Signs and Society (2025), 1–19
doi:10.1017/sas.2025.9

CAMBRIDGE UNIVERSITY PRESS
HANKUK UNIVERSITY OF FOREIGN STUDIES

ARTICLE

Translating Sustainability into Somatic Experience: Renderings of Eco-Cities in Southeast Asia

Brent Luvaas[1] and Jenny Chio[2]

[1]Global Studies and Modern Languages, Drexel University, Philadelphia, PA, USA and [2]East Asian Languages and Cultures, University of Southern California, Los Angeles, CA, USA
Corresponding author: Brent Luvaas; Email: luvaas@drexel.edu

Abstract
Fusing the aesthetics of futurity with the lush beauty of the natural world, planned eco-city developments like Forest City and Penang South Islands, both in Malaysia, promise luxury enclaves against climate change and the environmental stressors of existing cities. This article analyzes CGI architectural renderings used to promote and sell eco-city projects in Southeast Asia. Eco-city renderings, we argue, produce semio-capitalistic value by translating the familiar concepts of "green," "eco-friendly," and "sustainable" into something far more inchoate: feelings. They do so through their supersaturation with signs of greenness in a design strategy we label "semiotic overdetermination." Selling "green" as a feeling, eco-city renderings capitalize on present-day anxieties over urban decay and commodify "the ecological" as a rich resource of pleasurable qualitative experiences. The result, we contend, is to reinforce a neoliberal mode of subjectivity that equates consumption with somatics and reduces climate responsibility to individual consumer decisions.

Keywords: aesthetics; affect; ecology; renderings; Southeast Asia; urban

Figure 1 is *not* Penang South Islands. Penang South Islands—as a place extended into physical space—does not yet exist. It is, rather, a hyper-rendering of Penang South Islands, a composite architectural image created by layering computer-generated imagery (CGI) on top of computer-generated imagery (Halpern and Wenzel 2012). A smart, eco-city megaproject of three adjoining islands, planned for construction in the northwest peninsular state of Penang in Malaysia, Penang South Islands will be finished sometime between 2035 and 2060. Unforeseen delays, legal challenges from local fishing communities, environmental impact assessments, and bureaucratic red tape continue to slow down that timeline. Though land reclamation efforts are now underway, it will be years before the first of the three islands, dubbed "Silicon Island" for its imagined role in the Malaysian tech sector, will be somewhere that one can visit or

Figure 1. A computer-generated rendering of Makers Park, BiodiverCITY Penang (now Penang South Islands). Courtesy of BIG.

reside in. Nonetheless, Penang South Islands is already a felt presence in Penang, a perceptual filter through which residents understand the current state of their nation and region, along with its international reputation, economic standing, and environmental trajectory.

Hyper-renderings (referred to in the rest of this article as simply "renderings") of the Penang South Islands design masterplan have circulated widely across a range of websites and in newspaper and magazine articles (see, for example, Clark 2023; Harrouk 2020; BIG 2020b). In so doing, they play an active role in making visual what is currently only abstract and conceptual (Halpern 2014, 21). Such images stimulate the imagination, give form to speculation about what is to come, provide fodder for conversation, protest, and political boosterism, and make the future feel predictable. More importantly, they make it feel palpable. Renderings create an immersive simulation (see Turkle 2009, 6) of spaces as they may someday be, confusing the senses into believing, if only momentarily, that those spaces are already there for them to occupy and engage.

Notice the hyperrealism of the image in Figure 1, how it almost resembles a photograph, the pattern of sunlight and shadow that lends it depth and texture, the classic three-point perspective. Notice its "wide angle sight, [its] eternal spring glow, and [its] highly contrasted, poster-edged, lens-flared finish" (Vileda 2012, 49). Notice the pervasive mood the rendering creates: the ultra-modern buildings covered in vegetation, the abundance of water, and the mysterious white rings lining the canal, evoking wind turbines or some other unspecified mode of non-fossil-fuel-based energy production. Notice, also, the "great weather and pretty people" (Schlegel 2012, 57), the numerous active residents: strolling, cycling, and interacting along the banks of a shimmering canal. These figures, most likely cut and pasted from existing catalogs of human forms, are stand-ins for viewers, suggestions of potential residents or investors in Penang South Islands. We are meant to imagine ourselves in their place, moving along the riverbank, appreciating the climbing, jungle-like foliage, perhaps even taking a ride in one of the many bubble-shaped cars and boats depicted. The relative unfamiliarity

https://doi.org/10.1017/sas.2025.9 Published online by Cambridge University Press

of the shape of these vehicles, their smooth, curved lines and indeterminate means of propulsion, further imply the near future, a time just out of reach. There is something fantastical about the vehicles, as well as the larger scenes of which they are a part. Despite their purported realism, renderings like this one show not the world not as we know it, but as it may someday be, "a techno-scientific" (Babcock 2022, 2) quasi-utopia where the realities and dangers of climate change have been muted, if not reversed, and people live in harmony with nature once again. They are meant to instill in us a peculiar mix of optimism and nostalgia; retro-futurism meets climate speculation.

