

1 Installing Automobility in Bengaluru

Dawn at K. R. Market

In July 2014, in partnership with the Bengaluru Bus Prayanikara Vedike (or the Bengaluru Bus Commuter Forum), I scripted, directed, and led the shooting of a documentary film, *Social Life of a Bus*.¹ The film relies on street-side ethnography and sociotechnical methods to demonstrate how context-specific factors, such as a changing urban political economy, shifting requirements with urban mobility, and the dynamics of social interaction in a city riven by fault lines of class, language, and gender intertwine with the materiality of the bus to shape public transit in the city (Gopakumar 2016). *Social Life of a Bus* was filmed over a week with a crew composed of a cinematographer, a sound recordist, a taxi driver, a camera assistant, and me. We started early in the morning each day and drove around to different locations in Bengaluru,² parked the car, and scouted around for interesting vantages for our shots. One shoot was particularly significant for thinking about the configuration of mobility in Bengaluru and other metropolitan cities in India. It reveals the bind that these cities are trapped within.

We set off especially early one morning. The city was quiet, and its usually traffic-clogged arteries were vacant. Speeding past shuttered shops and through deserted streets, we reached the Krishna Rajendra Market (K. R. Market), the sprawling and frenzied market in the center of the city (at the intersection of N. R. Road and Avenue Road located just south of the *peté*, or the precolonial market settlement—at least an hour before sunrise. However, even at this early hour, the market was a hive of activity and industry.³ The market itself is located in a red-painted colonial building and a more recent brown concrete structure to its north. But the market has long spilled out of these confines and has located itself along Avenue Road and at the verge of the broad intersection adjacent to the market (see figure 1.1). Stilting across the intersection are the columns carrying the Mysore



Figure 1.1

A shot of K. R. Market from *Social Life of a Bus*.

Road flyover, one of the city's oldest flyovers and forerunner to many such structures that now stud the cityscape.

The intersection itself was a teeming mass of pedestrians; porters; shopkeepers hurrying toward buses balancing huge bags of produce for their shops around the city; flower sellers selling fresh stalks of roses or large garlands of jasmine, chrysanthemums, and marigolds; vendors; and vehicles of all shapes, including autorickshaws looking for passengers, cars, mini-trucks, and motorcycles, all weaving around the buses that crawled out from the K. R. Market bus terminus. Filming from within the hustle and bustle of the market was an enormously insightful experience for me because it drove home in my mind the occupation of streets in urban India. One of my first sensory experiences in this road was the persistent honking. The insistent and often frustrated blaring of horns called attention to the challenges of motorized driving on the road where slowing, swerving, or stopping for someone who obstructed a driver's pathway was inevitable. Automobile users quickly realized that much of the carriageway was occupied by pedestrians, vendors, pushcarts, and other modes of movement. Vehicles inched through the intersection but always gave way to pedestrians and other road users who moved as they chose on the road. Emboldened by this setting, our team decided to take numerous shoots following individuals as they wove through the throng of vehicles and people, often evoking more blasts of horns.

Next, we decided to take some vantage shots of the market intersection from the flyover. Since there was no sidewalk on the flyover, our taxi driver advised us against walking there and suggested that we instead drive there. A very different streetscape awaited us when we drove onto the flyover. Clearly marked with traffic lanes and designed to carry two lanes of vehicles in either direction, at this early hour, vehicles flowed past at frightening speeds. Unlike in the intersection below, here on the flyover there were no humans, only vehicles on the carriageway. And the vehicles were different from the ones below; here, they were inanimate metal capsules hurtling to their destination without a thought for objects in their path. When we slowed to a stop on the flyover for our shoot, our taxi driver warned us that we could not stop here too long as it would hold up traffic and we should be careful about moving around on foot. Once we disembarked, we scurried to the front of the parked taxi and, protected by the car, took our shots. Although we were successful in capturing revealing shots of the tumultuous intersection below, we were repeatedly reminded of our intruding presence on the flyover by the screaming horns and the rush of the wind. Once done, we scurried back into the taxi and were glad to drive down from the flyover back into the more humane domain on the ground.

The starkly different experience in both locations—a frustrated motor-ing at road level in front of the market and easy travel above on the fly-over—is thought provoking. The carriageway in front of the market and on the flyover reveals very different spatial and organizational dynamics. The road space in front of the market is remarkably inclusive and defies rigid spatial compartmentalization. Pedestrians, buses, vendors, shoppers, cars, motorcycles, and pushcarts all intermingle, interact, and negotiate their claims to road space in an ongoing and dynamic fashion. But for automobile users, this spatial and mobile fluidity appears as congestion and disorder and evokes frustration and irritation. On the flyover, road space is devoted entirely to motorized movement. The absence of a sidewalk or any other spatial partition (apart from the median divide) is a clear indicator. All available space is reserved for motor vehicles. Here, motorized vehicles encounter a design that allows them to move with minimal challenges to their claim on the road. Other forms of claims to space (such as when our film crew took our shots) are actively discouraged. What do these radically different wayside experiences playing out in such close proximity tell us about streets and mobility in India?

Two lines of reasoning follow from this situation. First, urban space often evokes contradictory feelings of familiarity and unease. Thus, even as the automobile user experiences discomfort with the overwhelming congestion

and disorder in the market, a sentiment of ease and joy is produced at the same time in the face of fluid, almost clinical movement of vehicles on the flyover. Does this suggest that congestion in front of the market is an undesirable state from its pervasive disorder and that fluidity on the flyover is an especially desirable state? Such an emotion confirms that we have become habituated to consider the new and modern (the flyover in this instance) as desirable.⁴ How could we explain such contradictions in such close proximity? To my mind, and this is the second line of thought that springs from the situation at K. R. Market, such contradictions indicate an underlying construct that adapts an automotive outlook (what some have called a windshield view) and casts congestion in the marketplace as a problem requiring rectification. The solution to the problem of congestion is the flyover that offers motorized vehicles the option to effortlessly bypass the market's congestion. But such a construct possesses enormous political consequences. The claims of automotive users to urban space are valorized through the exercise of power to allow them to bypass the process of negotiation and interaction with other constituents in society. How did such a state of affairs come to be? Such a state is particularly stark because it contrasts with the image of the archetypal Indian street.

