The complementarity of improving quality of life and reducing environmental footprints in urban spaces: The argument for 'hedonistic sustainability'

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Abstract

In recent decades, the phenomena of urbanization and globalization have transformed cities into agglomerations of technology, innovation, wealth and human capital. Cities have become spaces of high environmental destruction, and concurrently, frontrunner of climate change adaptation and mitigation strategies. The urban landscape consists of a complex network of actors, requiring an integrative and adaptive approach to be taken when considering sustainability and environmental soundness. Much of the sustainability discourse focuses on functionality, sacrifice, and often, individual lifestyle changes. This paper seeks to challenge that perspective by proposing that a collectivistic approach with implications of prosperity can optimize urban adaptation, remediation, and expansion amidst the threat of climate change.

Keywords: hedonistic sustainability, collectivism, urbanization, green space, design, adaptation

*"As much as we have tried to separate the functions of the city into discrete units spread out across the landscape, everything remains inherently connected to everything else. The ways we move, the things we buy, the pleasures we take, the trash we produce, the carbon we blow into the atmosphere, and the economy itself are intertwined and interdependent. If you follow these threads far enough, they lead to a **point of intersection where the projects of urban prosperity, sustainability, and happiness really do converge**– not in a single object or building, but in the complex weave of energy, mobility, economics, and geometric systems that define city life" (Montgomery 2013).*

The interconnectedness of the built environment

Consider Erving Goffman's theory in *The Presentation of Self in Everyday Life*, that life is a series of presentations influenced by the actor's audience and environment (Goffman 1959). In urban spaces, this implies that architecture, public spaces, and other elements of a community along with their inhabitants, affect both our intrapersonal and interpersonal relationships. Our unconscious and conscious responses to the built environment are a direct result of the elements within that environment. In essence, the city and the living and non-living elements within it constitute an ecosystem.

Consequently, within the ecosystem of the city, design, public space, mobility, and accessibility take on different forms. Not only are these elements interconnected to one another, they are also related to the emotive, mental, and physical states of its inhabitants. The city is often seen as the antithesis of nature and a contradiction to sustainability. But in recent years, global innovations have reimagined sustainability not only in terms of the environment, but also in terms of the quality of life and prosperity of its inhabitants. *Hedonistic sustainability* encapsulates this approach.

A term popularized by the Danish architect Bjarke Ingels, hedonistic sustainability emphasizes the interaction of people and spaces, and the role of sustainability within this interaction. A key element of hedonistic sustainability is a collectivistic attitutde. Observing three distinct forms

of hedonistic sustainability in three cities–Copenhagen, Bogotá, and New York City– from a critical point of view, this paper seeks to expose the various successes and failures, and draw recommendations within this approach.

The focus on cities in particular is due to the specific and significant role of cities with regards to the impact of climate change. Cities are, by nature, spaces of high consumption and production. Simultaneously, they are hubs of technological and intellectual capital that yield innovative solutions. Therefore, it is crucial to discuss the city as a space that can "produce positive outcomes," as Saskia Sassen argues, in order to take advantage of a city's role within the fabric of global governance connectedness (Sassen 2009).

Hedonistic and collectivistic sustainability

The relationship between hedonistic design and individualism versus collectivism provides a framework for the discussion of hedonistic sustainability. In *A Transdisciplinary Perspective on Hedonomic Sustainability Design*, Fiore *et al.* present a matrix depicting this relationship (**Fig. 1**). Most sustainable development-related policies or lifestyle changes fall into the category of *low hedonomics* and *individualistic orientation*, imposing the responsibility on the individual (e.g., quotidian changes like using less water, turning off lights, recycling). The category of *low hedonomics* and *collectivistic orientation* describes community actions based on functionality, for example when residential or office buildings convert to meet LEED-certified standards. The category of *high hedonomics* and *individualistic orientation* could consist of an individual seeking pleasure from a natural landscape. This calls attention to studies on the mental health benefits of nature. These three approaches constitute the majority of sustainable policies and actions.