In this article, we critically analyze renderings of two eco-city developments in Malaysia: Penang South Islands (in the early phases of land reclamation) and Forest City (incomplete but already open to residents, businesses, and visitors). Renderings of these eco-cities, we argue, are projects of translation within an emergent semio-capitalistic regime of "green" design. Green design, as we discuss, can be, and often is, a synonym for "sustainable" or "ecological" design, a particular ethic of responsible consumerism (Angelo 2021) applied to the built form. But it can also take on a specific valence of its own. Green implies a *biophilic* orientation towards design (see Babcock 2022), where elements of nature are brought into the urban environment. This sort of green is often represented in Southeast Asia by an "overgrown" look with plants emerging from roofs, walls, and other vertical surfaces, places where they do not typically grow. It can also be associated with a wild, or ruderal look, like that encountered in abandoned urban spaces, which Gandy (2024) refers to as an aesthetic of "ruin." This conception of green need not itself be sustainable, as plants growing out of buildings and other such biophilic design elements often require an enormous amount of labor, water, and other resources to maintain. Plants can also be destructive to the built environment, eroding walls, fences, and foundations, thereby calling into question the sustainability that such design decisions are meant to evoke. Green, then, is more a sensibility than a strict set of rules or principles, more a sensory quality than a specific moral or technical claim. In short, it is a feeling.

We use the term "feeling" in this article to describe the ambient sensibility that architects, designers, and renderers endeavor to create, and manipulate, through their work. Feeling describes less a particular person or audience's internal experience than the shared sensory environment they are made to occupy. As Fuller and Goriunova write of "anguish," feeling is a "conceptual mode of sensation, experienced in the betweenness of subjectivities" (Fuller and Goriunova 2019, 31). It is the affect that animates an "affective landscape" (Low 2016), the mood that populates a built atmosphere (Böhme 2013), the sensory qualities that constitute a place's "disposition" (Easterling 2016). Feeling can be internalized, of course. Designers, marketers, and real estate agents hope that it will be, particularly by potential buyers and investors. It is, after all, feeling that motivates action. But, in this case, feeling is not meant to describe any one singular person, or group's, internal state. In fact, the producers of eco-city renderings hope to cast a broad net, ensnaring everyone from recalcitrant politicians to aspirational middle-class consumers into its sensuous web.

Eco-city renderings are designed to generate a feeling. More specifically, they are designed to create the carefully vague but calculatedly overdetermined feeling of "green." As renderings become more and more sophisticated, employing virtual reality and other immersive technologies in addition to photo-realistic, computer-generated

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Figure 2. Serenity point, BiodiverCITY Penang/Penang South Islands. Courtesy of BIG.

imagery, the experiential aspects of renderings are more pronounced. The feeling this immersion generates, in turn, helps sell projects to potential investors, developers, and regulators by tapping into global political ambitions for carbon-neutral, ecologically sustainable urban growth. Feeling, in other words, is key here. Sustainability and reduced carbon-emissions may be appealing goals, but they are hardly the visceral impulses that lead investors or consumers to take action. It is, instead, the sensory appeal of these projects that secures their chance of becoming material realities. Penang South Islands, Forest City, and other eco-city projects must be felt before they are built. Renderings make that possible.

Semiotic overdetermination as design strategy

The masterplan for Penang South Islands, replete with bubble vehicles and water features (Figure 2), was selected through a global competition run by the state of Penang, Malaysia. The winning design, originally named BiodiverCITY Penang, was by Bjarke Ingels Group based in Copenhagen, Denmark. Bjarke Ingels Group, or BIG, is a firm with an established international reputation, led by the charismatic head designer and author, Bjarke Ingels. The firm's most famous designs include the CapitaSpring Building in downtown Singapore and 2 World Trade in New York City, along with more ambitious and avant-garde work like Toyota Woven City in Shizuoka Prefecture, Japan, and Oceanix in Busan, South Korea. The eco-city project they designed for Penang, however, is of an unusually large scale, even for BIG. More than just a development, it is the materialization of an idea that BIG has been promoting at least since their design of the Copenhagen Harbor Bath in 2003.

BIG advocates for a philosophy of green design practice they call "hedonistic sustainability" (BIG [Bjarke Ingels Group] 2020a). For BIG, hedonistic sustainability is an approach to city-making that rejects the idea that sustainability is a trade-off between comfort and climate-action. In the January 30, 2024 episode of the sustainable

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architecture and urbanism podcast *Ecogradia*, Ingels explained his view that sustainability is not about sacrifice, or living a less enjoyable lifestyle for the sake of the planet. For him, simply put, it is about fun. And beauty. It is about building an urban environment that people want to live in, one which is not only more aligned with the goals of planetary survival but also more richly engaging to the senses. That beauty, composed out of sleek buildings, open spaces, and layers of vegetation—a mashup of recent trends in "green architecture"—is meant to inspire a more active and healthier way of life for its residents. In this formulation, buildings are thus employed as an affective technology, a medium for inciting positive action. The "hedonistic" in "hedonistic sustainability," then, is the felt experience of green, the intuitive impulse of green, whereby "greening projects occupy the space-time of leisure," unfettered by "economic questions and forms of race, class, and gender inequality" (Angelo 2021, 23–24). The renderings BIG created of Penang South Islands are meant to evoke this set of attributes through highly recognizable specific *types* of architectural aesthetics. These attributes, such as foliage-covered walls, are tools for conjuring the sensation of how good it must feel to live in a place like Penang South Islands.

Feeling good is important here. In her book *How Green Became Good*, environmental sociologist Hillary Angelo (2021) shows that over the course of the 20th century, sustainability, signified through the green or the natural, became a normative urban trope worldwide. "Greening," Angelo argues, contains its own logics and functions through practices that are tied to shifting claims arising from the global transformation of urban spaces (Angelo 2021, 12–24). Urbanized nature, she continues, is now understood not just as a pleasing aesthetic, but as a moral good, a felt attribute of places that produce healthy, and just, people. BIG builds on such a feeling. Their designs are meant to trigger the sense of personal virtue that living green enables without requiring any subsequent loss in quality of living. This is virtuousness without sacrifice, a fiber-rich kale salad of an urban design, covered in creamy dressing that makes it go down easy.

