

# Conserving Fortified Heritage:

*The Proceedings of the 1st  
International Conference  
on Fortifications and World  
Heritage, New Delhi, 2015*

Edited by

Shikha Jain and Rima Hooja

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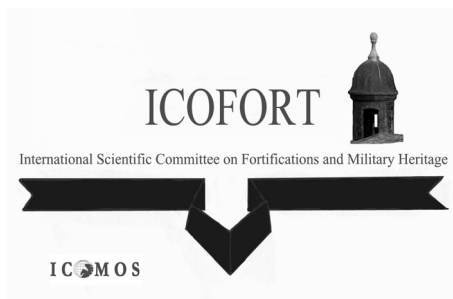
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**SESSION THEME:**

**CLASSIFYING FORTIFIED HERITAGE**

## CHAPTER ONE

# THE NATURE OF FORTIFICATIONS: THEIR CONCEPTION, CONSTRUCTION AND SUSTENANCE

NUPUR PROTHI KHANNA

### **Nature-Culture Dichotomy – a cultural perception**

A culture at a point in time is a representation of its relationship with nature. Disjunction with nature in the human psyche in the recent past has been responsible for encouraging human achievement without recognizing the relevance of nature in the endeavor. The result is a paradoxical dissociation, whether it is of nature from culture, of the generalist against the specialist, the ordinary versus the extraordinary or of formal protection overriding informal traditional management.

In the nature-culture debate, now assuming centre stage worldwide, the position of nations differs depending on their geographical, political, economic and anthropological histories. The Industrial Age that began in the Western world around the eighteenth century A.D.<sup>1</sup> brought about a disconnect between the land's natural features and man's contributions to the existing environment. The exposure of traditional societies to such widely travelled ideologies began to alter their perceptions. The rural environments of many Eastern nations continue to depend on nature, thereby recognizing that protection of the natural surroundings is vital for their sustenance.

India, today, is perched somewhere in between these two worlds. With an urban population of about four million as per the 2011 Census,<sup>2</sup> and 68.84% of people classified as rural,<sup>3</sup> the traditional way of life in rural environs has so far been spared the onslaught of urbanization. Our formal legal and planning tools, in contrast, are an extension of Western thought, thereby in conflict with the reality of management on the ground.

The notion of Cultural Landscapes is gaining acceptance worldwide to bridge this gap between Western ideology and Eastern thinking. It is also an attempt to address diversity, to increase the understanding, definition and representation of heritage at a global level. The notion of landscape as representative of the historic environment, all encompassing, is being seen as the way forward.

This paper explores the classification of one theme, namely landscapes associated with our military or defense past. These are landscapes represented by defense structures such as “fortifications (including fortified towns), works of military engineering, arsenals, harbors and naval battlefields, barracks, military bases, testing fields, and other enclaves and constructions built or used for military and defensive purposes; Landscapes, including battlefields, territorial or coastal defense installations and earth works, ancient or recent; Commemorative monuments, including war memorials, trophies, cemeteries, cenotaphs, and others plaques or marks.”<sup>4</sup> Their intangible associations of victory/defeat, valor and folklore also represent the diversity of nature and culture of India’s rich geographical palette and chequered political history.

This paper addresses how fortification nominations for World Heritage can incorporate the landscape element and in relevant cases be perceived, projected and protected as Cultural Landscapes.

### **Nature-Culture continuum**

The concept of Cultural Landscapes has its origins in the nineteenth century, when historians and geographers attempted to describe the relationship between humans and nature. European geographers such as Alexander von Humboldt elaborated on the two-way interaction between physical landscape and folk or national cultures,<sup>5</sup> which initiated the idea of Cultural Landscapes. Further to this, the American cultural geographer, Carl Sauer (1925) formulated a definition: “The cultural landscape is fashioned from a natural landscape by a culture group. Culture is the agent; the natural area is the medium, cultural landscape the result.”<sup>6</sup> By the late twentieth century, as archaeologists had begun to realize the importance of the wider context to understanding ancient cultures, ecologists became aware of the impact of human interventions on the ecological status of an area. These evolving ideologies resulted in broadening the perception of ‘heritage’ beyond monuments or ruins to embody a combination of tangible and intangible associations.



