Places of Nature in Ecologies of Urbanism

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Urban Asia as Crisis and Redemptive Possibility

Contemporary discussions of urbanization across Asia are inevitably animated by a dual sense of urgency and opportunity. On one hand, the oft-repeated fact that we inhabit a planet in which the majority of the human population lives in cities raises dire concerns for planners, policymakers, and scholars. These include problems of economic disparity, public health, and environmental stress, each exacerbated in cities that experience particularly rapid growth. Plan-defiant and resource-hungry, the growth of cities poses great challenges in contemporary Asia.

At the same time, Asian cities and their effects beyond formal city limits present opportunities for the same planners, policymakers, and scholars who identify the problems. In the twenty-first century, the Asian urban experience is unprecedented in scale, scope, and environmental dynamics; it brings with it the chance to reimagine, redesign, and reinvent city life itself. Old strategies for managing cities are often considered obsolete and irrelevant; contemporary urbanization is in this sense embraced for its promise to refashion the qualities and experience of urban places.

It is in this dual spirit of unprecedented challenge and transformative potential that the work in this volume explores the environmental dimensions of urban life in selected cities and towns in Asia. We draw from ethnographic case studies and historical research, as well as the work of architects, planners, religion scholars, and art historians to glean insight into how urban nature is being fashioned in specific and myriad ways, and how city and town residents imbue it with context and meaning. Along the way, we seek to provide a more nuanced understanding of the place, form, and stakes of urban nature, as well as its attendant human social dynamics, in contemporary Asian cities.

If twenty-first century urbanization is understood as a problem, its regional epicenter is the cities of Asia—from the so-called Asian hypercities to smaller, but nevertheless significant, cities and towns. The Asian context challenges historical precedent, in a way that Heitzman captures when he writes, "the type of raging urbanization we

have been witnessing during recent decades . . . throughout Asia and, more recently, Africa . . . offers a contrast with the situation in Europe or North America" (Heitzman 2008, 16).

Indeed, rates of urbanization in the global north had slowed by the dawn of the twentieth century, and remained relatively stable thereafter. By contrast, the experience of urban change in Asia has diverged dramatically. This is illustrated in aggregate by gross data on the growth of cities, and rates of urban population concentration, across Asia in the last half-century. United Nations analyses of urbanization indicate that fourteen out of the world's twenty-eight megacities (ten million or more) are now located in Asia. The bulk of these are in East and South Asia. A similar pattern of numerous medium cities and small towns is evident in East and South Asia, but less so in Southeast Asia. There is, therefore, an uneven spread of urban settlements across Asia, as well as a rapid increase in urban concentration overall. By 2030, the number of megacities in Asia is projected to reach twenty-four, along with 330 medium-sized cities (one to ten million) and 815 smaller cities with populations of 300,000 to 1 million.[1] Rates of Asian urbanization showed a previous, rapid increase after the Second World War: from 1950 through the 1980s the average rate of urbanization was 1.45 percent per year.[2] Nevertheless, by the end of that period, less than 30 percent of Asia's population lived in cities.[3]

Since then, most Asian urbanization has been driven by China and India. Between 1980 and 2010, the average rate of urbanization in Asia rose to 1.67 percent per year overall.[4] Such an annualized trend, however, fails to reflect the dramatic and multifaceted nature of this transformation over the last few decades. It also fails to capture its implications for the future. For example, China's urban population has tripled from 190 million in 1980 to 669 million in 2010.[5] Similar remarkable shifts are

1. Of the megacities, six are in Eastern Asia, six in Southern Asia, and two in Southeast Asia. In terms of medium-sized cities (populations 1 to 10 million), there are 99 located in Eastern Asia, 75 in Southern Asia, and 23 in Southeast Asia. Finally, out of cities/towns with populations that range from 300,000 to 1 million, 302 are in Eastern Asia, 158 in Southern Asia, and 59 in Southeastern Asia. All these estimates are taken from UN-aggregated data on world trends in urbanization. See United Nations, "World Urbanization Prospects—Data File: Urban Agglomerations: 17b. Number of Cities Classified by Size Class of Urban Settlement, Major Area, Region and Country, 1950–2030," *World Urbanization Prospects: 2014 Revisions*, 2014. http://esa.un.org/unpd/wup/CD-ROM/Default.aspx (accessed August 1, 2014).
2. United Nations, "World Urbanization Prospects—Data File 9: Average Annual Rate of Change of the Percentage Urban by Major Area, Region and Country, 1950–2050," *World Urbanization Prospects: 2014 Revisions, 2014*. http://esa.un.org/unpd/wup/CD-ROM/Default.aspx (accessed August 1, 2014).
3. UNESCAP, *Statistical Yearbook for Asia and the Pacific*, 2013. http://www.unescap.org/sites/default/files/A.2-Urbanization.pdf (accessed August 1, 2014).
4. United Nations, "World Urbanization Prospects—Data File 9: Average Annual Rate of Change of the Percentage Urban by Major Area, Region and Country, 1950–2050," *World Urbanization Prospects-2014 Revisions*, 2014. http://esa.un.org/unpd/wup/CD-ROM/Default.aspx (accessed August 1, 2014).
5. UNESCAP, *Statistical Yearbook for Asia and the Pacific*, 2013. http://www.unescap.org/sites/default/files/A.2-Urbanization.pdf (accessed August 1, 2014).

noticeable in India and mainland Southeast Asia as well. The World Bank estimates that by 2013, 51 percent of the population in East Asian and Asia Pacific countries, and 32 percent of the population in Southern Asia countries, were "urban."[6] In 2012, the UN reported that over 45 percent of Southeast Asia's population was considered urban.[7] The Institute for Sustainable Communities projects that, by 2020, over two-thirds of the population in the ASEAN countries will live in five megacities.[8] While these aggregated figures help to convey the magnitude and rapidity of the Asian urban transformation, they still tell us little about its spatial configuration, physical texture, and social experience. For these, we need analytics that can convey what the numbers cannot.

There are important details to glean from the figures above, of course. Among these is the fact that patterns of growth across the region vary considerably. While Southeast Asia hosts a few megacities and many small towns, India contains a significant number of medium-sized cities and large towns. These smaller scale settlements are a significant feature of urbanization, despite their tendency to fall away from mega- and hyper-city discourses. In India, medium and large towns tend to flourish around industrial corridors and administrative capitals. In China, growth patterns display their most rapid expansion through very large Asian cities.

Assessing the number and type of city settlements provides one account of the urban boom in Asia, but there is far more to the social and environmental experience of urban change. In this volume, our contributors employ an "ecologies of urbanism" framework to illustrate the many dimensions, and to better understand the stakes, of urban change in Asia. This framework draws insight from historical and contemporary experience, enfolding such diverse concerns as various cities' colonial traces, recent economic trends, and enduring sociocultural conceptualizations of nature and culture.

The Analytic: Ecologies of Urbanism

In an earlier book, *Ecologies of Urbanism in India*, we proposed an approach to nature making that would capture the importance of place and context for understanding urbanization. We designated this approach through the term "ecologies of urbanism." Unlike a singular ecology that might suggest a unified experience of urban nature, our intention was to identify the multiple forms of nature—in biophysical,

6. The World Bank, *Development Indicator on Urban Development*, 2014. http://data.worldbank.org/topic/urban-development (accessed August 1, 2014).
7. United Nations, *Statistical Yearbook for Asia and the Pacific*, 2012. http://www.unescap.org/stat/data/syb2013/A.2-Urbanization.asp (accessed August 1, 2014).
8. The Institute for Sustainable Communities, "Urbanization, Infrastructure and Economic Growth in Southeast Asia," 2013. http://www.iscvt.org/news/urbanization-infrastructure-and-economic-growth-in-asia/ (accessed August 1, 2014).

cultural, and political terms—that have discernable impact on power relations and human social action.

Identifying and understanding these multiple forms is central to the analytic. Some hinge on human social processes, and some on nonhuman or biophysical ones. Each intersection may involve competing worldviews, aspirations, imaginaries, and assessments of the stakes of urban environmental change. Social efforts to ensure, create, or imagine ecological stability that characterizes these intersections are often infused with ideas of political, social, or cultural improvement, revival, or restoration. To promote particular urban ecological futures, then, may also involve the reproduction or contestation of cultural ideas of belonging to certain social groups, territories (including the city, the nation-state, the region, and the realm called the "global"), or, indeed, nature itself.