In the next section, we investigate how the changing portrayal of congestion on roads in India points toward the installation of the construct of automobility on Indian roads. The section seeks to deploy, following Gordon, Tilley, and Prakash (2011), narratives as products of what these authors refer to as “historically-grounded analytical categories” (3) to fathom how dystopic sentiments surrounding on-street congestion have been mobilized to construct the edifice of automobility on Indian roads.

Portraying Congestion on Indian Roads

Portrayals of traffic on roads, both historically and now, have solidified a reputation of its dystopic propensity. Although traffic has been portrayed consistently as a problem, what is curious is how the narratives of traffic congestion have shifted considerably over time. While still enmeshed within the matrix of colonial power relations of the early to mid-twentieth century, congestion was commonly represented as a qualitative problem of the mind-set of the colonized peoples of India. The problem of congestion was conceived as the inability of Indians to inhabit roadways in a civilized manner and instead engage in competitive jostling for road space. Since the start of the twenty-first century, though, traffic and on-road congestion

have been largely portrayed as a quantitative problem driven by the rising numbers of vehicles, which can perhaps be managed through advanced technologies and economic incentives, thus recalling Mumford's notion of a quantitative mind-set of improvement. The shift in the historical narrative of dystopia from a qualitative problem of the mind-set of subjugated peoples to a quantitative problem rising out of vehicle population is critical for grasping how roads and mobility have changed and how locations such as K. R. Market have become commonplace.

The manifestation of traffic congestion on the streets as a qualitative problem can be traced to the multiplicity of uses and users competing for road space in the absence of clear guidelines regarding how it should be apportioned. For a long time, roads in India have largely defied rigid spatial compartments that have become the norm in many other urban locations. In other places, zoning of city roads within largely inflexible modes have far greater public acceptance, and as a result, the partitioning of road space between competing uses appears far more defined. By this, I suggest that road space is either reserved exclusively for a primary use (and closely related secondary uses), or there is a clearly demarcated spatial partitioning of available road space for a few competing uses. Thus, in some cases, roads—their infrastructure and design and adjoining land uses—are unambiguously designated and demarcated for a primary use, such as uninterrupted automobile transit on expressways or the grid-like downtown streets dedicated to office buildings and peak-hour traffic. In other contexts, as in some Western European roads, there has been a pronounced thrust for formal spatial partitioning of roads whereby a few identified uses occupy clearly defined slices of road space (A. Jain and Moraglio 2014, 522).

In comparison, Indian streets appear (and certainly appeared in the past) to possess a far more fluid mode of sharing road space among different users and uses. Indeed, Jain and Moraglio go so far to propose that “the informal mode of (self-) governing street space gives a more dynamic picture and resembles the ‘layers of uses’ which can cope with the vast variety of users and uses much better” (2014, 523). They suggest that what one finds on Indian streets is a dynamic process of apportioning road space between different users such that the outcome is a complex, interleaved layer of uses on the road. They argue that this interleaving of multiple uses reflects the fragmentation of public space in India; although distinct social groups exist in public, they do not fashion a shared understanding of public space. Fragmenting of road space in the context of an absence of consensus between different social groups leads to a hierarchical system of apportioning road

space. Dominant social groups on the road tend to acquire a lion's share, while others face a diminishing prospect, something that one now finds with the steady rise of vehicular population.

This level of qualitative nuance is more often than not absent in the colonial portrayal of the experience of traffic in India. Accounts of the heterogeneity of traffic on Indian roads point instead to a dismal melee-like atmosphere. One visiting British member of Parliament, writing in the early twentieth century in his observation, spoke of the kaleidoscopic panorama composed of

heifers, goats, pariah dogs scavenging for their meals; the electric cars, the gharries and broughams [both horse-drawn carriages]...the slow-moving bullock carts, with their creaking lumbering solid wheels; the clanging of car and carriage bells, the constant shouting of drivers and others, the occasional glimpse of a carefully closed palanquin [a litter], swung from long bamboo poles...all these, together with the moving stream of people with their flowing white garments which crowded the dirty, ill-kept footpaths and streets. (Hardie 1909, 9)

First-time observers invariably commented on the sheer multiplicity of movement that intermingled on the streets. The braiding of these multiple streams of traffic engendered different sound and rhythmic patterns: the clanging of electric bells, the creaking of the cart, the grunt of the pack animal, and the incessant human yelling. The multiplicity of visual and aural stimuli on the streets by themselves quickly left observers overwhelmed.

With the rapid growth in motorization by the second decade of the twentieth century, motorcars contributed to qualitatively newer forms of congestion and danger in many Indian metropolises. Hazareesingh notes in his history of colonial Bombay that "the twelve thousand motor vehicles in circulation contributed substantially to increasing congestion, competing for street space with trams, ox carts, victorias, bicycles, and pedestrians...[exposing] pedestrians to risk on all major roads" (Hazareesingh 2007, 68). The rise of motorization further heightened the palpable sense of unease and horror that observers gave voice to in their writings about Indian cities. Words like *chaos*, *disorder*, and *mess* had been used for some decades prior to India's independence in the middle of the twentieth century as shorthand to denote an exotic but dismal state of affairs.