The adoption of Cultural Landscapes as a category (in 1992) of UNESCO World Heritage Sites furthered the global attempt to identify the “combined works of nature and man” of “Outstanding Universal Value”<sup>7</sup> in order to contribute towards a holistic perception of heritage inherently linked with nature. Further refinement in the integration of cultural and natural heritage was initiated by the Amsterdam Global Strategy meeting in 1998, which recognized the continuum and complexity of interactions taking place between culture and nature in the context of World Heritage.<sup>8</sup> To respect diversity, Outstanding Universal Value (OUV) was understood to be an outcome of varying interpretations (such as a combination of the unique and representative), ranging from the “‘best of the best’; ‘representative of the best’ to ‘the best of the representative’.”<sup>9</sup>

According to Stephenson (2008), there was a growing awareness of the need to sustain cultural diversity and ecological diversity along with aesthetic character in the attempt to protect World Heritage.<sup>10</sup> These discussions led to the broader issue of the “static” and “dynamic” values of World Heritage and further to deliberating on how best to manage living places that were already on the List.<sup>11</sup>

There were 97 walled towns inscribed on the World Heritage List in 2014. These are representative of the modification of the natural environment into defensive fortifications.<sup>12</sup> Citadels, forts, ramparts, walls, bastions and strong holds make an appearance with the well-preserved landscapes of existing towns and cities (17 nominations) and ruined complexes, relating to paleo-cultural sites (8 nominations).<sup>13</sup> This heritage may have preserved remnants of architecture, urban design and other expressions of their response to the natural environment and, therefore, should be perceived as being of value for more than their built fabric alone.

The VIMY Declaration for the Conservation of Battlefield Terrain (Draft of 2000) addressed the intangible association of “battlefields as poignant landscapes where physical geography has been transformed into symbolic space through war, pilgrimage, memorialization and tourism.” The draft Declaration further recognized historic sites and sacred places highlighting issues surrounding cultural heritage in its commemoration as well as presentation of the past. By addressing the future of cultural change it brought forth possible pressures and their impact on fragile landscapes. This draft Declaration may offer a way forward in its recognition of a need for multi-disciplinary exploration of challenges that

hinder protection, presentation and management of the physical remains of historic sites of conflict. The basic aim was to protect the physical fabric and intangible meanings associated with these complex cultural resources.<sup>14</sup>

### **Nature as the basis of an Indian ethos of landscape**

South Asian ideologies largely dwell upon the interrelation of man and nature. For example, in Indian philosophy, *Dvaita Vedanta* (dualistic conclusions of the Vedas) represents a dualism between God and the universe in existence as two separate realities.<sup>15</sup> Orthodox Hindu *Sāṃkhya* philosophy elaborates upon this as *puruṣa* (consciousness) and *prakṛiti* (matter) where *jīva* (a living being) is that state in which *puruṣa* is bonded to *prakṛiti* in some form.<sup>16</sup>

In the Indian context, therefore, man and nature are deeply entwined, as is expressed in daily life and belief systems. *Dharohar*, a term for heritage in the Indian tradition, is a combination of *dharā* – (the mother earth, *Prithvi*, that is held by Lord Vishnu), and – *ihara* (endeavor of identity through time), implying the bearing and sustenance of life.<sup>17</sup> This is a reflection of the long history, traditions, pilgrimage, built structures, sacredscapes, *genius loci* and, above all, a deeper sense of interrelation and ecological cosmology intrinsic to our culture.<sup>18</sup>

Recognition of nature in our sustenance and hence its judicious use and protection were central to rural India till the present, where sacred forests and groves, pilgrimage corridors, and a variety of ethno-forestry practices were adopted in the form of religions and rituals for landscape protection.<sup>19</sup> Landscape, therefore, was a revered entity that had a large impact on the perspectives of various cultural groups and influenced their building methodologies as well as cultural activities.

### **Cultural Norms for Fort Planning in India**

Drawing on the impact of landscape on Indian philosophies, it can be said that the ethos of imbibing nature extended to all realms of life. For example, the interrelationship between site and context, albeit in a hierarchical way, was accepted as the norm in planning. Site (*sthān*), the extended space, habitat (*paryāvāsa*) and regional territory (*parikshetra*) eventually linked to the cosmos (*brahmānda*). Addressing the local and

universal, our heritage, *dharohar*, encompasses the tangible, intangible and visual across all scales of site, territory and cosmos.<sup>20</sup>

The term “fort” in ordinary usage implies a stronghold offering protection and security to inhabitants that seek refuge. Sources from literature also reveal the relevance of landscape that has been noted in the etymology of fortifications. Referred to as *Durg* in Sanskrit, the fort is a place that is difficult to access.<sup>21</sup> Fort construction is mentioned in many of our ancient texts, including Vedic literature (13<sup>th</sup> to 10<sup>th</sup> century B.C.) and *Kalika Purana* (8<sup>th</sup> to 10<sup>th</sup> century A.D.).<sup>22</sup> Kautilya’s *Saptanga* (4<sup>th</sup> century B.C.), or the seven-element theory for a state, elaborates on the crucial role of forts in the defence of empires.

