



Urban transformation, state power, and climate vulnerability in Varanasi, India: A three-century perspective

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Abstract

This study examines how successive governments' state power has shaped the urban landscape in Varanasi, India, and how these interventions have led to uneven vulnerabilities that are now being exacerbated by increasing climate stresses. Drawing on ethnographic fieldwork conducted in summer 2024, archival research, and Geographic Information Systems (GIS) analysis mapping 1,685 features across three time periods, we trace the transformation of green, blue, and social spaces under Mughal, British colonial, and contemporary Indian governance. Our GIS analysis reveals that urban water bodies decreased by 75% in area and green spaces fragmented significantly over 200 years, with the geometric Mughal gardens replaced by British-style lawns and interconnected waterscapes drained and centralized under colonial sanitation regimes. According to cited secondary sources, the recently completed Kashi Vishwanath Temple Corridor involved the demolition of 291 buildings and the displacement or relocation of approximately 4,500 residents. While confirming existing research identifying legibility, categorization, and control as drivers of states' spatial interventions, we propose an additional theoretical dimension: ontological security. States and empires, constituted by humans with collective fears, spiritual needs, and ideological commitments, may shape space not only for rational control but also to address deep insecurities about mortality and identity. The spatial order societies inherit is not neutral terrain on which climate stress acts, but a landscape already structured by inclusion and exclusion. Understanding how and why state power has produced vulnerability in Varanasi illuminates why climate impacts manifest locally in different ways, and why disaster and resilience studies must attend to the historical architecture of risk.

Keywords: spatial transformation, state power, climate vulnerability, urban resilience, India, Varanasi

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1 Introduction: The Lost Forest

Early one morning in mid-June 2024, while we were enjoying a *masala chai*, spiced tea, under a shady tree overlooking the Ganges, an older man approached us. We had paid little attention to the tree shading us. Still, the man enlightened us by telling us about the significance of the plant for traditional medicinal uses and how the twigs of the neem tree, *Azadirachta indica*, can even be used to clean your teeth. In passing, the man mentioned that the whole of Varanasi was once a magnificent forest, long before Lord Shiva helped King Bhagiratha bring the Ganges from heaven to earth. But Varanasi, with its tall houses, narrow *gali* alleys, crowds of pilgrims, noisy motor rickshaws, and

busy streets, has little in common with a forest. So, what do we know about this mystical forest in Varanasi that Lord Shiva chose as his home in the distant past?

In the search for the ancient forest, one encounters the many names of this historically, culturally, and spiritually significant place, which was officially named Varanasi by the government of India only in 1956 (Eck, 1993). The city's historical name is Kashi, the City of Light; locals call it Banaras, and Western maps from the colonial period refer to it as Benares, Binaras, Bannara, or Bunarus (Gole, 1983). Other names, such as Avimukta, meaning the place never forsaken by Shiva, or Rudravasa, meaning the dwelling place of Shiva, highlight the great importance of Lord Shiva for the city. Mahasmasana, the great cremation ground, refers

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to the two well-known cremation grounds on the banks of the Ganges. But one name, Anandavan, alternatively spelled Anandakanan, stands out. This name means Forest of Bliss (Gogate, 2023). A monk also mentioned the name Rudravan to us, the Forest of Shiva. However, we were unable to find it in the literature. A 1500-year-old Puranic text describes the Anandavan as a lush paradise, and the traveler Hiuen Tsiang described the forest as groves covered in vegetation, interspersed with clear streams (Eck, 1993; Gogate, 2023). If one looks around and listens carefully, one can find further references to the city's tree-covered past. Locals sometimes refer to the part of the historic urban area where the forest of bliss gave way to the expanding city hundreds of years ago as Bankati or Cut-Down Forest (Eck, 1993). This lore probably dates back to around 1200 AD, when, according to Sukul's account, forces associated with Qutb ud-Din Aibak destroyed the fortified settlement near the Varuna–Ganges confluence, after which inhabitants resettled along the western bank of the Ganges (Sukul, 1974). This was the beginning of the end of the mighty forest on which today's Varanasi is built. But what happened between the first evidence of the felling of the forest and the disappearance of its streams and ponds, and the bustling, hot city of today?

Certain episodes in the Hindu epic and Puranic traditions can be read as reflecting a long-standing tension between forested space and settled, ritually ordered space. In the Mahabharata's Khandava episode, Krishna and Arjuna assist the fire god Agni in consuming the Khandava forest to clear land for a new settlement. These stories reflect the underlying tension between *vana* (forest or jungle) and *kshetra* (field or urban area). At the same time, Hinduism also carries strong counter-traditions of reverence for the living world: sacred groves protected as abodes of deities, the veneration of rivers, tree worship, and ethics of protection extending to flora and fauna (Gadgil and Vartak, 1976; Eck, 1993; Haberman, 2013). The *vana*–*kshetra* tension should therefore not be read as an anti-nature ethos, but as one strand within a plural tradition in which the sacralization and the transformation of nature coexist. Sontheimer interprets the two as important poles in Hindu tradition, connecting *vana* with unrestricted wilderness and *kshetra* with structured and hierarchical settlements (Sontheimer, 1987). Zimmermann (1988) argues that, as in classic Ayurvedic medicine, clearing the land is connected to the health aspect of draining the body. More so, the polarity between cultivated savanna and impenetrable jungle was not just descriptive, but prescriptive. At least parts of today's savannas in Northwestern India were shaped by active land management by the Indo-Aryan peoples who arrived in the subcontinent during the Vedic age (Dove, 2014). The famous Rigveda, influential to this day, was written during this time. Furthermore, Harrison argues that the rise of civilizations and the destruction of forests are closely entangled across various periods and places (Harrison, 2009).

