

# Rapid Cities - Responsive Architectures

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### Rapid Cities – Responsive Architectures

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# INTRODUCTION

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## Rapid Cities – Responsive Architectures

This publication is the product of the conference *Rapid Cities – Responsive Architectures. A virtual conference examining design, planning & construction in the modern world.* November 2020, Dubai, United Arab Emirates.

The conference call centered around the rapid nature of today's urban and architectural projects, especially as could be seen within the cities of the Arabian Gulf. From 3D printed villas to rapidly deployed large-scale urban developments and architectures of 'spectacle,' the world of design appears to be changing fast and responding to technology and digital fabrication advancements. This change is not only in the construction methods, but it also finds its way into advances in materials, collaboration tools, development regulations, and sustainability measures, to mention a few. So, are we witnessing the dawn of a new era in design and construction? With the Expo 2020 site at its heart, Dubai appears to be the poster city for these new innovations, and an ideal setting for a conference focused on rapid change. The papers included in these proceedings were reflective of these notions and covered some of these diverse and exciting questions and much more.

This conference was initially planned to coincide with Expo 2020, yet Covid-19 became a global crisis in early 2020 seemingly overnight and managed to bring the world to a near halt. The conference, therefore, shifted from an on-site event to a virtual platform due to travel and safety concerns. The Expo 2020 itself has been delayed for a year, citing similar concerns. Meanwhile, Covid-19 challenged how we view and interact with the built environment and how we move about it. It also demonstrated that innovation in the built environment and its design and construction is somewhat overdue. The need for hospitals, quarantine facilities, urban green spaces, transport options, and all-new office, work, and housing typologies became immediate. A major rethink of our urban environment is currently underway and is much needed. Major emphasis on urban health, sustainability, and resilience are some of the apparent impacts of the pandemic on the built environment. While some of these themes were reflected in the conference papers, a much bigger debate is currently underway globally. There is no doubt, though, that fast-paced, rapidly designed, and deployed architecture(s) are here to stay, and the future of our cities, urban environments, and design disciplines is likely to be different.

Both the conference and the publication were organized by the research organization AMPS, the academic journal *Architecture\_MPS*, and the Department of Architecture at the American University in Dubai.

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# OVERWHELMING AHMEDABAD MEETS INSURGENT PUBLIC SPACES

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## INTRODUCTION

Cities can be articulated as the densest expressions of infrastructure. Be it the traffic-congested roads of Bangalore or Beijing, the unavailability of drinking water in informal settlements of Mumbai or Lagos, or the extensive and crowded public transport networks of Mumbai or London, these anecdotes are all varied experiences of the infrastructure – urbanisation connect. In contemporary times everyday urban life is intrinsically connected with the infrastructure systems, hence increasing dependency on infrastructure is implicit in the process of urbanisation. In recent decades, globally, cities have witnessed extreme changes in their urban and social makeup because of rapid urbanisation (751 million in 1950 to 4.2 billion in 2018).<sup>1</sup> This raises the question on the nature of urban development and further on the infrastructural building's nature.

Unlike many of its global south counterparts, India is only 33% urbanised.<sup>2</sup> Hence, infrastructure building will continue to be a key focus.<sup>3</sup> This development trajectory, coupled with the inequality that plays a critical role in Indian urbanisation, tends to distort the infrastructure-urbanisation connection. Under these circumstances, infrastructure becomes the site/tool/medium to propagate urban inequality through exclusionary practices of building and the consequent use of infrastructure, giving rise to a situation best explained by 'Orwell's famous phrase, "all are equal, some more than others".'

This paper is located as part of an already rich literature on the infrastructural theme. By studying the case of Ahmedabad, it aims to understand the dynamics of infrastructure and urbanisation. By spatial mapping of the everyday violation of infrastructure, it is possible to understand the inherent problems in everyday living culture in the big Indian cities and read the values and criteria to define a site-specific and cultural approach for coherent future urbanisation.