With the close of the colonial period, the unease of Western observers translated into a sense of disdain regarding the ability of Indians to run their affairs as a sovereign people. As Arnold (2012, 127) noted, Sir Francis Taker, a senior British Indian army officer, in his memoirs of the last two years of British rule in India, observed Calcutta's dystopian traffic

as a harbinger of the catastrophe that awaited the irresolute Indian once the order and the protection of the British Raj was withdrawn. In many colonial (and even neocolonial) accounts, the sad chaos on Indian streets was a signal of the fecklessness of all things Indian: their culture, modes of driving, traveling, and inhabiting the road, as well as systems of governance and education. Writing about the metropolis of Calcutta in 1971, more than a couple of decades after the eclipse of the British Empire, Geoffrey Moorhouse (1971) describes a narrative of imminent metropolitan collapse, a process that is irreversibly underway in the city's transport system with the incessant heaving and pushing of masses of pedestrians negotiating motor traffic and bullock carts, handcarts, tramcars, bicycles, ramshackle buses swaying side-to-side from extreme overcrowding, and poorly maintained trams nestled precariously on their tracks. Left to themselves, Indians will take this process of dissolution forward, Moorhouse concludes, to a truly dystopian self-destructive finale.

The solution in some of these narratives is for greater import of Western models of street life. Only by making Indian streets a copy of the Western street and by making the Indian behave in the way a Westerner would can dystopia on these streets be averted and Indians participate fully in the benefits of urban modernity. Arnold (2012) documents instances where the state of traffic in the late-colonial metropolis becomes the impetus for reforms to train Indian children in proper civic life:

By the 1930s English-language papers were full of schemes to teach schoolchildren the "rules of the road." A playground game complete with miniature pedestrian crossings and road junctions, was created to improve how traffic worked.... In June 1938, 30,000 schoolchildren across the country were receiving road safety training. (Arnold 2012, 135)

Left to themselves, Indian children would be socialized to replicate the chaos on the streets. It is only through education that children can bring a change to this unsatisfactory situation.

But despite this early thrust toward disciplining and reorganizing, quantitative conceptions of controlling the explosive automotive growth have become dominant in recent times in policy and the popular discourse (even though international reporting still relies on occasion on colonial tropes of chaos in their contemporary narratives) surrounding the dismal state of congestion and road circulation. For instance, although the *New York Times* speaks of "parking wars" in New Delhi's car-saturated terrain or the *Guardian* highlights New Delhi's "traffic chaos," there is a discernible suggestion that Indian cities need to do more to address the burgeoning vehicular

population.⁵ Thus, in a recent article on Mumbai's traffic situation titled "Why Mumbai Should Get Over Its Obsession with Cars," the *Guardian* states:

Mumbai seems to be off the map in terms of implementing current innovations in urban transport policy making. Despite widespread aspirations of emulating other Asian cities such as Singapore and Shanghai, a number of transport interventions are surprisingly absent. This includes urban road pricing or congestion charging, first pioneered by Singapore in the 1970s. ... Mumbai also lacks public bike-share schemes despite their rapid recent spread across the globe, and unlike an estimated 166 cities internationally, does not contain any Bus Rapid Transport Systems (BRTS).⁶

To draw another illustrative example, as part of a series, "Tomorrow's Cities," in March 2013, the British Broadcasting Corporation (BBC) focused on the near-impossible state of traffic in Mumbai. The main cause for this gloomy situation, according to the BBC, was the rapidly growing vehicular population in the city: "In a city of 18 million inhabitants there are 1.8 million motor vehicles. The number is growing every day as more drivers take to the roads and frankly, there isn't enough road to go around."⁷ In what could only be considered a major shift in the diagnosis of traffic congestion, the accepted solution to the quantitative congestion caused by too many automobiles on the streets is for greater use of technologies that will better manage traffic circulation. The BBC article mentions that with support from the World Bank, the city has established a traffic control center that monitors and intervenes in traffic flows at key junctions around the city in real time through a network of sensors, cameras, and signals.

Since the early 2000s, the circulation (or not) of traffic has emerged as a key policy issue in metropolitan India with a host of projects, reports, and policy papers (see figure 1.2 for an example) attempting to define and address the issue of traffic and traffic congestion, such as the National Urban Transport Policy of 2006, draft of National Urban Transport Policy of 2014, Sustainable Urban Transport Project, India of 2009, Report of the High Powered Committee on Decongesting Traffic in Delhi of 2016, and the National Transit Oriented Development Policy of 2017. Common to these reports is the recognition that congestion in the circulation of traffic is predominantly a result of rapid growth in the motor vehicle population. For instance, an appraisal conducted by the World Bank of the Ministry of Urban Development's Sustainable Urban Transport Project notes that

India's continuing urbanization and surging economic growth over the last decade has led to an inevitable rise in ownership and use of motorized vehicles