But by assuming a multiplicity of ecologies, we do not mean to imply that the biophysical sciences, which usually lay claim to the term in its singular form, are always equal to, or less important than, other social renderings of ecology. We intend instead to underline the social fact that in human life, the biophysical sciences offer only one in a constellation of competing and meaningful understandings of urban nature. Each may enjoy a privileged and empowered social position at different moments (Taylor and Buttel 1992; Alley 2002; Rademacher 2011). In the present volume, as our scope broadens to consider cities and towns across Asia, we maintain a commitment to the ecologies of urbanism conceptual frame and we invite its expansion.

The ecologies of urbanism approach also requires that scholars attend to underlying biophysical conditions and histories. When social studies of urban change omit biophysical contextualization, they tend to compose an incomplete picture, falling far short of full and necessary insights into the dynamism at the intersection of human and nonhuman urban life. To avoid this, our approach demands attention to the biogeochemical processes and histories that, like human social relations, form the context for understanding nature as *made* and afforded meaning in specific places. In this book, some case studies use the ecologies of urbanism analytic to explore attributions of agency to nature, while others use it to facilitate an investigation of shifting relations between arenas of biophysicality and sociality. Our contributors never presume an infinite malleability to the biophysical, nonhuman world, but their analyses highlight the sociocultural processes that can condition the biophysical terms of possibility in urban environments.

In a manner that distinguishes ecologies of urbanism from other approaches to urban environmental change, our analytical approach presupposes a multi-scalar perspective that varies its analytical parameters according to the social and/or biophysical processes under consideration. The appropriate boundaries of "the city," for example, are not automatically known from municipal borders or demographic concentrations. Likewise, nation-state borders do not determine where and how a study

begins and ends. The ecologies of urbanism approach begins instead with processes, tracing the scales and boundaries they present. In this volume, an urban watershed, a network of tubewells, an island as it grows through reclamation, and a mountain landscape are each employed to analyze coupled social and ecological change.

It is this same, multiscaled perspective that makes this book, perhaps counter-intuitively, a study of urbanization in Asia. The reader will notice that the collection of chapters does not cover cases that are equally dispersed across conventional geopolitical mappings of Asia. In fact, there are significant absences. However, if one allows urban *processes* to guide the analytical parameters, the studies demonstrate a wide variety of scales at which social and environmental changes are coproduced in Asian urban systems. In this sense, the work in this volume reconfigures mappings of urban Asia. The reader will see this in studies such as Acciavatti's (Chapter 9) exploration of an urban-to-rural network of tubewells. Here, the author demonstrates how that network configured patterns of urban settlement; access to groundwater was a key driver of urban growth at the land surface, but subsurface hydrological networks laid the spatial patterns of that urban growth, especially the densification of residential and commercial settlements.

Similarly, Elinoff's (Chapter 7) study of Khon Kaen demonstrates the specific forms of urbanism that, when coupled closely with a railway corridor, generated scaled up forms of local urbanism as they forged metropolitan links with Bangkok. In another case, Ferrão (Chapter 1) considers urban nature and regional identity in Goa through a scale-driven approach to the origins and persistence of the region's distinctive environmental-urban imagination. In that case, ecological urban form was, and continues to be, prompted in part by colonial botanical prospecting and ideas about urban public gardens. A final example in this book is the study by Sivaramakrishnan (Chapter 6), which considers the social-ecological networks that grew and shifted as an iconic city forest became the subject of litigation and ecological reimagination.

By tracing overlapping social and biophysical processes over time, the chapters in this volume demonstrate the analytical power of backgrounding—at times even dismissing—more conventional, prefigured, scales and contours of "the city" or "the urban." Each starts with a prominent biophysical or social scale or pattern—and/or an infrastructural network that must conform to that biophysical pattern—and only then examines its connections with urban processes. By working in this way, the studies highlight how ideas and practices of the appropriate combination of sociality and biophysical nature move and transform across the boundaries we may often assume to be fixed and determinative. In fact, the scales through which we can reach a fuller understanding of urban environmental and social change often grow and shrink in ways that may surprise us. In doing so, they tend to defy the maps and categories that set them as fixed, and that we tend to assume are temporally stable.

By emphasizing multiple ecologies and process-driven analytical scales, we find an additional utility to the ecologies of urbanism approach: it sharpens our view of case-specific tensions between concepts of *ecology* and *nature*. The two are distinctive analytical terms: when used in their most common senses, the former invokes the role of scientific method, discourse, and particular forms of empiricism. Quite specifically, "ecology" in the singular privileges the science, and suggests that a single system can comprehensively capture how a given ecological entity works and changes. This is not only illustrated through the disciplinary practices of ecosystem ecology, but also through the assumption of interconnectivity captured by the concept of environmental unity. "Nature," on the other hand, is a condition or quality that is usually assumed to be malleable, unstable, and context-driven. Its use tends to signal primarily social registers and experiences, which are often multiple and in constant competition.

By holding these in tension, but avoiding privileging one or the other, an ecologies of urbanism analytical mode provides more integrated attention to the mutualistic, coproductive influences of human and nonhuman patterns of change.

Beyond intersectional multiplicity, scale, and the ecology/nature tension, we are interested in the networks and niches that characterize the changing spatial dynamics of Asian urbanism. We note the social production and management of networked connections essential to urban life, recognizing that non-human nature (for example, in the form of vegetated spaces, biodiversity, or vibrant water bodies) or its absence are the result of processes of niche formation and alteration.[9] Longer histories of the patch dynamics of urbanization would illustrate this point even more vividly across Asia, something we have not attempted here. However, where work has been done to examine soil and biotic distributions, for example, or to discover the isomorphism between regeneration and conservation with remnants of buildings, roads, and cultivation, it is possible to discern what might well be termed mosaic parklands. These yielded urban settlement, left forest or grassland as marginal spaces, and intensified or shaped both the landscape and the relationship between nature and urbanism (Heckenberger 2005).[10] The studies in this volume show similar dynamics, but over shorter time horizons and in more constricted spaces. For particular examples in this book, we note again Elinoff's example from Khon Kaen, and Toland's insightful examination of Hong Kong's coastal zone.

9. We draw here on the notion of "worlding" developed by Roy and Ong to speak about the spatial dynamics of Asian cities as they become more interconnected with global processes and flows, seen through the lenses of capital investments to build infrastructure but also cultural investments to make Asian cities more global in their appeal. The acquisition of distinctively Asian global veneers, we argue, generates its own processes of re-situating the built environment of cities in relation to various markers of greenness. See Ananya Roy and Aihwa Ong (2012).

10. An excellent example of such work can actually be found in the Amazon, for instance in the works of Michael Heckenberger (2005).

Theorizing Ecologies of Urbanism: The Challenge of Integration

A wealth of contemporary scholarship across biophysical and ecological inquiry has given us many conceptual tools for building a robust approach to this kind of analysis. Thanks to a long history of integrative interdisciplinary work, many existing urban ecology frameworks provide ideas that inform biophysical, social and cultural analyses of urban environments. Among the many, we point here to a few approaches we find particularly useful, each anchored to the disciplinary position of its associated cluster of scholars.

In the biophysical sciences, we note the generative work of researchers active in the two urban sites among the US National Science Foundation's Long-Term Ecological Research (LTER) initiatives.[11] These urban ecology research centers have long forged new ground in scientific theory and research on urban ecosystems, and have made significant contributions to the research tools available to scientists, social researchers, and design practitioners. An exemplary recent volume that captures the interdisciplinary accomplishments of this work, and its innovative models of urban ecosystems, is Pickett, Cadenasso, and McGrath's (2013) *Resilience in Ecology and Urban Design: Linking Theory and Practice for Sustainable Cities*. The integrative studies produced in the Phoenix and Baltimore LTER's, as well as other ecosystem-science grounded urban ecology research consortia in North America and beyond, are many indeed.[12] For our purposes, it is critical to notice longstanding efforts among ecosystem scientists to capture social dynamics in their conceptual and research models, and to join studies of urban biophysical patterns of change with sophisticated studies of social context and processes.[13] A key challenge here is conceptualizing the relationship between change organized in terms of systems, and change understood as sets of dynamic, and often system-defiant, processes. This tension has long hindered efforts to bring biophysical sciences and social analyses into mutual theoretical and methodological territory. It remains a challenge, but one with potentially rich and varied analytical benefits.