## INFRASTRUCTURE AND MORE

Infrastructure has been defined as the background to urban life that fundamentally underpins the numerous city life processes in different ways.<sup>4</sup> According to several studies,<sup>5</sup> infrastructure is often simplified as rigid, physical, complex, and technical, to name a few. Furthermore, consequently, the infrastructural imaginaries have been dominated by elements above and below ground, more specifically highways, flyovers, roads, airports, bullet trains, dams, sewers networks, electric grid, power plants, and other large infrastructural edifices (mega-projects) that exemplify narratives of

'global' or "world-class' city.<sup>6</sup> Consequently, these infrastructure ideas also help feed into the dichotomies of the "developed & developing ", wherein the developing world is waiting to be developed.<sup>7</sup> These understandings of infrastructure are limiting when attempting to articulate the complex experiences of urbanisation and infrastructure, as they relegate infrastructure to omnipresent objects that occupy a particular geographic, technological, and imagined space. Moreover, do not account for the inherent biases that are sometimes part of infrastructure systems - when built at the expense of the many or when access to infrastructure is denied/interrupted or does not exist.<sup>8</sup>

While the aforesaid incidences are prevalent globally, it is far more normalised and exacerbated in Indian cities and other cities in the global south, where inequalities foreground the everyday lives of large parts of the urban population. Within this context, infrastructure has been elaborated differently and challenges the notions of "ubiquity "and "permanence ". This is evident from the studies that are cited below.

In the lives of the street vendors in Mumbai, the street/public space infrastructure holds a precarious role owing to their erratic and frequent removal by government officials.<sup>9</sup> The case of the Pushta settlement that was living on the banks of river Yamuna since the early 1970s faced evictions without sufficient rehabilitation in 2004 to make way for a riverside promenade to boost tourism.<sup>10</sup> Here, the promenade, a tourist infrastructure, was the site for violent evictions. The same was articulated by Salamanca, who elaborates on the role of road infrastructure as a tool to propagate dispossession and segregation, as the *express route 443*, which connects Tel Aviv and Jerusalem and cuts across Palestinian villages hence drastically impacting their everyday lives.<sup>11</sup> In the context of Mumbai, Graham et al. elaborate on how middle-class water revanchism led to the disruption of many 'illegally' acquired water pipes by informal settlements, indicating infrastructural systems as biased and political.<sup>12</sup> Simultaneously, it is evident that in such circumstances, the resulting impacts are differential, as those in power or privileged can normalise or insulate themselves from uncertainty or instability induced by infrastructure.<sup>13</sup> Made evident during the ongoing COVID-19 pandemic when comparing the differential access to sanitation.<sup>14</sup> In all instances, infrastructure has been utilised or resulted in inequality and violence.

Further, as Rao underlines, these situations have also resulted in citizens establishing alternate systems of support, small acts of appropriation<sup>15</sup>, and - as we also note - at times larger social movements. Subtending this statement, infrastructure has also been understood in these contexts as relational, as a set of transactions/operations that constitute inhabitation. These relations enable access to opportunities for employment, survival, shelter, resources, etc.<sup>16</sup> , which are otherwise absent or inadequate. According to the aforementioned studies, we can ascertain that infrastructural systems move beyond a collection of technical systems and are critical sites in the city, especially concerning the global south's context. Moreover, this system possesses a diversified existence driven mainly by citizens who live in diversified ways. The aforesaid emphasises the role of urbanity/urbanisation in shaping and creating complex infrastructural systems and relationships. Besides, for this paper, Indian urbanity is to be explored.

## INDIAN URBAN EXPERIENCE

Nowadays, like all the global south countries, India faces constant demographic growth, especially in the urban environment. This phenomenon has been intensified by a strong political will to make India a World economic power.<sup>17</sup>

The rise of the service sector and the factories localisation on the margins of large cities have contributed to a migratory flow of population from rural areas to cities, resulting in a large-scale impact on society's

fabric on society itself. Indian cities are characterised by a myriad of physical and cultural contradictions, producing landscapes of extreme pluralism, inequality, negotiation, and contestation. India's post-liberalisation has created an exacerbation of problems linked to different aspects connected to social, economic, and political exclusion, "invisibility" of the marginalised groups, fused to urban economic modernisation.<sup>18</sup> Urban spaces emerge from a negotiation between cultures, which rises in a temporal articulation and an informal space occupation.