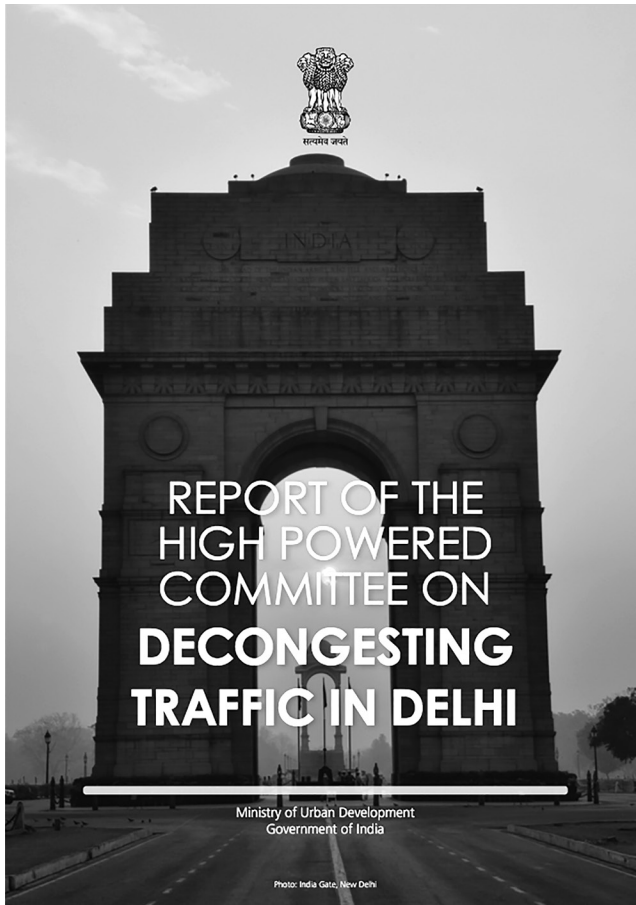


Figure 1.2

Cover of report on decongesting traffic in New Delhi (source: Ministry of Urban Development, Government of India).

across cities and towns.... The average two wheeler and car ownership levels in metropolitan cities have more than doubled, and motorized per capita trip rate has also increased 60 percent.... Recent studies show that in many Indian cities where walking, cycling, and use of buses have traditionally dominated, the share of the use of two-wheelers, and, more recently, private cars, has been increasing dramatically. (World Bank 2009, 1)

Traffic congestion in this case is articulated as a quantitative measure: the number of vehicles on the road. The sheer rise in the number of motor vehicles running on the street has clogged road space, and their numbers

have become the barrier for speedy and smooth movement. Congestion as an excessive accumulation of traffic (Stopher 2004) is considered a variable that indicates the technical capacity of infrastructures. The expansion of material infrastructure to increase system capacity is a commonly adopted technical solution to congestion. Thus, building more supply-oriented infrastructures—more roads, more expressways, more flyovers—is proposed as the solution to congestion. Quantitative measures of congestion also pave the way for deploying economic instruments such as congestion charges (Hensher and Puckett 2005; Eliasson 2008) to structure incentives in ways that can modify the infrastructure use to reduce congestion.

The reliance on technical solutions to ease congestion is a far departure from the earlier focus on modifying Indians' behavior and values. How does one reconcile the transition from one account of congestion to a radically altered one? How did the paradigm of congestion in Indian cities shift so markedly and quickly (over a few decades) from a predominantly qualitative assessment of congestion to a quantitative notion of congestion caused by excess automobiles on the road? The proximate explanation is that the notion of congestion has changed in response to the colossal growth in vehicular population in Indian cities. As the number of vehicles on the road increased, the conception of congestion accordingly shifted. While there is no denying the galloping growth in vehicular population (in 2005, there were 81 million vehicles on Indian roads; by 2015 this number had grown to 210 million), such a linear causal relation between vehicular growth and the experience of congestion is especially convenient from a public policy or law enforcement perspective. By equating the rise of vehicular population with the growing experience of congestion, political and bureaucratic elites have been able to cast congestion as an administrative problem that needs a solution. With the recent rise of quantitative conceptions of congestion within the popular consciousness, the administrative and enforcement apparatuses in cities have sought to manage congestion reactively and incrementally—widening a road here, building a flyover there, designing a signal-free arrangement on an arterial corridor, providing dynamic information boards, or reserving space for motorized traffic—all in the pursuit of a speedy and smooth drive for motor vehicles on the road.

Urban administrators in India, in a fashion similar to what Mumford had predicted, react to the growing vehicular population and address congestion incrementally. Their efforts to manage the problem of congestion appear to continually constrict the space available in metropolises for any purpose other than transportation. The simple linear sequence of cause and effect of motor vehicle growth, congestion, and decongestive efforts is as

much an artifact of administrative optimism as it is a Mumfordian dystopic reading. However, neither administrative optimism nor Mumfordian pessimism does a good job in explaining the complex interrelated linkages that bind together historical roots with social, political, and material entities engaged in shaping street use. The web of linkages that has come to define the growing motorization is grounded within the contextual endowments of the Indian city. Instead of simple cause-and-effect relationships, motor vehicle growth, congestion, and efforts to ameliorate the congestion are interconnected with specific social and material entities to voice a political manifestation. The case of K. R. Market in the beginning of the chapter is insightful. The flyover bypassing the market was an exercise at privileging automobile users with a smooth, quick ride while at the same time neglecting the mobility needs of the nonautomobile users in the market.

Automobiles and Automobility

That automobiles are an inescapable presence in many societies around the world does not come as a surprise. Although exact figures are not available, with skyrocketing rates of vehicle sales, it is widely accepted that the global vehicular population (comprising all manner of motorized vehicles, including two- and four-wheeled motorized vehicles) has breached the 1 billion mark, and by 2020, it is expected to be nudging 1.5 billion (Sperling and Gordon 2009). Given these numbers, automobiles have indeed acquired a pervasive presence. This is particularly true of Western and industrialized countries that have been witness to an extended period of growth in automobile numbers and where the per capita penetration of automobiles has been consistently high. But despite its widespread presence, the imprint that automobiles make on societies around the world has not received sustained recognition. In fact, efforts to critically interrogate the position of the automobile in Western countries have gathered sustained scholarly attention only in the new millennium.⁸

The omnipresence of automobiles often leads to simple characterizations as exterior forces that bear on their host societies. Based on recent empirical research, however, the consensus appears to be that the role of automobiles in transforming lives is less than straightforward. Instead, automobiles are technologies that are now recognized to mediate and intersect with core elements of contemporary lives in Western societies in a complex and polyvalent manner. Fundamental Western values of individualism and liberalism, for instance, find exemplary expression through the individual autonomy that automobiles are said to extend to those who rely on them

(Chella Rajan 2006). At the same time, automobiles and autocentric developments simultaneously possess aspects that both enhance and reduce the public and private spheres. Thus, as Sheller and Urry (2003) have astutely observed, private drivers, franchised by driving licenses, forge a community united by a set of practices for mobility and navigation that have come to dominate the public sphere even as they exclude those who do not or cannot drive. However, cars, by providing enclosed spaces, offer motorists the possibility of retaining a quasi-privatized environment within the public realm. The imprint of the automobile thus has articulated new domains for expressing the public/private divide for city residents.