In the social sciences and humanities, efforts to theorize and analyze contemporary urban nature abound, following longstanding theoretical discussions of "nature-cultures" and "socionature."[14] Rather than enumerate an exhaustive list here, we note some works that have shaped our thinking on ecologies of urbanism. Among

11. Since 1980, the United States National Science Foundation has supported long-term ecosystem research at several sites in North America (http://www.lternet.edu/). Two of these are expressly urban sites: the Baltimore Ecosystem Study (http://www.lternet.edu/sites/bes) and Central Arizona-Phoenix Long Term Ecosystem Study (http://caplter.asu.edu/). Both urban LTER sites maintain extensive online libraries of data and analyses.
12. See, for example, Steward Pickett et al. (2001) and Franz Rebele (1994).
13. See, for example, the Burch-Machlis Human Ecosystem model as presented in Pickett et al. (1997).
14. See, for example, Donna Haraway (1989; 1991; 1997); David Demeritt (1994); Bruno Latour (1993); Erik Swyngedouw (1996); Karl Zimmerer (2000).

political ecologists in anthropology and sociology, Amita Baviskar's (2003) proposal of a cultural politics approach to natural resources, and urban applications of theoretical debates about attributions of agency to nature—including those posed by Timothy Mitchell (2002) and Anna Tsing (2000, 2012)—challenge social analysts from many disciplines to confront the untenable distinction between fixed nature/culture dualities.

Among geographers, Castree and Braun's *Social Nature* (2001) laid useful groundwork for reconsidering systems thinking, and for writing, as Braun encouraged elsewhere, "a more than human urban geography" (Braun 2005). This, combined with sensitivities to the social and political dynamics of scientific knowledge,[15] set the stage for recent ethnographies of urban nature and urban sociality that defy easy disciplinary classification. As Bruce Braun notes, approaches to urban nature have included the metabolic turn, with its effort to theorize the production of local and global environments through urbanization.

Social ecological studies that trace competing notions of nature in cities have also proliferated in the past decade. Urban restoration and sustainability approaches, often rooted in planning and design, are many, but they are sometimes less concerned with social and spatial differentiation in the city, or its place in wider networks of material, cultural and political flows. A focus on capitalism and the city has provided one useful set of tools for attending to these issues (Braun 2005, 635–36). Other ways of looking at the same issues require, as McGrath (2007, 19) suggests, ecological frameworks that include consideration of spatial units like watersheds, human disturbance and patch dynamics as part of the built environment, and how urbanism is theorized across scale and history.

Recent work by Timothy Choy (2011), and the contributions to this volume, exemplify this new direction. We agree with Choy in thinking of ecology as a web of emergent relationships, and in viewing these relations as marked by interdependence, connection, and disjunction. As Choy further observes, this sense of ecology (a third sense, as he calls it) also requires a comparative analysis that works at different scales (Choy 2011, 11–12).

Dipesh Chakrabarty's (2009) influential call to rethink the work of history in light of the Anthropocene Era has brought the environment—its past, present, and possible futures—into sharp theoretical focus across the social sciences and humanities. An appeal for disciplinary scholars to reconsider the place of nonhuman nature and biophysical processes in all manner of inquiry, this work underlines the impossibility of future scholarly undertakings that consider nature as isolated from social life, or vice versa. To undertake studies of urban ecologies in Asia is also, then, to further sharpen and operationalize this assertion by demonstrating the enduring utility and

15. See for an overview: Sarah Franklin (1995); M. J. Fischer (2007); Bruno Latour (1988); Michel Callon (2009).

importance of contextualized, ethnographic approaches to urban social and biophysical change.

While we hope that the ecologies of urbanism rubric contributes to a more fully integrated understanding of urban biophysical and social change, we recognize that the work of operationalizing the comprehensive study of nature and society remains unfinished. The vast array of available quantitative and qualitative research methods may compose a sufficient collection of possible analytical tools, but they have yet to be fully forged into an *integrated* conceptual and methodological protocol. Efforts toward "interdisciplinarity," while extremely important and often productive, have not yet produced integrated research questions and research methods. We hope that this goal is furthered by the studies in this volume, but the challenge transcends the work in this collection.

This is true in part because of persistent epistemological differences across disciplinary studies of society and environment. Differing assumptions about how and whether to assess causality, equity, or even the very utility of "systems" thinking, are just a few of the obstacles to a shared analytical orientation toward urban environmental change. Despite this, the *idea* of urban sustainability as a galvanizing, and at times imperative, concept for framing research questions, designing methodological approaches, and undertaking analyses of social and environmental change endures, and may be stronger than ever.

The pace, character, and form of environmental change in the twenty-first century city seems to consolidate a shared sense of urgency to our efforts. But, we argue, such urgency should not privilege technological and large-group perspectives on sustainability; it should attend to individual and small-group acts of inhabitation and improvisation that makes places of nature, and generate vitality and layers of meaning across places. As Smriti Srinivas (2015, 9) also notes, "the persistence of . . . the ethical, religious, or spiritual within urban landscapes" deserves equal attention. Polyvalent ideas of urban sustainability and living in nature-infused urban settlements might arc differently across scales of urbanism. It is these multiple arcs of experience and action that we now examine in some further detail across selected Asian locales, in what follows.

Nature Making in Asian Urban Contexts

In many parts of Asia, the urban colonial past leaves its imprint in the often distinctive hierarchies associated with transport networks, industrial towns, district headquarters, military cantonments, hill stations, and market centers. Detailed assessments of such different kinds of settlements remain to be written, but they have been noticed for some time. The Australian urban theorist and human geographer Jane Jacobs (1996, 4–5), for instance, drawing on Edward Said's (1994) observations

of the spatial dimensions of imperialism, described the distribution and character of modern urban forms as emergent from colonial territories. She pointed to how certain colonial urban centers—some newly built, others derived from modifications of precolonial urban settlement—were connected to cities in metropolitan centers of colonial rule. Many colonial forms of urban settlement, such as hill stations, cantonments, and regional capitals, also produced particular versions of urban nature that colonial settlers and colonial officials designed, cultivated, and consumed.

Colonial urban spaces often featured tree-lined avenues, parks, gardens, artificial lakes and ponds, or facilities for sequestering wild animals for hunting and natural history expeditions. The place of nature in such cities and towns was often monumental, manicured, and segregated. Nature had both ornamental and civilizing roles in the urban complex, and its temporal intercalation with the time-cycles of quotidian city life varied across social strata. Yet this kind of urban nature was also a meaningful place marked by features like trees, floral arcades, lily ponds and playgrounds, fairs and public squares, museums, and art installations.

Little scholarship exists on the spatial and territorial distinctiveness of colonial urbanism in Asia, but the few studies we have shed some light on the ecological aspects of colonial cities and towns.[16] Likewise, we understand little about pervasive ideas of "appropriate" urban nature in these places and times. To further complicate matters, the immediate postcolonial period saw new nation-states embarking on distinctive trajectories across Asia. To differing degrees, nascent independent governments infused colonial legacies and patterns of urbanism with the colors of growth, wealth creation, nationalism, and economic sovereignty. While colonialism may have enabled processes that continue to influence postcolonial urbanism, contemporary growth across Asia has also accelerated in the wake of robust economic development. In certain cases, notably East Asia and mainland Southeast Asia, this has been marked by rocketing growth and heavy emphases on exports.[17]

In addition to colonial traces and economic histories, we might also understand Asian urbanization in a way that recognizes that cities have always stood at the intersection of notions and experiences of nature and culture. Shared ideas of urban life historically hinged on the extent to which nature, agrarian sociality, and the countryside were absent from a particular space. The city was the anthropogenic domain of concentrated cultural, political, and economic life, while nature was in many ways

16. Useful studies on colonial urbanism include: Anthony King (1990); Nazar Al-Sayyad (1992); and Brenda Yeoh (2003).

17. It is hard to understand the patterns of urbanization and settlement across many Asian cities without reference to industrial development and export economies that dotted these cities with factories, dormitories, cheap markets, and the export infrastructures of transport hubs and warehousing. This might be said of cities otherwise quite diverse like Bangkok, Seoul, Jakarta, Hong Kong, Singapore, Manila, and Kuala Lumpur, as well as Mumbai, Chennai, Kolkata and Delhi, or Lahore, Dhaka, and Colombo across South Asia.

assumed to be its opposite. By contrast, contemporary experiences of the city in Asia, and indeed throughout the world, seem to be creatively undermining this dichotomy. City residents valorize experiences of nature that are *present* in urban life rather than seeking to eliminate them.