Renderings enable the imagination of how green can both look and feel good. In their essay, "Hyper-Rendering: The Illusion of Architecture," artist-architects Halpern and Wentzel argue that the "visual beauty of the hyper-rending can mask a premature and potentially weak concept" and that, moreover, the rendering itself is "a seemingly realist snapshot of the design that appeals emotionally" by using a standardized repertoire of images of people, skies, and other non-architectural details (birds, plants, weather) to undergird its "false sense of realism" (2013, 73). The renderings of Penang South Islands make visibly real a future yet-to-be, a future that is whimsical, fanciful, and fun. Here is hedonistic sustainability as an experience waiting to be had. Such concepts, otherwise contradictory and impossible-sounding, are given form and shape in renderings like these. And if those forms and shapes are not enough to make you feel their greenness, to convince you of their promise of a better, more sustainable world, the renderings are littered with other signifiers of green—placid rocks, tranquil waters and vegetation so overgrown it creeps into the (nonexistent) frame from which we view it (Figure 2). We call this design strategy "semiotic overdetermination."

In psychoanalysis or Marxist theory, a condition is overdetermined when it has multiple causes, each in and of themselves sufficient to bring that condition about. Overdetermination describes states, or systems, that bear the weight of near inevitability, and yet are the consequence of so many factors working together that the specific,

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individual factors are often difficult, if not impossible, to identify. As such, overdetermination describes something that is both abundantly evident, yet difficult to define or account for. So it is with semiotic overdetermination, in which "multiple and shifting arrangements of meaning…intersect and interact, producing new chains that disperse in different directions" (Rada 2022, 4). Signs of greenness are layered upon signs of greenness that interact with other signs of greenness to produce an undeniable sensation of greenness. While individual signs, for instance the white rings in Figure 1, may connote sustainable energy production, when combined with living walls, water features, emission-free vehicles, happy pedestrians, and hanging vines the synergistic effect is that of an ecological *gestalt*. It becomes impossible to isolate a single element that marks a place as "green."

Hyper-renderings create this affect by placing images upon images, using shapes and designs built in AutoCAD, often processed through image-generating AI to instill it with a particular look or style, and then layered with people, plants, and other figures lifted from visual databanks. Renderings, it should be noted, are not the product of a single designer's imagination or action, and the actual production of architectural renderings has long been outsourced to firms specializing in computer-generated visuals. Thus, design is always produced in a network (Murphy 2015) or assemblage (Shankar 2015) of multiple entangled actors. It is perhaps best then to "locate creativity *between* designers rather than *in* them" (Murphy 2015, 27). This is particularly true of renderings. They are collectively produced compositions, or collages, built, bit by bit, to generate the sense of overwhelm intrinsic to lived sensory experience. It is no surprise then, that eco-city renderings overdetermine their greenness. Multiple, situated actors install their own ideas of what greenness is and should be, creating a greenness redundancy that is nearly impossible to miss. Renderings bombard us with signifiers of greenness until we relent. Green here, is an affective perception built of semiotic overdetermination, not an objective description.

In *This Changes Everything* (2014), journalist and climate activist Naomi Klein insists that climate change cannot be stopped without a fundamental shift in lifestyle worldwide. We must consume radically less, she says. We must move away from an extractive model of global capitalism that makes perpetual growth its mantra. There is no other choice but to practice a self-imposed ecological austerity. In his degrowth manifesto, *Slow Down*, philosopher Kohei Saito (2024) makes a similar claim. Long-term sustainability, says Saito, requires a shift away from extractive capitalism towards what he calls "degrowth communism." BIG's "hedonistic sustainability" requires no such choice, no such asceticism, but rather only a joyous aestheticism. The single change we consumers need to make is to buy into a new development like Penang South Islands. BIG's designs take Klein's admonition and turns it on its head, celebrating new constructions and new forms of consumption as the means of changing "everything." And in such designs, the "everything" of ecological, climate-friendly existence can be seen everywhere, projecting a literal message that "everything is ecological (here)."

BIG's renderings are not only intended to sell these particular property units in the state of Penang, however. The images also function as something of an advertisement for a future Malaysia, a country that has politically committed to rapidly developing the infrastructure to be one of the world's leading suppliers of micro-chips and other crucial technologies. Hence, the name "Silicon Island" has been given to the first island

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being built. The entire project will be a high-tech industrial corridor, part of the larger special economic zone of Penang, which is subject to relaxed taxes and regulations. In addition, it will serve as a permanent showcase of eco-friendly technological innovation. By being home to this eco-city, Malaysia hopes to acquire a reputation as a global innovator in sustainability and tech, a forward-thinking country associated with futurity, much like its neighbor to the south, Singapore (Babcock 2022), and able to attract international investment as a consequence. The green aesthetics associated with the project, then, have an established precedent. Babcock explains that in neighboring Singapore, monumental architecture, some designed by BIG, is often paired with lush living greenery to produce a mode of "allochronic futurity" once confined to the sets of dystopian science fiction films (Babcock 2022, 21). Orit Halpern, similarly, describes the Korean "smart city" of Songdo as "a lush, verdant, and simultaneously sterile space, part of a new network of territories that crisscross the globe" (Halpern 2014, 239). The ostensive function of Songdo, she explains, is to generate data that assists in energy reduction, but its marketing function is much broader, positioning South Korea as a leader in urban innovation. As a proposed solution for addressing climate change (ecological problems) through technological innovation (smart solutions), the eco-city has become a ubiquitous design made for export (Shwayri 2013), often in combination with or enveloped within "smart city" mandates (see Halpern and Mitchell 2023).