While surveying the remaining green and blue spaces in and around the city, it quickly becomes clear that the disappearance of the Anandavan is not a binary between a lush environment with forest and water and a sprawling city without them. Instead, the green and blue spaces, and later the urban space itself, are transformed. A look

at the three historic and contemporary maps of Varanasi utilized in this article features strictly geometric gardens from the Mughal period, diminished and geometrized waterscapes during British rule, and the recently completed Kashi Vishwanath Temple Corridor. The question arises regarding the patterns and purposes of the spatial transformations by the respective rulers in Varanasi. How and why, in other words, has state power transformed space in Varanasi over the last 300 years? A clarification on terminology is necessary. Mughal imperial rule, British colonial rule, and India's present democratically elected government differ fundamentally in their constitution and legitimacy. Our use of "state power" does not suggest that these governing formations are identical or equivalent. Rather, we use the term analytically to examine recurring spatial logics, such as categorization, geometrization, and the imposition of legibility, that appear across otherwise very different regimes. It is precisely the persistence of these logics across such dissimilar formations that makes the three-century comparison instructive.

This relatively broad question allows for open exploration using ethnographic field research, existing literature, archival maps, and digital Geographic Information Systems (GIS). The question posed is relevant in evaluating the literature on how and why states and empires shape space in general. Since the three examples in the Varanasi case study span roughly three centuries, long-term patterns can be recognized, and existing theories can be confirmed or questioned. The analysis is historically grounded yet remains highly relevant to today's dynamics, as demonstrated by the example of the Government of India's large-scale projects, such as the temple corridor in Varanasi. Issues that are pressing today, such as resilience to climate change, the urban heat island effect, and urban flooding and waterlogging, can also benefit from the study. Varanasi currently faces intensifying climate pressures: extreme heat events, erratic monsoon patterns, and urban flooding that, as our fieldwork shows, disproportionately affect informal settlements and marginalized communities. Yet the vulnerabilities that climate stress now reinforces are not natural; they are produced. The spatial order a city inherits, including which neighborhoods have green cover, which waterways remain functional, and which populations occupy flood-prone land, shapes who suffers when temperatures rise, or historic floods hit the city. By tracing how successive regimes transformed Varanasi's green and blue spaces over three centuries, this study illuminates the historical production of climate vulnerability. The analysis contributes to disaster studies and climate resilience scholarship by demonstrating that risk is not simply a function of hazard exposure but of spatial architectures constructed through political decisions, ideological commitments, and the uneven exercise of state power. Understanding the ground on which climate stress unfolds is essential to understanding why that stress produces different outcomes for different communities and actors.

2 Methodology

This study employs a sequential mixed-methods design in which ethnographic fieldwork provides the primary evidence and archival cartography and GIS analysis provide

independent spatial-historical corroboration. Following what has been termed “climate ethnography” and “climate anthropology,” the research combines “being there” with the “capacity to provide insight into perceptions, knowledge, valuation, and response” (Crate, 2011; Dove, 2014; Nelson and Finan, 2000; Roncoli et al., 2009). Anthropological methods illuminate the local realities of environmental change, who is affected, why, and how knowledge about such change is constructed. (Magistro and Roncoli, 2001).

Fieldwork was conducted in Varanasi, India, from late May to mid-August 2024. This period was deliberately chosen to span the transition from the extreme pre-monsoon heat to the onset of the monsoon and its associated flooding, allowing direct observation of how residents experience and respond to both of the city’s principal climatic stressors within a single field season. Varanasi is situated in Uttar Pradesh, India’s most populous state, with approximately 200 million inhabitants, which ranks among the lowest on the Indian Human Development Index. (Global Data Lab, 2023; NSO India, 2018). The city’s estimated population of 1,652,000 comprises 70.11% Hindus and 28.82% Muslims according to the 2011 census. (Census India, 2011).

This article is part of a larger research project in Varanasi that comprises 65 unstructured interviews. They were conducted using chain-referral, non-probabilistic sampling (Ravitch and Carl, 2023; Rubin and Rubin, 2005). Chain referral was chosen because no sampling frame exists for many of the groups central to this study, such as traditional occupational communities. To mitigate the clustering bias inherent to the technique, multiple independent referral chains were initiated across religious communities, occupations, and city areas. Interviewees were loosely clustered into Ganges experts ($n = 7$), spiritual leaders from all major religions ($n = 10$), local scholars ($n = 13$), local traders ($n = 11$), representatives of traditional occupational communities ($n = 5$), and others, including government officials, medical personnel, and workers ($n = 19$). Interviews averaged about 30 minutes but could extend for multiple hours with additional input from bystanders. No personal identifiers were recorded except occupation or self-ascribed community affiliation. Extensive field notes were taken and digitally transcribed, typically on the same day, with additional observations added.

The methods were integrated through triangulation: interview accounts were checked against daily analysis of local media and academic documents and against participant observation at the research locations, while the GIS analysis (described below) provided an independent, source-critical record of spatial change against which oral and archival accounts could be compared (Horowitz and Gerson, 2002; Kostova, 2017). Claims about uneven climate vulnerability rest on the convergence of these strands: interviewees’ accounts of differential heat and flood exposure, our own seasonal observation, and the mapped spatial record of which green and blue spaces were preserved, transformed, or eliminated. Interview findings are not statistically representative and are reported as such. They, however, capture the range and patterning of views within our sample. Three types of cartographic material appear in this study, and they differ in purpose, scale, audience, and institutional context. First,

colonial survey and land maps, produced for administration, revenue, and engineering, form the empirical basis of our GIS analysis: the 1822 map by James Prinsep, the oldest known non-pictorial map of the city, and the 1933 map of the Survey of India, Calcutta. Second, indigenous sacred pictorial maps of Varanasi, which functioned as guides to sacred geography rather than geometric representations, are discussed as an interpretive contrast but are not digitized. Third, modern GIS-based mapping using 2024 Esri/Maxar satellite imagery provides the contemporary layer. A total of 1,685 waterbodies, gardens, parks, and other features were manually mapped across the three sources. All mapping efforts are illustrative of broader trends rather than claims to precision, given inaccuracies in historical maps and differences in cartographic methodologies. All maps in this article are oriented toward the north.

