Living Traditions and Indigenous Resilience:
Interplay in the Urban Landscapes of Koliwada in Dharavi

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ABSTRACT

The research paper examines the pivotal role of living traditions in the adaptation and evolution of indigenous urban spaces, specifically within the coastal urban slum of Dharavi in Mumbai. The study delves into the characteristics of public spaces within these areas, leading to the creation of a comprehensive typology and framework that encapsulate indigenous measures and built elements. By acknowledging and harnessing the wisdom embedded in these traditions, the paper aims to present the intrinsic connection between local practices, cultural heritage, and the physical manifestation of these traditions in the urban landscape, while unveiling how these living traditions serve as a resilient force in the face of urban transformation. Employing direct observations and immersive fieldwork in the neighborhood of fishermen, *Koliwada* in Dharavi, the research captures the interplay; *experiences and perspectives,* that presents the cyclical occupation of indigenous urban landscape based on living traditions in the urban slum. The findings underscore the crucial role of community-led vernacular measures in flood adaptation, highlighting how indigenous public spaces serve as innovative tools for addressing challenges, particularly in coastal urban slums prone to flooding. In conclusion, this research emphasizes the significance of understanding, preserving, and integrating living traditions within indigenous urban landscapes.

Keywords: Flood Adaptation; Indigenous Urban Landscape; Living Traditions; Vernacular Measures

Thematic block:

1. City: Urban morphology; Informal neighborhoods; Public space.

3. Landscape: Environment, resilience, and climate change

Introduction

Risk, vulnerability, and living traditions in coastal urban slums

Living traditions in a urban slum are closely interconnected with daily livelihood of the slum dwellers, shaping their social interactions, cultural identity, and also the indigenous resilience in the face of challenging living conditions and changing environmental needs. Coastal urban slums predominantly inhabit the flat, marshy areas adjacent to river basins or coastal mangroves, which are unsuitable for formal occupation. Thus, the geographical positioning, coupled with the convergence of urbanization, climate change, and inadequate formal interventions inevitably exacerbates the vulnerability of the slum dwellers. Despite the higher vulnerability and limited capacity and spatial constraints, slum dwellers survived with local indigenous living traditions over the years. These communities often possess vibrant cultural practices and customs that contribute to their collective identity and serve as a resilient force in the face of urban transformation. In a slum, living traditions may manifest in various forms, including communal rituals, religious ceremonies, craft-making, etc. These traditions serve as mechanisms for social cohesion, provind residents with opportunities to share experiences, traditional knowledge, and support one another amidst adversity. By harnessing the wisdom embedded in these traditions, slum dwellers create indigenous landscape. Residents, thus, engage in spontaneous appropriation of shared space based on their livelihood needs and changing environment.

Indigenous landscape of a urban slum

Coastal urban slums, such as Dharavi, occupy marginal low lying land in proximity to water that lack formal landscaping and qualified public spaces. The concept of landscape involves humans altering natural spaces for their habitation (Veríssimo, Cunha, & Aymara, 2021). In these slums, residents, drawing upon traditional knowledge organically shape their environment in close relation to water and their livelihood needs, adapting to seasonal and climatic changes. Unlike planned urban spaces, slum landscapes emerge spontaneously, reflecting community life rather than formal design principles. Thus, the spatial relationship between the slum dwellers and the immediate self-created indigenous landscape is not dependent on formal aspirations and modernity but rather on community life with cyclical adaptation in time. The landscape of the slums is the act of design in its own right rather than theoretical-practical realisation, propositional, planning and projective aesthetics (Veríssimo, Cunha, & Aymara, 2021).

Rapoport (1988) highlight that slum environments are spontaneous settlements, which like all human environments are intentionally shaped in the sense that purposeful changes are made to the physical environments through a series of choices among the available alternatives, though not in the conventional sense of urban planning (Rapoport, 1988, p.52). Rudofsky (1964, p.3) also emphasizes the context of self-organised slums and the ability to self-adapt the dwellings according to the environment in time; *day-night and dry-wet seasons*, and in space with topographical obstacles. The landscape of a slum is not predetermined but shaped with parsimony by factors like location, topography, soil, geotechnical features and climate. Thus, the slum landscape is not codified but rather spontaneous (Flores Fernandez, 2011). Here, slum landscape refers to physical characteristics, such as densely packed dwelling units, inadequate infrastructure etc., along with produced space that can be a form of a spontaneous logic of configuration and spatial appropriation.