Defining, or not, the eco-city

Forms of urbanization and architectural design promising to decouple economic growth from environmental degradation have been given a number of names over the last few decades: low-carbon city, green city, sustainable city, smart city. These names describe ideals more than realities, urban-planning ambitions that are sometimes concretized through architectural design choices and governmental policies. Among them, "eco-city" has been one of the most touted and promoted internationally. From its earliest origins in the 1987 work of Berkeley-based urban planner Richard Register, the eco-city idea has inspired numerous projects worldwide.

Though he titled his book *Ecocities*, Register did little in the book to define the term. "*Ecocities*," he writes of the book itself, "proposes a fundamentally new approach to building and living in cities, towns, and villages, an approach based on solid principles from deep history and an honest assessment of a troubled future" (Register 2006, 1). What precisely that approach is requires some additional 350 pages of explication and examples. In the preface of the second edition of the book, Register comes closer to defining the eco-city. It is an "extremely low energy city," he writes (2006, xxi), and laments that in the 14 years since the first edition of his book "precious little progress on ecocity development has transpired anywhere" (2006, xxi). Though he is vague on what would qualify as an eco-city, Register insists that a minimum requirement is a reduction in the dependence on cars and other carbon-intensive modes of transportation. The city of today, he writes, "was built for cars, not people" (Register 2006, 142). An eco-city, by contrast, would be oriented around pedestrian traffic. It would be walkable, dense enough in configuration to enable easy ambling to wherever its residents most needed to go. When walking to one's destination is not possible, low-carbon-emitting public transportation would fill in the gap.

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Figure 3. KL Eco City in Kuala Lumpur. Photo by Brent Luvaas, 2024.

Vague enough to traverse multiple purposes and contexts, much like the concepts of "green" or "eco" themselves, the concept of the eco-city has been applied in countries and climates as diverse as the United Arab Emirates (with its Masdar City), Denmark (with its retrofitting of Copenhagen), and China, with its ambitious project beginning in 2008 to build 100 eco-cities throughout the mainland (see Normile 2008; Sze 2015). Another thing to note is that some eco-city projects are not really cities at all. Or at least, not standalone cities. They are, rather, something more like the "superblocks" Kusno describes in Jakarta and other Southeast Asian metropolitan areas: "mixed-use luxurious condominiums, offices, hotels, shopping malls, and entertainment centres all in one complex" (Kusno 2023, 60). AbdouMalique Simone (2014) uses the term "megaproject" to describe the same phenomenon. Superblocks and megaprojects are located either in the center of existing cities, like Central Park in Jakarta or KL Eco-City in Kuala Lumpur (Figure 3), or in the periphery of established metropolitan areas, like Meikarta in West Java, within commuting distance of Jakarta.

Exemplifying the superblock concept, KL Eco-City incorporates high-rise residences, a built-in shopping and business complex, medical facilities, and other goods and service providers into a single development within Kuala Lumpur. It is connected by skybridge to two transit lines and two additional shopping mall complexes. In many respects, its integration into existing urban infrastructures (transport and economic) demonstrates precisely how KL Eco-City was built with ecological ambitions in mind, despite the fact that it exhibits few of the visual aesthetics associated with eco-cities, other than the vegetation growing over its fence. Nonetheless, we argue, through its compact design that minimizes the need for private automobiles, KL Eco-City appears to adhere closely to principles of sustainability. Perhaps because KL Eco-City's claims to ecological living are more apparent and easily verified than those of eco-cities like Penang South Islands, this superblock development need not rely on aesthetics to evidence its ecological ambitions.

As with any real estate transaction, location is key. Beyond Southeast Asia, Masdar City, touted widely as a pioneer in sustainable urban development, is near the airport of

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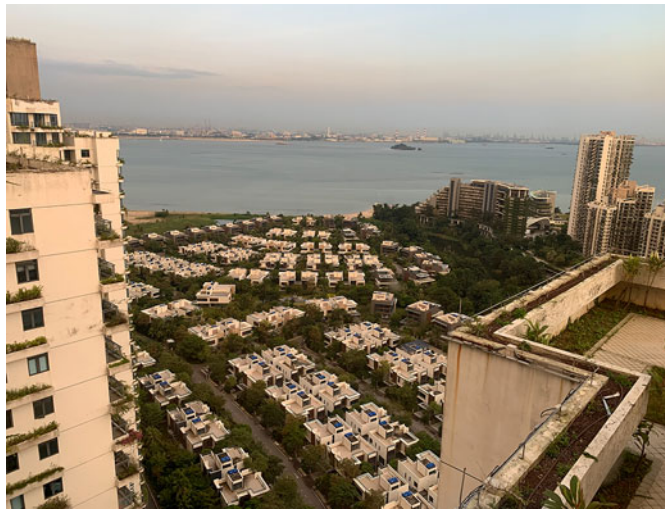

Figure 4. Forest City, as seen from the 37th floor of a high-rise residence. Singapore is visible in the background across the Johor Strait. Photo by Brent Luvaas, 2024.