To ensure comparability, only clearly demarcated gardens and parks were mapped, excluding woodland and agricultural fields. Green spaces (gardens and parks) and blue spaces (ponds, tanks, streams, and other waterbodies) were analyzed separately across the three time periods, with area calculations performed in ArcGIS Pro. The analysis focused on changes within the boundaries of the original 1822 map to enable consistent comparison. For the sake of simplicity, gardens and parks are referred to as green spaces, and waterscapes as blue spaces.

3 Literature Review: Disasters, State Power, and the Shaping of Space

The treatment of disasters as “natural” has been thoroughly critiqued in the literature. Disasters must be understood in terms of their effects on social groups, with vulnerability determined primarily by social conditions and prevailing power structures. (Hewitt, 1995; Klinenberg, 2002). An early body of work effectively denaturalized disaster studies by examining the interaction between environmental hazards and socially constructed vulnerability (Erikson, 1976; O’Keefe et al., 1976; Oliver-Smith, 1986; Torry, 1978). Disasters are not events but processes; the hazard is merely a trigger that interacts with and reveals pre-existing local conditions (Kelman, 2022). Framing disasters solely as singular, isolated events depoliticizes and naturalizes them.

The concept of “slow violence” refers to livelihoods gradually destroyed by climate change, deforestation, or pollution (Nixon, 2013). These creeping hazards often receive little attention compared to spectacular disasters, preventing effective countermeasures and increasing suffering. This analysis has been extended to “slow harms,” demonstrating how mobilization can still occur despite their invisibility (Herrera, 2024). Climate reductionism can isolate climatic processes from their social context, while naturalization occurs when nature is held responsible for unnatural disasters (Klinenberg, 2002; Rigg and Mason, 2018). Depoliticization strips subjects of their contextual struggles and inequalities (Ferguson, 1994).

Maps and cartography warrant particular attention given their role in state interventions, but map types must be distinguished. Cadastral and survey maps impose legibility on local situations, making places legible to

administrators and outsiders (Scott, 2020). Western survey maps have been described as “typically totalizing, usually two-dimensional, Cartesian, and very undialectical devices” (Harvey, 1996). Sacred pictorial maps of Varanasi operate differently: they are visualized guides to sacred space rather than geometric representations (Gaenszle and Gengnagel, 2006; Gengnagel, 2011). Unlike survey cartography, the pictorial map tradition often did not impose fixed categories such as wet or dry on the landscape: Gogate shows for Varanasi that indigenous representations left room for the annually changing, monsoon-dependent waterscapes (Gogate, 2023). On the broader history of South Asian cartographic traditions, see Schwartzberg and Bajpai (Schwartzberg and Bajpai, 1978). Cartography and the shaping of space are bidirectionally intertwined: the state’s perspective shapes the map, and the map shapes the state’s interventions.

Work on state power and space serves as the theoretical foundation for this study (Scott, 2020). Departing from the classical functions of taxation, conscription, and political control, bureaucracies of empires and states organize, standardize, simplify, and centralize the natural and social world to achieve legibility. Using the example of the historic German forest, Scott demonstrated how states narrow their view to a few outcomes while drawing clear lines between “useful” and “useless” elements, ultimately failing because they cannot replicate natural complexity (Scott, 2020). This “civilizing” of space appears throughout the literature: from the geometry of the Foucauldian Panopticon to the analyses of French internment camps to which two million Algerian peasants were resettled (Foucault, 1995; Bourdieu and Sayad, 2020). Space can be defined as shaped by dynamic social relations and power structures, constantly produced and reproduced, with those who define and shape space exercising power (Massey, 1994). The shaping of space has also been linked to capitalism, in which space is structured to support production and consumption through “creative destruction” (Harvey, 2003, 2009).

Yet these explanatory approaches appear somewhat mechanistic. State power is depicted as anonymous and monolithic, driven purely by rationalization and optimization. This study proposes an additional driver: ontological security, the sense of continuity and biographical coherence that individuals and collectives seek in the face of existential anxiety (Giddens, 1991; Kinnvall, 2004; Mitzen, 2006). The concept has recently been applied to Hindu nationalist identity politics in India, including in Varanasi itself (Kinnvall and Singh, 2022). States and empires, constituted by humans with individual feelings, fears, and spiritual needs, may shape space not only for control but also to address collective insecurities and ideological needs. The empirical analysis that follows examines this proposition through three centuries of spatial transformation in Varanasi.

4 The Case of Varanasi: A City Older than History

In 1897, Mark Twain wrote: “Benares is older than history, older than tradition, older even than legend, and looks twice as old as all of them put together”. And yet, most of