Automobiles exert an expanding footprint in diverse social and political domains too. Matters of politics and governance expressed, for example, in designing automotive safety (Beckmann 2004) or in governing the motorway driver (Merriman 2006) indicate the expanding scope of the automobile. Similarly, social and cultural associations with the automobile revealed through identities and logics of automotive consumerism (Gartman 2004) or the affective attachments that have displaced other forms of relationships (Latimer and Munro 2006) are further examples of its regnant footprint. Another manifestation of the intense entanglement of automobiles within contemporary Western existence is the constitution of a range of hybridized subjectivities imbricated with the automotive presence—car drivers, hotrod enthusiasts, automotive masculinity, and pedestrians on automotive roads (Dant 2004; H. F. Moorhouse 1991; Bonham 2006; S. Jain 2005). In all these cases, personhood is forged not just at the instance of but also inextricably through the automobile. Yet another manifestation of the automobile is in the configuration of the Western automotive city—an urban site for a breathtaking exercise of power that coerces, constrains, and limits in order to facilitate the movement of numerous quasi-private metal capsules. This power configures an arrangement of domination through which claims to public space are weighed and evaluated against the overarching privileging of automotive travel on the streets (Sheller and Urry 2000; Thrift 2004).⁹

How have arrangements of domination attendant on the presence of automobiles been understood? Urry, one of the premier scholars of auto and other mobilities, suggests that in order to begin understanding the political valence of the automobile, it is necessary to understand it as automobility—a complex that unites multiple social, technological, ideological, and cultural aspects with modes of consumption and resource use (Urry 2004). It is the combination or the interlocking of these specific aspects into a system that “generates and reproduces a ‘specific character of domination’” (Urry 2004, 25).

What then is the specific character of domination that is manifested through automobility? A key feature of automotive domination is its extraordinary persistence across time and space. In its persistence, automobility reveals a regime quality that exercises explicit ideological, governmental, and political controls to powerfully shape society (Bohm et al. 2006). For scholars, an interlocking, power-filled, and persistent automotive regime is a particularly troubling prospect on at least two counts. First, as a regime with extraordinary stability, automobility has shown itself to be resistant to efforts to limit, manage, or otherwise reduce its environmental and social footprint. But despite its stability, many have argued that it would be possible to unlock the existing system during critical junctures or “tipping points” (Urry 2004, 36). Such junctures could be characterized as animating particular alignments between dominant macrolevel frames and microlevel niches of counterdiscourses, movements, and practices that generate transitions away from the existing automotive regime toward a more sustainable mobility regime (Sheller 2012; Geels et al. 2012). Second, the power embedded within regimes of automobility creates an uneven field of motility (Kaufmann 2002), with some benefiting from seamless and affirming experiences of travel even as they secede to suburbs and edge cities to avoid interacting with those perceived as threatening (Henderson 2006). For others, such as the gendered, the poor, and recent immigrants, a range of barriers and disenablements proliferate through automobility. But as Walks notes, these disenablements and associated “new forms of vulnerability, inequality, and politics” find articulation within the political economic structures of contemporary capitalism (Walks 2015, 5). The specific enunciation of an unequal automobility, it can be argued, is not just a product of the regime constitution but its intersection and inflection with newer norms and modes of neoliberalism underpinning policymaking. It is this intersection that has furthered the expression and reproduction of social inequalities. One particularly durable means through which social inequalities are expressed is the design of the streetscape in cities. According to Agyeman (2013), an autonormative streetscape design has become the norm in planning whereby “the road became synonymous with the car and other users were squeezed out” (111). A democratized streetscape design, Agyeman argues, has the potential to displace the autonormativity embedded within planning practice. He suggests that a complete streets policy—that includes a broader definition of road users, ensures connectivity to multiple transit modes, and incorporates input from the community of road users—could offer a means to democratize the form of city streets (Agyeman 2013, 124).¹⁰

The inquiry into the automobile in Western society contrasts notably with the recent and rather tentative scope of research on automobiles and automobility in India. Research has been tentative in the sense that in much of it, authors pay inordinate attention to unique situational traits and exceptional historical circumstances that have shaped automotive presence on Indian roads without offering insights into its linkages with wider systems of governance and politics that pervade urban society. Instead, dominant streams of research locate the automobile in India in recent times within three registers: the car as a vehicle for a contested modernity; automotive practices on the road, which constitute a shared sense of nationwide community; and automobiles as markers of consumption that realize middle-class aspirations for social status.¹¹ In the first register, automobiles become a means for understanding change in Indian society. For instance, Sardar's writing (2002) on the presence of the Ambassador car on Indian roads paints a picture of how an individual passenger is ferried by the car. For Sardar, multiple experiences of dwelling within the car, navigating chaotic traffic, and viewing the roadscape all offer a window into how India "runs" as a postcolonial country as it seeks to modernize. The picture Sardar sees through the windshield of the Ambassador car is not a pretty one, but it comes laden with allusions to the Indian experience of modernity in the late twentieth century, leading him to surmise that he "is borne along within the very essence of Indian modernity" (Sardar, 2002, 216).