The fourth category in the matrix, *collectivistic* and *high hedonomics*, is a relatively untapped field of study and design, but has the potential to revamp the entire discourse of urban sustainability. An example of such design is "a LEED certified building that provides natural lighting from multiple windows, thereby saving energy, supplying an appropriate level of workspace lighting, and offering a pleasing view of the natural landscape" (Fiore *et al.* 2014). This category of design is complex and not only relies on an interconnected network of actors, but also necessitates a

new category of actors –that of "community stakeholders"– in order to mediate the relationship between the design and the end users (Fiore *et al.* 2014). That is, rather than just the stakeholders (designers, investors, planners, etc.) implementing the design, and the end-users receiving the design in its complete form, community-stakeholders would participate in the project from its inception to its completion, allowing for a more bottom-up, community-integrated design. This sort of intervention is necessary for the endurance and acceptance of any policy or structural designs.

A transformation of public space in Bogotá, Colombia

For more than forty years, Colombia was entrenched in the longest-running conflict in the Western Hemisphere. The asymmetric war, between guerillas, paramilitaries, and government forces was rooted in extreme poverty and inequality. Escaping the chaos of the countryside, refugees migrated to cities, primarily the country's capital, Bogotá. With a population of over 6.7 million today, Bogotá continues to experience burgeoning urbanization and high inequality, and is considered one of the world's most unequal countries, with a GINI coefficient of 53.5 in 2013 (World Bank). With deteriorating infrastructure, widespread corruption, unbearable congestion, and high rates of violence, the city was considered dangerous and un-governable.

Starting in the late 1990's, Bogotá experienced a political transformation with the elections of effective, more transparent mayors and with the 1993 *Organic Statute*, which granted mayors greater autonomy and flexibility: a key requisite for raising taxes and generating revenue towards municipal projects (Gilbert 2015). Spurred by the elections of Mayors Antanas Mockus (1995-1997) and Enrique Peñalosa (1997-1999), this political transformation was met with a simultaneous transformation of the public space.

In 1997, plans to build an elevated urban highway, the "Inner Ring Expressway," were being considered to reduce congestion. Like most 20th century cities, Bogotá's development was influenced by the previous decades' urban legacy of prioritizing privatized vehicles. However, Peñalosa's first act as mayor was to declare war: not on

crime or drugs or poverty, but on cars (Montgomery, 2013). Deviating from previous decades' traditions of urban planning, Peñalosa scrapped the expressway plans in order to build an extensive network of bicycle and walking paths. The bicycle paths supplemented the 1976 policy known as *Ciclovía,* which closed off roads to motorized vehicles on a weekly basis. Peñalosa also added parks, community plazas, and the *TransMilenio*: Bogotá's first rapid transit system.

Construction of the *TransMilenio* system began in December 2000, in several phases. In the years following, it received international accolades, including the Stockholm Partnership Prize in 2002, it was the first transport system to be accredited under the United Nations' Clean Development Mechanism, and it has inspired similar systems in several cities. In a report on the benefits of bus rapid transit systems, the World Research Institute's EMBARQ program cited increases in quality of life in terms of travel time benefits, environmental impacts, and public health and safety benefits (Carrigan *et al*. 2013).

These reforms certainly reduced congestion and emissions: traffic fatalities were reduced by nearly 89 percent, and CO_2 emissions were reduced by an estimated 246,000 tons per year on average (Carrigan *et al.* 2013). Additionally, reduction was seen in SO_2 by 43%, NO_x by 18% and particulate matter by 12% (Turner *et al*. 2012).

The effects of Peñalosa's reforms, however, went beyond the scope of environmental benefits. They also brought social reform and a restructuring of the public space. Mayor Peñalosa, as he explains in a 2013 TED talk, sought social equality through mobility:

"Mobility, as most other developing country problems, more than a matter of money or technology, is a matter of equality, equity. The great inequality in developing   countries makes it difficult to see, for example, that in terms of transport, an   advanced city is not one where even the poor use cars, but rather one where even   the rich use public transport (Peñalosa 2013).