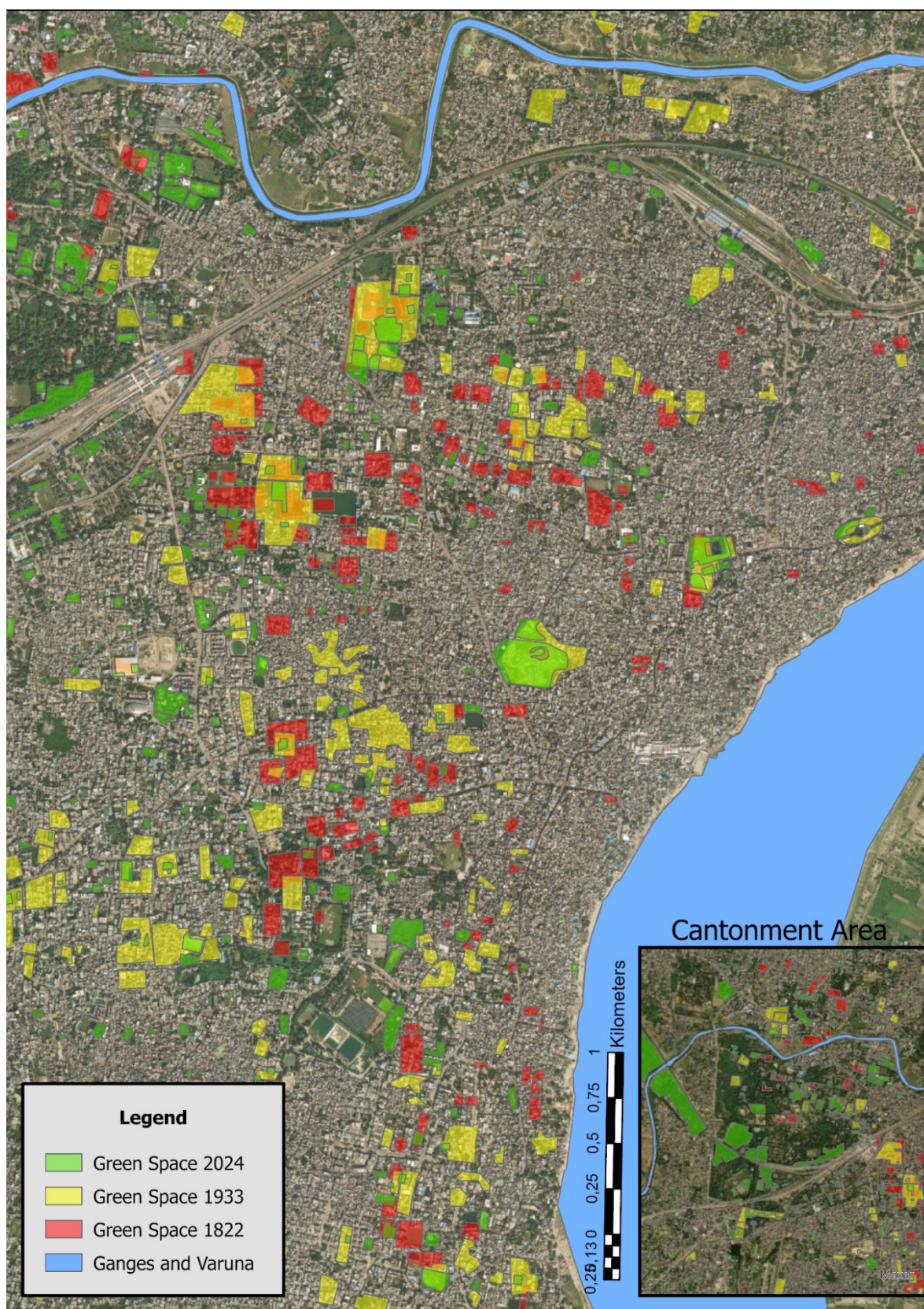
the impressive temples, famous stone platforms and stairs, and the ghats on the banks of the Ganges were built only one to two hundred years before Twain’s visit (Eck, 1993). Nevertheless, and we can confirm this, the city feels ancient. Having been inhabited for around 3000 years, the city changes not in age but in shape continuously. However, how this shaping of space takes place is determined by complex social relationships and power relations.

When the Buddha, Siddhartha Gautama, crossed the Ganges in Varanasi around 2500 years ago, the city was already a well-established center of learning and spirituality, but it became politically and economically more important only during the Ashoka and Gupta eras. These Buddhist-leaning empires were replaced by smaller, Hindu-dominated empires from the 7th to the 12th century AD. From the 12th century onward, Varanasi experienced repeated episodes of conquest, temple destruction, rebuilding, patronage, and reconfiguration under different rulers. From this century onwards, Muslim rule over the region consolidated, and the shape of Varanasi and its monuments changed constantly. As mentioned earlier, it was during this period that the city first began to expand into the Anandavan and probably spread from the ridge along the riverbank into the marshy forest to the West. In the medieval period, repeated episodes of temple destruction and rebuilding took place under different rulers. These episodes were not uniform and often did not follow a single motive. The built environment of Varanasi reflects this history of conflict and patronage spanning religious and political regimes (Eck, 1993). In the 18th century, between the decline of the Muslim Mughal dynasties and the rise of British rule, Hindu Marathas from Central India arrived in Varanasi. They built many of the temples and ghats in their present form (Eck, 1993). Against this historical context, we begin to focus on the first of the three examples.

4.1 Mughal Gardens: Shaping Vegetation

Looking at Map 1, it can be observed that green spaces were highly geometric in 1822, a characteristic they partially lost in 1933 and, for the most part, in 2024. In 1822, the green spaces were already located on the Western edge of the city, while the city stretched along the banks of the Ganges. Thus, the “core” city along the river also didn’t have many green spaces 200 years ago. Over the years, green spaces seem to have been continuously pushed outwards.

Prinsep marks 174 green spaces on his map, totaling around 1.4 square kilometers. Relative to the boundaries of the 1822 map, the 1933 map covers more area, reducing the number of green spaces by 55 but increasing the total area by around 0.2 square kilometers. Indeed, the maps also show a merging of the previously separate gardens. Most of the traditional Mughal gardens disappeared in 1933. In 2024, the number of gardens increased again, from 174 in 1822 to 377. In terms of total area, however, the green spaces have lost about 5% compared to 1822. A look at the map reveals fragmentation and a significant decrease in the size of the individual green parcels. In 2024, extensive urbanization covers almost the entire map. In the area of the Cantonment, the former British colonial administration



Map 1. Temporal and spatial transformations of green spaces in Varanasi. Source: The software used to compile, analyze, and visualize the data is ArcGIS Pro, which also provides the Esri, Maxar, and Earthstar Geographics base maps (Esri, 2024).