This research investigates how living traditions play a crucial role in shaping and evolution of indigenous urban spaces, focusing on the coastal urban slum of Dharavi in Mumbai, while exploring the intrinsic connection between local practices, cultural heritage, and the physical manifestation of these traditions in the urban landscape. It seeks to reveal how these living traditions serve as a resilient force in the face of urban transformation.

Observations from *Koliwada* in Dharavi slum

Fieldwork and spatial assessment: Methodology

The methodology extends to envisioning slum morphology as a means of spatial assessment, rooted in local living traditions and exemplified through the case of Dharavi. Employing direct observations and immersive fieldwork conducted in Dharavi, the research captures the interplay; *experiences and perspectives,* that

presents the spatial configurations and cyclical occupation of indigenous urban landscape based on living traditions across the neighborhoods inhabited by fishermen; *Koliwada,* within Dharavi. Through this approach, the research unveils the intrinsic connection of self-organized elements shaping the habitable environment. Additionally, it incorporates a critical review of pertinent state-of-the-art knowledge, and visual documentation to articulate the socio-environmental significance of the indigenous landscape within the studied context. The collection of fieldwork images serves as a valuable tool for documenting spatial characteristics and temporal transitions in time; *day-night*, capturing nuances across diurnal variations. These images not only document changes over time but also contribute to narrative construction and provoke reflections on exisiting perceptions and urban experiences. Theoretical frameworks, particularly drawn from the works of Barreiros Proença (2018), inform the analysis and interpretation of the slum landscape, emphasizing the sedimentary evolution of elements over time. Proença's approach to systemic decomposition enables the extraction of underlying forms, functions, and evolutionary stages of each element, echoing the methodology employed in this research.

Spatial assessment, thus, entails examining both visible and concealed appropriations within the indigenous landscape, while peeling the layers of complexity to reveal the characteristics and configurations that might otherwise remain obscured.

Dharavi slum: Overview

Dharavi, originally a suburban area along *Mithi* river, has now become an integral part of the Mumbai metropolitan area *(figure 1)*. This coastal slum, spanning over 2.3 square kilometers, accommodates a population exceeding over a million (WEF, 2016). Over time, Dharavi nestled amidst neglected marshy terrain, has undergone a significant metamorphosis owning to its adjacency to the *Mithi* river and central line; *the train line running from the northern suburbs to the southern parts of Mumbai.* Situated on the low-lying marshland near the river, Dharavi faces heightened vulnerability to flooding, particularly during the monsoon months.