Due to the significance of fortifications in the protection of a region or territory, they became vital components of important cities and places of strategic value in ancient and medieval times. From references and from the remains of fortifications in the landscape today, it may be presumed that India was studded with magnificent fortresses from where powerful monarchies are said to have ruled. Though the primary motive for building forts was military defence, their influence extended to the political and administrative realm.<sup>23</sup>

The structure responsible for the protection of the royalty, army, *praja* or “name of reign” had to be designed invincibly. Location was of paramount importance. Therefore, strategically located forts used natural terrain to their best advantage where they could see and be seen across the existing landscape. The Indian landscape has innumerable examples to illustrate this.

### ***Fort typology in response to landscape***

Factors such as choice of location, building material and technology played a crucial role in the construction of forts. In the early period (8<sup>th</sup> century A.D.) forts were built on flat surfaces or plains, as direct attacks on fortifications were comparatively few.<sup>24</sup> Frequent invasions in medieval and late medieval times (11<sup>th</sup> century to 14<sup>th</sup> century A.D.) led to the need for multiple layers of protection possibly encouraging the trend of hill forts as well as forest and water forts aiming to minimize accessibility.<sup>25</sup>

*Shilpa Shastras* (10<sup>th</sup> and 11<sup>th</sup> century B.C.),<sup>26</sup> an ancient science of art and craft, elaborates on six major categories of forts: *Giri Durg* (Hill Fort),

*Dev Durg* (God's Fort), *Vana Durg* (Forest Fort), *Jal Durg* (Water Fort), *Maru Durg* (Desert Fort) and *Mishra Durg* (Mixed Fort). The *Giri Durg* or Hill Fort is considered the most formidable for protection of a princely settlement. This typology can be further categorized into *Pranther Giri Durg* (built on plain land of the hill summit), *Giri Parshva Durg* (built on hill slopes) and *Guha Durg* (built in the valley). The details for each signify the importance attributed to location and topography to ensure adequate defense.<sup>27</sup>

The larger forts encompassed palaces and settlements. As centuries progressed, settlements within fortifications expanded and evolved into *Nagars* and *Mahanagars*, analogous to towns, cities and greater cities of today. Mathura and Indraprastha of Mahabharata, and Ayodhya and Lanka of Ramayana are believed to have been forts which expanded subsequently.<sup>28</sup> The transition of forts from defense structures to fortified settlements that sheltered a larger population required a change in their building mechanisms due to their transforming purpose. The introduction of improved water management systems for sustenance of these people was one such change.

### ***Water for victory: harvesting and management of water resources***

A vital point of intersection between nature and human habitation within forts was the need for ample water resources to tide through long periods of siege. Ancient Indian religious texts and epics offer a detailed insight into water storage and conservation systems that were historically prevalent.

The ancient treatise, *Arthashastra* (3<sup>rd</sup> century to 2<sup>nd</sup> century B.C.), elaborates on water works, irrigation systems, water management and their necessity for fortifications and war.<sup>29</sup> *Samrangan Sutrardhar* (11<sup>th</sup> century A.D.) presents paradigms that developed in the pre-medieval period on the important aspect of water management. Originally composed in Sanskrit by the Parmar ruler Raja Bhoja (1018-60 A.D.) of Malwa, it offers valuable information regarding water management techniques in palaces and forts, construction methods of water resources and the architecture of water bodies in the region. It elaborated on the need for fortifications and water sources in a political capital, with an abundance of *tadags* (tanks), gardens, wells and bathing places in the city.<sup>30</sup> Water was vital for survival, especially in the dry regions where ingenious techniques developed over time to collect and store rainwater.<sup>31</sup>

## Response to Natural Context in Fort Planning in India

### *Nature in Nomenclature*

The prominent hills chosen for building strategic fortresses usually had names relating to their natural wealth of birdlife, minerals or rocks. However, once the fortress was established it was usually christened to express the power of a particular dynasty or was associated with a prominent deity that would ensure victory and fortune at the time of battle.

Citing a few examples from the subcontinent, it can be noted that the isolated hill chosen for the Mehrangarh fort was originally known as *bhakar chiryā* or the bird's nest,<sup>32</sup> whereas the name "Mehrangarh" (or Mihirgarh, as used earlier) is made up of the Sanskrit words *Mihir* (sun) and *Garh* (fort), meaning "fortress of the sun". This was a means of invoking the patron deity of the Rathore family, the Sun God.<sup>33</sup> Another example of the use of nature in nomenclature can be seen in the case of Raichur Fort, Karnataka, where the name is said to be derived from the Telugu words "*Rai*", meaning stone, and "*ooru*", meaning town. This was formulated as "*Rajooru*", or the town of stones, in order to describe the abundance of stones that were found in the fort's vicinity. Eventually, it became "*Rayachoor*" or "*Raichooru*", which comprised the words "*Racha*", or king, and "*ooru*", meaning place.<sup>34</sup>

### *Using Topography to advantage*

Western Ghats, along with other hill ranges which intersect the hinterland, were dotted with forts perched in commanding positions upon chosen summits. Forts in the interior often occupied isolated hills and rose in a conspicuous manner from the predominantly level tableland of the Deccan as well as the plains of Khandesh. They were strategically located to defend lines of communication and trade routes, or at times to serve as political strongholds that dominated wide tracts of level plain.