To underline what enables Indian urban culture, we identify three main characters that distinguish the inherently dense and diverse Indian environment in its complexity. These must be taken into consideration for the definition of projects concerning infrastructure planning of Indian cities and the definition of their public spaces.

As Mehrotra and Vera pointed out<sup>19</sup>, Indian cities are in "constant flux ", which composes Indian cities into two existences that occupy the same physical space: the "static city "and the "kinetic city ". The first is formed by permanent materials and is perceived in architectural terms. The second is the "city in motion", incomprehensible as a two-dimensional entity and defined as a three-dimensional construct in progressive development. The Kinetic City has a temporary character, is continually modified and reinvented, and is perceived in terms of spaces and occupation patterns. It is indigenous urbanisation with its particular "local "logic.<sup>20</sup>

The second element is the informal-formal symbiotic relationship between an existing conflict in the city. The informality is an inextinguishable part of it, showing greater potential for growth<sup>21</sup>. Informality cannot be understood as an element opposite to "formal" or extraneous planning. As several authors underlined,<sup>22</sup> it is not linked to a sector or social class or limited to spatial manifestation, but it is a form of governance<sup>23</sup> and is present in the state and its administration.

The third element is what Jeffrey Hou<sup>24</sup> defines as "rebellious public space" to describe and articulate expressions of alternative social and spatial relationships, in which public space and public realm are constituted "in support of a more diverse, just, and democratic society ".<sup>25</sup> Unlike the conventional practice of urban planning, groups of citizens and individuals' ability to play a distinct role in shaping the contemporary urban environment are suggested, despite official rules and regulations.

Therefore, the Indian Urban (public) Infrastructure design must include aspects of informality and temporality because these dynamic processes form the basis for correct urbanisation and infrastructure of the space.



*Figure 1. Multiple uses of the infrastructure, Ahmedabad*  
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## METHODOLOGY

Our research stresses two main arguments from the studies referred to on the infrastructure-urbanisation connect. Firstly, infrastructure is not merely an object but a complex system that enables and is also part of metabolic processes in cities' everyday lives. Moreover, it encompasses the physical elements and their relation to its users (citizens). Here "relation" stands for the "practice of use". Secondly, these practices, often perceived as illegal, informal, etc., are intrinsic to Indian urbanity hence ought to be understood as rooted in the cultural context of Indian urbanity. Moreover, as Bateson has said, "what can be studied is always a relationship or an infinite regress of relations. Never a "thing" <sup>26</sup> hence the study of the infrastructure-urbanisation connect is achieved by the spatial mapping of the everyday violation through the tool of drawing.

The methodology to be adopted for understanding the infrastructure-urbanisation relationship places spatial mapping as a foundation through the survey of "everyday violations". Here, the term draws its epistemological underpinnings from "violation" articulated by Sunderasan and "disorder" by Sendra. Then according to Sundaesan, the daily violation can be understood as a geographical site in which the infrastructure construction (the design + construction process) must be theorised concerning the violation (how it is used).<sup>27</sup> Furthermore, from Sendra, we can understand how everyday violation is dynamic and shifts to challenge the systems in place by proposing alternative ways of use and understanding infrastructure.<sup>28</sup> Hence "everyday violation" represents an opportunity to inform infrastructure building from the bottom-up.

To ground the study, the infrastructures selected are public infrastructures such as Char-rastha (intersection), Sadak (street) and Bazaar (market) in Ahmedabad (Gujarat). This investigation will highlight and make visible the "everyday violations" through a series of maps and reflect upon the theoretical concepts previously expressed.



*Figure 2. Common scene of everyday urbanism in Ahmedabad*  
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## AHMEDABAD - AN EMBLEMATIC CASE