Fig. 1. A perfectly geometric Mughal garden at Amer Fort near Jaipur (all photographs are by the first author).

headquarters for the region and contemporary military base, as well as in the areas of the Banaras Locomotive Works and Banaras Hindu University, both outside the map boundaries, afforestation projects have been implemented since the end of the colonial era. These are the only areas we know of with noteworthy tree-planting and maintenance efforts. All three areas are government-managed, and military units carry out part of the tree-planting work here.

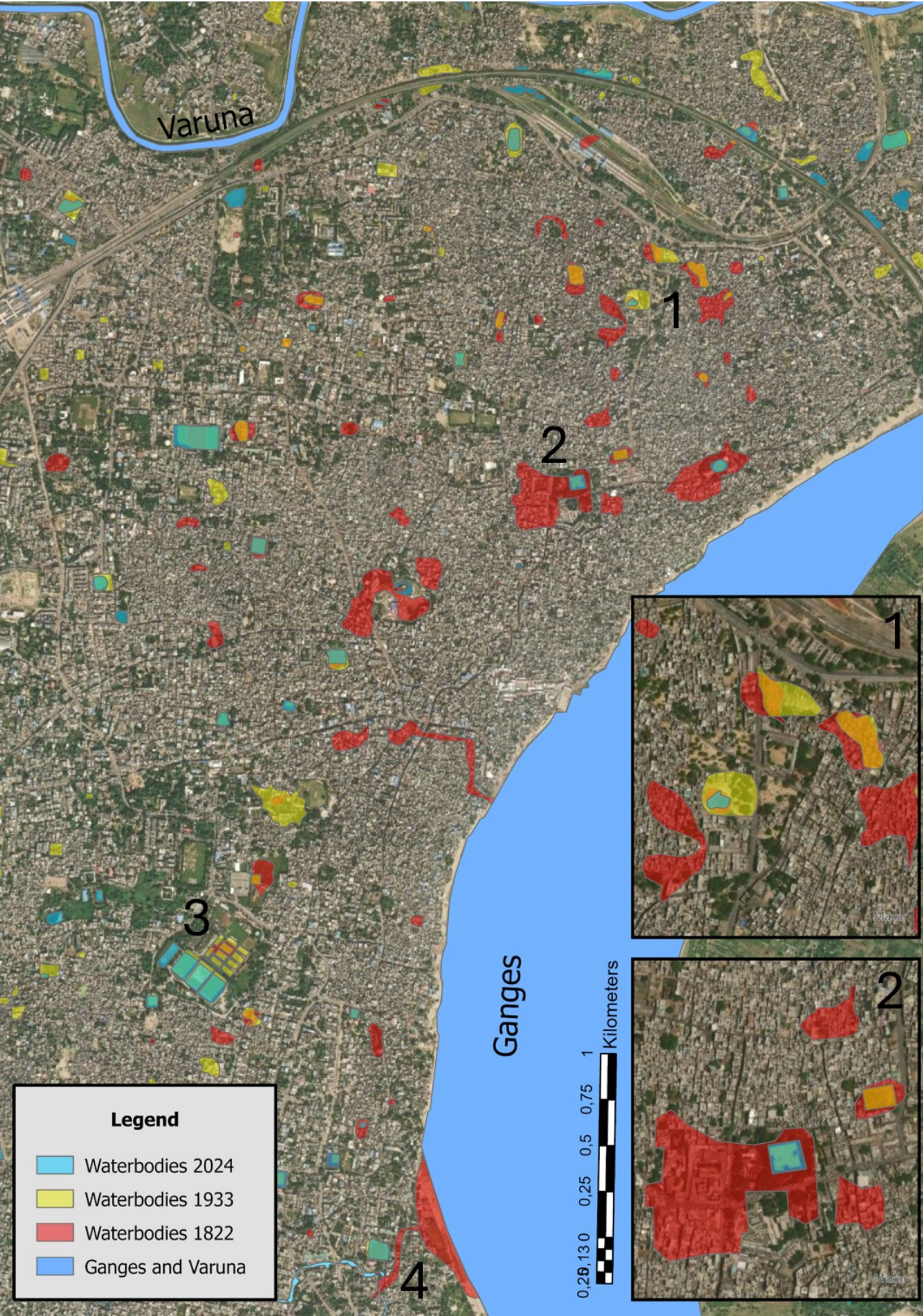
Originally from Persia, the Mughal Gardens (Fig. 1) represent an earthly paradise where people harmonize with the natural elements (Dickie, 1985; Hobhouse and Hunningher, 2004). This is why, for example, there are usually ponds and canals in the gardens. However, the overall layout of the garden and its water features is strictly geometric, often divided into four parts. A relatively high wall surrounds the gardens and often contain magnificent birds (Rehman, 2009). They were almost always connected to buildings like palaces, tombs, mosques, or public institutions. As the British takeover gradually deepened from the 18th to the 19th century, the gardens also changed. Many of the elaborate Mughal gardens, such as the one in front of the Taj Mahal in 1908, were destroyed and transformed into British-style formal lawns. Even today, the Taj Mahal retains its level British lawn (Dickie, 1985). This partly explains why, in 1933, unlike 1822, there are almost no Mughal-style gardens to be found, and the legend of the map speaks of “Vegetable Gardens” instead.

