

*Building the Bridge to the Future:
New Songdo City from a Critical Urbanism Perspective*



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Introduction: Altering the Design of Life

In the *Foreign Policy* special 2010 issue, “Metropolis Now,” Parag Khanna (2010, 128), a Senior Fellow at the New America Foundation, wrote: “What happens in our cities, simply put, matters more than what happens anywhere else. Cities are the world’s experimental laboratories and thus a metaphor for an uncertain age. They are both the cancer and the foundation of our networked world, both virus and antibody. From climate change to poverty and inequality, cities are the problem—and the solution. Getting cities right might mean the difference between a bright future filled with HafenCitys and Songdos—and a world that looks more like the darkest corners of Karachi and Mumbai.” Khanna is not overstating the case. The 21st century will be the urban century as demographic trends continue to point toward the rapid growth of the world’s urban population. As we reach 9 billion people by 2050, estimates holds that two-thirds will be urban. Most of that growth will take place in China, India, and Africa. Having 300 million people from rural to urban within 30 years time, China again looks to urbanize another 300 million within the next 20 years. Facing these demographics, “getting cities right” is one of the more pressing issues in these opening decades of the 21st century. Khanna highlights the promise of the new urbanism, especially the new wave of cities being built from scratch. These are bold undertakings involving massive capital investments, cutting edge “smart” technology, and deployment of eco-designs. Among these new urban forms, Khanna singles out South Korea’s New Songdo City for special consideration. “Indeed,” he states, “Songdo might well be the most prominent signal that we can—and perhaps must—alter the design of life” (2010, 128). This essay invites consideration of Khanna’s provocative intervention by deploying critical urbanism to consideration of the New Songdo City proposition.

As Khanna notes, “getting cities right” is one of the more pressing issues of the 21st century. Intensifying urbanization is part of what I call the “perfect storm,” of unprecedented challenges that are large scale, exceedingly complex, interconnected and are all happening at the same time (Kuecker 2007). These challenges include: mitigating the impacts of climate change; transitioning to a post-hydrocarbon energy, production, and food systems; easing food insecurity by doubling global food production by 2050; facing global pandemics; fixing deep structural crises in global capitalism; coping with an additional 2 billion people by 2050; adjusting to a world defined by two-thirds of humanity living in cities; contending with resource scarcities; and handling severe stresses to critical ecological systems.

This essay engages Khanna’s intervention by considering New Songdo City’s redesign of life from the perspective of critical urbanism. It questions if New Songdo City constitutes an example of “getting cities right.” The essay begins with an overview of how New Songdo City came into being. From this background, it locates New Songdo City within a complexity perspective for thinking about 21st century urbanism. Following these sections, the essay considers some theoretical perspectives from critical urbanism as tools for thinking about New Songdo City. This discussion leads to the topic of urban metabolism, which sets up the conclusion. Overall, the essay contends that New Songdo City represents a continuation of 20th century urbanism as against a significant break in urban design. The continuity thesis is based upon locating New Songdo City within the reproduction of the modern system, especially in the mechanism of reproducing global capitalism. It finds New Songdo City to be far from a rigid criteria for what might constitute an eco-city. Foremost, the essay raises significant questions about how model cities like New Songdo

City reproduce global inequities, and present the prospects for global apartheid in the 21st century. While these negative evaluations suggest Khanna's thesis is flawed, it does recognize that we remain in a period of transition toward sustainability, and the essay recognizes that a high level of experimentation and modeling is an inherent part of historical transitions.

New Songdo City: Building the Future

New Songdo City's origins are clearly rooted in the business hub strategy, especially South Korea's recognition of its economic vulnerabilities and advantages within globalization's maturing regime of neoliberalism. The Ministry of Finance and Economy understood that South Korea's model for economic growth was encountering a process of "deindustrialization," and needed reform to be competitive with Japan and contend with China's emergence as a global economic power (Beak 2006). The state decided to create Free Economic Zones (FEZ) "as a new growth engine to upgrade the Korean economy" (Beak 2006). The FEZs had the goal to become business, logistical, and IT hubs "as leading areas for globalization" (Beak 2006). As a business hub, South Korea was within a four-hour flight of 51 cities with a population of over one million people. As a logistical hub, the Ministry promoted Busan and Gwangyang, as well as the newly constructed world-class international airport in Incheon. As an IT hub, South Korea had a robust electronics industry, led by Samsung, but also strong research and development sector with a highly educated labor force. The 2003 FEZ Law promoted deregulation, tax incentives, and labor flexibility, as incentives to attract foreign direct investment. A key part of the strategy was to entice corporations to set up offices in South Korea by creating an "optimal living environment," including world-class educational and medical facilities demanded by foreign nationals. The state went so far as to make "English compulsory in official documents," and promoting the construction of golf courses in foreign national residential areas. Between 2003 and 2004, three FEZs were established, including Incheon, which included the plan for New Songdo City (Beak 2006).



South Korean planners also saw Incheon as an excellent location for contending with the considerable limitations facing Seoul's continued urban expansion. By the mid-1990s Seoul was running out of land for expansion, as each growth spurt pushed the city further up the sides of surrounding mountains. Continued growth would require expensive and

ecologically damaging mountain cuts. Seeking an alternative, the government turned to Incheon's open waterfront spaces for urban development (Kohn Pedersen Fox Associates n/d, 31). A key part of the vision was the government's decision to build Seoul's new international airport thirty miles from the capital, in a landfill zone near the port of Incheon. Completed in 2001, the airport joined several new airport projects throughout Asia that were part of the significantly increased level of air travel that came with globalization. With these airports, a new urban form began to emerge, what John Kasarda calls "the aerotropolis," in which airports are the urban center "with cities growing around them, connecting workers, suppliers, executives, and goods to the global marketplace" (<http://www.aerotropolis.com>; and Kasarda and Lindsay, 2011). Kasarda and Lindsay understand New Songdo City to be a leading example of the 21st century aerotropolis, with Incheon International Airport serving an integral part of the long-term plan.

