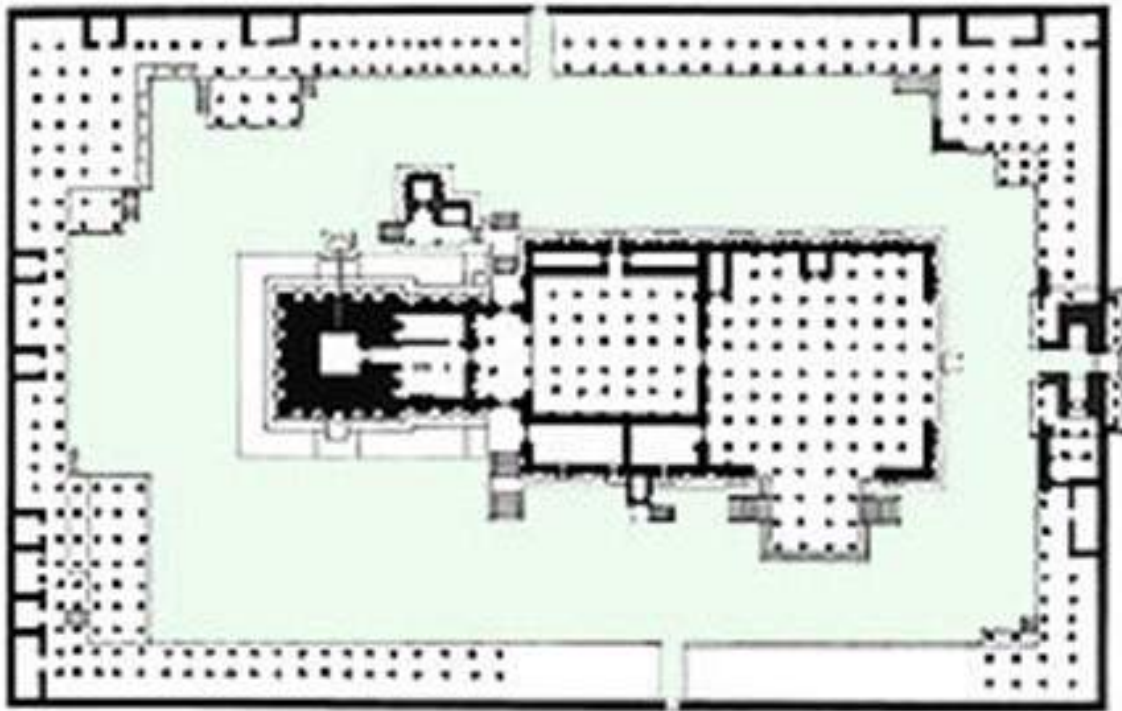


Fig. 4. Airavateswara Temple, Darasuram Ground Plan
(Source : ASI)

The next constituent element in the temple is the *mahamandapa*, supported by six-rows (north–south) of eight pillars each and is enclosed by walls on the south, east and north. The eastern wall, which is thicker than the other two, and the entrance in the middle connect this *mandapa* with the bigger one, viz., the *agramandapa* (also called the *manimandapa*).

The *agramandapa* is also called *Rajagambhiran-tirumandapam*, after the builder. This *mandapa* deserves special attention as it is conceived as a chariot, with artistically and realistically carved

out wheels with hubs and spokes and drawn by caparisoned and straining horses. Darasuram thus anticipates the giant-wheeled temple of Konarak in Odisha (1235–1253 CE) by more than hundred years. This *mandapa* is supported by ten pillars in nine rows in north–south orientation, the perimeter pillars being panelled up to make the hall a closed one excepting for the porch on the southern side and a gap in the eastern side to permit a direct view of the sanctum from the main *dvara*. The porch in the south is reached by a set of ornately carved flights of steps from the east and the west. Facing this *mandapa* on the eastern side is the *balipitha*, outside the main podium, and is approached by an ornately carved balustrade flight of steps, which produce musical notes of varying frequencies. These steps are therefore known as the ‘singing steps’.