The second register for locating the automobile in India arises from relating its everyday presence on the road with a common sense of national identity. Edensor (2004) proposes that iconic vehicles, roadscapes, and everyday practices of driving together forge a national identity in ways similar to that constructed by spectacular ceremonies or high cultures of nationhood. Thus, driving on Indian roads appears to happen in the context of minimal state regulation; nevertheless, there exist unwritten conventions and norms that govern automotive travel. These conventions include such facets as reliance on horns to loudly navigate traffic on the roads, the precedence given to larger vehicles, neglect of formal traffic signs, and drivers subverting material infrastructure such as road signs or speed breakers embedded with regulatory force (Edensor 2004; Guffin 2015). Such practices, Edensor, would argue, are constitutive of the cultural identity of being an Indian. A final register of research on the automobile in India centers on the vital role that automobiles (especially cars) play as important status symbols for the "new middle class" (Fernandes 2006). Despite internal contradictions, the new middle classes are united in their collective aspiration for a comfortable and good life defined by conspicuous consumption and

expressed through multiple consumption choices. Cars occupy a critical position within this consumption landscape. Thus, according to Nielsen and Wilhite (2016), the spotty success of the Tata Nano car in the Indian market despite its greater affordability and novel design needs to be understood within the car's inability to be a vehicle for rising social mobility aspirations of the new middle classes.

These strains of research into automobiles on Indian streets, while no doubt perceptive, offer limited insights for understanding how Indian cities are being transformed as they increasingly play host to automobility—a system of domination that is abetted by automobiles but possesses social, technological, cultural, and ideological dimensions. Cars and automobiles in India do, no doubt, possess a lively social life. In addition, they have leveraged an active political presence in recent times. By focusing on the social constituents of automobiles, there has been a tendency to gloss over its political ramifications. This dearth in engaging centrally with the political constitution of automobility in India is all the more stark given the sustained attention that critical planners have directed recently to the question of urban mobility in India. Writing about urban transport policy in India, the urban planning scholar Madhav Badami notes that

policymaking related to urban transport has focused predominantly on road infrastructure development and transport system management to accommodate and improve the traffic characteristics of motor vehicles... meanwhile, budgets for the provision of infrastructure and facilities for pedestrians and cyclists have been minuscule. (Badami 2009, 44)

Along the same lines, the urban transport planning scholar Rutul Joshi and others suggest that “the emerging automobile culture in Indian cities and how it impacts urban transport governance and decision-making is an important area that policymakers must address to ensure a successful transition to a low carbon future” (Joshi, Joseph, and Chandran 2016, 131). Given these cautionary remarks regarding the growing reach of an automobile culture in Indian cities, critical social analysis should follow suit and examine how automobility as a political entity has come to lodge itself in cities in India. Simply put, in the Indian (metropolitan) context, how can we understand the installation of automobility? What are its components that situate it within the unique historical, social, and political character of the city?

In this book, I identify automobility as a political constellation that has become lodged in Indian cities. In understanding automobility as a political constellation, I follow the lead of Matthew Gandy (2011) and Roger Keil (2013) in their use of the term *constellation* as a means to draw

attention to the “details and textures of everyday life in the modern city” while informed by “context, historical specificity, and multidimensionality” (Gandy 2011, 5). Arrangements of infrastructure provisioning are particularly amenable to being characterized as constellations because they are constituted through relational webs that possess multiple social, institutional, and technological dimensions. Writing about plural arrangements of water and sanitation systems in the suburbs of cities in the global South, Monstadt and Schramm (2013) refer to the multiple sociotechnical arrangements as constellations rooted within varied spatial, socioeconomic, and technological morphologies. Automobility as a political constellation thus is understood in this book as embedded in the historical context of Indian cities, but at the same time, it is enmeshed within a complex sociotechnical matrix of institutions, landscapes, infrastructures, technologies, actors, plans, and manifestos that endow it with enormous valence to shape the experience of moving around in the city.

In the next section, I briefly outline the key objective of this book: *how automobility as a political constellation has come to be installed in the city of Bengaluru in India*. In doing so, I introduce readers to the metropolitan city of Bengaluru and indicate why studying it is appropriate to understanding how automobility has come to be a defining technopolitical project in Indian cities.

Installing Automobility in Bengaluru

Located on a high tableland in south-central India, Bengaluru is the political, administrative, economic, educational, and sociocultural capital of the Indian state of Karnataka (figure 1.3). After the 2011 census, Bengaluru city’s population stood at 8.5 million and had a growth rate of 96 percent between 2001 and 2011 (Directorate of Census Operations Karnataka 2011), making it the third largest city in the country.¹² Given its large and growing population, as well as its status as the capital of the state, Bengaluru has exerted an enormous footprint on Karnataka state’s social, political, and economic life. With it has come a commensurate degree of interest among political elites in Bengaluru’s affairs. Historically, as a commercial entrepôt in precolonial times and the seat of the British colonial enterprise in the region, the city has attracted attention over an extended period. In the immediate postindependence period, Bengaluru’s stature was considerably enhanced with the location of several large public sector enterprises and educational institutions. As we shall see in the next chapter, these developments have exerted an important influence on the city’s response to a perception of congestion in the city. In recent times, at least



Figure 1.3

Map of the state of Karnataka with the location of Bengaluru.

since the 1990s, with the formation of a cluster of information technology and biotechnology industries and the thickening of the trope of Bengaluru as India's silicon city, the city finds itself embroiled in yet another cycle of heightened attention and awareness.