One need only notice the contemporary purchase of claims about particular cities being livable, sustainable, or "green" to see this nature-infused notion of the ideal urban form. Much of the work in this volume helps us to refine our understanding of when, how, and why nature is "brought back in" to specific cities in Asia. And in this quest for a new way of exploring the relations between urban sociality and urban greening, we participate in a wider realization that the world's largest and densest cities have "rediscovered" nature within their concrete landscapes. This echoes and illustrates Christine Padoch's assertion that "the urban-rural dichotomy as we imagine it in the temperate zone . . . does not appear adequate for understanding the complex linkages, processes, and shifting strategies in the way that the urban and the rural are deployed in the world of burgeoning cities" (Padoch 2014, 313).

Across the world, but perhaps particularly in Asia, emergent influential perspectives indicate that contemporary cities might be most livable, sustainable, and desirable when they can provide their human populations with specific "green" comforts and amenities. These include ecosystem services like clean water, clean air, and sanitation, but they also signal assumptions about ratios of parks and open spaces to people. Here, again, is nature invited "back in" to the city as a lived part of the human social response to urbanization. Socially resonant notions of sustainability or the so-called green city are global and local metrics for registering urban preferences, indexing modernity, and for claiming a place of dignity and legitimacy on the global map of cities that matter. The greener the city, we might say, the more promising its future.

In this vein, the ecologies of urbanism analytic compels the question of what, precisely, social actors "invite" into cities under this urban nature rubric. How is nature discerned, defined, and experienced? How is it actively made? Once made, how is that nature given social meaning in ways that compel human action in the form, for instance, of environmental advocacy, specific laws and policies, or social exclusion and symbolic violence? Seeking answers to these questions requires attention to the local politics and social practices that shape urban space and modulate resource flows, as well as those that inspire pursuits of sensory, spiritual, and visual experiences of nature in the everyday aspects of urban life.

As one of us has written earlier, in the context of river restoration projects in Kathmandu, Nepal, the making of nature and simultaneous making of meaningful life in the city involves the construction of "new affinities . . . environmental affinities" that might "foster cohesion where other ways of marking sameness and difference (cannot)." These affinities are about identity struggles, governance, and the moral purposes of city living; they involve the constant renegotiation of the places of nature in

the city (Rademacher 2011, 15). The dynamic realm of urban ecology in Asian cities, then, is a product of everyday spatial and material practices in which urban political identities, alliances, and structures are produced, and through which urban nature and environmental amenities are sensed, experienced, fought for, and managed.[18]

A vivid operationalization of this approach may be found in the work of Matthew Gandy, who writes: "the sense of nature as active, dynamic, and constitutive of the cultural and material characteristics of urban space reveals the metropolis to be both unfixable and to a significant degree unknowable" (Gandy 2013, 1302). Gandy's position echoes work in geography that emphasized large scale, interconnected nodes of urban power, and the material and social "flows" between them. Here the importance of movement and "urban metabolism" form the theoretical basis for specific urban research approaches.[19] While Gandy's study of nature making in the city depends in large part on power galvanized at a particular scale, our ecologies of urbanism approach may orient the researcher toward finer grained variations across scales and systems. In this volume, Ann Gold (Chapter 8) illustrates this point as she reflects on the puzzle of sacred grove protection outside the small western Indian town of Jahazpur. She notes that the same people who seem to fail in keeping the town's river clean succeed in forest protection.

In any shape or size, urban settlements are often more fluid than the grid patterns of streets or the concrete foundations of buildings would suggest. Writing about New York, for example, May Joseph notes that, "flexible approaches to land use, transportation, flows of people, and assumptions about what the city should be" are apparent as the city embraces its "archipelagic geography as an environmentally critical approach to dealing with global climate change" (Joseph 2013, 19). This flexibility is not new, nor peculiar to Joseph's case of New York, but it is only in recent social scholarship that we have taken note of its profound influence.

In the present volume, Frédéric Landy's contribution (Chapter 3) further refines the point. He explores how a leopard population that is prized for its rarity inside Mumbai's Sanjay Gandhi National Park instantly became a nuisance, or worse, when it wandered into city territory. In this case of transgression of Cartesian boundaries between park and city, Landy juxtaposes leopards on the move with human settlements in the park. He troubles the idea that certain animals belong in the park, while certain people do not, showing how lived territories of park and city are fluid and contested, ever defiant of fixed distinctions between spaces of nature and spaces of culture. It is precisely the movements of leopards and people, and their refusal to

18. Work that broadly accords with our approach here does not always pay diligent attention to questions of urban ecology. Nevertheless, examples that we find generative include: Nikhil Anand (2011); Erik Harms (2011); Ananya Roy (2009).

19. See, for example, Maria Kaika (2005); Neil Smith (1984); Matthew Gandy (2002); Erik Swyngedouw (1996a; 1996b).

"stay put," that makes these human and non-human agents the builders of webs of connection, and, in the words of the author, "good cartographers" of the city.

Fluidity is thus a useful guide as we discern the contours of Asia's urban nature. Across many cities, work to retrofit for resilience to natural disasters, efforts to minimize pollution, improve citizen health, or make urban life less dependent on uncertain supplies of crucial resources are all projects in urban ecology that concretize territories of nature and its urban others. As Landy's piece reminds us, such fixity is rarely lived or realized in actual practice.

Urban fluidity is in fact always in tension with relatively (or seemingly) fixed urban forms. Spaces may open for transformation or new habitation—by plants, people, animals and pathogens—while others may seem to endure over time. The ecologies of urbanism framework reminds us that urban nature exists across both; it spans a broad range of land forms that might include abandoned buildings or yards, railway tracks, or the patches of earth and sunlight in the spaces between. Urban nature can even be found in the ruins of recent destruction or decay.[20] As Pradeep Kishen (2006) noted in the case of Delhi, trees can simultaneously reflect the carefully designed avenues of Lutyens and Baker, and, by their wolf-presence, mark what was once a woodlot and has now become pavement in service of urban settlement and mobility.

In this volume, Eli Elinoff (Chapter 7) offers a case study of urban fluidity when he takes up the myriad "ecologies of possibility" visible in the life of a railway line in Thailand's Khon Kaen. This urban settlement is not far from Bangkok, but it is quite distinct from it. Elinoff examines the overtly overlapping presence of human and non-human natures in concert with various modes of governance, showing how a focus on the rail corridor illuminates shifting patterns of human settlement and non-human agency. Here, we find a distinctive mosaic that connects Khon Kaen across a vast landscape, and ultimately to Bangkok. Human social life—in this case identity and citizenship—also animate the connecting corridor and its patches of nonhuman transformation.

Elinoff's case underscores that non-human life, sometimes despite the best efforts of planners and residents, is an essential aspect of nature making in cities. It can, and often does, multiply in its own ways, displaying amazing diversity in the most embattled zones of cities and towns. As Ludwig Trepl (1996) has argued, unintentional nature cannot be seen as the antithesis of urban space. The ecologies of urbanism approach, as employed by Elinoff, recognizes this point by highlighting its resonance with ecosystem ecology's treatment of edge effects, mosaics, and disturbance.

Again, however, to some extent, this is not new; long before the emergence of formal urban planning, cities shifted and were resettled in response to natural change. Alterations in the course of a river, shifting patterns of resource availability

20. See W. G. Sebald (2004) for European examples of these processes in cycles of development and decay of urban settlement.

and scarcity, and a host of biophysical changes could influence the form, location, and very existence of cities. Such was the history of Dhaka, for instance, which moved repeatedly due to riverbank erosion. It was not until that city's first master plan, prepared by the redoubtable Patrick Geddes early in the twentieth century, that officials sought to stabilize Dhaka's terrestrial and riverine zones in steady locations.[21] Quite significantly, the innate hybridity of urban landscapes also challenges pervasive emphases on native species and landscape authenticity, such as those we often see in contemporary design initiatives involving ecological restoration.

Andrew Toland's case study of Hong Kong in this volume (Chapter 4) shows the historical interplay of topography and hydrology as urban planners tried to create city infrastructure and built forms. By recounting the geopolitical projects and ambitions within which Hong Kong's infrastructure was envisioned, Toland describes how large-scale city projects can, and do, create wholly new ecologies of urbanism. Within them, fundamental categories such as land and water are remade. Toland notes the challenge of making such reinvented spatial designations seem "natural," using the ecologies of urbanism approach to address them as simultaneously biophysical and social. He demonstrates not only how official and popular projects of city making in Hong Kong constantly reworked urban topography, but also how cultural narratives of interconnection between place and identity were reworked at the same time.