The main temple rests on a high platform (*upapitha*) and carries named panels depicting scenes from the lives of the Saiva saints (*Nayanmars*). The *sri-vimana*, the super-structure over the *garbhagriha* in five *talas*, towers at a height of 63.5 feet crowned by circular *griva* and *sikhara*. The pillars of the Rajarajagambhira hall rise from the heads of sitting lions and are crowned and decorated by broad *palagais* and *podigais*.



Fig. 5. A view of Darasuram Temple Complex (Source : ASI)

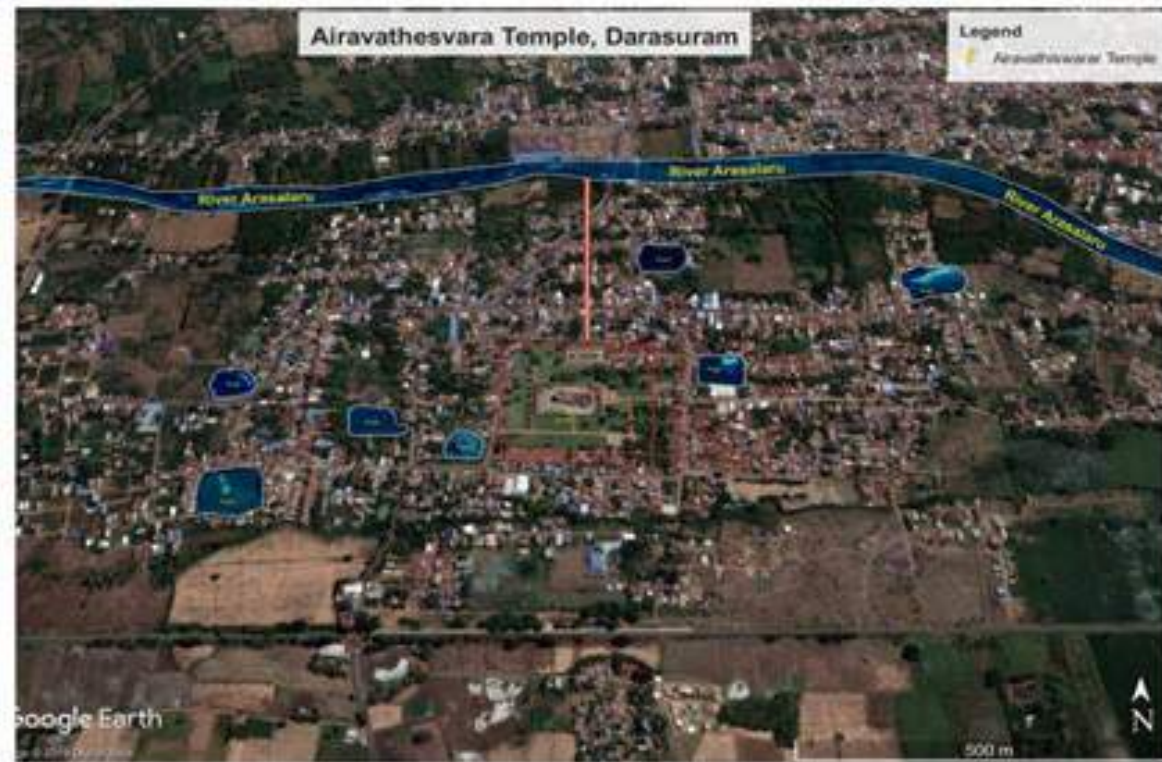


Fig. 6. Ponds around Airavathesvara Temple (Source : Google Map)

Causes of Decay

Geographically, the temple is located between the two rivers Arasalaru and Tirumalai Rayarpattinam river, which are the tributaries of river Kaveri and also the monument is surrounded by several ponds (Fig.6). Hence, water logging is the focal issue in this monument, as the monument is more than 1.5 metre lower than the present surface level. The temple is getting affected by capillary action, due to which water penetrates into the walls of the temple. Though the temple is built out of granite, it damages the stone structure, causing stone flaking, especially as observed in the *adhishtana* (foundation) portions sometimes. To investigate the problem, proper conservation measures are being taken from time to time.