☐ *Mithi* River boundary in 1976   ■ *Mithi* River in 2005   ☐ Dharavi slum
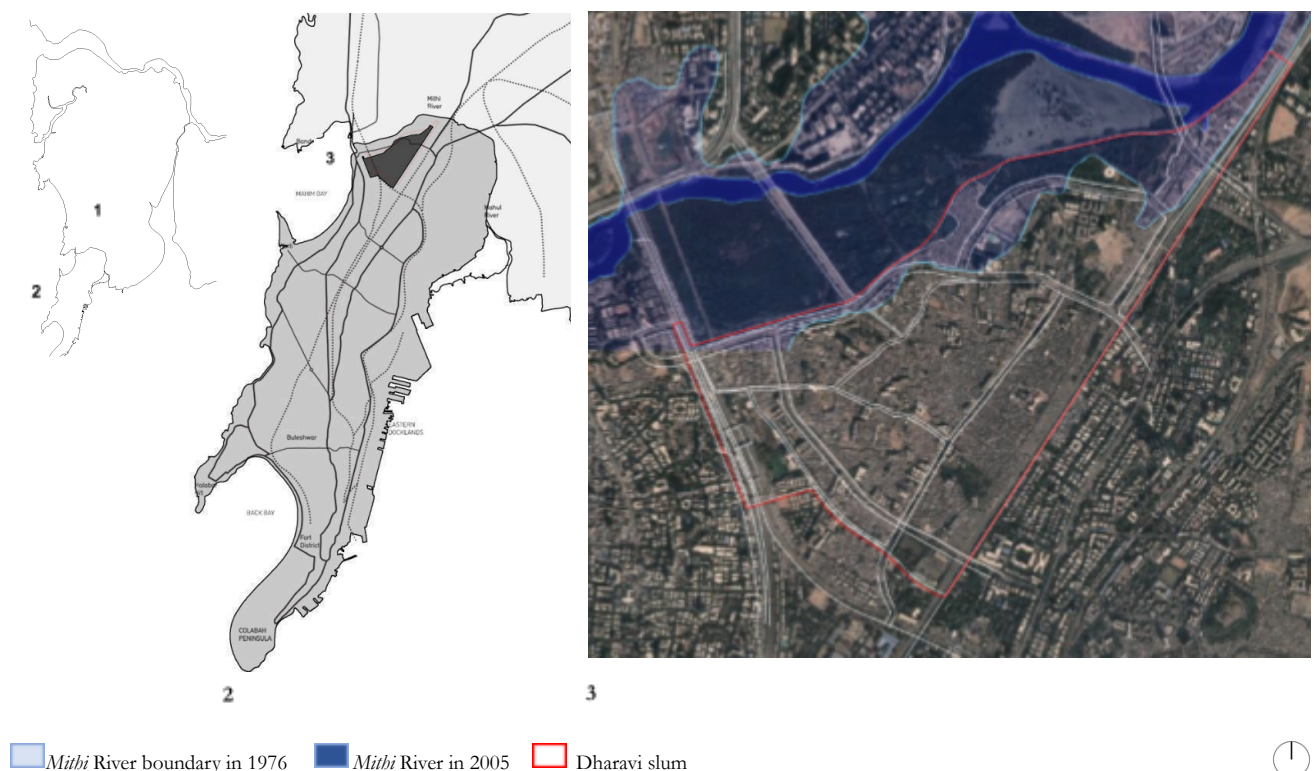
Fig. 01 1. Mumbai metropolitan area, 2. Mumbai island city in Mumbai metropolitan area, 3. Dharavi along *Mithi* river (Author).

During the 18th century, the *Mithi* river settlement was primarily occupied by the *Kolis*, a community of fishermen. The *Kolis,* traditionally engaged in both fishing and agriculture in coastal areas, settled along the riverbank. Over time seeking livelihood opportunities, individuals from many communities and regions of the

nation migrated in Dharavi. This influx of migrants was driven by economic diversification and rapid urbanization, leading to a surge in employment opportunities. Consequently, the population of the city and its surrounding metropolitan areas witnessed exponential growth. Dharavi underwent significant evolution, expanding to encompass approximately 80 neighborhoods or *nagars* to accommodate the influx of migrants with diverse skills and traditions. This transformation turned Dharavi into a centre of informal economy, where various daily livelihood activities and living traditions appropriated space, thus, playing a pivotal role in shaping the urban landscape, contributing to the emergence of urban slums and mega-slums. This dynamic nature of these informal urban economies has reshaped the traditional framework of slums and mega-slums into vibrant systems of trade and migration, as noted by Zappulla et al. (2014). Consequently, Dharavi present a transformative and intricate indigenous landscape.

Koliwada: The neighborhood of fishermen

Koliwada is a coastal settlement predominantly inhabited by the *Koli* community, indigenous to the western coastal areas of India, particularly Maharashtra. Positioned along the coastline *(figure 2 & 3)*, these communities possess unique culture, traditions and livelihood centered around fishing and agriculture. The term *Koliwada* is derived from *Koli*; the name of the community, and *wada*; which means a residential settlement. *Koliwadas* are characterized by narrow lanes, modest dwelling units, and a close-knit social fabric. *Koliwadas* present a deep connection to the sea, where fishing is not merely an occupation but an integral aspect of daily life, essential for sustenance.

Over time, some *koliwadas* have transformed into urban neighborhoods due to urbanization and development, but many still retain their traditional charm and lifestyle, serving as reminders of the rich maritime heritage of the region. Within these fishermen communities, the streets and squares are occupied with kiosks and raised platforms that are used for selling fish during the day *(figure 4)*. At night, these spaces are generally used for people to sleep. These indigenous street structures not only fulfill commercial and residential requirements but also hold potential for addressing future flood risks, showcasing the adaptabilty and resilience inherent in *Koliwada*.