4.2 British Water Systems: Shaping Water

Hindu scriptures dating back some 1500 years report that in years of particularly heavy floods, the ridge along

the Ganges becomes an island as the river’s water sweeps through the Anandavan. Other ancient writings tell of temples that once stood on the banks of lakes that no longer exist (Eck, 1993).

Map 2 shows extensive water bodies in 1822, including small rivers within the city limits. A closer look at the changes in 1933 and 2024 indicates that Victoria Park, for example, which was built by the British, was once a pond called Beniya Talab. Godauliya Road, which we often frequented during our fieldwork, also turns out to be named after a stream that used to flow in its place (Gogate, 2023). The cut-out box in Map 2 labeled 1 shows, for example, how many of the “wild” ponds in 1822 became fewer in 1933 and then disappeared entirely in 2024, except for a single small pond. Box 2 shows an example of how the “untamed” waters were geometrized by 1933. Only one of the two tanks still exists in 2024. Number 3 on the map marks the Bhelupur Water Treatment Plant, which was opened by the British in 1892, centralized the water supply, and is still in operation today. By 1909, already around 6,000 houses were connected to the water network (Gogate, 2023). Number 4 marks an area where land reclamation into the river apparently took place between 1822 and 1933. After 1933, the entire mouth of the small stream, called Assi Nalla, was moved about half a kilometer to the South. While a Purana scripture from the mid-13th century still lists 281 water bodies in Varanasi, only 81 are shown on the 1822 map (Gogate, 2023; Parry, 1994). Our calculations give an approximate total area within the map boundaries of 0.5 square kilometers. Compared to 1822, in 1933, there were seven more waterbodies within the 1822 boundaries, but the



Map 2. Temporal and spatial transformations of blue spaces in Varanasi. Source: The software used to compile, analyze, and visualize the data is ArcGIS Pro, which also provides the Esri, Maxar, and Earthstar Geographics base maps (Esri, 2024).

total area had shrunk by almost half. In 2024, compared to 1822, the number of waterbodies had shrunk by 43% and the water area by around 75%.

Starting around 1775, the British presence in Varanasi increased, and in 1794 Varanasi officially fell under British rule, with the local Hindu kings reduced to roles in the arts and culture, which they continue to play to this day (Eck, 1993; Gogate, 2023). While most of the Anandavan vanished during the Mughal era, they did not significantly alter the city's waterscape; instead, they embraced an interconnected, dynamic model of spiritual and practical waterscapes. This was not the case with the British rulers, who were heavily involved in shaping local waterscapes in line with their own conceptions, as documented in various studies (Gogate, 2023; Mohan et al., 2011; Singh, 1994). The British administrators, including the producer of the 1822 map, James Prinsep, drained swamps, ponds, and lakes, often leaving only geometric “containers” of the once complex, naturally interconnected system of flexible, monsoon-dependent water cycles. Prinsep also had the Mughal sewer systems replaced in 1829 with a system of combined waste and stormwater sewers that had become popular in England but proved very ineffective in India due to the heavy monsoon rains absent in Great Britain.

Along with the aforementioned centralization of water supply by the British waterworks and the overflowing of combined sewers in the rainy season, which poisoned traditional water supply methods, the cutting of connections between the old water systems also contributed to their neglect. Water infrastructure, previously maintained by a spiritual and social system of caretaking, became unusable as the British revenue-centered logic prevented funds from being allocated for its maintenance (Gogate, 2023). Towards the end of British rule, the introduction of deep wells was the final blow to many traditional systems (Acciavatti, 2015). A stroll through the city today reveals that the only surviving traditional blue spaces, and also many green spaces, are attached to influential spiritual institutions that had the power to preserve and maintain them over the years.

The motivation of the British was based on Victorian urban ideals of sanitation, safety, and modernity (Gogate, 2023). Under the influence of the miasma theory and the British sanitation movement, colonial health policy was also geared towards draining marshy grounds and “untamed” waters in cities to prevent epidemics (Wilhelm, 2016).

However, the city's geometric water tanks, which had been enclosed with stones for centuries, also became the target of British intervention, as they were denounced by Christian missionaries as the alleged source of disease. This allegation, however, was most likely connected to the tanks' close association with Hindu temples and spiritual practices, which missionaries sought to close down (Gogate, 2023). Until today, many water bodies, and especially the temple tanks themselves, are considered sacred and have various spiritual roles and affiliations with deities. In addition, the quality of the water in the stone tanks often deteriorated considerably after colonial administrators cut off the flow between the water bodies, providing further justification for draining them.

However, it must be made clear that in this example, rectangular temple tanks, known as *kunds*, were already widespread in the region long before British rule. They usually have an inlet and outlet and often a well in the center for groundwater recharge, making them part of a cycle of rain, rivulets, and groundwater. They are characterized by stone steps on all sides and are associated with a temple (Hegewald, 2002). The traveler al-Biruni described this geometric form of *kunds* in Varanasi as early as 1000 AD (Gogate, 2023). Map 2 documents that between 1822 and 1933, many unbounded urban waterbodies disappeared or were reduced in size, while geometric tanks persisted. Read together with the architectural record of *kunds* pre-dating colonial rule, this indicates that geometrization intensified under British rule but drew on much older local forms (Hegewald, 2002; Gogate, 2023). The precise share of each period's contribution cannot be determined from the map evidence alone. Nowadays, the government has set itself the task of restoring old temple tanks and incorporating them into the cultural heritage, although Gogate criticizes this as a form of beautification rather than a return to an interconnected system (Gogate, 2023).

4.3 The Kashi Vishwanath Corridor: Shaping Society

Built in 1777 AD by Maratha monarchs coming to Varanasi, the Kashi Vishwanath Temple quickly became one of the most important temples in the city. Following the theme of “Beautification and Extension of Temple Premises”, between 2019 and 2021, a monumental connection corridor linking the Ganges River and the temple in the old city was constructed (Lazzaretti, 2021; Singh et al., 2023).