The South Korean government originally contracted with Daewoo Group to undertake the development of New Songdo City. Daewoo had planned to locate their media center on reclaimed marshland south of the airport, but those plans fell apart when Daewoo Group dissolved during the Asian economic crisis (Southerland 2009, 93-94). With South Korea's neoliberal turn, the government looked to foreign developers to lead the floundering project. The City of Incheon, in 1999, hired Jay Kim to find a developer. A Korean-American nuclear engineer, Kim had the state's confidence through his years of working for Westinghouse on South Korean projects. After reading about the One Lincoln Office Project in Boston, Kim contacted John Haynes the CEO of the developer, Gale International. Upon meeting Kim in Boston, Haynes informed Gale International's Chairman, Stan Gale, about the project, and Gale gave him the go-ahead to pursue it further. When Haynes visited South Korea, he immediately enticed Gale to see the site first-hand (Southerton 2009, 93-94). In an interview, Gale explained to Kasarda and Lindsay (2011, 4), "They tracked us down, wanted us to build a city in the ocean, and no one else was interested? *What was going on here?...* Their version scared everyone else away. It wasn't until I saw the airport that I understood where they wanted to go with this." Indeed, Gale International signed up as the developer in 2001, the same year the airport opened.

The 2001 contract that Gale International signed with the City of Incheon was valued at USD12.7 billion, and it partnered the developer with POSCO Engineering and Construction, South Korea's largest steelmaker and icon of the nation's industrial past. Planners set the project's budget at USD35 billion, and J. P. Morgan made the first investment at \$350 million. Officials scheduled project completion by 2020, but its initial phase was to be finished by 2008. Gale International selected Kohn Pedersen Fox to be the project's principle architect. The developer also secured the consultancy and design services of Arup, best known for its work on the Sydney Opera House, the HSCB Building in Hong Kong, and the Bird's Nest in Beijing, but Arup is also an early pioneer in eco-city development with China experience. Cisco Systems, according to a Harvard Business School study, became the project's "major technology player," which was part of the company's Smart+Connected Communities Initiative. Joining Gale International in building New Songdo City was United Technologies and Hanjin Group. An advisory group from Harvard University guided the formation of New Songdo City's international school, which was undertaken with collaboration from Milton Academy, where Gale

International's CEO and President, had been a student. Philadelphia International Hospital and NY Presbyterian participated in designing a world-class hospital complex (Alusi, Eccles, Edmondson, and Zuzul 2011, 5).

They planned an urban complex that was ambitious, futuristic, and utopian. At a cost of USD60 billion, the new city contained an international school, a golf course designed by Jack Nicklaus, a 100 acre green space modeled after New York City's Central Park, Venetian styled canals, a world-class LEED convention center, a fleet of LEED office towers, luxury residences for 65,000 people, five luxury hotels, a hospital complex, a bridge to Incheon International Airport, and clusters of buildings for a range of research and development enterprises.



New Songdo City's emergence as an eco-city resulted from the convergence of South Korea's seeking a competitive edge in globalization, Kohn Pedersen Fox's eco-boutique-city vision, and their increasing awareness about issues of sustainability that merged with the state's green economy program. The South Korean state understood the advantages offered by green cities in the global economy. For example, Lee Hwan-kyun, head of the Incheon FEZ, told the *Financial Times* (August 18, 2004), "This project is a pivotal part of the survival strategy for our economy in this globalised era." Huh Chan-guk, an economist at Korean Economic Research Institute, also told the *Financial Times* (August 18, 2004) that New Songdo City needed to do something to "differentiate itself from other free-trade areas to make foreign investors choose it." The developer began to construct a futuristic vision of New Songdo City that "reflects a new global culture—one not dominated by a single nation or region, but a diverse group of people with similar tastes and needs. This new generation of residents demands state of the art technology, eco-friendly Green buildings, a universal business language (English), world-class recreation, and high caliber medical and educational facilities" (Southerton, 91). Echoing this vision, Gale International CEO John Haynes told Milton Academy (2007), where he was a student, "It is awe-inspiring to know that we are doing something that has never really been done

before—designing, developing and building an entire city from the ground up. Our goals might seem lofty, but I really think they are attainable—to build one of the greenest, most sustainable, most ubiquitous cities in the world, with an unmatched quality of life.” Kohn Pedersen Fox (n/d, 15) maintains that “New Songdo City builds on this effort [the state’s green economy framework] by implementing measurable initiatives that will help mitigate growing global and regional environmental conflicts.”

The turning point for New Songdo City’s development as an eco-city was in November 2006. “Despite the fact that the construction of the city was well underway,” Kohn, Pedersen and Fox (n/d,22) explain, “Gale International began to ask how New Songdo City could be improved. The environment soon became the focus of a critical reevaluation.” Gale International sponsored what is known in green circles as a “Charrette,” which is a workshop that gathers all stakeholders for a process of brainstorming about ways to become more sustainable. Kohn, Pedersen and Fox (n/d, 22) state, “A dedicated team made up of the New Songdo City project developer, key architects, engineers, and environmental experts participated in an Environmental Opportunities Charrette to assess and identify ways to improve environmental performance and quality of life in the city. The development of long-term sustainability initiatives and systems, which would be considered in every design decision and adaptable to changing needs, was the goal.”

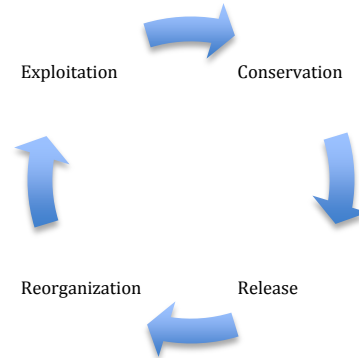
New Songdo City was not alone in becoming an eco-city. Joss (2011, 33) estimates that by 2009 there were 80 projects with “explicit eco-city tags,” a number that increased to over 100 in 2011. “This phenomenon,” Joss (33) invites us to consider, “prompts a number of questions: what do these initiatives have in common, and is it meaningful - and indeed possible - to define eco-cities, given their apparent diversity and fast-moving development? More importantly, what challenges and problems might they encounter along the way to realization?” He highlights “global mainstreaming and practical implementations” as “remarkable” feature of eco-city trend. Along with climate change and rapid urbanization, Joss identifies three key factors explaining the eco-city appearance. First is the role of business, from finance, engineering, and construction. Second, is political leadership from national and local governments. The third is “cultural branding,” a marketing mechanism that distinguishes a city from others by its eco status, as well as appeal to “a more secure, prosperous way of urban living.” (34). Joss sees the common ground of the eco-city as “a framework of aims, concepts and practices, rather than a precise entity.” Joss identifies three main types of eco-city: those that are “new build,” those that are “in-fill” projects within existing cities, and those that are major retro-fits of existing cities (34). Joss (35) states, “arguably the most crucial test for any aspiring eco-cities will not only be to show real evidence of environmental benefits, but also to demonstrate whether they manage to support viable social communities that engender a sense of place and belonging.”