In another unusual treatment of infrastructure, Anthony Acciavatti (Chapter 9) traces the history and diffusion of tubewell technology in northern India. This study marks the proliferation of these wells in specific patterns as socially and ecologically significant; they enabled human habitability across spaces that span the entire urban continuum—from farms, small towns, and ultimately city settlements. They also affected hydrological cycling, and its own resulting patterns, over vast territories. The emergent mosaic of north Indian tubewells created patterns of dense habitation while at the same time influencing social caste and class practices surrounding that fundamental aspect of habitat, water. In this chapter, we see ecologies of urbanism and forms of social exclusion unfold together.

Acciavatti's perspective challenges more conventional understandings of the way urban concentrations come into being. Urban clustering and demarcation are most often derived from assessments of square area covered and expressed in demographic terms. Square mileage and population density, or even sheer numbers, are their usual defining features. Yet it behooves us to notice that this mode of knowing and characterizing urban growth is a modern phenomenon, an outcome of the rise of disciplines like geography, demography, and statistics, and their attendant instruments

21. See Iftekhar Iqbal (2013). For a good account of the work of Geddes in India, see Helen Meller (1990). See also Nihal Perera (2008), for another example of the work of Geddes in South Asia in the spirit of discovering the natural energies of a colonial city and stabilizing it around commerce and middle class enterprise. But for another example of Geddes as an urban ecologist, see Naveeda Khan (2011).

(cartography, censuses, land registries, and ultimately urban planning). All of these influence contemporary discussions of urban agglomeration, urban sprawl, and other conditions (Vishwanath et al. 2013).

In the not so distant past, "the city" was simply the land inside city walls; its citizens were those permitted or privileged to live within them. By contrast the processes that define late twentieth-century Asian urbanization, and that so affect how we understand the boundaries of individual cities themselves, involve vast networks that span and interlink cities and their hinterlands. These often—perhaps nearly always—go unnoted. The social and political experience of such vast networks of urbanization can be profound; they can involve sudden and uneven consolidations of villages and rural people, and can easily confuse conventional designations of urban/rural boundaries or appropriate jurisdictions of government.[22]

If we think of this as "unruly" urbanization, we see it particularly concentrated in the global south.[23] In many regions, it reflects whole nation-states making historical transitions from colonial to postcolonial urbanism. One way of thinking about this transition is provided by a recent historical study of air pollution and urban development in Delhi, which shows how colonial urbanism often worked through distinctions between the old city and the new capital or colonial settlement. "In the postcolonial city," historian Awadhendra Sharan writes, "planned and informal spaces, legal and illegal practices, legible and uncertain conditions have been the more prominent distinctions for articulating plural modes of urban dwelling."[24]

If cities historically displayed signs of urban government and distinction, towns and smaller urban formations were more often associated with patterns of noticeable residential clustering around services like wholesale markets, transport hubs (like river banks), and places of worship. Unlike the walled fortress city, the town had blurred boundaries; it often faded unevenly into the rural landscape, interrupted by stretches of landform and livelihood that would later, in the Cartesian scheme of viewing things, be called the countryside. Such distinctions should not, of course, be overstated, for *qasbahs* in north India and *kottai/pettai* settlements in the south

22. This has been well described in several essays, but especially work on Shenzhen, in Lawrence Ma and Fulong Wu (2005).

23. A sense of this is provided by the way AbdouMaliq Simone describes the urban periphery across Southeast Asia and Africa in terms of mobility, hierarchies of function and capacity, relative invisibility of working-poor neighborhoods, contingent meaning-making among urban residents straddling diverse social situations, and the formation and dissolution of peri-urban locations around and within the municipal city. See AbdouMaliq Simone (2010).

24. Awadhendra Sharan (2014, 3); see also Janaki Nair (2005) for another account, this time from southern India, for the movement from colonial to postcolonial spatial dynamics in the formation of a modern city in India. For a consideration of the transitions from colonial to postcolonial urbanism from the perspective of architectural historians, that shows the deep sedimentation of colonial forms in urban modernity, see the various essays, especially those on Hong Kong, Singapore, and Indian cities, in Mrinalini Rajagopalan and Madhuri Desai (2012).

exemplified small, fortified, settlements where the gentry and the commercial elite lived within the walls and gates.[25]

City size—indicated by numbers of people or extent of land covered in an urban concentration—became particularly relevant with the modern emergence of urban municipal governments and urban industrial development. A quick survey of contemporary urbanization in South Asia, for instance, confirms this in several ways. Existing studies tend to focus on migration and settlement, the growth of industry and manufacturing, and the emergence of group housing and associated services like markets and community facilities. They often consider the ways that people assert their rights in the city: through political association, labor movements, civic sensibility, neighborhood based food services, local spaces of worship and sociability, recreation, and clear distinctions between private and public space. Such assertions of rights are sometimes creatively signaled in the design and occupation of dwelling and commercial built environments.[26]

Most perspectives on urbanization and urban life have privileged counting over sensory experience, and economy over ethos. An ecologies of urbanism approach refocuses studies of urban nature so that experience, ethos and sensibility are more carefully explored. These, after all, are inevitably bound up with the forms of meaning-making that compel human action. Understanding them ensures a more robust analysis of how and why urban change occurs, and how nature's form and place affects this.

Unpacking Ecologies of Urbanism in Asia: Cultivating, Conserving, Inhabiting, and Historicizing the City

Having sketched our analytical agenda, we turn now to the chapters to follow, with certain themes that we suggest are present within and across all the chapters. Arguably these themes are ways in which ecologies of urbanism as a framework is fleshed out; the themes, thus, add palpable texture to the frame. Drawing on guiding ideas of cultivation, conservation, dwelling, and history, contributors to this volume offer new, and sometimes hybrid, insights into the ways nature is made, and made meaningful, in the twenty-first century Asian city. In some instances these ideas are individually exemplified by the cases we have considered, but sometimes the particular study reveals the entanglement of all these ideas and processes. None does this more evocatively, perhaps, than Kajri Jain's study (Chapter 5) of artificial animals in urban and inter-urban park spaces across India. In this example we learn how the consumption of nature accelerates in aestheticized forms that separate it from

25. See Burton Stein (1986) and Mushirul Hasan (2004) for south Indian fortified commercial towns, and north Indian qasbahs, respectively.

26. A most valuable survey of these trends is to be found in Douglas Haynes and Nikhil Rao (2013).

both religious registers (as in sacred nature in and around temples) and industrial or productionist registers (where nature is raw material for generating the world of goods and comforts that mark modern urban life). Jain describes and analyzes the affective stimulation of inviting nature in this distinct form and spatial layout into the experience of town and city living, revealing the interplay of conservation ideas and the experience of dwelling in urban formations. History and its lessons are activated here to educate a new generation of urbanites, and to allow them to simultaneously experience beauty and rest in residues of the past and a re-imagined future.[27]

With Jain's chapter noted, let us take each of the four guiding ideas in tandem. First, cultivation may imply a literal discussion of the urban provision of that which the twentieth century city had designated an inevitable import—farm produce. Less so for Asia, perhaps, but many fine urban historical studies from North America and Europe have shown how urbanization was achieved in the nineteenth and early twentieth century by banishing cattle, pigs, rodents, farming, and even poultry from the city.[28] In many US cities today, restrictions on homeowners include proscriptions on the number and type of animals that can reside in the same units as humans, be they as pets or as service providers. Animal and agricultural expulsions were never fully complete even in Euro-American cities, and in Asian cities they were only feebly implemented. Yet, housing demands and the lucrative potentials of urban real estate have often accomplished through markets what governments cannot enforce. The poor, and primary producers, often in hazardous co-existence with animals, reptiles, and pathogens, have been repeatedly moved to the fringes of city settlements and to the margins of the urban.[29] It is only quite recently that we have begun to observe this in reverse.

But cultivating the city may also suggest questions of ethos, sensibility, and the sensory experience of urban nature. Parks and recreation are often twinned concepts that evoke the sense that an ideal city must fold nature within it. The objective here is often to provide amenities to modern, civil city dwellers and, in doing so, afford time

27. For us, this essay advances the discussion of how Indian elites re-imagined urban landscapes within a framework of history, producing a monumental urbanism that combined visions of curiosity in the built environment with ideas of the picturesque. It does so by discussing how some of these nineteenth century and early twentieth century ideas were reformulated in relation to late twentieth-century ideas of the role of green aspects and features, environmental ideas and amenities in the shaping of urban dwelling. We are indebted here for a discussion of the earlier periods, to Madhuri Desai, "In Search of the Sacred and Antique in Colonial India," in Rajagopalan and Desai (2012). For an excellent discussion of colonial ideas of the picturesque, see Romita Ray (2013).