As shown in the photograph in Map 3, work is still underway at the riverfront in the summer of 2024. The hatched overlay indicates the extent of buildings demolished for the project. The left half of the photograph shows the geometric entrance to the Corridor as seen from a boat on the Ganges; the camera position and viewing direction are marked on the accompanying GIS map. The Corridor begins behind the newly erected gate atop the new stairway and extends westward into the old city to its terminus at the Gyanvapi Mosque, as traced by the alignment on the map. The structure with rising smoke on the right of the photograph is Manikarnika Ghat, one of the city's two cremation grounds, likewise labeled on the map. This part of the old town, seen on the right, is typical of Varanasi with its tall houses, narrow lanes, and seemingly “organically grown” aesthetics.

Secondary sources report that the project involved the relocation or eviction of approximately 4,500 individuals, demolition of 291 buildings, and posting of around 200 permanent security personnel. Some accounts also allege coercive enforcement in the removal of informal activities from the precinct (Housing and Land Rights Network, 2019; Chaudhari and Priya, 2022; Shahi, 2023; Singh et al., 2023). More projects of this kind are planned in other Indian cities (Singh et al., 2023).

The Gyanvapi Mosque–Kashi Vishwanath Temple complex is the subject of intense public and political debate and



Map 3. Location of the Kashi Vishwanath Temple Corridor within Varanasi. Photograph: Frontal view of the new Corridor to the left as seen from the Ganges. Source The software used to compile, analyze, and visualize the data is ArcGIS Pro, which also provides the Esri, Maxar, and Earthstar Geographics base maps (Esri, 2024).



Fig. 2. With the outer wall of the corridor visible in the lower foreground, the former rooms of the evicted family's flats are still visible.

contest. Some Hindu groups and petitioners argue that the mosque occupies part of an earlier temple site, while others emphasize the need to preserve the existing coexistence of the mosque and the temple and to avoid further communal polarization (Pathak, 2023).

The Corridor has altered the spatiovisual relationship between the temple precinct and the adjacent mosque, and those interviewed perceived that access to and visibility around the mosque are increasingly controlled. The built form creates an asymmetrical field of visibility near the mosque, which some scholars may interpret through a Foucauldian lens as spatial control. In the context of a contested religious precinct, this arrangement carries political significance (Foucault, 1995).

Based on our interviews, the Corridor generates spatially differentiated perceptions: many pilgrims and external visitors support the project. At the same time, dissatisfaction is widespread among many nearby residents and displaced or affected local groups (Pati and Husain, 2023). Within our own sample, most residents interviewed disapproved of the structure; one interviewee recalled excavators demolishing an old public library and another called the monument “a display of sheer power”. This is not a representative finding of public opinion. It reflects the views expressed in our interview sample, especially among residents near the Corridor. Scholarly studies interpret the project, marketed as a “heritage project”, as a shaping of space that serves as a projection surface for a specific form of religious nationalism (Lazzaretti, 2021). Supporters thus see the Corridor as a long-overdue improvement in pilgrimage ac-

cess, crowd management, sanitation, and heritage restoration. In contrast, critics see displacement, aesthetic disruption (Fig. 2), increased scrutiny, and a narrowing of the urban fabric's plurality (Chaudhari and Priya, 2022). We therefore analyze the project's spatial consequences rather than adjudicate theological claims.

5 Produced Vulnerability: A Tale of Empires and Individuals

Many elements of the presented cases resonate with the literature about how state power shapes space. Shaping a forest into geometric gardens, shaping water infrastructure with pipes and tanks instead of interconnected water landscapes, and shaping a whole city quarter instead of letting it grow by itself. “Taming” the “wild” while trying to undo the interventionist legacy of the preceding state actor. The British flattened the Mughal Gardens. Nowadays, the Government of India is supporting the restoration of temple tanks that the British had filled. State power tries to imitate what it thinks is a perfect or optimized green, blue, or social space, disregarding the complexity of the matter at hand. Supported by walls around gardens, maps with clear-cut distinctions between water and land, and architectural embodiments of state power, clear categories are first envisioned and then brought into reality by shaping the space accordingly. The production of clear spatial categories, such as water or land, formal or informal, sacred or secular, accessible or restricted, can itself become an exercise of power. Shaping space according to those boundaries means power. Once these categories are established and

enshrined in the space, the hierarchies inherent in them become visible. The hierarchies, then, by definition, are created to control. Dividing and categorizing space to create hierarchies and thus exert control over vegetation, water, and humans is a common theme across all examined state interventions in Varanasi and is consistent with the literature.

Harvey (2003) connects the shaping of space with the capitalist mode of production, which is deeply intertwined with many governmental interventions. In Varanasi, the contrast between the “old” city and modern capitalist forms of economy and organization becomes embodied in the Temple Corridor. Some accounts allege coercive enforcement in the removal of informal sellers and informal activities from the Corridor precinct. The state exerts power by shaping, and in this case re-shaping, the economic landscape of Varanasi.

And yet, what is the driver behind all of that? Power and control as an end in itself, with the three basic functions of early states: taxation, conscription, and political control in mind, as Scott lists? Is it only rationalization and optimization that drove these actors to interfere with space in the way they did? Is it sort of a high-modernist ideology, as Scott writes, that drives all of this (Scott, 2020)?

Well, we argue that these drivers are reflected in the Varanasi case, but there might be more. Perhaps individual feelings and emotions collectively also drive state power interventions. Are the Mughal gardens pure products of rationalization, like Scott’s German forest? Are the British interventions in the water system really just seeing water as a resource? And what about the hundreds of thousands of visitors and pilgrims welcoming the beautification of the Kashi Vishwanath Temple and its promise, for many supporters, to monumentalize a Hindu sacred past understood as preceding and surviving Muslim and British rule?