Ahmedabad is the seventh-largest metropolis in India and the largest one in the state of Gujarat.<sup>29</sup> The city combines the intangible value of the cultural tradition with a growing urban landscape and has been identified as a UNESCO World heritage since 2017.<sup>30</sup> Simultaneously, the city has and is heavily investing in building urban infrastructure projects such as MEGA, Janmarg BRT, New CBD, Transit-Oriented Development and is also selected among the first 20 Smart cities in India.<sup>31</sup> The aforesaid contributes to shaping the city as one of the most important centres for history, trade, and commerce in western India.<sup>32</sup> Ahmedabad, like many other cities in India, is going through rapid urbanisation (from 5.8 Million in 2001 to 7.2 Million in 2011)<sup>33</sup>, which is putting enormous pressure on public spaces (infrastructure), both public and private.<sup>34</sup> Which are the stages for a myriad of activities, such as vending, celebrating, or resting, where simultaneously different actors as people, animals, or vehicles are using the infrastructure. This is particularly clear in the Walled City, which is affected by heavily congested traffic, intricate roads, polluted air, broken footpaths, etc. This rapid growth rate is thus likely to perpetuate further damage to the city's public spaces and, by consequence, putting immense pressure on upgrading the infrastructure.<sup>35</sup> All the above qualifies Ahmedabad as an apt city for this research since it embodies all the main features and contradictions of the (Indian) megacities.



Figure 3. Urban growth of Ahmedabad, from 1411 till 2012

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### Char-rastha - Netaji Road cross Ashram Road

This *Char-rastha* (crossing) is an important node in the city as it connects east to west and north to south, hence witnesses considerable vehicular movement. At the centre of the crossing is a temple with no defined entrance, and although the temple is tiny, its position is strategic, especially for those who do not have much time and want to stop and offer their prayer just long enough for a red light.

In the morning, the crossing sees reduced vehicular movement, and the temple is almost empty. People come to pray in intervals of 15 - 20 minutes. Furthermore, along the later street, there are no activities, except for men cleaning the streets and some people that are preparing flowers' crowns to be offered at the temple. In the evening, the space dramatically transforms, especially around 7 p.m. when the daily prayer begins, and it is also the peak hour for vehicular traffic. The number of people visiting the temple at that time is higher, and loud music starts to be played and spreads from the temple into the nearby streets. Across both times, conflicts between vehicles and people are quite evident.

From the mapping, it is evident that there is no real distinction between the temple and the infrastructure. The temple, the supporting activities (vendors), the users (who offer their respects to the deity), the

road, and vehicles are all integrated into the city's mechanism. Hence, the crossing works as a traffic regulatory node and as a place of worship. However, this design is much more appropriate for vehicular movement than human movement/practices, and the infrastructure constitutes an obstacle to the everyday practices, exposing them to vulnerabilities.



Figure 4. Netaji Road cross Ashram Road in two different moments of the day, in the morning and in the evening. The maps highlight the presence of vehicles and human activities in the space.

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### **Sadak - Gulbai tekra Road**

The street is located on the informal settlement *Hollywood Basti* border, and it can be assimilated to a private space of the houses. The citizens of this settlement use the road as an extension of their communities, a space for living, where the public open space is considered as "home".

The activities in this sector are several: the vehicles run side by side with children who play, women who wash clothes and hang them in the roadblock in the middle of the two carriageways of the road, vendors who sell vegetables on the traditional *lari*<sup>36</sup>, temples, stationary or walking cows. In the morning, the activities are slow, linked to daily commitments. In the evening, the street becomes extremely vibrant, lively of sounds, and gathering space for the whole community. Looking at this portion of the city in the evening as external spectators, we have the perception of observing a large family between men, women and children gathered in a common space where eating together and spending time at the end of the day.

Here the violation is caused by the informal settlement's presence and is clearly recognisable in all aspects of the kinetic city, such as processions or festivals, and is also an example of informal appropriation of public infrastructure. Alongside recreational and social activities, there is economic sustenance, which consists of the trade of multiple products and statues,<sup>37</sup> both activities that normally occur inside the houses. Every event in space, private and public, has a strong value in the Indian urban context and is reflected in the infrastructures surrounding it.





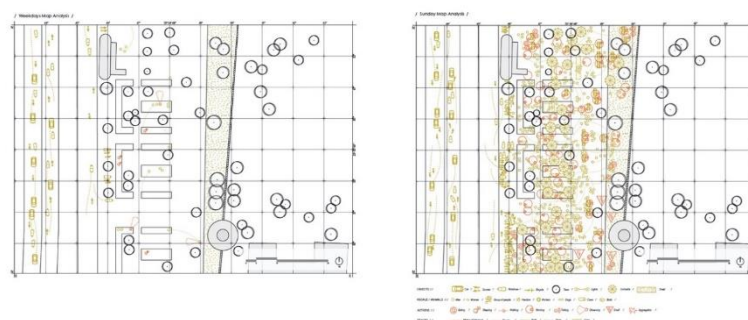
*Figure 5. Gulbai Tekra Road in two different moments of the day, in the morning and in the evening. The maps highlight the presence of vehicles and human activities in the space.*  
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### **Bazaar - Sunday Market**

The market space is perhaps the most evident case that shows the temporality and the frenetic life of the Indian public space, suspended between tradition and modernity.