Locating New Songdo City

From a complexity perspective, the challenge of “getting cities right” is a problem inherent to the late conservation phase of a complex system’s adaptive cycle (see Diagram One). The late conservation phase is defined by an extreme state of overshoot, where the system is in a relentless pursuit of efficiency within its rule-set, here understood to be the political

economy of neoliberal globalization. It is undergoing a major geographic transition in the core of the global capitalist system from its 20th century center in the United States toward a 21st century Asia center. In this context New Songdo City is positioned within an highly unstable, oscillating global system, one that is either in or is soon approaching a critical threshold or tipping point, into the release phase of the modern system. Understanding the positioning within this tipping point and the transition to the release phase is one key for thinking about Khanna’s desire to get cities right, as well as consideration of how New Songdo City might constitute an alteration of the design of life.

Diagram One: Complex Adaptive System Cycle



Source: Adapted from Gunderson and Holling, 2002: 34.

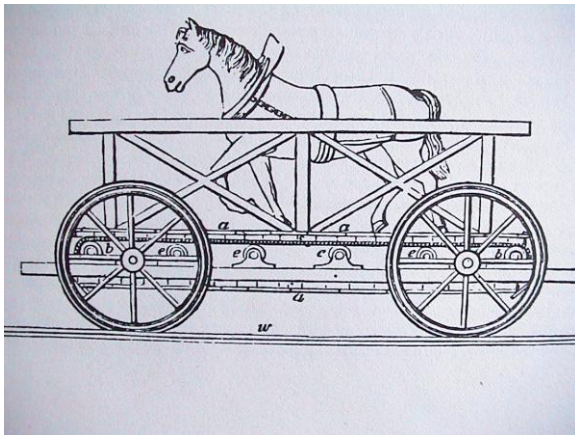
Overshoot means urbanization is currently past a threshold of sustainability, defined as a scenario in which present forms of societal organization result in an extreme disequilibrium between sources and sinks, whereby the disequilibrium compromises present and future capacities for reproduction. Positive feedback loops within the global complex system send signals to urban planners and developers that they should relentlessly pursue efficiency within the neoliberal globalization rule-set, while constructing significant economic, political, social, and cultural signals that prevent it from embracing policies and actions that would cause system stabilizing negative feedback loops. Lacking a system operating by negative feedback loops, cities, along with the rest of the global community, can drive itself to collapse. An eco-city that actualizes Khanna’s redesign of life, however, can mark an important paradigm shift, suggestive of what Meadows, Randers, and Meadows, in their *Limits to Growth* (2004), call the “sustainability revolution.” An eco-city can “get it right” by creating negative feedback loops that will be necessary for weathering the perfect storm of catastrophic system collapse.

When meeting with Gale International executives in their New York City office in May 2013, they spoke directly about the cultural dynamics of urban formation. They discussed how the plans can be made, the buildings built, and the infrastructure placed, all with an intent of creating a “smart” and “sustainable” city. Yet, they framed New Songdo City’s future as resting within a Jane Jacobs urban frame, one that recognizes the street level as against the master planner’s drawing board. They embraced the idea that the city will be made by its inhabitants, the culture they bring, and the intangible interactions of their collective lives. Their observations suggest the idea of emergent properties, which highlights how new system dynamics spring from the interaction of multiple parts of a

complex adaptive system. New Songdo City, either an experimental attempt at a bridge to the future, appears as an emergent property within the 21st century's urban system.

One way to think about emergent properties in complex adaptive systems is to consider the evolution of transportation from horse to railroad. For centuries the dominant means of terrestrial transportation was the horse. Horse transport defined time-space relationships in both absolute and abstract forms. Central to time and space, horse transport was constitutive to society, and was common sense for how the world operated, especially within the practice of everyday life. The horse was the typewriter and telephone before the computer and internet. A transportation revolution happened in the early 19th century with the "iron horse" or "railroad." It caused a radical reworking of relative/abstract space, one defined by time-space compression. It was the 19th century's internet revolution. The railroad was a fundamental force shaping modernity. To get to the railroad, a process of innovation took place, such as the one represented in Picture One, which is an engineer's design for what he imagined to be what we now know to be the railroad. It required assembling existing technologies, such as steel rails, gears, wheels, and the steam engine. Putting the pieces together, however, also required an epistemological shift, one that displaced "horse sense," the paradigm of transportation, with a new way of thinking, being, seeing, and acting of the railroad age. At the tipping point, the new parts are in play, but the old way of thinking, the "horse sense" that says "if it is transportation, it must have the horse," is still dominant, and prevents the tipping to the new paradigm from happening. The horse, however, absurd, had to be central to the new form of transportation, because if you were doing transportation, the horse had to be involved. The horse, on the conveyor belt, on the railroad track constitutes a metaphor for paradigm shift, cultural hegemony, and the larger process of societal transformation.

Picture One:



Engineer plan for railroad, circa 1829.

New Songdo City, then, is the horse on the conveyor belt on the railroad track. As with the transition to the railroad, today's eco-city remains in a process of experimentation, testing, and exploring. The final form is unknown, and the complete transformation in think, the epistemological shift away from "horse thinking" has not taken place. How that shift will happen remains an open question, as well as when, or even if it will happen in a timely fashion.