Abu Dhabi. In China, the best-known eco-city projects are just outside of major cities, such as the Sino-Singapore Tianjin Eco-City on the outskirts of Tianjin or Dongtan Island near Shanghai. These eco-cities are essentially exurban satellite communities, although renderings and models of eco-cities present these places as independently contained spaces (often surrounded by water) in order to seal the promise of entirely new living conditions (see Figure 4). Indeed, there is only sense we can think of in which "eco-cities" can be productively conceptualized as cities at all: that is, in their adherence to a model Jini Kim Watson (2011) defines as "the New Asian City." Historically, writes Watson, Asian cities like Seoul, Taipei, and Singapore operated as sites of "civic, ceremonial, or economic transactions" (Watson 2011, 2). They were bustling metropolises, locations in which activities take place. The New Asian City, in contrast, is "conceived first and foremost as a production platform—for the production of surplus values, laboring bodies, and national subjects" (Watson 2011, 2). The New Asian city is more "cognitive object" (Im, as cited in Watson 2011, 10) than material artefact. It is a thing to think with and through, as much as a place to reside and work in. Eco-cities are very much New Asian Cities in this sense, serving to promote aspirational subject positions (see Shankar 2015) and cosmopolitan ways of being. Nevertheless, eco-cities largely depend on existing, nearby urban infrastructure for their building, maintenance, and utilities. They rely upon their physical proximity to larger metropolitan areas to satisfy the quotidian requirements of potential residents.

The same is true of both Penang South Islands and Forest City, discussed below. Both eco-cites are part of existing special economic zones: Penang South Islands is in the Bayan Lepas Free Industrial Zone and Forest City is in Iskandar Malaysia, formerly known as Iskandar Development Region. Physically and visually, a clustered, superblock-style architectural development, notes Easterling, is typical of such "zones."

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The zone, she explains, "is the formula that generates Shenzhens and Dubais all around the world" (Easterling 2016, 15). Originally conceived as small, walled-off enclaves "for warehousing and manufacturing," the zone has evolved over the last decade into "a world-city template" (ibid., 25). Subject to fewer restrictions and regulations than their surrounding areas, the zone enables developers to quickly erect buildings and complexes with little oversight from government agencies. They are often understood as a fast-track for development, and in fact, Malaysia made extensive use of the formula as part of its "Vision 2025" plan to become a "fully-developed" country by 2025 (Bunnell 2004). The zone, Easterling argues, isn't simply an economic model; it is an aesthetic template, consisting of glimmering high rises in close proximity, meant to mimic those in Dubai, Hong Kong, and Singapore (Easterling 2016). Add some avant-garde architectural design, vertical gardens, and lush, overgrown landscaping, and voila! The superblock in an exurban free-trade zone has been magically transformed into an "eco-city."

The utility of the eco-city concept is rooted in its appeal to a leisurely life of ecological, smart, economic stability, as well as its utilization of the language of technology and data science to solve socioeconomic issues. For planners and developers or government bodies who hope to make use of eco-cities to enhance their national brand, defining what is, or is not, an eco-city, remains more art than science. The eco-city label can be applied from the beginning of a project, as a means of countering the concerns of environmental activists, or retroactively, as a mode of "greenwashing" that lends legitimacy and moral authority to massive construction and land reclamations projects which might otherwise be held suspect. Irrespective of local conditions and specifics, however, renderings of eco-cities deploy a by-now familiar repertoire of visual signs to indicate a shared moral and ethical commitment to the ideals of ecologically sustainable living.

Forest City

We turn now to the extended example of Forest City. Arguably one of the most controversial eco-city developments in Southeast Asia, Forest City is situated 700 km south of Penang along the Johor Strait that separates Malaysia and Singapore (Figure 4). Already partially built and populated, it is within viewing distance of Johor Bahru, Malaysia's second-largest city, and the city-state of Singapore, just across the strait. Like Penang South Islands, the master plan for Forest City was designed by a major international firm, Sasaki Associates, headquartered in Boston in the United States. Also like Penang South Islands, the plan for Forest City consists of three (and in one plan, four) reclaimed islands, connected by bridges. Its renderings visualize the eco-city as a conglomeration of high-rise condominiums, with shops and restaurants at their base, interspersed with office buildings shaped like pyramids.

What makes Forest City perhaps most unlike Penang South Islands is that Forest City exists, physically, materially, and economically; it a place of residence, leisure, and governance. An immigration checkpoint is already up and running just miles from Forest City at the start of the Second Link Bridge, facilitating smoother crossings between Malaysia and Singapore. Traveling from Singapore to Malaysia by bus, Forest City is the first set of buildings you see in Malaysia, a spectacular sight looming

https://doi.org/10.1017/sas.2025.9 Published online by Cambridge University Press

on the horizon that seems like its own advertisement for the development, as well as an effort by Malaysia to compete with Singapore for skyline domination. A bus transfer to Forest City awaits immediately upon crossing the border, enabling Forest City residents to commute to and from Singapore via public transportation. Standing on the manmade beaches of Forest City, you can stare directly into the industrial parks of Jurong in southwest Singapore.