28. There are a growing number of studies from Europe and North America that lend substance to this point. A striking example is Annabelle Sabloff (2001).

29. Urban consolidation and sprawl create new and often ferocious encounters between the urban poor and the animals forced into the city margins. On the other hand the construction of expansive and gated communities for the wealthy, in agricultural peripheries of city precincts, unleashes new wars on the denizens—mice, rats, snakes, insects, and herbivores—of paddy fields and scrublands, suddenly rendered outlaws in their home territories.

to literally breathe in the park. Cross-culturally, the urban park can represent plant life, birds, green vistas, clean air, and uncluttered, protected spaces in which mind and body can be united, children can play, and refuge from the daily grind of city life is possible.[30] It is important to note as well the extent to which today's curated natural environments are historically cultivated.[31]

We propose that parks in which activities like qigong, tai chi, yoga, laughter clubs, clapping collectives, meditation, sun salutation, badminton, or jogging occur are simultaneously spaces where spirituality is being differentiated from worship, or different notions of time are disentangled and observed. At least for some, urban parks may be places to live out versions of utopic visions of nature; they can be understood in this sense as settings for religious and communal experience.[32]

By historicizing parallel constructions of caste Hindu and Portuguese relations, and connecting these to the horticultural history of the Malabar Coast, Ferrão's contribution to this volume (Chapter 1) works outward from a park in Panjim, Goa, along the western coast of India, to the very power relations that characterized, and in some ways drove, coastal urbanization in the region. The essay reminds us that gardens, parks, and botanical collections played a key role in colonial urbanism in India; these, in turn, shaped the contents and organization of modern parks in emerging Indian cities. Ferrão's piece takes up the puzzle of how it is that a Portuguese adventurer should be memorialized in a park associated with Goan Hinduism. The analysis invites the reader to consider urban parks as curated, historical sites in which social identities are constantly configured and reproduced.

Likewise, Jain's study (Chapter 5) of the production of nature on the grounds of the Birla Mandir underlines the didactic role of popular religion and art in generating contemporary green consciousness in open, green, park spaces. These sentiments are integrally connected to new forms of urban sociality and community that energize political and social agendas of inclusion, democracy and political participation. The piece uses the ecologies of urbanism rubric to illustrate how larger than life, fabricated "animals" figure in broader renderings of a moral, civic, and modern urban eco-ethos. In cases such as Jain's, a simultaneous "cultivation" of urban sensibilities takes place. We see the importance of exploring ecologies of urbanism in terms of

30. Such an idea is not exclusively modern. In a wide ranging survey of gardens and their uses in early India, from Buddhist to Mughal times, Daud Ali notes premodern gardens were heterotopic, capable of articulating a variety of collective and individual desires. See Daud Ali (2011, 207). See also Constance Villiers-Stuart (1913).

31. Once again, in many parts of Asia, the effects of colonial rule are evident in the wide variety of gardens, parks, zoos, botanical collections, green ways, and empty land lots were situated across the growing hierarchy of urban settlements during the nineteenth and early twentieth century. In many cases, colonial planners worked actively with precolonial forms, but also imported Victorian forms, and created modern urban nature as postcolonial inheritance. On Victorian gardens, see Joan Morgan and Alison Richards (1990).

32. On ecotopia, see Evan Berry and James Proctor (2011); and on spiritual practice and religious utopia in Asia, see Peter van der Veer (2007).

ethos, but not only as utility or resources. We also see the phenomenology of being in nature. This facet is often ignored in formulations of cultural value, as the philosopher Cheryl Foster (1998), for instance, has argued, and Jain's contribution takes up some of this work.[33]

Another example from this volume, Ann Gold's study (Chapter 8) of river and forest in Jahazpur, considers this challenge. Her contribution explores an enduring question for social and biophysical researchers alike: why do certain landforms seem to yield more easily and successfully to restoration and conservation, while others do not? The chapter's central dilemma features a protected mountain and a degraded river. One, the sacred grove forest, remains protected and venerated, while the other, the city's river, suffers heavy pollution and degradation. Gold's attention to modalities of environmental care and stewardship, and the ways they are inflected with notions of sacred history and identity, underline the complexities of cultivating specific social and natural conditions in cities. In this case, forest conservation derives more directly from enduring affirmations of the sacred quality of the preserved groves, in concert with social-political forces that bolster their conservation, rather than any singular and coherent "green city" ethos.

Gold's findings also point to biodiversity conservation, a set of objectives that tend to place considerable emphasis on social participation and spatial proximity to the species in question. If earlier efforts to preserve wilderness and biodiversity hinged on isolating certain areas and preventing all human presence and interaction within them, contemporary approaches tend to foreground the stewardship activities of human communities.[34] Like all environmental experiences, biodiversity conservation is now an increasingly urban experience, and the sensory appreciation of nature-as-conservation is more available to city residents. This is true within cities and in urban wilderness areas, but it may also produce non-city destination landscapes that draw residents far from home.

It is important to emphasize that forms of, and contests over, urban nature are also often identified with refinements to city living. This keeps us attuned to the uneven class dynamics and the constant potential for new forms of social and political marginality that inevitably occur. Matthew Gandy, for instance, observes that, "the aesthetics of nature can be disentangled from associations with an existing view or vista so that sensory immersion in nature takes precedence over the enframing of nature as a space of spectacle" (Gandy 2013, 1308).[35] The relation between aesthetics and ethics is important for these reasons. Its concern with local environments is more

33. The intermingling of leisure, rejuvenation of body and mind, aesthetic impulses, and moral or spiritual awakening in parks in modern cities is something we only begin to touch upon here, but we remain indebted to the scholars of art and religion in our midst for keeping those facets of this work present and well instantiated across our deliberations on ecologies of urbanism.

34. An approach well described as fortress conservation. See Dan Brockington (2002).

35. See also Arnold Berleant (1992).

immediate, and more contested, in cities, where the terrain of signification is always shifting and unstable.[36]

In this sense, discussions of our second guiding idea, conservation, are especially evocative. They allow us to examine the ways that ideas about nature conservation and environmental protection, usually elaborated in domains like forests, wildlife sanctuaries, river cleaning projects, and biosphere reserves, interact with the distinct features of urban living. We can begin to see how historical monuments—temples, tombs, relics of palaces and abandoned market squares—can blend into modern visions of urban parks, or dictate their own forms of conservation. Trees saved when building roads, promenades along riverfronts, planted gardens tended by municipal agencies charged with the production of urban beauty in the landscape through sculpted land form, floral and arboreal vegetation, and greened lines of sight, are all instances in which urban nature is quite literally manufactured. Zoos and wild animal preserves are but two examples of reintegrating human and non-human habitation of urban landscapes.

But conservation practices lead us to a third guiding idea, dwelling. Competing ideas and practices of dwelling in Asian cities can generate intense conflict over land and its appropriate use, over parks and their placement, pavements and road-widths, itinerant vendors and their temporary structures, water supply and access, tree lines and views, and much more. Involuntary and intentional communities can form through practices of shelter and habitation. Of particular interest here is what we would term as monumental urbanism; this refers both to historical traces of former buildings with particular symbolism, and newer structures that signal the aspiring, future city.

Dwelling also reminds us that some of the most vivid and violent conflicts in the contemporary cities and towns of Asia involve shelter. Different classes and groups make claims to land and belonging through occupation, exclusion, and marginalization. Slums and gated communities in Asian cities are often, and quite famously, spatially proximate and yet mutually illegible.[37] As we argued in *Ecologies of Urbanism in India*, both forms of shelter are in some ways a vital part of the infrastructure of most Indian cities (Rademacher and Sivaramakrishnan 2013, 28). However, ecologies of shelter in Asian cities go beyond obvious juxtapositions between gated communities and slums, or even subjects like floor space indices, or ideas about *feng shui* and *vaastu* (orientation, disposition of natural light and domestic uses of space, and the

36. What we mean here can be understood to some extent in terms of what AbdouMaliq Simone refers to as forms of "double time." He writes, "in cities there are two senses of time in operation. In other words a city is full of memories about what has taken place in the past, and those memories also include a certain amount of imagination—of hopes and dreams that the city could have been a certain kind of place, but one that never seemed to reach fruition . . . cities were and are places full of experiments . . . (creating) a sense that behind the present moment there is another time operating" Simone (2010, 8–9).