One manifestation of the heightened attention that Bengaluru receives revolves around what could be called a sustained automotive presence, which registers not only through the proliferation of automobiles circulating on city streets but also in newspapers, popular media, and daily discourse. From table 1.1, it is evident that sustained automotive presence is related to the enormous growth in automobiles on city roads that has even outpaced population growth. Thus, while in 2001 there were only 1.6 million vehicles, ten years later this number had more than doubled to 3.7 million vehicles and then more than tripled to 5.5 million vehicles over the fourteen years since 2001. With this rapid growth, Bengaluru has acquired the dubious distinction of possessing the second-highest number of vehicles and being the second-highest fuel consumer among Indian metropolises.¹³ The surging growth in automobiles has been accompanied by almost continuous commentary regarding the (worrying) rise in automotive presence

Table 1.1

The Growth in Human and Vehicular Population in Bengaluru

| Population (in millions) | 2001 | 2005 | 2011 | 2015 |
|-----------------------------|------|----------------|------|----------------|
| Humans | 5.1 | 6.0 (estimate) | 8.49 | 9.7 (estimate) |
| Vehicles | 1.6 | 2.5 | 3.7 | 5.5 |

Sources: RITES (2011); Directorate of Census Operations Karnataka (2011); KRTO (2015)

in local and national media.¹⁴ In electronic social media, the discourse on automobiles in Bengaluru is certainly quite prevalent. On both Twitter and Facebook, there exist (at the time of writing this book) numerous traffic tags such as #BengaluruTraffic, where social media users post their observations, comments, and frustrations regarding traffic and roads. On Twitter handles, such as the Bangalore Traffic Jam Updates @BLRJams, users update each other on the emerging traffic situation in the city. In addition, with Google Maps and FM radio stations introducing live traffic updates in Bengaluru, relying on media and technology to navigate traffic is yet another means through which Bangaloreans have registered automotive presence in their lives (figure 1.4).¹⁵

Automobility is understood here as a political constellation that enrolls not just automobiles but a slew of other technological, material, social, and historical elements. It is through the interaction of these different elements that automobility as a political constellation comes to be installed in a city. While the sustained automotive presence in Bengaluru, when compared with other metropolitan cities in India, is the one very compelling reason for studying automobility in the city, it is not the only reason. Several social and historical reasons make Bengaluru, in comparison with other cities, an attractive site for the study of how automobility has come to be installed. One notable reason is the historical continuity in governments (in Karnataka) relying on technology for achieving social objectives. This technocratic constitution of governance originated in the colonial Mysore kingdom under a special historical situation (see chapter 2 for details) and has since acquired deep institutional roots in the everyday administration of provincial and urban affairs. Thus, continuing into the postindependence period, the administration of the government of Karnataka notably is a frontrunner in adopting new technologies and techniques to achieve governance objectives—so much so that the willingness to experiment with technologies to achieve contemporary governance objectives has played a significant role in according Karnataka the status of a frontrunner state in implementing economic reforms.



Figure 1.4

Advertisement of live traffic updates on Google Maps on a bus shelter.

A second compelling reason is the opportunities extended to men from privileged social backgrounds (more often than not, upper-class, technically educated Brahmin men)¹⁶ to forge an agenda of change in state and urban affairs. In this case too, there is a strong historical precedent in the predominantly Brahmin *dewans* (chief ministers) of the Mysore kingdom (see figure 2.1 for the location of the kingdom within India). M. Visveshvaraiyah, the engineer-turned-statesman/*dewan* who pioneered several technological, educational, and industrial advances in the Mysore kingdom in the early twentieth century, was a particularly notable example. In current times, Bengaluru remains porous to the interventions of men of privilege. For example, Nandan Nilekani, Ramesh Ramanathan, and Ashwin Mahesh, all from privileged backgrounds, have been successful in participating and shaping urban affairs in the city. In fact, Mahesh has candidly described the openness extended to privileged nongovernmental people to intervene in public problem solving as follows:

Privilege in urban India is going from a structure of caste to a structure of caste and class together. ... Bangalore is cosmopolitan but it retains its privilege structure. ... [In order to make a difference], you have to know what are the contours of your ecosystem [of privilege]. The essence of the ecosystem [in Bangalore] is social networks of people of privilege from diverse backgrounds, and this is true among the educated elite and also among the political elite. (Interview with Ashwin Mahesh, May 24, 2011)

The long tradition of openness to (and visibility of) networks of privilege in shaping urban outcomes in the city makes Bengaluru, more than any other Indian city, a particularly revealing case of how automobility is being established in India.

The final reason for locating this study in Bengaluru is its long history of visibility in India. Since colonial times when the Mysore kingdom was depicted by the British as a model for the rest of colonial India, Bengaluru/Karnataka has been the model for the rest of the country. One consequence of this historical trajectory has been a greater willingness on the part of the state's political and administrative elite to experiment with reforms. For administrators around the country, Karnataka's pioneering experience in decentralization in the 1980s served as a model for devolving planning to the grassroots (Aziz 1993; Crook and Manor 1998). In current times too, Bengaluru's experiments with urban service delivery, government-civil society partnerships (Bangalore Agenda Task Force and the Agenda for Bengaluru Infrastructure Development are recent examples examined in detail in subsequent chapters), and early adoption of technologies and institutional models have all been a source of attention for urban administrators around the country. Partly as a result, Bengaluru and Karnataka state have been widely acknowledged as leaders in reform (Kirk 2005; Manor 2007). Through a combination of sustained automotive presence and unique social and historical processes, a study of automobility's inception in Bengaluru promises to have wider resonance in the Indian and global Southern context.