The *TransMilenio* offered mobility to those without cars: a powerful statement amidst the 20th century ideal of prioritizing the privatized vehicle, which in essence, enables the middle to upper classes. Bogotá, like many other Latin American cities, has rampant informal housing settlements along its periphery. With 375,000 clandestine

houses in Bogotá in 2001, workers in these areas had to pay for multiple transport fares to get to the city. (Cervero 2005, Hidalgo 2011). Concurrent to the construction of the *TransMilenio*, a land-banking/poverty-alleviation program called Metrovivienda was introduced with the goal of "accessibility-based site development and planning" (Cervero 2005). The program allowed those living in peripheral, often illegal, settlements, to live along the *TransMilenio* route, improving access to the city, and lowering transportation costs for low-income commuters.

Compounded, the extended metro lines and affordable housing near the lines provided accessibility to populations who had traditionally been marginalized. The city simultaneously recovered from its financial crisis and its burgeoning social crisis, to the extent that in 2002, the United Nations Development Program called Bogotá an "example city" (*ciudad ejempo*) (Gilbert 2015). However, Bogotá's remarkable turn-of-the-century progress was short-lived. With the election of Samuel Moreno Rojas in 2008, the city faced a downward trajectory due to a series of contract breaches and corruption scandals, which included the construction and upkeep of the *Transmilenio* (Gilbert 2015).

Peñalosa's mayoral term and the simultaneous transformation of Bogotá were not coincidental. These reforms were concurrent with a shift towards more transparent municipal governance, with the 1993 statute. The construction of bicycle lanes instead of highways, closing of roads to motorized vehicles, and initiation of the *TransMilenio* completely transformed the hierarchy of the public space. These reforms provided the socially and economically marginalized urban population with a space in the city– a space that had long been domineered by the upper class. Sustainable designs at their core, these programs are rooted in collectivism and equitability. Therefore, the rupture of equity following Mayor Moreno's election and subsequent corruption scandals were the catalyst for the decline of the *TransMilenio*.

The collectivistic nature of the plans implemented by Peñalosa and the temporary success of the *TransMilenio* highlight the necessity for an equally collectivistic-minded government in order to sustain such designs. Efforts like the *TransMilenio*, the annual *Día Sin Carro* (Car Free Day), and the weekly *Ciclovía* were not initiated as projects to mitigate city emissions (though they certainly did). Rather, their success lies in the fact that they transformed

the city into a livable space that procured mobility and safety, and improved quality of life. Concurrent with affordable housing projects, the *TransMilenio* provided a means of access to the city that was otherwise unattainable by peripheral populations. Similarly, empowering cyclists subverted the exclusionary power that vehicle owners held.

On Peñalosa's reforms, Charles Montgomery offers this testament: "His policies may resemble environmentalism, but they are no such thing. Rather, they were driven by his conversion to hedonics, an economic philosophy whose proponents focus on fostering not economic growth but human happiness (Montgomery 2007).

Bjarke Ingels Designs: Innovative sustainable design in Copenhagen, Denmark

A stark contrast from Colombia, Denmark is highly affluent and ranks as a country with one of the most equal distributions of wealth, with a GINI coefficient of 29.1 in 2012, and is (World Bank). Known for its innovative design and sustainable standards, Copenhagen offers an alternate version of successful collectivistic and hedonistic urban design.

Hedonistic design has been a focus of Copenhagen's city planning since the inception of the "five-finger plan" in 1947 (Moughtin 2009). The plan ensured that urban and suburban growth would be controlled, while also leaving ample green space, and easy access to public transportation. Furthermore, Copenhagen has had a prominent tradition of cycling since the 1980's, inverting the traditional car-centric model of the city. With "free bike sharing services, bike parking complexes, and traffic lights both designated for bikers and timed to favor their speed and pace," the city has successfully reduced carbon emissions, at the rate of 90,000 tons annually (Maternoski 2013). With its cycling culture, and a city plan that facilitated access to Denmark's nature, Copenhagen has been dedicated to maintaining a balance between urban growth and the natural environment far before the global climate change discourse pushed for such changes.

However, with the growth that the region experienced in the early 1990's, the five-finger plan was no longer sustainable. In 2010 the Copenhagen-native design and architecture firm *Bjarke Ingels Group* (BIG), along

with a coalition of other firms, proposed a bi-national master plan known as the "Loop City." The 11-km2 loop encompasses 10 municipalities of the Øresund region, which consists of the coastlines of Denmark and Sweden. The plan includes light rail transport infrastructure, waste management plans, an energy smart grid, and more, accounting for population growth in the next 50 years (Maternoski 2013).

