

## Urban Sustainability and Development

### INTRODUCTION

Concepts of “sustainability” and “development” have been problematized by their overuse, raising questions about whether the two terms are compatible. When a multinational company like IBM can appropriate the concepts and language of sustainable development with a corporate slogan, the key concept has been devalued. Notwithstanding debates about their definitions, the core concept of the need to achieve developmental goals while recognizing local, regional, and global environmental limits is a simple concept<sup>1</sup>. Ultimately moving toward sociocultural, environmental, and economic stability requires changing mass consumer culture and other politically unpalatable lifestyle changes. Imposing though they may seem, these changes are already beginning to manifest on the level of urban environments. While urban areas are certainly no panacea to the havoc humankind has wreaked on the earth, they offer more sustainable alternatives to the popular suburban lifestyles predominant in the global North. By examining how urban environments are structurally a step toward sustainability, how they can be more so, and how these observations can be applied to developing areas of the world, we can begin to understand sustainable urban development.

#### Section 1: SUSTAINABILITY OF MODERN URBAN ENVIRONMENTS

Cities have been touted as the most sustainable places to live. Well organized urban areas contain vast potential for decreasing resource consumption and improving efficiency of resource use. The United Nations Centre for Human Settlements (UNCHS) cites as a prerequisite for reaping the myriad benefits of cities effective governance, without which cities can be dangerous and unhealthy places to live and work<sup>2</sup>. One of the many benefits of cities is their potential to foster good governance; the concentration of people in cities can facilitate their full involvement in not only local and city elections, but other outlets for participating in government within their own districts and neighborhoods<sup>3</sup>. Once the role of effective governance is established, it must be noted that, while popularly imagined to be centers of opulence, pollution, and resource overuse, these factors are symptoms of the disease of high-consumption lifestyles, which occur within cities as well as outside them<sup>4</sup>. Tangible benefits of concentrating production and population in urban environments can be categorized as sociocultural, environmental, and economic.

##### 1.1 Sociocultural Preservation

“Cities have the potential to combine safe and healthy living conditions and culturally rich and enjoyable lifestyles with remarkably low levels of energy consumption,” the UNCHS states, succinctly outlining the ways in which city life can be beneficial. At the core of this view is the emphasis on living conditions and lifestyles. Cities, as hubs of visual and decorative arts, are among societies’ most precious *cultural artifacts*<sup>5</sup>. Cities foster development of the *social economy*, bringing inhabitants closer together on both physical and cultural planes. In so doing, relationships created between local citizens are conduits for greater collaboration on local problem-solving strategies.

##### 1.2 Mitigating Effects on Environment

Cities may significantly decrease adverse environmental impact. The potential reduction in fossil fuel use implied by cities comes from multiple sources; cities can capture waste *heat* from homes and commercial buildings, and heating is more efficient in terraces and apartment blocks when compared to detached housing. *Potential reductions in motor vehicle use*

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<sup>1</sup> Hardoy, Jorge E. Diana Mitlin, and David Satterthwaite. Environmental Problems in an Urbanizing World. London: Earthscan Publications Ltd, 2001.

<sup>2</sup> An Urbanizing World: Global Report on Human Settlements 1996, *Cities as Solutions in an Urbanizing World*. Oxford: Oxford University Press, 1996. Print.

<sup>3</sup> See 1

<sup>4</sup> See 2

<sup>5</sup> *ibid*

simultaneously reduce both fossil fuel consumption and air pollution<sup>6</sup>. Many nations have long urban traditions of *water use and/or recycling*; by making efficient use of rainwater or storing it, they are able to overcome problems contemporary water management systems ignore<sup>7</sup>. Economies of scale or proximity inherent in cities may *reduce risks imposed by natural disasters*. The per capita costs of preventative measures against natural disasters are reduced, and there is generally a greater capacity and willingness among city dwellers to finance such measures when they are informed of risks. Industrial concentration in cities cheapens the cost of *enforcing environmental regulation* set to limit pollution and protect public health, and *funding environmental management* via tax collection and charges for public services is facilitated by concentrating populations in cities. For most nations, this concentration also implies *reductions in greenhouse gas emissions* and generations of the most cost-effective means to this end<sup>8</sup>.

### 1.3 Economic Efficiency

Several benefits of city life save money for citizens while stimulating the urban economy. The benefits of *higher density living* include reducing costs per household and per enterprise for provisions of public goods (water treatment, waste disposal and collection, advanced telecommunications, health care, education, etc)<sup>9</sup>. Emergency services are not only cheaper, but more effective; high density living situations allow emergency response teams faster access to victims. *Concentrating production and consumption* within the boundaries of a city allows for greater possible efficiency and reallocation of resources; material and/or waste exchanges are facilitated between industries. *Demand for land relative to population* is significantly reduced in urban environments, which, in most countries, account for less than 1% of national territory<sup>10</sup>. In many cities in the global South, the decrease in demand for land relative to population is accompanied by relatively high proportions of food which is produced and consumed within the city.