Further, the natural fissures in the formation have given rise to two kinds of problems: percolation of rain water and breakage along the fissure. These two problems are pronounced in the cloister mandapas.

Problems of Conservation

The Airavateswara temple is listed as monuments of national importance in 1954 is under the protection of the ASI. This temple is live in the sense that traditional religious rituals continue being

performed there through an active participation of the general public. Thus the monument is also subject to the Tamil Nadu Hindu Religious and Charitable Endowments Act (1959) of the Tamil Nadu government.

Since from the time of protection, the ASI is conserving the Airavateswara temple from the atmospheric change and pollution as well as human vandalism and encroachment. From 1969 to 1979, the buried basement of the *Nandi-mandapa* and *balipitha* was exposed by excavation, which revealed the original details. The removal of the accretions led to the discovery of a unique structure with wheels and horses on the plinth of the *agra (mukha) mandapa*.



*Fig.7 Stagnation of rain Water, Airavateswara Temple, Darasuram
(Source : ASI)*

The management of cultural heritage is often related to surface and groundwater management. De-watering is one of the greatest concerns for those managing waterlogged archaeological monuments and sites, as well as a great danger for foundations of above-ground monuments. The temple is 1.5 metre below the present surface level, and rain water stagnates inside the temple complex (Fig. 7). A canal was laid from the temple to nearby pond to drain the water. However, the problem is not solved as the mean sea level (MSL) of the water level in the pond is higher than that of the temple. Hence, water enters the

temple through same canal from the pond. Temporarily, the stagnating rain water is drained out by pumping and also flagstone flooring has been provided around the temple to prevent accumulation of rainwater. The rapid growth of towns and cities, i.e. urbanisation, also threatens cultural heritage. The surrounding area of the Airavateswara temple has been occupied by the local people. New developments outside a specific protected area can lead to changes in groundwater level and cause serious damage to heritage buildings and archaeological deposits. Especially the water bodies around the Airavateswara temple are encroached by the people due to which the water stagnates inside the monument. Due to water stagnation, the stone flooring also gets damaged. Hence, proper conservation measures have been taken up periodically to conserve the floors.



Fig. 8. Fenced stairs of bali-peeda, Darasuram (Source : ASI)

The percolation of rain water and breakage along the fissure terrace of cloister *mandapa*, *kalayana mandapa*, *ardha-mandapa* and *Nataraja mandapa* have been water tightened and conserved. Since the Airavateswara is a living monument, other conservation problems also arise, apart from the structural problems. Those problems are

chemically treated, that is, removing of moss and lichen accretions over the walls, pillars and ceilings and preserving stucco figures by filleting, edging and modelling.

Another important feature of this temple is musical steps near Nandi mandapa. Each step emits different musical tone on a musical scale. As mentioned earlier, the temple is a living monument and so an active participation of the general public is unavoidable throughout the year. Driven by curiosity, people started beating the steps by using stones, which led to its damage. Hence, the ASI, Chennai Circle, has provided iron grill gates to the steps and kept it locked to prevent vandalism (Fig. 8).

Conclusion

It is very clear that heritage management and conservation practice in India is complex and dynamic. A proper understanding of the natural and human-made subsurface environments that affect heritage is essential for *in situ* preservation, mitigation design as well as management of heritage monuments and sites. Globalisation as well as contemporary development threaten the authenticity, integrity, indigeneity and uniqueness of heritage places. The practice of heritage management and conservation in the last several decades has been oriented towards safeguarding and protection of heritage monuments, which are irreplaceable and that which are threatened by loss, damage and misuse. By enforcing the antiquarian laws viz., Ancient Monuments Preservation Act, 1904, Ancient Monuments Archaeological Sites and Remains (AMASR) Act, 1958 and AMASR (A&V) Act, 2010, the ASI is taking good efforts to protect and safeguard the above mentioned heritage sites. The world's cultural heritage is essentially a non-renewable resource that, when properly managed, benefits communities both socially and economically.

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