The "Sunday market"<sup>38</sup> project has also led to a broader transformation of the surrounding areas: public spaces and many adjacent precincts were created along the Sabarmati river, leaning against the ancient walled city.

On a weekday, the market space is completely empty, characterised by low podiums. The human presence is reduced to few homeless families and stray dogs. The scenario is completely reversed during Sunday, while the architectural elements can hardly be detected in the space. The site is completely saturated with men, women, children, and objects and textiles to be sold. The "violation", as defined in this study, is due to the lack of a specific function during the week, when space is not used as a market.<sup>39</sup> In this specific case, it is important to consider the design phase's daily performance and how this infrastructure will interact with users or events over weeks, months, or years. The design of public space must include time variations and the ability to be a variable space because this will affect daily life and its violations. In the Sunday market, the "metamorphosis" of the public space is clearly perceptible due to the drastic change between weekly days and Sundays. This aspect of the Indian city perfectly embodies a rapid city concept, a change that, however fast, may seem imperceptible but inevitable.



*Figure 6. Sunday market in two different moments of the week, on a weekday and on a Sunday. The maps highlight the presence of vehicles and human activities in the space.*  
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## WAY FORWARD

By mapping and analysing everyday violations, we are made aware of the practices that are continuously making and remaking, appropriating, and re-appropriating Urban infrastructure. Simultaneously, what is also evident are the inherent biases that are either programmed (systemic) or unintentionally part of the design and building of infrastructure and the meaning of infrastructure. In the case of the crossing and street, the design was more conducive for vehicular movement. In comparison, there was little or no consideration for the everyday practices (walking, vending, praying, cooking, etc.) of the other users. This can be attributed to a limited understanding of infrastructure's meaning and limited knowledge of the cultural context in which we find ourselves intervening. As this research is an ongoing process, the conclusions we highlight below are to be read as a way forward rather than complete solutions.

First: Infrastructure from monofunctional to multifunctional. The various studies we have referred to, it becomes evident that infrastructure has to be multifunctional, especially in the contexts of the global south. It is owing to the multiple claims and varied practices associated with the urban realm and urban infrastructure.

Second: Infrastructure building as an ongoing process. The making of infrastructure should be seen as an ongoing process because, even if infrastructures are static components in the city, they are immersed into a changing context, which will over time take form and shape based on the context and its inhabitants. One needs to go further than what is flexible or adaptive and look towards practices rooted in the cultural context of the site/city.

Third: Everyday Violation as a bottom-up approach. As reiterated and demonstrated in this paper, studying and beginning to understand the practices associated with infrastructure from the perspective of an everyday violation highlights a more contextualised approach to design infrastructure in an inclusive manner.

These statements should help into the definition of a narrative concerning design approaches for a context in constant motion.



## NOTES

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- <sup>36</sup> "Lari" in a traditional Indian street carts, a movable-urban device for selling vegetables, foods or multiple purposes.
- <sup>37</sup> This informal settlement is particularly known for Lord Ganesha sculpture's production in various sizes fabricated for Ganesh Chaturthi Festival. In this period, the whole informal settlement is dedicated to this activity, and the street is crowded with sculptures and sellers.
- <sup>38</sup> The case study chosen is an emblematic location. It has been the subject of a large urban regeneration project since 2012. The project, coordinated by HCP has worked along the riverbank, creating a new riverfront to regulate the flood-prone (Sabarmati Riverfront Development (SRFD) Project). The development project involved the demolition of an entire informal settlement that was established along the west wall of the Old City over the years (10,000 families have been relocated in other places), "Sabarmati Riverfront Development," accessed January 8, 2021, <https://www.hcp.co.in/project/sabarmati-riverfront-development>.
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