State power is neither monolithic nor anonymous. It is the product of many individual humans, projecting their feelings and emotions onto state power interventions. The described interventions certainly follow specific ideologies. But ideologies form and evolve in an eternal back-and-forth among a multitude of individuals, and no ideology succeeds unless it triggers the “desire” of a particular group of humans. Unpopular ideologies are forgotten quickly. Neither interventions in spaces nor the underlying ideologies form in a vacuum.

Together with the drivers identified by Scott and other scholars, we call for a further examination of this “soft” angle, as the case of Varanasi has shown to be a potential example of. In Varanasi, spirituality, aesthetics, and the longing for beauty and harmony shaped gardens; deep insecurities about the unpredictability of water, death, and epidemics shaped waterscapes; and history, spiritual devotion, and political strategy shaped the modern city. Our argument does not contradict Scott and related approaches. It rather proposes to extend them. While these frameworks explain state spatial intervention through rationalization, legibility, and control, we suggest adding the emotional, spiritual, and identity-related dimensions of state action, an extension informed by poststructuralist attention to meaning, subjectivity, and discourse.

6 Conclusion

This study traced the disappearance of the Anandavan, the ancient Forest of Bliss, through three centuries of state-led spatial transformation in Varanasi. Combining ethnographic fieldwork, archival research, and GIS analysis of 1,685 mapped features, we documented how Mughal, British, and contemporary Indian governance each reshaped the city’s green and blue spaces according to distinct logics of legibility, control, and ideology. Our quantitative findings are stark: water bodies lost 75% of their area between 1822 and 2024, while green spaces fragmented into smaller, disconnected parcels even as their total number increased. The geometric Mughal gardens gave way to British lawns; the interconnected monsoon-dependent waterscapes were drained and centralized by colonial sanitation infrastructure; and the monumental Kashi Vishwanath Corridor restructured the organic urban fabric of the old city under the current government.

These findings confirm much of the existing literature on how state power shapes space through categorization, geometrization, centralization, and the imposition of legibility. Yet the Varanasi case suggests an additional driver that existing frameworks underemphasize: ontological security. The Mughal gardens reflected not merely rationalization but a spiritual longing for an earthly paradise. British interventions in the waterscape emerged not only from revenue logic but from deep anxieties about mortality, disease, and the unpredictability of monsoon hydrology. The Temple Corridor can be interpreted as a political and religious strategy of recovering and monumentalizing a Hindu sacred past, understood as preceding and surviving Muslim and British rule. State power is not monolithic or anonymous; it is constituted by humans projecting fears, aspirations, and identity needs onto the built environment. The project’s association with political leadership illustrates how state-led redevelopment of pilgrimage infrastructure and collective identity can become intertwined in the reshaping of sacred space.

This reframing carries implications for disaster studies and climate resilience scholarship. The spatial order a society inherits is not neutral terrain on which climate stress simply acts. It is a landscape already structured by decisions about whose neighborhoods receive infrastructure and whose do not, whose water sources were preserved and whose were drained, whose homes were protected and whose were demolished. The Mughals, the British, and the current government each reshaped Varanasi according to their own logic and their protectees’ needs, and, in doing so, produced the uneven vulnerabilities that extreme weather events and subtler climate change impacts now interact with.

The ontological security framework also illuminates a dimension this study has not fully explored: the competitive nature of existential security in contested urban space. While states seek ontological security through spatial intervention, these interventions frequently threaten the ontological security of affected populations. The evicted residents of the Temple Corridor lost not merely housing but the spatial routines, familiar landmarks, and biographical continuity that anchor identity. When the British drained

interconnected waterscapes, they disrupted not only hydrology but the ritual practices and cosmological relationships through which communities derived meaning. Ontological security, in this reading, is not a shared resource but a contested one. Contested from top-down and bottom-up, while both are in constant exchange. Climate change intensifies this dynamic: rising temperatures and erratic monsoons threaten the stable spatial routines on which both state legitimacy and community resilience depend.

Future research might thus examine how climate adaptation projects, like earlier state interventions, pursue collective security while producing new forms of existential vulnerability for those whose worlds are remade. Additional future research should pursue three directions. First, a deeper theoretical integration of ontological security with spatial politics could illuminate why certain interventions persist across regime changes while others are systematically undone. Second, comparative case studies in other South Asian cities would test whether the patterns observed in Varanasi generalize or represent local specificities. Third, the relationship between historical spatial interventions and contemporary climate adaptation capacity deserves systematic empirical investigation. To understand climate vulnerability, we must first understand the ground on which it unfolds.

Statements

AI Usage

The authors declare that the AI-powered tool Grammarly was used in the preparation of this manuscript. The tool was used only for language editing, not for generating original scientific content, analyses, conclusions, citations, or references. All authors reviewed and edited the AI-assisted output and take full responsibility for the accuracy, originality, and integrity of the manuscript, including verification of facts, citations, and references.

Conflicts of Interest

The authors have no competing financial or non-financial interests.

CRedit statement

DJ: Conceptualization, Methodology, Software, Data collection, Data curation, Formal analysis, Validation, Visualization, Writing–Original draft, Writing–Reviewing and editing. **DS:** Conceptualization, Data collection, Writing–Reviewing and editing. **SC:** Conceptualization, Data collection, Writing–Reviewing and editing

Data Availability

The GIS data used in this study can be shared upon reasonable request.

Ethical Approval & Informed Consent

The study was approved by Yale University's Institutional Review Board (IRB) and found to be exempt from

further examination through the Yale Human Research Protection Program (HRPP).

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