The rest of this book explores how automobility as a political constellation has come to be installed in the city of Bengaluru. It describes constituents of Bengaluru's automobility constellation, each of which brings a dimension that has deep contextual roots in the city: its history, society, politics, and infrastructures. This contextual presence is not a static background effect but a dynamic and processual influence that shapes how automobility has become lodged in Bengaluru. It manifests in both macrolevel urban governance processes and microlevel everyday practices. Institutional arrangements of the state and municipal governments, arrangements of infrastructure development, as well as practices of driving, and social media use, contribute to installing and interiorizing automobility within the city landscape. Through this dynamic influence, automobiles and associated modes of mobility in the city acquire enormous stability. As we shall see, the stability does not insulate it from contestations and negotiations that often exert considerable wear and tear on the constellation of automobility in the city. The grinding down may not unseat the

constellation, but it wears down the edges of the system, giving it a decidedly shabby look. Bengaluru's automobility may not be a spit-and-polish affair; however, that does not mean it can be wished away. It has sunk deep roots in the city, and transitioning to a low-carbon and equitable constellation of mobility is not going to be easy.

Chapter 2 presents a historical look, spanning two hundred years, at congestion in Bengaluru. Connecting with the overriding instrumentality in controlling vehicular traffic, which one encounters in the histories of Western cities at the dawn of the automotive age, this periodization serves two purposes. First, it decenters the predominance that rising vehicular numbers have acquired in the constitution of the contemporary narrative of congestion in Bengaluru, thereby opening the possibility of looking for other historically rooted sociopolitical actions that continue to shape the experience of congestion and automobility. Second, I posit that congestion in Bengaluru is not a new phenomenon and that there have been many efforts to address congestions of different kinds in Bengaluru's history over the past two hundred years. These different efforts have left behind material, institutional, and sociopolitical residues that continue to shape the experience of traffic congestion in Bengaluru to this day. But more important, common to the different efforts is the exclusive reliance on instrumental technocratic interventions to manage congestion.

Chapter 3 explores the discursive paradigm that characterizes mobility, problematizes congestion, and generates solutions for it in the particular context of Bengaluru. I propose that since the late 1990s, the paradigm that structures urban mobility and infrastructure in the city can be characterized as a regime of congestion. Building on the work of scholars in science and technology studies, I understand the regime of congestion as a technopolitical regime. Through this theoretical framing, I argue that the regime of congestion is reconstituting the nature of streets in Bengaluru with the intent of privileging the physical and discursive occupation of street space by private automobiles. Such occupation has far-reaching political consequences for the quality of mobility in Bengaluru. I show that Bengaluru's regime of congestion is marginalizing the mobility needs of the poorer residents of the city while privileging the mobility needs of the motorized.

In chapter 4, I explore the constitution of an infrastructure landscape of automobility. I define the term *infrastructurescape* as an approach that locates infrastructures as vital elements within an active urban landscape, embedded with the power to shape the experience of the urban resident in the city. The chapter traces how the particular embedding of infrastructures of mobility in Bengaluru's landscape has ingrained elite privilege deeply

into the landscape, thereby reducing the possibility for more inclusive mobility and inhabitation in the city.

Chapter 5 demonstrates the constitution of a collective identity of automotive citizenship. I show that the identity of this citizenship is not a transient phenomenon that emerges only when one is ensconced in a vehicle but is made durable through the assembly of a range of social, artifactual, and technological materials, such as drivers and their practices of driving, redesigned street-side artifacts, social media platforms, and traffic management policies. In doing so, I draw on recent STS research in material participation and the constitution of material publics to articulate automotive citizenship as a mobile belonging on the road that reifies social inequalities. A direct outcome of the crafting of automotive citizenship is privileging automotive travel by seeking to minimize automobile congestion while at the same time proliferating congestions and imposing immobilities on (and thereby actively disenfranchising) the nonmotorized.

In the penultimate chapter, I examine the process that attends the installation of infrastructures of automobility in Bengaluru. I argue that automobility has a contested, and therefore a challenged, presence in the city. The challenge arises from diverse sources, including powerful institutional actors, rivers, waste, places of worship, and political ideologies, all playing a part in contesting the presence of automobility. In describing the dynamic of the challenge, I rely on a combination of Lefebvrian rhythm analysis and the posthumanist performative turn in social sciences to locate how the deployment of infrastructure triggers particular displacements in society and thereby engenders challenges. I characterize the interactive dance between the thrust to deploy infrastructures and the challenges arising from displacement as an ongoing interaction between *affordances* and *congestions*. Such interactions, I contend, gnaw at the achievement of a smooth, seamless vision for motorization, thereby instating what I refer to as a shabby version of automobility.

I conclude the book by addressing three aspects. First, I synthesize the empirical material presented in earlier chapters to summarize how automobility as a political constellation has come to be established in Bengaluru. Second, I address the contribution this book makes to scholarship in urban mobility and in sustainable and equitable urban environmental change. Finally, building on the book's empirical content, if automobility is a political constellation that has engendered new manifestations of dystopic congestion in Bengaluru and other cities of India and the global South, then this chapter proposes a call for displacing automobility and establishing an alternate low-carbon and equitable paradigm of mobility. Elaborating on

the empirical chapters, I make three suggestions for displacing automobility: unlocking the regime of congestion, mobilizing pro-poor and nonmotorized infrastructurescapes, and performing acts of taking back the streets, thereby franchising pedestrians, vendors, and bicyclists.

Conclusion

At the beginning of this chapter, I suggested that the situational contradictions at K. R. Market were the outcome of an underlying political construct. This construct, I claim, is the constellation of automobility. I made the argument that the dramatic shift in the portrayal of dystopia on city streets in India is a result not just of the enormous growth in numbers of private automobiles on Indian roads, but of the installation of automobility as a powerful technopolitical constellation. The rest of the book explores how automobility has come to take root in Bengaluru. In the next chapter, I describe the historical constitution of congestion in Bengaluru with an eye to explaining its solidification in the contemporary narrative of congestion in the city and the associated predominance that instrumental explanations have acquired in addressing change in the city.

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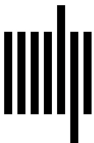
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