The first project to be executed within the new "Loop City" master plan was a response to the 2010 international competition to design a new power plant for Copenhagen. Contrary to the unordinary structures of most power plants, devoid of character or intent beyond function, BIG proposed a completely different concept. The *Amager Bakke*, as its known, is an installation that incorporates and considers the urban and natural ecosystem around it. At its core, it generates heat and electricity by burning garbage. But *Amager Bakke*, whose construction began in March 2013, intends to achieve far more.

Beyond a sleek and attractive design, the structure's sloping façade is designed to serve as an artificial ski slope. Moreover, it contains an educational element: the elevators that take skiers to the peak will allow them to view the plant's processes through inward-facing windows. Supposedly, the plant will provide heating to 97% of Copenhagen's homes, and electricity to 4,000 (Ingels 2011). The plant is also designed to release a visible smoke ring every time it produces one ton of CO_2: a tangible reminder of the city's waste problem.

Despite being known as a forerunner of sustainability, Denmark has the highest percentage of incinerated waste in the EU and the highest amount of waste generated per capita as of 2013, the same year that construction of the waste plant began (Eurostat). The CO_2 smoke rings challenge these less than ideal statistics by providing a visible reminder to city residents. By providing a space for public interaction, *Amager Bakke* has reinterpreted the often isolated and dejected concept of the waste plant to an entirely different level of a public good: one that is both collectivistic and hedonistic in nature.

Fiore *et al.* describes the innovative designs of BIG as eliminating the boundary between end users and designers: "the group envisions the buildings and the design process behind them not as a closed, in-group project but as a forum for public participation" (Fiore *et al.*

2014). The waste plant's design has transformed the city's undesirable processes to a space that will be accessible, educational, and sustainable, all while continuing to serve its functional purpose as a waste plant. To reasons why attempts to create sustainable design and policy have stagnated– the COP15 conference is a prime example– and why BIG's design provides an alternative vision, Bjarke Ingels explains, "The general misconception that sustainability is a question of how much our existing quality of life are we prepared to sacrifice in order to be sustainable" (Ingels 2011). That is, generally the approach to sustainability has been to focus on sacrifice– what would be categorized as *low hedonomics* according to Fiore *et al* (**Fig. 1**). By contrast, hedonistic sustainability, focuses on the idea that "sustainability is not a burden, but that a sustainable city in fact can improve our quality of life" (Ingels 2011). With his designs that span several cities globally, Ingels envisions a future where positive change is not a contradiction to sustainability.

'Green gentrification' following urban greening: the case of Prospect Park in New York City

While introducing transportation programs or designing innovative buildings are essential steps towards essential progress, cities can (and should) also incorporate the already existing natural ecosystems into their sustainability plans.

Urban green spaces such as parks, green roofs, gardens, etc. can provide benefits ranging from storm water management, to diminishing the urban heat island effect, and improving biodiversity. Additionally, green spaces have been shown to improve quality of life, with social, mental, and physical benefits (White 2013). To achieve these holistic benefits, an efficient and thoughtful approach to both the distribution of green spaces, and the relationship between green spaces and the built environment, is essential.

In New York City, Mayor Bill DeBlasio's 80x50, introduced in 2014, promises to reduce greenhouse gas emissions in the city by 80 percent by 2015. To do so, the plan requires public and private buildings to undergo retrofitting processes in order to improve energy efficiency (City of New York: Office of the Mayor). Though

significant, 80x50 is one-dimensional in its results. It will surely reduce greenhouse gas emissions, but will be costly for landlords–and in turn, residents– and lacks public, or even individual, incentives or benefits.

Green space, conversely, is a collective good that improves quality of life, and promotes physical activity, psychological health, and public health in general. Therefore, a lack of access is often considered to constitute an issue of environmental justice. Many cities are built around some extent of green space, but the distribution is often inequitable, based on income, ethno-racial characteristics, age, gender, (dis)ability, and other differences (Wolch et al. 2014). Termed "green gentrification," this phenomenon exposes the paradoxical effects of urban greening.