The strategic advantage of such a location is obvious. As a future port city along one of the world's busiest maritime routes, Moser (2018) suggests that Forest City represents a maneuver by China to challenge Singapore's control of trade in the region. Country Garden, the developer behind Forest City, is one of China's largest development firms, and the eco-city has been touted as part of China's global Belt and Road Initiative. At the time Forest City was given the go-ahead, Malaysia's Prime Minister, Mahatir Mohammad, was himself quite suspicious of the intentions behind its development. If not for the financial backing and advocacy of the Sultan of nearby Johor Bahru, the project may not have been built. Early buyers of units in Forest City were overwhelmingly Chinese nationals, who acquired them more as investment properties than residences. In his article for *Foreign Policy Magazine*, Rachman (2024) explains that thousands of mainland Chinese traveled to Forest City to purchase units during construction between 2016 and 2020. The sales office, which was some 70 percent Chinese in composition, was flooded with interest. This interest, however, came to a grinding halt in 2020, when pandemic limits placed on Chinese overseas travel and an economic slowdown in China made investment in Forest City both less possible and less desirable. Construction ceased, and the sales office has since struggled to fill its existing units.

As of 2024, there was only one island in Forest City and one office pyramid. Though it was designed to house an eventual 700,000 residents, the current population rests somewhere between 7,000 and 10,000. It is hard to determine the precise population, as many of the properties purchased are used as short-term rentals for weekend visitors attracted to the manmade beaches, the duty-free liquor stores, and the eerie experience of walking through a city nearly devoid of people. Whether Forest City will continue to stagnate remains unclear. The new prime minister, Anwar Ibrahim, has shown more interest in the development than his predecessor, proposing that Forest City become the final stop on a new MRT line from Johor Bahru. The Sultan of Johor now sits on the board of Forest City and is advocating for a second high-speed rail line to go directly from Singapore to Forest City, complete with its own immigration office.

Meanwhile, with so few people in residence, Forest City is now home to an increasingly large number of birds and feral dogs. Trees, bushes, and brush are taking over large swathes of the development. A swamp is overtaking the empty land in front of the Shattuck-St Mary Forest City International School. The manmade pond at its center is nearly iridescent with algae. It is as if the forest itself were reclaiming the name "Forest City" as its own, along with the physical territory.

Even as the concrete buildings and asphalt roads in Forest City disintegrate from the inevitable effects of tropical weather, under-use, and industrial pollution, it is, we argue, necessary and significant to consider how it was rendered in Sasaki's winning designs because these images continue to inform how the real place is perceived, lived, and experienced. In these renderings (see Figure 5), Forest City is a verdant tropical

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Figure 5. Rendering of Forest City (Sasaki Associates). Image published in Oh 2016.

landscape, located right on the water. There is an abundance of other water features as well—canals, streams, lakes—but no visible roads or parking lots, so pedestrians can move freely without having to navigate around vehicles. Here is the car-free vision put forward by Richard Register as the baseline standard for an eco-city. All forms of transportation infrastructure, according to the Sasaki design, are located underground. Such a design hides any carbon-generating activities from immediate view, reinforcing the feeling and experience of greenness and eco-friendliness as you physically move through the landscape, or navigate virtually through the renderings.

Like stacks of children's building blocks, the residences were to be built on top of stores, restaurants, and businesses, which are, in turn built on greenspaces, where families congregate and children frolic, fly kites, and throw frisbees. Underneath are roadways and parking lots in a sort of upstairs/downstairs scenario. Everything above ground—what is seen, heard, felt, experienced—is covered in plants, including the buildings themselves. This familiar supersaturation of green, or what we call semiotic overdetermination, functions as a sensual barrage of sustainability. It is a pedestrian paradise, a plush picnic in the great outdoors without the noise or pollution of traffic. It doesn't have to be carbon-neutral to *feel* carbon neutral. The ugly roadways and traffic that mar the view of so many cities, and challenge their claims to naturalness and beauty, are simply not seen, except in a "section perspective" rendering (Oh 2016).[1]

Renderings of Forest City, like Penang South Islands, also have their share of retro-futuristic buildings, obelisks and pyramids, and of course, air and watercraft. More importantly, they depict happy, active residents, living in harmony with nature, with sea turtles and manatees swimming contentedly beneath their kayaks. In the renderings of eco-cities like Forest City and Penang South Islands, health and sustainability are semiotically linked as two aspects of lifestyle that come together in the eco-city package. Solve one problem and you solve the other, the renderings seem to suggest. Here again is the ideology of "hedonistic sustainability" proposed by BIG, paired with the moral

[1]This type of rendering offers a cross-section, or vertical slice, view of a project.

https://doi.org/10.1017/sas.2025.9 Published online by Cambridge University Press

goodness of green discussed by Angelo (2021), a promise that the eco-future is not about suffering, but pleasant, pleasing sensation. The images call out, in no uncertain terms: Look how nice it is in Forest City; wouldn't you enjoy being here? You don't need to be told these are eco-cities. Looking out over vast, computer-generated vistas, you can feel that they are. Our senses are filled to the brim with the evidence of it. We are invited to imagine ourselves roller-blading through them, flying kites in their vast green spaces. Feeling green. We too could live like this if we could just put up the down payment. We too could ease our climate anxieties with one easy purchase.

Of course, the "we" interpellated here is not a universal one. Both Forest City and Penang South Islands are marketed as enclaves for globally aspirational people across East and Southeast Asia to survive climate chaos *and* enjoy comfortable, stable middle class lives. They are human-made utopias that re-envision Asian urbanism as an outdoor luxury mall-meets-office-park-meets-beachfront, all within easy commuting distance of major metropolitan areas like Singapore, Johor Bahru, and Penang. Perhaps someday, they will be major metropolitan areas themselves.