37. See, for instance, Li Zhang (2010); Katherine Boo (2014); Teresa Caldeira (2001).

situation of the primary dwelling in a regional cityscape). Urban shelter also suggests the politics of green or sustainable design, the relative resilience of the urban built landscape, and the multiple forms of vulnerability that specific housing types create or reproduce.

Christina Schwenkel explores this to some extent through her historical study of Vietnamese city-making projects in this volume (Chapter 2). As she recounts, these projects were designed in part to push rural sensibilities and processes outward from city spaces. She contrasts this history with contemporary efforts to forge an urban greenscape in the city of Vinh. Here Schwenkel depicts a powerful instance in which making urban nature involves inviting "the rural" back in. The essay clearly illustrates how the struggle to disentangle rural and urban lived environments, even while placing them in new patterns of connection and signification, was central to the making of contemporary ideals of urban nature.

Likewise, K. Sivaramakrishnan contributes an account of nature making, and the parallel need to define nature itself, in Delhi (Chapter 6). The continual re-working of urban nature, particularly as it is bound up with legal and social movement histories, reminds us in another way that urban ecologies never stand apart from political histories, and indeed our grasp of nature-making is incomplete without considering its social and legal dimensions.

Both Schwenkel and Sivaramakrishnan underline the fact that attributions of form and meaning in urban nature can only be understood through careful assessments of historical, geographic, and political context. This brings us to a final guiding idea, that of historicization. Scholarly preoccupations with the unprecedented conditions of present urbanization patterns can, and often do, obscure the enduring conditions and formations that help to shape those conditions. To be sure, proclamations of a new era such as those signaled by the *Anthropocene*[38] or *planetary urbanism*[39] orient our thinking in a constructive and, in some ways, inexorable direction. However, an overwhelming focus on the present and future often leads—intentionally or otherwise—to a diminished capacity to appreciate the extent to which history, and historicity, are crucial tools for understanding why nature making occurs in different ways across different places. Indeed the very categories of nature, parks, or the environment are

38. Many scientists now use the term Anthropocene as a label for our current geologic era. The term is meant to signal an era that replaces the previous Holocene, one that is characterized by an anthropocentric, human dominated planet. There is no precise start date for the Anthropocene, but its advent is generally located at or near the Industrial Revolution.

39. Recent scholarship in urban theory has galvanized around the concept of planetary urbanization, first suggested through Henri Lefebvre's formulation of an "urban revolution." This position, exemplified in Neil Brenner (2013), takes issue with definitions of the urban and urbanization that use the city and its demographic contours as the basis for analysis. Instead, planetary urbanism emphasizes the almost infinite connectivity between concentrated city zones and their hinterlands. Projects like demonstrating the "urban" character and connectivities of "remote" places such as Mount Everest characterize the work of planetary urbanists. See also Henri Lefebvre (2003); Roger Diener et al. (2001); David Harvey (2010).

neither automatically trans-historical nor are they universal. To grapple with multiple ecologies of urbanism in Asian cities not only requires historical sensitivities, then; it also necessitates an analytic that explores how urbanites actively reconfigure place-specific fragments of meaning to create, and recreate, urban nature in the present.

Whatever the specific case or lens, we notice in the studies assembled in this book that nature is made meaningful at multiple scales simultaneously: park spaces in individual neighborhoods may operate in conversation with local social and biophysical dynamics while at the same time mobilizing images intended to reach supraregional arenas and symbolic domains of the good, green, and livable city. Such many-scaled circuits are in constant flux—in content, relative power, and discursive dominance.

It is here that the ecologies of urbanism analytic works to remind us again about the legacy and importance of many biophysical scientists' approach to ecology. It was, after all, in the mid-twentieth century that formative work to define ecology grappled openly with the Heraclitian notion that nature is always in flux; through approaches that ranged from fire ecology to chaos theory and patch dynamics, ecologists of the biophysical environment openly acknowledged the tension between change and ordered process. Our aim is to extend this spirit to studies of socionatural ecologies, and to recognize that dynamism in all arenas in which human communities make claims to power. Ecologies of urbanism guides us to trace power relations as they frame nature in contemporary Asian cities, in material terms, in arenas of design and "problem" solving, and in the making of territorial and identity claims.

Our scholarship never stands apart from the lived experiences of urban and environmental change, and our analytics are never neutral or separate from the lived stakes of urban ecology. Given the dual valence of Asian urbanization—anxieties about the peril it may portend, and excitement about its promise—we contend, along with the authors in this volume, that biophysical and social analyses can and must be brought to a more mutually discerned, interpreted, and legible set of theoretical and methodological approaches. Our attempt to broaden and refine the ecologies of urbanism rubric is intended to contribute to this effort, and our hope is that the studies collected here will compel further discussion and critique toward a better understanding of urban and environmental change in the twenty-first century.

Work Cited

Ali, D. 2011. "Gardens in Early Indian Court Life." In *India's Environmental History: From Ancient Times to the Colonial Period*, edited by M. Rangarajan and K. Sivaramakrishnan, 182–214. New Delhi: Permanent Black.

Alley, K. 2002. *On the Banks of the Ganga: When Wastewater Meets a Sacred River*. Ann Arbor: University of Michigan Press.

Al-Sayyad, N. ed. 1992. *Forms of Dominance: On the Architecture and Urbanism of the Colonial Enterprise*. Aldershot: Avebury.

Anand, N. 2011. "Pressure: The PoliTechnics of Water Supply in Mumbai." *Cultural Anthropology* 26(4): 542–64.

Baviskar, A. 2003. "For a Cultural Politics of Natural Resources." *Economic and Political Weekly* 38: 5051–55.

Berleant, A. 1992. *The Aesthetics of Environment*. Philadelphia: Temple University Press.

Berry E., and J. Proctor. 2011. "Guest Editors' Introduction: Imagining Ecotopia." *Journal for the Study of Religion, Nature and Culture* 5 (2): 121–25.

Boo, K. 2014. *Behind the Beautiful Forevers: Life, Death and Hope in Mumbai Undercity*. New York: Random House.

Braun, B. 2005. "Environmental Issues: Writing a More Than Human Urban Geography." *Progress in Human Geography* 29 (5): 635–50.

Brenner, N., ed. 2013. *Implosions/Explosions: Towards a Study of Planetary Urbanization*. Berlin: Jovis.

Brockington, D. 2002. *Fortress Conservation: The Preservation of the Mkomazi Game Reserve*. Bloomington: Indiana University Press.

Caldeira, T. 2001. *City of Walls: Crime, Segregation and Citizenship in Sao Paulo*. Berkeley: University of California Press.

Callon, M. 2009. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Brieuc Bay." In *Power, Action, Belief: A New Sociology of Knowledge*, edited by J. Law, 196–233. New York: Routledge.

Castree, N., and B. Braun, eds. 2001. *Social Nature: Theory, Practice, and Politics*. New York: Wiley-Blackwell.

Chakrabarty, D. 2009. "The Climate of History: Four Theses." *Critical Inquiry* 35: 197–222.

Choy, T. 2011. *Ecologies of Comparison: An Ethnography of Endangerment in Hong Kong*. Durham: Duke University Press.

Demeritt, D. 1994. "The Nature of Metaphors in Cultural Geography and Environmental History." *Progress in Human Geography* 18: 163–85.

Desai, M. 2012. "In Search of the Sacred and Antique in Colonial India." In *Colonial Frames, Nationalist Histories*, edited by Rajagopalan and Desai, 47–71. Burlington, VT: Ashgate Publishing.

Diener, R., J. Herzog, M. Meili, P. de Meuron, and C. Schmid. 2001. *Switzerland: An Urban Portrait*. Four volumes. ETH Studio Basel. Zurich: Birkhauser.

Franklin, S. 1995. "Science of Cultures, Cultures of Science." *Annual Review of Anthropology* 24: 162–85.

Fischer, M. J. 2007. "Four Genealogies for a Recombinant Anthropology of Science and Technology." *Cultural Anthropology* 22: 4: 539–615.

Gandy, M. 2002. *Concrete and Clay: Reworking Nature in New York City*. Cambridge, MA: MIT Press.