The Urban Century

According to many observers, humanity has entered an urban century. We are on course to extend the global urban population to two-thirds of humanity by 2030, a level of city dwelling unprecedented in human experience. Of course, that two-thirds will be part of a growing global population, which is on-track for 9 billion people by 2050, which may grow to 10 billion by the end of the century. These demographic realities are a driving force within the perfect storm's multiple challenges (Homer-Dixon 2006). We know that the majority of this urban transition will take place in Africa, followed by Asia. South Korea has largely completed its process of transformation, with 83% of its population now settled in urban spaces. While it is relieved of the demographic shift, South Korea very much remains within the larger global problematic of how we go about making our urban spaces both sustainable and resilient. United Nations Habitat's *Cities and Climate Change* (2011) states the challenge in stark terms:

As the world enters the second decade in the new millennium, humanity faces a very dangerous threat. Fuelled by two powerful human-induced forces that have been unleashed by development and manipulation of the environment in the industrial age, the effects of urbanization and climate change are converging in dangerous ways which threaten to have unprecedented negative impacts upon quality of life, and economic and social stability.

Any approach to bringing humanity back from collapse by creating negative feedback loops will require addressing the combined forces of urbanization and climate change. Newman, Beatley, and Boyer's *Resilient Cities* (2009), echoes this conclusion, but adds energy to the list of challenges to tackle.

Given the dismal state of our ability to address the existential threat of climate change, as well as the current trend toward a relentless exploitation of proven reserves of hydrocarbon based energy (2012) as well as the dramatic boom in non-convention hydrocarbons, shale oil and natural gas hydraulic fracturing (Hart Energy Publication 2005; International Energy Agency 2012; and Maugeri, Leonardo. 2012), it appears our ability to realize substantial enough negative feedback loops is severely compromised. Led by the United Nations, as well as local and regional governments, humanity is increasingly turning to mitigation and adaptation as the best path forward. These efforts focus on significantly enhancing disaster risk reduction (DRR), especially through the United Nation's Hyogo Framework (United Nations 2006 and 2011) and the construction of either sustainable or resilient cities. (United Nations 2012).

In *Resilient Cities*, Newman, Beatley, and Boyer (2009, 37-41) present four potential future scenarios for the world's cities. The first is collapse, where cities experience a radical loss of complexity accompanied by significant population decline. The second is the "ruralized city," in which modern cities, deeply disconnected from their bioregions, "return to the garden," by adapting a "semi-rural lifestyle." Cities will become more self-sufficient, especially in the area of food production. They will shift toward an eco-village model, similar to England's "transition towns," that are defined by smaller scale, lesser density, lower consumption, and slower lifestyles. The third scenario is the divided city, where class

division defines the outcome. The rich build enclaves within existing cities, or in new spaces that are isolated, defended, and cordoned off from the perfect storm. These enclaves will be opulent boutique cities where the very best of technology is deployed in an increasingly futile effort at holding back the discomfiting effects of collapse. The majority of the population is left outside the gates, in a *Mad Max*, Hobbesian dystopia. The divided city will require increasing levels of policing and militarization in order to keep the masses and effects of catastrophe out. These walled cities, following Mike Davis' (1998) analysis in *Ecology of Fear*, are currently in play. Eco-cities, like New Songdo City, have several divided city features. Finally, they present resilient cities as an outcome. These cities follow the eco-city model of the divided city, but provide it for all the citizens. To realize this desirable outcome Beatley, Boyer, and Newman (52) show the importance of technological innovation. The transition to a resilient city is highly dependent on the so-called "Sixth Wave of industrialism," which they describe to be the "complete reorientation of industrial society to a different set of technologies and rethinking of how we organize cities." The Sixth Wave consists of sustainability, radical resource productivity, whole system design, biomimicry, green chemistry, industrial ecology, renewable energy, and green nanotechnology. The Sixth Wave corresponds to the sustainability revolution called for by Meadows, Meadows, and Randers, in *Limits to Growth*. It is the convergence of Manuel Castells' (1989 and 1997) "information age" with sustainable, eco-urban design. Resilient cities consist of: renewable energy, carbon neutral, distributed (decentralized in key infrastructure like energy, water, and waste), photosynthetic, eco-efficient (closed-loop system/recycling beyond the bin); place based- bioregional, and sustainable transport. New Songdo City also carries several of these characteristics.

One of the leading ways humanity has approached the problem of 21st century urbanism is through the eco-city concept. Richard Register, a philosopher and founder of Eco-city Builders (ecocitybuilders.org) was the pioneer of the concept, first articulating the idea in his 1987 book, *Eco-city Berkeley*. Eco-city Builders' understanding of an eco-city "is conditional upon a healthy relationship of the city's parts and functions, similar to the relationship of organs in living complex organism." This definition emphasizes the integration between city design, planning, building, and operations "in relation to the surrounding environment and natural resources of the region, utilizing organic, ecological and whole-systems lessons to actually reverse the negative impacts of climate change, species extinction and the destruction of the biosphere" (<http://www.ecocitybuilders.org/about-us/missionvision/>, accessed December 29, 2012. As Ekblaw, Johnson, and Malyak (2009) comment, "the relatively broad definition of eco-city(s) has unsurprisingly lent itself to a wide range of applications, much as the terms 'green' and 'sustainable' are often used loosely." Exploring eco-city typologies, they maintain that there are two broad types. First, there are eco-cities that are new cities, built from a zero point of urban infrastructure. These new cities are heavily planned propositions, but also carry with them a high degree of innovation, creativity, and experimentation. Examples of this typology include: Masdar in United Arab Emirates; multiple efforts in China with Dongtan and the Sino-Singapore Tiajin Eco-City Project in the forefront (2011); and New Songdo City. The second group consists of existing cities that are incorporating eco-city design principles into a broader and longer-term process of urban renewal, often in response to the failure of national government attempts at formulating a climate change plan, as well as the failure of the international community to

effectively renew the Kyoto Protocol. These early adaptors, according to Ekblaw, Johnson, and Malyak (2009, 14), see both the urgent need to begin changing, but also the opportunity to become the new wave of global cities.

Eco-cities from a Critical Urbanism Perspective

Building from Henri Lefebvre's *The Urban Revolution* (2003), David Harvey (2008, 23) establishes one of the key concepts in critical urbanism, Lefebvre's "the right to the city" (see: Purcell 2002). Harvey states:

The question of what kind of city we want cannot be divorced from that of what kind of social ties, relationship to nature, life-styles, technologies and aesthetic values we desire. The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights.