For now, they remain dreams deferred. Forest City and Penang South Islands are not cities like Copenhagen or Amsterdam that have rebranded themselves as eco-cities because they have been retrofitted to be more environmentally-friendly. They are new cities, built where no city was before, where no *land* was before. They depend on sand dumped into the ocean to have any territory at all. These are going-back-to-the-drawing board models of eco-living that conjure new worlds forms of urban planning (see Ong 2011). The current world could not sustain the sustainable lifestyle these cities' designers envisioned, so Malaysia decided to build new ones instead. Hence, the otherworldly feel of the renderings, the way they render nature as its own uncanny valley.

It is tempting to write off renderings of eco-cities as mere fantasies, to dismiss them because they appear so improbable and unachievable. Numerous news articles critically compare the renderings of eco-cities like these with their present-day lived realities (Figure 6). A recent article in *The South China Post*, for instance, describes Forest City as a ghost town, an empty space that now best serves as the set for reality TV programs by Netflix among other international television production companies (Limbu 2024). *The Star* reported in August 2024 that Korean firm GG56 Korea Ltd is investing one billion dollars in developing Malaysia's first "Korean Culture Town" in Forest City, complete with its own production studio and Korean-themed shops, restaurants, and residences (Bernama 2024). In its incomplete, barely populated state, Forest City is now being treated as a backdrop, an empty shell of an urban space perfect for creating works of fiction. It is tempting to say that Forest City itself is a work of fiction.

Looking at the images included in these articles, to an extent Forest City has met some of the expectations its renderings created. It has a pretty impressive skyline with buildings that are indeed covered in vegetation, though as Moser and Avery (2021) point out, the plants that cover them are largely imported species. However, it is quiet, with no bubble cars in sight, no happy, frolicking kayakers anywhere to be found. Our own photographs, taken in Forest City, reveal a similar pattern: a dearth of people in an eerily self-referential landscape.

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Figure 6. Screenshot of BBC article on Forest City as a "ghost city," March 2023.

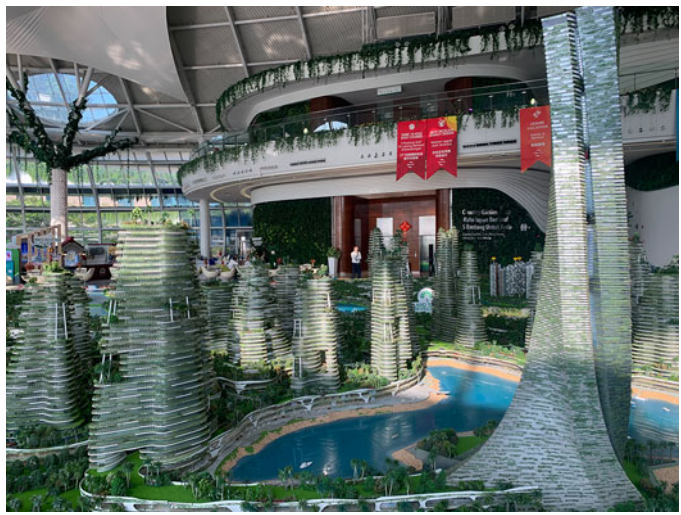

Figure 7. Forest City model showroom. Photo by Brent Luvaas, 2024.

Failed promises. Unfulfilled potentials. These are the kinds of narratives increasingly popping up about eco-cities like Forest City, whether in academic texts or journalistic accounts, already familiar tropes of any reporting on urban mega-projects in China. We are interested in these narratives, this perceived mismatch between renderings and the cities as residents encounter and experience them, but we reject the notion that renderings are somehow "fake," or that they misrepresent eco-cities, whereas the material structures that enact these visions are "real." These renderings,

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Figure 8. Renderings of Forest City on display within the development. Photo by Brent Luvaas, 2024.

we argue, have a reality of their own. They have material consequence, do real work. Affective work. Feeling work. They promote investment and purchases, of course, and they impose a particular set of ideas and values onto a material landscape. They serve as continuous reminders of the current state of sustainability in the region, both inside and outside of the eco-cities themselves, and they continue to structure meaning-making encounters even within the developments as they are built and lived.

One encounters renderings of Forest City, for instance, in Forest City, whether in the massive sales office (Figure 7) where models of apartment units are on display, alongside a three-dimensional map of Forest City as originally designed by Sasaki, or in front of the very complexes renderings are meant to represent (Figure 8). What is striking upon encountering these renderings in situ is how radically they diverge from the surrounding scenes. The Forest City of renderings is a pedestrian city, all roadways operating underground. The Forest City that extends into physical space, however, is covered with roads and parking lots. Pedestrians are forced to risk the traffic. The Forest

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Figure 9. The beach in Forest City. Photo by Brent Luvaas, 2024.

City of renderings is full of happy families, couples walking arm and arm through lively parks. The Forest City of material reality is practically empty. The Forest City of renderings offers residents a chance to swim and kayak in the open ocean, just offshore from their house or apartment. But in this Forest City, there are "No Swimming" signs before all waterways, warning of crocodiles and other dangers.