———. 2013. "Marginalia: Aesthetics, Ecology, and Urban Wastelands." *Annals of the Association of American Geographers* 103 (6): 1301–16.

Haraway, D. 1989. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. New York: Routledge.

———. 1991. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.

———. 1997. *Modest Witness@Second Millenium. FemaleMan-Meets-OncoMouse: Feminism and Technoscience*. New York: Routledge.

Harms, E. 2011. *Saigon's Edge: On the Margins of Ho Chi Minh City*. Minneapolis: University of Minnesota Press.

Harvey, D. 2010. *The Enigma of Capital and the Crises of Capitalism*. New York: Oxford University Press.

Hasan, M. 2004. *Living Together Separately: Qasbas in Colonial Awadh*. Delhi: Oxford University Press.

Haynes D., and N. Rao, 2013. "Beyond the Colonial City: Re-evaluating the Urban History of India, ca. 1920–1970." *South Asia: Journal of South Asian Studies* 36 (3): 317–35.

Heckenberger, M. 2005. *The Ecology of Power: Culture, Place and Personhood in the Southern Amazon, A.D. 1000–2000*. New York: Routledge.

Heitzman, J. 2008. "Middle Towns to Middle Cities in South Asia, 1800–2007." *Journal of Urban History* 35 (1): 15–38.

Iqbal, I. 2013. "First Masterplan for Dhaka City: An Environmental Exploration." *Südasien-Chronik—South Asia Chronicle* 3: 42–61.

Jacobs, J. 1996. *Edge of Empire: Postcolonialism and the City*. New York: Routledge.

Joseph, M. 2013. *Fluid New York: Cosmopolitan Urbanism and the Green Imagination*. Durham: Duke University Press

Kaika, M. 2005. *City Of Flows: Modernity, Nature, and The City*. London: Routledge.

Khan, N. 2011. "Geddes in India: Town Planning, Plant Sentience, and Cooperative Evolution." *Environment and Planning D: Society and Space* 29: 840–56.

King, A. 1990. *Urbanism, Colonialism, and the World Economy*. New York: Routledge.

Kishen, P. 2006. *Trees of Delhi*. New Delhi: Penguin.

Latour, B. 1988. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press.

———. 1993. *We Have Never Been Modern*. Translated by C. Porter. Cambridge, MA: Harvard University Press.

Lefebvre, H. 2003. *The Urban Revolution*. Translated by R. Bononno. Minneapolis: University of Minnesota Press.

Ma, L., and F. Wu, eds. 2005. *Restructuring the Chinese City: Changing Society, Economy and Space*. London: Routledge.

McGrath, Brian. 2007. "Bangkok: The Architecture of Three Ecologies." *Perspecta* 39: 17–29.

Meller, H. 1990. *Patrick Geddes: Social Evolutionist and City Planner*. London/New York: Routledge.

Mitchell, T. 2002. "Can the Mosquito Speak?" *Rule of Experts: Egypt, Technopolitics, Modernity*. Berkeley, CA: University of California Press.

Morgan J., and A. Richards. 1990. *A Paradise out of the Common Field: The Pleasures and Plenty of the Victorian Garden*. New York: Harper and Row.

Nair, J. 2005. *The Promise of the Metropolis: Bangalore's Twentieth Century*. New Delhi: Oxford University Press.

Padoch, C. 2014. "Urban Ecologies." In *The Social Life of Forests: Past, Present and Future of Woodland Resurgence*. Edited by S. Hecht, K. Morrison, and C. Padoch. Chicago: University of Chicago Press.

Perera, N. 2008. "The Planner's City: The Construction of Town Planning Perception of Colombo." *Environment and Planning A* 40: 57–73.

Pickett, S. T. A., W. R. Burch Jr., S. E. Dalton, T. W. Foresman, J. M. Grove, and R. Rowntree. 1997. "A Conceptual Framework for the Study of Human Ecosystems in Urban Areas." *Urban Ecosystems* 1 (4): 185–99.

Pickett, S. T. A., M. L. Cadenasso, and B. McGrath, eds. 2013. *Resilience in Ecology and Urban Design: Linking Theory and Practice for Sustainable Cities*. New York: Springer.

Pickett, S. T. A., M. L. Cadenasso, J. M. Grove, C. H. Nilon, R. V. Pouyat, W. C. Zipperer, and R. Costanza. 2001. "Urban Ecological Systems: Linking Terrestrial Ecological, Physical, and Socioeconomic Components of Metropolitan Areas." *Annual Review Of Ecology And Systematics* 32: 127–57.

Rademacher, A. 2011. "Knowing the Problem." In *Reigning the River: Urban Ecologies and Political Transformation in Kathmandu*. 57–90.Durham: Duke University Press.

Rademacher A., and K., Sivaramakrishnan. 2013. *Ecologies of Urbanism in India: Metropolitan Civility and Sustainability*. Hong Kong: Hong Kong University Press.

Rajagopalan, M. and M. Desai, eds. 2012. *Colonial Frames, Nationalist Histories: Imperial Legacies, Architecture, and Modernity*. Farnham, Surrey: Ashgate.

Ray, R. 2013. *Under the Banyan Tree*. New Haven: Yale University Press.

Rebele, F. 1994. "Urban Ecology and Special Features of Urban Ecosystems." *Global Ecology and Biogeography Letters* 4: 173–87.

Roy, A. 2009. "The 21st-Century Metropolis: New Geographies of Theory." *Regional Studies* 43 (6): 819–30.

Roy A., and A. Ong, eds. 2012. *Worlding Cities: Asian Experiments and the Art of Being Global*. London: Wiley-Blackwell.

Sabloff, A. 2001. *Reordering the Natural World: Humans and Animals in the City*. Toronto: University of Toronto Press.

Said, E. 1994. *Culture and Imperialism*. New York: Vintage.

Sharan, A. 2014. *In the City, Out of Place: Nuisance, Pollution, and Dwelling in Delhi, c. 1850–2000*. Delhi: Oxford University Press.

Simone, A. 2010. *City Life from Jakarta to Dakar: Movements at the Crossroads*. London: Routledge.

Smith, N. 1984. *Uneven Development: Nature, Capital, and the Production of Space*. Oxford: Blackwell.

Srinivas, S. 2015. *A Place for Utopia: Urban Designs from South Asia*. Seattle: University of Washington Press.

Stein, B. 1986. *Peasant, State and Society in Medieval South India*. Delhi: Oxford University Press.

Swyngedouw, E. 1996. "The City as a Hybrid: On Nature, Society, and Cyborg Urbanisation." *Capitalism, Nature, Socialism* 7 (1): 65–80.

———. 1999. "Modernity and Hybridity." *Annals of The Association Of American Geographers* 89: 443–465.

Taylor, P., and F. Buttel. 1992. "How Do We Know We Have Global Environmental Problems? Science and the Globalization of Environmental Discourse." *Geoforum* 23: 405–16.

Trepl, L. 1996. "City and Ecology." *Capitalism, Nature, Socialism* 7 (2): 85–94.

Tsing, A. 2000. "The Global Situation." *Current Anthropology* 15: 327–60.

———. 2012. "Unruly Edges: Mushrooms as Companion Species." *Environmental Humanities* 1: 141–54.

Van der Veer, P. 2007. "Global Breathing: Religious Utopias in India and China." *Anthropological Theory* 7 (3): 315–28.

Villiers-Stuart, C. 1913. *Gardens of the Great Mughals*. London: Adam and Charles Black.

Vishwanath, T., D. Dowall, S. Lall, N. Lozano-Gracia, S. Sharma, et al. 2013. *Urbanization beyond Municipal Boundaries: Nurturing Metropolitan Economies and Connecting Peri-Urban Areas in India*. Washington DC: The World Bank.

Yeoh, B. 2003. *Contesting Space in Colonial Singapore: Power Relations in the Urban Built Environment*. Singapore: Singapore University Press.

Zhang, L. 2010. *In Search of Paradise: Middle Class Living in a Chinese Metropolis*. Ithaca: Cornell University Press.

Zimmerer, K. 2000. "The Reworking of Conservation Geographies: Nonequilibrium Landscapes and Nature Society Hybrids." *Annals of the Association of American Geographers* 90 (2): 356–69.

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Note: Page numbers set in italics refer to illustrative material (figures). "CEC" refers to Central Empowered Committee, "DDA" to Delhi Development Authority, "MCD" to Municipal Corporation of Delhi, and "SGNP" to Sanjay Gandhi National Park.