Critical urbanism is a way of understanding the city derived from "an understanding of critique based on a notion of power as a resource a ruling class possesses and of knowledge as an ideological construct that needs to be unveiled" (Fariás 2011, 365). In the spirit of Frankfurt School critical theory, critical urbanism moves beyond objective, descriptive inquiry about the city, and embraces the view that theory is a subjective critique with the intent of transforming society (Horkheimer, M. (1982 [1937])). Neil Brenner (2009, 198) best articulates what critical urbanists think:

Rather than affirming the current condition of cities as the expression of transhistorical laws of social organization, bureaucratic rationality or economic efficiency, critical urban theory emphasizes the politically and ideologically mediated, socially contested and therefore malleable character of urban space—that is, its continual (re)construction as a site, medium and outcome of historically specific relations of social power. Critical urban theory is thus grounded on an antagonistic relationship not only to inherited urban knowledges, but more generally, to existing urban formations. It insists that another, more democratic, socially just and sustainable form of urbanization is possible, even if such possibilities are currently being suppressed through dominant institutional arrangements, practices and ideologies. In short, critical urban theory involves the critique of ideology (including social-scientific ideologies) *and* the critique of power, inequality, injustice and exploitation, at once within and among cities.

Corresponding to the emergence of neoliberal globalization in the early 1980s, critical urbanism has focused on the place of cities within the great restructuring of global capitalism. New Songdo City fits within the context of neoliberal globalization on several fronts. First, it is the product of South Korea's shift from statism to neoliberalism, especially as articulated in the formation of several free trade zones, including the Incheon Free Trade Zone that gave birth to the New Songdo City project (Kuecker 2012). Second,

it is the product of the speculative bubble in global capitalism during the first decade of the 21st Century—prior to the great recession— a time when private finance needed investment opportunities and turned to large-scale development projects, such as New Songdo City’s 40 billion dollar venture. Third, the Asian hub concept was the product of neoliberal globalization’s diaspora of corporate management and leadership, something that came along with the extraordinary boom in global air travel, which is projected to swell to 13 billion journeys by 2030, a significant increase considering that there were nearly 5 billion in 2010 (Moore 2013). Kasarda (2011) calls a city like New Songdo an “aerotropolis,” which he predicts will become the city of the future.

Campbell (2013, 4) raises an important line of analysis by highlighting the tension within the modern notion of private property. Urban developers seek the profit making potential of private property while reducing their share of the public costs attached to private property. Yet, they externalize costs while also making claims upon the public sector that increase the value of their property. New Songdo City is an example of this tension. As a zone of neoliberal capitalist development, the city operates within a private property framework, but is also one that seeks and secures advantages from the neoliberal state. It is a massively subsidized, protected, and promoted urban landscape operating within the guise of a free market economy. The fundamental contradiction of property is embedded within Gale International’s branding of the city as an eco-city, a place where the public good is advanced, while also being a neoliberal city, one that is thoroughly integrated within the networks of global capitalism.

Hodson and Marvin (2009, 74), discussing the eco-city, state: “these developments are also designed to be financial as much as eco-technical projects.... There are, then, clearly commercial limits to the development of eco-cities” (74). They argue, “The intention is to develop new models of development whereby the developer can extract value from being an infrastructure provider by internalising and commodifying resource flows within the development. Ultimately, the objective is to turn the whole development process, including the energy and infrastructure, into a single financial product that is replicable in other context” (75). Gale International has the intent of replicating New Songdo City, which it sees as a bridge or model city for future projects principally in China. A replicable design provides efficiency for the developer, as the costs of conceiving, planning, and implementing the eco-city is reduced through the standardization of replication. With China needing hundreds of new cities, its not a stretch to think an eco-city assembly line replete with economies of scale and incrementally deepening cost savings generated by a rationalized production system.

While New Songdo City is a product of neoliberal globalization, it brings a twist to the way critical urbanism understands the city and globalization. Built from scratch, eco-cities like New Songdo City transcend many of the concerns of urban space in the epoch of globalization. In discussing issues of urban equality, Campbell (2013, 4), for example, identifies the traditional understanding of urban social justice as being predominantly an endogenous issue for planners concerned about equity and equality. He states, “The equity planner sees the city as a location of conflict over the distribution of resources, of services, and of opportunities. The competition is within the city itself, among different social groups. Space is the social space of communities, neighborhood organizations, labor

unions: the space of access and segregation.” The eco-city, however, shifts the spatial relations well beyond the city and onto a global scale defined by the uneven and unequal geographies of the modern world-system, Wallerstein’s (2004) classic distinction between core, semi-periphery and periphery. With the eco-city, the distribution of resources, services, and opportunities becomes the exclusive proprietary domain of Hodson and Marvin’s (2009) “bounded city,” while further condemning the global slum of the global majority to a dearth of resources, services, and opportunities.

While New Songdo City is an example of the 21st century’s bounded, gated city where the imagined and real social pathologies of poverty, homelessness and the slum are kept outside the city in a tidy erasure of design and planning, there are social justice issues within the bounded city. These endogenous issues are hidden within the city’s service sector: the workers at the restaurants, cafes, and hotels, those who attend to the city’s infrastructure, and those who keep everything clean. There is little information about the people who labor to ensure the daily reproduction of the eco-city. In New Songdo City, it is clear that the workers do not live in the city, but, we might wonder where they live? Basic questions emerge about basic costs – both time and financial—to and from the city. Likewise, wage rates and terms of labor are not known. Are these desirable, something seen as an opportunity within the laboring class? What skills are required for servicing the global elites who come and go from New Songdo City? We might also consider how stable this labor sector. Is there, for example, a high turnover rate? Are there incentives for workers who stay a long time, such as opportunities for promotion or vesting in benefit programs? Additionally, right to the city questions invite consideration of what powers labor has in New Songdo City? Do workers have the right to collectively bargain, unionize, or strike?