Take Brooklyn's Prospect Park, for example. Brooklyn is New York City's most populated borough, and has a vastly diverse demography. Throughout the 1970's, Brooklyn was considered to be in decline; with low wage employment replacing higher wage manufacturing jobs, dependency on investments for aid, and increases in crime (Gould *et al* 2014). The image of Prospect Park, once a crime-ridden, urban liability, became an asset to real estate developers following restoration efforts.

As Wolch *et al*. describe, "By simultaneously making older and typically low-income and/or industrial areas of existing cities more livable and attractive, urban greening projects can set off rounds of gentrification, dramatically altering housing opportunities and the commercial/retail infrastructure that supports lower income communities" (Wolch *et al*. 2014). In other words, urban greening can create a localized wave of gentrification, which over time will leave socially vulnerable populations without access to urban green space.

A 2014 study meticulously quantifies the resulting displacement of socio-economically vulnerable populations. Using census data, Gould *et al*. found that following the park's restoration, rents increased and housing became less accessible to minority and poor populations (Gould *et al*. 2014). Therefore, minority populations were pushed back from the green space, further entrenching the issue of inequitable distribution of green space. While generally seen as a positive, apolitical planning effort, adding or restoring urban green spaces can have paradoxical effects under the combination of market-

forces in urban real estate, and institutional and cultural racism (Gould *et al.* 2014).

Under green gentrification, environmental inequality persists, and the benefits of urban green space become concentrated to wealthy populations who can afford the rising prices of living near green spaces. The power of profit-driven forces makes urban greening a largely negative socioeconomic process. Therefore, cities must take a more integrated approach to the planning process with regards to green space, foregoing profit-centric goals for community-specific needs and desires. This requires grassroots discourse, and collectivist-driven strategies to ensure that local communities can fully utilize the space. Using a bottom-up approach, green gentrification can be avoided so that the benefits of urban green space can be equitably distributed.

Equitable sustainability

The role of hedonism or quality of life in sustainability discourse may be considered cursory within the scheme of climate change, and issues of human rights and justice amidst rising sea levels, droughts, forced migrations, among other climate-related disasters. However, within the built environment of the urban landscape, a space of concentrated consumption, production, wealth, and human capital, a more integrated and holistic approach is necessary to achieve changes that are ecologically sound and will endure for years to come.

The multiscalarity of actors and processes within cities, and the multi-nodal connection between cities globally has at once deemed cities as highly culpable for environmental degradation, while also giving them the means to pursue innovative technologies and designs. As Saskia Sassen argues, "[Cities] contains the sites of power of some of the most destructive actors, but also potentially the sites at which to demand accountability of these actors. The former is a model for municipal-level reforms, the latter is emblematic of changes on the individual building scale" (Sassen 2009).

The built environment, natural environment, and the population of a city are highly interconnected forces. As discussed, green spaces, provide benefits ranging from impeding the urban heat island effect, storm water management, improving biodiversity, and even carbon sequestration. They provide mental and health benefits, and

can increase property values. The ecological and anthropocentric benefits of green spaces are not mutually exclusive. Projects like Bogotá's *TransMilenio* or *Ciclovía*, Copenhagen's updated master plan or waste plant, are successful because of their holistic nature: they offer benefits that scale from individual mental health to community-wide public health and quality of life, while also contributing to the mitigation of climate change on both a local and global scale. The addition or restoration of urban green space has the potential to provide community-wide benefits, but only if approached from a bottom-up (rather than profit-driven) approach.

To be sustainable, cities must strive to mitigate climate change and its effects while also accounting for the relationship of local populations with the urban landscape and natural ecosystem. With community-based, collectivist-rooted solutions, cities can employ their agglomeration of assets towards growth that is both environmentally sound and collectively beneficial.

Figures

Table 1. A Hedonomic Approach to Sustainable Design		
	Orientation to Others	
	Individualistic	*Collectivistic*
Hedonomics *Low*	Sacrifice for self	Sacrifice for others
High	The design benefits the self	The design benefits all

Figure 1. Fiore *et al.*, 2014.

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