Fig. 02 Aerial view of *Koliwada* along the *Mithi* river in Dharavi (Author).

1   2   3

Fig. 03 1. *Koliwada* in Dharavi, 2. *Koliwada* in neighbourhood scale, 3. *Koliwada* figure-ground plan (Author).

1   **2**

Fig. 04 *Koliwada,* the neighborhood of fishermen community where the streets 1. accommodates kiosks for vending purposes, 2. raised platforms are elevated, and the physical space such as the squares are self-organised based on the livelihood to function as fish market (Author).

The illustration, *figure 05*, depicts the varying occupation of spaces within the *Koliwada* neighborhood of Dharavi in different times of day and night; *diurnal variations*.

The same physical area undergoes different occupancies over time, reflecting a cyclical adaptation based on livelihood needs. During the day, the street space accommodates kiosks for vending purposes, while at night, it transitions into a sleeping area. Additionally, indigenously constructed platforms are elevated to offer protection from floods during the monsoon season. Openings are covered with plastic sheets, and barriers such as boulders and sandbags are employed to protect against water during this period.

Characteristics of public space in Koliwada, Dharavi

The organic urban fabric *of koliwada* in Dharavi represents an significant repository of history and memory for the communities it serves. Dharavi, like the other urban slums in Mumbai, lack formal codified public spaces and flood risk reduction strategies from the government. Considering the high population density and socio-environmental vulnerability of such areas, its crucial to recognize how the slum dwellers has adapted to these challenges over time. Despite the absence of formal interventions, dwellers have developed their own measures and built elements *(figure 06)* to cope with floods, utilizing the shared space for multiple purposes, including flood risk reduction (Goyal, 2021). The physical layout reflects deliberate choices made by the dwellers to meet their livelihood needs. Narrow pedestrian-friendly streets are lined with multi-story buildings serving both commercial and residential purposes. What distinguishes Dharavi is the integration of productive activities into almost every available space, where streets are not just for movement but also serve as sites for social gatherings, vending, and domestic activities. Dwellings along the river, and water lines are elevated on stilts to protect against floods, with the lower areas used for work and the upper portions for living spaces *(in figure 06, section DD', FF' & HH')*. The predominant use of corrugated tin sheets for construction allows rainwater to flow off easily. Streets act as both economic centre and sites for local adaptation to environmental risks. The configuration and use of these spaces reflect the socio-cultural practices and needs of the community.

Night   *Day*   *Night*   *Day*
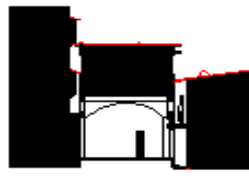
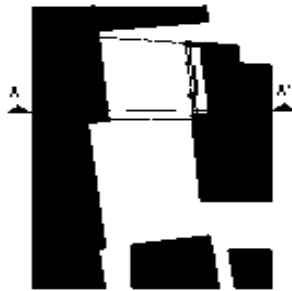Night   Day   Night   Day

Fig. 05 Cyclical adaptation and occupation of physical space in different locations within *Koliwada* presenting the diurnal variations (Author).
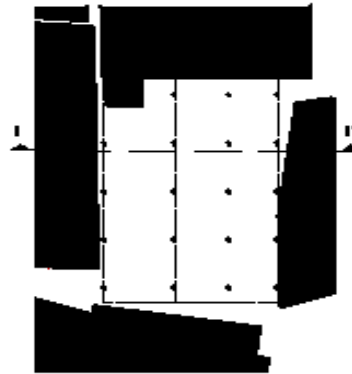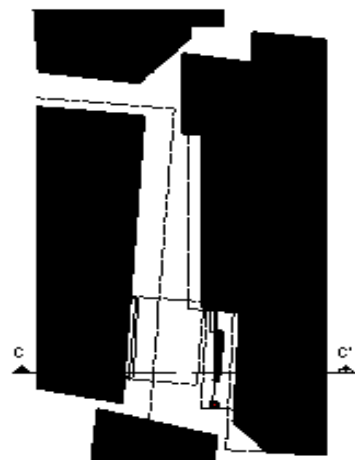
SECTION AA'

PLAN

SECTION BB'

PLAN

SECTION CC'

PLAN

SECTION DD'

PLAN

Fig. 06 Plans and cross-sections derived from the neighbourhood of *Koliwada* in Dharavi (Author). Red: Indigenous built elements.