Ranging from elaborate hill forts along the Western Ghats such as Partabgarh, Raigarh and Asirgarh, amongst others, to the small forts of Laling or Songir in Khandesh, the rulers chose hill summits or plateaus ranging from a few acres to several hundred, the edge of which usually terminated in a nearly sheer scarp, 100 to 300 feet high, thus rendering it impregnable. Two or more lines of fortifications downhill were conceived at times for some of the larger ensembles. Gates and pathways were

usually designed along the slopes with the final approach being the most formidable. This can be seen in the last stretch of the Daulatabad Fort at Aurangabad, Maharashtra which can be accessed through a series of spirals that have been carved out of solid rock and rest completely within the rock surface of the scarp.<sup>35</sup>

Another case where the natural terrain has been appropriately used to create military architecture is the fort of Amber, Rajasthan. Applying the *Giri Durg* principles of the *Shilpa Shastras*, the palaces of this Rajput fort were located on steep hill ridges, the fortification walls and gates being designed in tandem with the topography.<sup>36</sup>

Along with its neighbor, the Jaigarh Fort, Amber is designed as a “*Garh*” palace in compliance with the ancient building knowledge of *Giri Durgs*. Located on the plain land of the hill summit, both forts are strategically built on plateau ranges, thereby accounting for difficult accessibility and increased defense. Design principles of *Giri Durg* require a fort to have wide ditches around it for protection from enemy attack, which at Amber is served by the Maotha Lake. The lake further serves the purpose of a reservoir for storing water for the palace.<sup>37</sup>

An important design feature of these significant forts was the inclusion of large areas within the fortification to enable them to serve as a retreat during wars. In the case of Amber, the arrangement was such that Amber was not enclosed by immediate fortifications but instead relied on Jaigarh fort (located 115 meters above) for its retreat. In a larger setting, Amber palace, town and the Jaigarh Fort were further enclosed by fortifications along the hills and valley, making for a spectacular landscape in response to site topography, creating outlook points for a strong defensive network.<sup>38</sup>

Other examples around the country exhibit similar characteristics across reigns and time periods. The Golconda Fort, a medieval fort on the outskirts of the city of Hyderabad, served as a dynastic abode and capital for the ruling Qutb Shahi dynasty from its foundation in 1512. Built surrounding a rocky hill that rises over 122 meters, the fortifications were comprised of three impressive curtain walls set amidst a formidable landscape of huge granite boulders deterring invaders in their appearance as natural cannons poised to tumble down.<sup>38</sup> The use of the landscape through its topography to determine the fort’s form and for the design of

impregnable entry and exit points portrays how the terrain was utilized to its complete potential for protection.

### ***Water harvesting mechanisms for sustenance***

As already explained, management of water for fortifications was addressed in immense detail in many ancient literature sources. As has been mentioned earlier, *Arthashastra* (3<sup>rd</sup> century to 2<sup>nd</sup> century B.C.) sheds light on various aspects of water works, their construction, consumption and management, including their relevance in war.<sup>39</sup> Forts were conceived by the side of streams, rivulets, rivers or water-filled furrows serving as an impediment to access as well as providing water during peace times.<sup>40</sup>

Though water was always considered a vital element in the fulfillment of the role of a fortification, the geological under layers did not always allow digging of deep troughs for the purpose. Further, with springs present mainly on plains, where percolation through the fissures of this impermeable stratus alone is possible, the availability of water on top of the hill was a prime necessity at the time of siege.<sup>41</sup> Innovative solutions to these challenges are aptly demonstrated in many fortifications in Rajputana or present-day Rajasthan.<sup>42</sup>

A land of irony and extremes, the desert state of erstwhile Rajputana housed the Rajput warrior clans. Rajputs were prolific builders, with forts and palaces dotting the ancient Aravalli landscape. Some of the most imposing and magnificent forts and palaces in the world conceived by them narrate tales of their gallantry, courage and the tragedies of the past. Their survival in the harsh Thar Desert is an expression of building and living with nature which is notably visible in their water harvesting techniques.<sup>43</sup>

Inscribed on the World Heritage List as the “Hill Forts of Rajasthan”, six extensive and majestic examples, built between the 8<sup>th</sup> and the 18<sup>th</sup> century A.D., illustrate exemplary responses to their natural context, be it the river at Gagron, the dense forests at Ranthambore, or the desert at Jaisalmer.<sup>44</sup> Based on traditional Indian principles, these forts represent an important phase in the development of a contextual architectural typology, a legacy that lives on to this day.