It is hard not to react to the renderings in situ as continuous challenges to the felt reality of the place as one lives it, a discordant layer on the affective landscape (Low 2016) of Forest City. The renderings are one set of mediators among many, creating the felt experience of eco-cities like this one. We believe, then, that we should take renderings seriously, not because they project, represent, or misrepresent some sort of tangible or achievable "reality," but rather because they rely upon and operate within larger regimes of ambition, desire, and value-production—semio-capitalistic regimes—that make a difference in how people in Southeast Asia imagine, experience, and live their lives. As one Singaporean resident of Forest City recently bemoaned to a journalist, "All around the town, there are pockets of space which are barren and under-utilised. But if you look at the 3D model on show at the sales gallery, there are supposed to be more residential towers and other amenities like yachts and shopping complexes."[2] Even in Forest City itself, where people move through the physical space of the eco-city, renderings mediate the experience of being there.

Conclusion: semiotic overdetermination and its felt limits

Like renderings themselves, the built atmosphere (Böhme 2013) of Forest City is semiotically overdetermined, chock full of actual, physical signs attesting to its status as a

[2]https://www.channelnewsasia.com/asia/johor-country-garden-forest-city-property-crisis-debt-china-3715791?utm_medium=email&utm_source=substack

https://doi.org/10.1017/sas.2025.9 Published online by Cambridge University Press

smart, eco-city development. On the well-groomed man-made beach along the southeastern shore of Forest City is a sign reading "Prime Model of Future City" in English and "森林城市未来城市榜样" in simplified Mandarin Chinese (Figure 9). It is surrounded by palm trees and concrete sculptures of seals, each a signifier of a utopian nature that Forest City promises far more than it can currently deliver. There are similar statues throughout the development—of deer, crabs, toy soldiers, picnickers reading—as if statuary could fill the social void left by the dearth of living, breathing, human residents. We might think of these statues as carrying out a kind of affective, or atmospheric, labor, working hard to create the feeling of sustainable hedonism in a development that is as of yet unable to provide anything like it.

Unsurprisingly, both Penang South Islands and Forest City have been controversial in Malaysia from their inception. Many Malaysians doubted the ecological claims of the developers. Many also worried—the Malaysian government among them—that these eco-cities could tip the balance of power in Southeast Asia towards Chinese interests. Among the primary investors and developers in Southeast Asian eco-city projects are Chinese firms. A number of scholars have suggested that China has geo-political interest in pushing these eco-cities in the region (see Cai 2022; Han 2024; Moser 2018). Conversely, with unraveling of some of China's most prominent real estate developers, including Country Garden (the holding company behind Forest City), a reverse concern over the sudden lack of capital investment and potential buyers has also arisen.

What one actually *feels* in Forest City is not the happy-go-lucky, hedonistic sustainability promised by BIG, but an anguish not unlike the anguish inspired by climate devastation (Fuller and Goriunova 2019, 31). Eco-city renderings, we have argued, produce semio-capitalistic value by translating the familiar concepts of "green," "eco-friendly," and "sustainable" into something far more inchoate: feelings. Climate anxieties are combined with global middle-class aspirations. It is simultaneously a feeling of fear and of hopefulness, of a utopia promised and forestalled, a feeling generated by sustained imaginative work carried out most conspicuously by the designers and artists who produce renderings. Selling "green" as a feeling, eco-city renderings capitalize on present-day anxieties over urban decay and commodify "the ecological" as a rich resource of pleasurable qualitative experiences. The result, we contend, reinforces a neoliberal mode of subjectivity that equates consumption with somatics and reduces climate responsibility to individual consumer decisions. As a translational technology of commodification, eco-city renderings turn green into a somatic experience that, ultimately, operates at multiple temporal scales: from the feeling of looking *at* a rendering and feeling the leisurely green lifestyle beckoning within to the sensation of inevitable disappointment when standing in an unfinished city development. Renderings produce feelings so life-like and palpable, it is nearly impossible not to compare them to the feeling one experiences in the extended world around them.

Eco-city renderings thus bear a contemporary kinship to the early Italian Renaissance "Ideal City" paintings of Urbino, Baltimore, and Berlin. Through their perspectival representations of space and ocular experience combined with highly detailed and intricate architectural designs, these paintings are often regarded "as demonstrations of the rules of construction according to central perspective and ideals, as variation on urban spatial planning propounded in a humanist spirit" (Staatliche Museen zu Berlin, n.d.). The image of the ideal city, whether in the 15th or 21st centuries,

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share common characteristics: a *place* in the future where (and when) humans are strangely absent or at least far fewer in number, where good architecture signifies good governance.

This, we have argued, is what renderings are meant to do: produce feelings that inspire action. Eco-city renderings exist to generate capital investment, to provide a perspective not only on space but the opportunity to possess it. Renderings enable speculators, developers, government officials, and potential residents to envision and imagine a future they then participate in producing. They do this by layering sign upon sign upon sign, constructing an overdetermined feeling of greenness that translates climate anxiety into a purchasable, consumable future. Ultimately, renderings do not promise sustainability. They promise the *feeling* of sustainability. And in the absence of meaningful climate action, this begs the question: do renderings of eco-cities help construct a more sustainable future or get in the way of it? Do they help us imagine what an ecological alternative to the present might be like? Or confuse our senses into seeing a sustainable future where there isn't one?

After many months of looking at renderings of eco-cities under construction in Southeast Asia, visiting cities and superblocks under construction, and poring over images from those trips, we are not sure ourselves. Imagining may be the first step in acting, but rendering discourse into reality confuses these steps, producing the assumption that something meaningful has been done, when what has been done is to make feelings.

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Cite this article: Luvaas, Brent, and Jenny Chio. 2025. "Translating Sustainability into Somatic Experience: Renderings of Eco-Cities in Southeast Asia". *Signs and Society* 1–19. https://doi.org/10.1017/sas.2025.9