During the daytime, the public spaces bustle with activities. *Figure 5(1)* shows a street filled with kiosks selling fish, while *figure 5(2)* depicts a bustling fish market area. Pedestrians navigate through streets, *figure 5(3),* with vendors selling products, and a pedestrian-friendly street in *figure 5(4)* hosts agricultual produce stalls. Ground-level spaces outside the shops, as seen in *figure 5(5),* serve livelihood needs. However, in night, these spaces undergo a metamorphosis: vending platforms are removed, *figure 5(1),* and the street occupancy decreases, *figure 5(2).* Empty spaces once filled with venders now serve as parking areas, *figure 5(3),* while streets that hosted stalls during the day now transform into venues for social gatherings, *figure 5(4).* Shops, previously used for commerce, transition to residential purposes, *figure 5(5)*. *Figure 5(6)* illustrates the clearing of space for mobility at night, contrasting with the daytime's bustling commerce. Similarly, the open space in *figure 5(7),* once occupied by mobile kiosks, becomes a place for socializing by residents at night. *Figure 5(8)* demonstrates the repurposing of vending space into a nighttime parking area outside a dwelling unit. These images collectively exemplify the cyclical occupation of public spaces in *Koliwada,* showcasing their multifunctionality and responsiveness to the diverse needs of prevailing living traditions.

The plans and cross-sections *(figure 06)* are derived from Koliwada with the objective to understand the character of the physical space that is both defined by the fixed section *(marked in black, figure 06)* and the cyclical adaptation and built elements *(marked in red, figure 06)* that compose the space. The same ephemeral built element that occupies the space has the ability to support both the livelihood function, and environmental needs.

Thus, the appropriation of shared spaces, mostly unnoticed, presents an interplay in the urban landscapes that reflects an indigenous character with significant socio-environmental importance, proving insights into the resilience and resourcefulness of the slum dwellers in the face of adversity.

Final remarks

Conclusion
The self-organization of physical space in coastal urban slums, such as Dharavi, is a complex and adaptive process deeply rooted in the daily livelihoods, cultural identity, and resilience of the slum dwellers. According to Lefebvre (1991), each society creates its own unique space, a notion also developed by Appadurain

(2018), who noted that individuals actively shape the environments they inhabit, rather than merely existing within them. They don't just occupy space and time; instead, their imagination continuously influences their perceptions and contributes to the physical formation of the places they inhabit. This is evident in the transformation of Dharavi, where the water and communal networks have significantly influenced the arrangement of space, shaping its distinctive landscape that reflects the community's indigenous character. Public spaces such as streets and squares in Dharavi have been adapted with improvised structures, contributing to the indigenous character of the area. Examining the layout of Dharavi, particularly the *Koliwada,* reveals that this indigenous landscape plays a crucial role in managing floods, a persistent challenge in the slum, often compensating for inadequate government flood management efforts. Slum dwellers adapt to their environment through practices shaped by their cultural heritage and practical needs. For instance, the fishermen uses elevated platforms and temporary structures to cope with seasonal floods, showcasing their ability to respond with parsimony to environmental challenges. This adaptation involves self-organising physical space such as streets and squares, which serve multiple purposes in time.

The landscape of Dharavi is not the product of formal urban planning but emerges organically from the community's collective efforts. Likewise, this self-organisation of physical space in urban slums transforms itself cyclically that prepend to the need of formal landscape design approach, so that, this progression could lead to more equitable, aesthetical, and cohesive neighborhoods in the future.

Overall, living traditions in a slum are essential components of community resilience, social cohesion, and cultural continuity. By nurturing and preserving these traditions, residents not only affirm their cultural identity and heritage but also cultivate a sense of belonging and agency in shaping their own narratives amidst challenging circumstances. As Kenneth Frampton reminds us while prefacing the 2012, 3rd edition, of *De la Forme au Lieu* by Pierre von Meiss, *"we cannot expect pertinent innovation without tradition and inversely we cannot ground a living tradition without invention"*. In this sense, understanding and learning from the living tradtion may support the efficient pertinent innovation we strive for when facing contemporary and future urban challenges related to the effects of climate change.

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