Chapter 15 in Raúl Zibechi’s *Territories of Resistance* (2012) is titled, “The Urban Peripheries: Counter-Powers from Below.” He opens the chapter by stating, “If a specter is haunting the Latin American elites at the beginning of the twenty-first century, it is for sure living in the peripheries of the large cities” (189). Zibechi continues, “The Urban peripheries are disconnected from the formal economy and territories beyond the control of the powerful. Through the increased militarization of these spaces, elites try to solve this ‘anomaly,’ and simultaneously, in order to obtain long-term security, implement biopolitical methods of governance” (197). New Songdo City’s bounded space obviates the specter of the urban periphery and provides it secure comfort from the hassles and dangers of the 21st century megalopolis. The preventive cleansing of slums, the informal economy, homelessness, as well as social outcasts and undesirables is accomplished without militarization, although the ubiquitous city carries with it great potential for cyber policing through electronic social coding and sorting (Kingsley and Urry 2009). The biopolitics of the eco-city have the affect of erasing the multitude from the urban landscape, while also bounding the global majority’s ever growing urban masses within megalopolises like Mumbai, Cairo, or Lagos, where Zibechi’s specter haunts 21st century urbanism. The dual play between endogenous erasure and exogenous bounding illustrates the troubled relationship between New Songdo City and the right to the city. Harvey’s assertion, quoted above, that the type of city we design is fundamentally tied to what we value in society as well as our desired relationship with nature, becomes especially pertinent as we move forward with major investments in financial and social capital that will reproduce the New Songdo City model into an even deeper pattern of global apartheid.

A central concern for geographers is the social, political, economic, and cultural reproduction of space. The idea of creative destruction, for example, occupies David Harvey's attention in *The Condition of Post Modernity* (1989), while Marshall Berman's *All That is Solid Melts Into the Air* (1982) brings Marx's insight into how creative destruction rests at the modern experience's core. Dislocation and instability shape the landscape of constant renewal and regeneration. Harvey's *Paris, Capital of Modernity* (2006) highlights creative destruction by exploring the modern urban design and planning undertaken by Napoleon III, who commissioned Baron Haussmann to rebuild large sections of the City of Light. With straightened streets, wide boulevards, and monumental squares, Haussmann's project was a tribute to Enlightenment rationality, but also revealing of modernity's need to control – everything – through design and planning. Knowing that the dislocations and instabilities of modernity's reproduction of space generated the potential for revolution, modern planners sought to bring order to progress by destroying the subversive potential of old Paris. Ironically, the modernity's attempt at controlling the urban population gave way to the Paris Commune of 1871.

New Songdo City presents the fascinating scenario of new urban space created without the actual creative destruction of an old urban space. New Songdo City is the Haussmann of the planner's imaginary, where New Songdo City's creative destruction is the design gesture referencing the modern city shackled by the problems of reproducing the metropolis within the perfect storm of large-scale, global, synchronous crises. As climate change, food insecurity, population growth, excessive social marginalization, pandemics, come together to threaten the capacity of the modern metropolis to reproduce itself, the predicament itself becomes the theme of the designer's drafting board, where the planner destroys the modern metropolis by creating the eco-city.

Time, however, weighs heavily on the eco-city. The newness of production instantly gives way to the problem of reproduction and brings with it the modern problem of creative destruction. Cultural analysis of the eco-city's will have to contend with the forces of creative destruction described in Berman's *All that is Solid Melts Into the Air* (1982). This analysis of eco-city reproduction will build from the original problematic, how creating new space is necessarily the creative destruction of the imaginary of the modern metropolis. Constantly referent to the city that the planner imagines it is not, New Songdo City's reproduction is defined by its original act of negative creation. In reproducing itself, New Songdo City will have to keep the slum out, purge itself of crime, retain an appeal for the global elite, and contend with the constant rebooting of a ubiquitous city and its associated simulacra. The instability of reproduction is already evident in New Songdo City's narrative of branding and rebranding, its transition from an aerotropolis to eco-city to nanotechnology research center, to global university.

Likewise, the question of New Songdo City's reproduction recalls Berman's (1982, 70) portrayal of Goethe's tragic modernizer, Faust. It is the story of modernity's propensity to overreach, which often renders its grandiose visions and megaprojects unfinished, and left incomplete modernity's attempt at the great transformation frustrated. In the final episode of the epic, Faust finds meaning to his world by engaging in a grandiose modernization project, one that tames the oceans at a terrible human cost. Faust is willing to have others

pay this price, due to his firm conviction that the suffering will pay dividends of happiness in the future. His utopian vision, however, crumbles due to the recalcitrance of the pre-modern world, represented by Philemon and Baucis, “a sweet old couple” who own land exactly where Faust wants to build the final project of his modernization scheme. Unwilling to give way, Faust has the couple killed, but he falls into a period of remorse for his actions. The story, Berman believes, reveals the modernizer’s deepest fears of insecurity about the trade-offs of modernity: the extensive human costs of destroying the old to make the new, the discontents caused by the modern creation, and the problem of modernity’s reproduction. The modernizer’s empty fate ultimately is revealed in a disturbing irony: “once the developer has destroyed the pre-modern world, he has destroyed his whole reason for being in the world.”

The problem of reproduction that confronts eco-city’s like New Songdo City is also part of the link between globalization and the perfect storm. Simon Dalby (2007, 110) makes this important connection when he states, “The discussion of globalisation frequently misses the crucial point that in the last half century we have become an urban species.” For Dalby the issue is not restricted to the great demographic transformation we will experience in the decades ahead however important these maybe. He explains (110),

Whatever the finer points of statistical measures, the general tendency is clear, and millions now live in the enormous slums of the cities in the global South... For the first time in history humanity is now an urban species; the conditions of our lives are increasingly artificial and interconnected as a result of this fundamental change in our condition. But how we think about governance and rulership in these new conditions has not yet overcome the imperial legacy of territorial administration based on property, territory and citizenship defined in terms of supposedly exclusive spaces... Urbanisation, with its indirect but powerful impacts on rural areas far from the metropolitan centres, is the dominant artificial force in the global biosphere. It is in need of appropriate rules and structures of governance, but we have yet to think seriously about how to devise such arrangements. (110).

Khanna’s notion that New Songdo City is proof that we need to alter the design of life raises the question as to if we have seriously thought about an appropriate rule-set for 21st urbanism. In recent years we have seen a significant up-tick in activity aimed at finding rules and structures. UN Habitat, ICLEI (International Council for Local Environmental Initiatives, <http://www.iclei.org>) and networks like C40 Cities (<http://www.c40cities.org>) all bring focus, resources, and collaboration on how to build resilient cities (Beatley, Boyer, and Newman 2009). With its recent concern for the consequences of climate change for the development agenda, even the World Bank sees the need for ecocities (Dastur, Suzuki, Moffatt, and Yabuki 2009). Their serious thinking, although problematic on many levels, highlights the biosphere issue when thinking about New Songdo City.

Urban metabolism

Similar to any city, an eco-city’s relationship with the biosphere is the story of urban metabolism, which itself is foremost the story of thermodynamics. If the story of late 20th century was late conservation phase globalization, then the story of the first half of the 21st

century is the great urban transformation, the globalization of urban thermodynamics, or how the city becomes the central protagonist in the story of our ecosystem in the anthropocene age. Write large metabolism is the global flow of energy as it moves from source to sink. Historically, cities have been one of metabolism's central structures, and once the urban populations became the majority of humanity in 2008, cities became the defining way metabolism works. It has an economic meaning, as the energy flow involves the exploitation of material resources for human purposes, the taking of the "potential" in material objects and putting it to "work" (Rifkin 1980). Metabolism is the process of transformation from "work" to "waste," the point in which the energy of a material good is depleted of potential. In this frame, metabolism should be understood as a system of energy flow, where it moves into a system (micro or macro but here we can think city) where the work happens, and then flows out of the system and is transformed as "waste." Throughout modernity the flow from source to sink has very much been defined an open system logic, where sources of energy are presumed infinite and the sinks as deep. Recent concerns for the unsustainability of running a closed system as if it were open have only led to borrowing from the future in order to keep modernity's complexity in a state of reproduced overshoot. Eco-cities thus represent an attempt to bring the urban form into a closed system rule-set. The main aim is to close the loop between source and sink by changing the structures and rule-set of the city. Eco-city loop closing is accomplished by eliminating waste by designing for the retention of the potential energy within materials (McDonough and Braungart 2002). It largely remains to be seen if this effort is possible, or yet another Faustian engagement with the nature.

Hodson and Marvin (2009, 71) explain, "Cities are the material representation of today's energy-intensive economies, where carbon-based energy systems - oil, electricity and mobility systems - have made the huge agglomerations of cities and modern industrial systems possible. Urbanisation completely dominates the huge metalogistical systems made up of resource flows, energy, water, waste foods as well as flows of people and goods that make up the contemporary world. The prefix 'meta' helps us to view the city as an active intermediary, as a site of material transformation that anticipates, modifies and excretes the movement of resources, materials and people." All the ways that New Songdo City proposes to be a hub within globalization make it part of global networks of capital and commodity flows that are not only unsustainable, but are also in extreme forms of overshoot within the complex adaptive system of modernity. These links, in part, include: global system of air travel, transportation of commodities by ship, rail, and truck, the energy grid, water delivery and disposal, or food. As Hodson and Marvin highlight, each of the links "have ecological effects that are beginning to change the global ecological context within which cities attempt to ensure their continued reproduction."

Hodson and Marvin (2009, 72) apply the concept of anthropocene to their consideration of cities. They state, "There is increasing recognition of the fact that the metalogistical systems that make the very notion of cities possible are actually reshaping global planetary ecologies through resource depletion, carbon production and pollution. In turn, these effects themselves reshape the context within which contemporary cities then have to ensure their own economic (and ecological) reproduction." We should understand New Songdo City as product of the anthropocene era, the adaptive (maladaptive) response to the way late 20th century urbanization has reshaped the global eco-system. It is the way that

the urban form is redefined to meet the new realities of the 21st century's perfect storm. Hodson and Marvin assert (2009, 73), "Now, cities' ability to ensure their longer-term economic and material reproduction will be dependent on their ability to guarantee their ecological security and access to energy sources under the changed ecological conditions of climate change and resource constraint." The "dominant logic of neoliberal responses," Hodson and Marvin (2009, 76) continue, is the creation of 'bounded' security in new ecological enclaves for premium users that ignore wider distributional questions about uneven access to resource politics. These are the ecologically secure gated communities of the 21st century that seek to internalise ecological resources and build strategic protection from climate change and wider resource constraints." Hodson and Marvin's analysis recalls Mike Davis' discussion of gated communities in *Ecologies of Fear*, 1999.

One of the challenges for urban studies is how to adjust theory toward thinking about cities built from scratch. Much of our thinking is derived from analysis of existing cities that have a long history of social, economic, political, and cultural evolution. Theoretical issues are inscribed within the structures of the city, where the urban theorist can undertake an archeology of issues under consideration. We need to question if theories taken from existing cities are appropriate for consideration of a place like New Songdo City, where everything is built from scratch. If, for example, we take from Haussmann's Paris for understanding fallacies of the modern urban planner and apply that analysis to the thinking of Gale International, Arup, or KFP, are the results going to be mistaken? Do we need a new perspective within urban studies to accommodate the newness of what is happening with places like New Songdo City? James Scott's (1998) *Thinking Like a State* does provide us with a consideration of how the city from scratch, Brazilia, can be understood from what we learn about the modernist planners, such as Haussmann.

Sustainability thinking provides the challenge of balancing three societal needs that are often in conflict, especially within the current rule-set of capitalism. These are the imperative of economic growth; the need for environmental sustainability; and a basic human need for justice. While not inherently in conflict, there is little room for debate that within the current rule-set of neoliberal globalization they are. Further, the current rule-set's state of radical overshoot, makes it fundamentally improbable to descale the global system to more manageable levels that might lighten the tensions between the goals of growth, sustainability, and justice. Unable to go in reverse, we keep moving forward, somehow hopeful that modern innovation will continue to fix our problems. Thomas Homer-Dixon's *Ingenuity Gap*, however, makes a convincing case that innovation may not save humanity from collapse. Indeed, the prospects for a catastrophic ingenuity gap define the current global scenario. There is a further tension suggested by Homer-Dixon, that we have an epistemological limitation. Modernity brings us to have faith in our capacities for problem solving; hence we get mega projects like New Songdo City that offer the "redesign of life" that will save humanity from the horrors of an urban dystopia. While an immense amount of innovation, creativity, imagination, and vision are in-play with New Songdo City, it remains within the modernist mind-set of problem solving where every problem has a solution discoverable through the application of reason. The Frankfurt School of sociology suggests that this mind-set rests at the core of modern dystopias. Problem solving prevents us from understanding the need for a new epistemology, one defined by a way of seeing, being, and thinking that addresses the predicaments of a complex adaptive system in

extreme overshoot. Predicament thinking invites us to see that global issues presents humanity with problems that do not have solutions. Instead of solutions, we face difficult choices between less than optimal paths. The danger we face emerges when projects like New Songdo City mask themselves as problem solving exercises as against predicaments to be navigated.

In defining eco-cities, Hodson and Marvin claim that what is “Common to these different developments – promoted by different sets of commercial, developer, architectural and engineering interests – is the notion of test beds, demonstrations or experiments of what might constitute new models of sustainable cities” (2009, 74). Gale International fits this pattern. They view New Songdo City as a template for undertaking future projects, especially in China. The firm, in 2009, reached an agreement with the Changsha Municipal People’s Government of Hunan Province to plan a smart, sustainable city, known as the “Meixi Lake District Project.” While Gale International delivered the plan, it was not able to come to terms with the Chinese for their actually building the city. What took four years to accomplish with the New Songdo City project no moves faster as less experimentation, guess work, and errant paths defines the paths taken by new projects.

In his discussion of the existing conflicts between developmentalism, environmentalism, and social justice, Campbell (9) questions if sustainability is a functional concept. He asserts, “I believe instead that our sustainable future does not yet exist, either in reality or even in strategy. We do not yet know what it will look like; it is being socially constructed through a sustained period of conflict negotiation and resolution. This is a process of innovation, not of discovery and converting the nonbelievers.” If New Songdo City represents the “design of life,” we need to evaluate if the city provides us a glimpse into what our sustainable urban future might actually look like. As Campbell suggests, meanings of sustainability are malleable, so much so they are entirely vulnerable to green-washing and the slick marketing of corporate branding. Urban sustainability is entirely a socially constructed proposition that will be defined by the ethos of our time.

William McDonough and Michael Braungart’s *Cradle to Cradle* (2002) offers insight about ways to evaluate New Songdo City as the prototype, our bridge to the future. The operative fallacy within the eco-city approach shares in common the fallacy they reveal is within the “eco-efficiency” proposition. Their basic point is that “being ‘less bad’ is no good” (45-67). The environmental 4Rs –reduce, reuse, recycle, and regulate maybe efficient, but they ultimately fail, because they do not alter a system that produces vast amounts of destruction. Fewer toxins and smaller levels of waste are not solutions to the perfect storm. “Plainly put,” they state, “eco-efficiency only works to make the old, destructive system a bit less so. In some cases, it can be more pernicious, because its workings are more subtle and long-term” (62-63). While unexplored by McDonough and Braungart, their critique of eco-efficiency illustrates the epistemic and pragmatic flaws of modernity’s source to sink, open system paradigm, which also highlights the central challenge of thermodynamics and the 21st century city. New Songdo City, while having eco-efficient systems within its design, is not itself a closed system within. Its commodity chain remains anchored within the source to sink urban metabolism, while its role within global capitalism as a hub within the Asian capitalist system even has trouble meeting the 4Rs of eco-efficiency.

Instead of eco-efficiency, McDonough and Braungart call for a different paradigm, “eco-effectiveness (68-91). Here a new design epistemic operates, where the thinking is guided by the goal of becoming a “boon to both people and environment” (70). In this paradigm the future life of the materials used in production are the top concern, so that they do not become waste, but instead can be safely and efficiently used again. This approach focuses on “abundance and renewal, human creativity and possibility” (71). Hodson and Marvin (2009, 75) echo the point: “it is possible to carry on reproducing cities largely without changing the organisation of society or the economy. Given such issues, one wonders about the relevance of new styles of urbanism that are promoted for their ability to remarkably transcend eco-limits yet at the same time do so in such a socially regressive and market-oriented way, where success is reduced to their economic replicability.”

While far from the redesign of life that is needed for weathering the perfect storm of 21st century crises, New Songdo City provides us with several insights about the uncertain future. Perhaps the most important is the way it serves as benchmark for planning and developing the urban century. Campbell offers a helpful check for too pessimistic thinking about eco-cities in his consideration of why sustainability remains not just a useful concept, but an essential one. He states, “Yet sustainability can be a helpful concept in that it posits the long-term planning goal of a social-environmental system in balance. It is a unifying concept, enormously appealing to the imagination, [sic] that brings together many different environmental concerns under one overarching value. It defines a set of social priorities and articulates how society values the economy, the environment, and equality.”

Conclusion

In his essay for the Harvard Graduate School of Design’s *Ecological Urbanism*, Stanford Kwinter writes: “We may learn over the next years that cities, even megacities, actually represent dramatically efficient ecological solutions, but this fact alone does not make them sustainable, especially if the forces of social inventions remain trapped in tyrannies that only ecological thinking on an ecumenical scale can free us from. For ecological thinking too has its counterfeit and debased forms, and many ‘sustainability’ discourses remain more oppressive than liberatory, more stifling than inventive, and it would be at great peril if we were to continue to assume that these two areas of approach, and especially their methods and presuppositions, are necessarily complementary” (p. 103) Kwinter’s intervention reminds us that sustainability efforts are subject to relations of power that spawn inequities and inequalities that are deeply rooted in the legacies of enlightenment rationality. Lacking a sensibility informed by critical theory Kwinter informs that sustainability threatens to renew modernity’s relations of power. Using these warnings to explore New Songdo City also suggests the importance of understanding capital, especially its global circulation in relation to finance capital’s perpetual need for the new, and how investment into development projects past are morphing into the new landscapes of urban development known as “resilient cities,” “sustainable cities,” “green cities,” or “eco cities.” The morphing involves the transition in the political economy of “development” to the new discursive field of “sustainability.” The morphing suggests that the mechanisms of power within development, identified by critical theorists with concepts like Foucault’s “governmentality,” serve as foundations to sustainability thinking and how we might design

and build places like New Songdo City. As capital and state commit to the eco-city paradigm of 21st century urbanism, the need for critical theory's engagement is pressing. Kwinter's insight invites us to see that the landscape of the eco-city is a geography of global apartheid, where the global majority inhabits Mike Davis' *Planet of Slums* while sustainable cities provide the global elite with the boutique city, a walled world of exclusion, consumption, leisure, entertainment, and a blissful sentiment of a sustainable lifestyle.

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