### 1.4 Rebutting Urban Economic Benefits

The UNCHS touts the central role of cities in building stronger and more stable economies. This idea has vast implications for development and improved quality of life for cities of the global North and South alike. However, such a claim does not go unchecked by skeptics. Peter Droege makes the biting and potent claim that, notwithstanding potential benefits inherent in cities, the obsession of government with pursuit of unsustainable economic growth has “distracted urban observers from facing the sobering reality that the urban world thrives on a rich Petri dish of only temporarily plentiful petroleum nutrients”<sup>11</sup>. Indeed, Droege is not alone in making the claim that, notwithstanding the benefits implied by urban environments, implied benefits do not always come to fruition and much work remains to be done if cities are to grow sustainably. This conflict invites further investigation into what can be done to increase the sustainability of urban areas.

## Section 2: A NEW URBAN SUSTAINABILITY

Notwithstanding the multitudinous sociocultural, environmental, and economic benefits from cities outlined above, cities have vast potential to be more so. By improving the structure and quality of public goods, all three major categories of tangible benefits to city life can be simultaneously improved exponentially. Such structural changes imply malleability of the social conscience of certainly many inhabitants of cities in the global North, if not elsewhere in the world as well. Ultimately, building a new definition of urban sustainability means sacrificing exponential consumption:

What people are being asked to give up are many of the presumed benefits or advances that moderni[z]ation has provided - on the one hand, physical and technical benefits like spacious dwellings, and the freedom to travel by car; and on the other

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<sup>6</sup> *ibid*

<sup>7</sup> See 1

<sup>8</sup> *ibid*

<sup>9</sup> *ibid*

<sup>10</sup> *ibid*

<sup>11</sup> Droege, Peter. *Renewable City: A Comprehensive Guide to an Urban Revolution*. West Sussex, England: Wiley-Academy, 2006. Print.

hand, socially valued gains like greater privacy, segregation, and differentiation from people they regard as different, alien, or inferior. The social aspects are perhaps the most controversial...<sup>12</sup>

One case study shows that the sacrifices implied by restructuring urban atmospheres more sustainably may create more quality of life improvements than are cursorily apparent. Examining the necessity of transportation and viable land use/housing policies in the context of the lauded plan of Curitiba, Brazil, yields a concrete example of this concept.

## 2.1 Transportation in Urban Areas

Transportation is vital for social and economic life in urban environments. The ability of citizens to travel from home to workplace to cultural centers is at the heart of the urban paradigm, and it is therefore essential that cities striving to become more sustainable focus on the impacts of current transportation systems and find ways to reduce the effects of transportation on the urban and supra-urban environments. Transportation systems inherently consume natural resources and generate some negative impacts, including but not limited to motorized vehicle accidents, air and water pollution, and physical congestion of main street systems. While use of private transport has risen and many larger cities suffer the ill effects associated with individualized transport described previously, several large cities have managed to maintain or create viable public transportation systems, the benefits to which are multitudinous<sup>13</sup>.

## 2.2 Urban Land Use and Housing Concerns

Most environmental problems faced by cities have political roots<sup>14</sup>, and one of the most politicized urban issues is that of land use and urban housing. The issue of who has rights to live where is central to urban planning policies, and in practice has often generated outcomes unfavorable to the urban poor. Fears about likely political repercussions of such biased housing policies have generated public concern about the state of housing in urban areas, particularly that in the largest cities. In practice, urban housing conditions are generally far better than those in rural areas<sup>15</sup>. Gilbert expounds that "[m]ost urban governments are concerned about illegality. When land has been stolen, when green areas have been invaded, or when basic building standards are ignored, illegality can be a vital issue...the illegality consists of a lack of services, something that can easily be resolved by the provision of infrastructure." When urban planning is undertaken to ensure equitable distribution of housing rights, illegality need not be such a high priority for urban governments, who can then focus on improving city life.

## 2.3 Case Study: Curitiba, Brazil

Urban planners in Curitiba, Brazil, saw the issues of transportation and land use as inseparable. With this ideological framework, they set out to build a city which is modernly considered to be one of the most sustainable urban environments on the planet. Curitiba was endowed with no rare environmental or political propensities toward this end; it was not planned as a "new town" and its poverty levels and other economic indicators have paralleled other cities in the same region of the country<sup>16</sup>. Curitiba's history begins in the 17<sup>th</sup> century and was radically altered by the rural exodus of the late 1960s. Facing a

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<sup>12</sup> Brindley, Tim. "The social dimension of the urban village: A comparison of models for sustainable urban development." *Urban Design International* 8, 1Jun 2003 53. 16 Mar 2009

<<http://proquest.umi.com.libezproxy2.syr.edu/pqdweb?index=0&did=420332201&SrchMode=1&sid=8mt=3&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1237226052&clientId=3739>>.

<sup>13</sup> Vasconcellos, Eduardo A.. "Transport and Urban Development." *The Companion to Development Studies*. 2<sup>nd</sup> Ed.. Vandana Desai and Robert B. Potter. London: Hodder Education, 2008. Print.

<sup>14</sup> See 1

<sup>15</sup> Gilbert, Alan. "Housing the Urban Poor." *The Companion to Development Studies*. 2<sup>nd</sup> Ed.. Vandana Desai and Robert B. Potter. London: Hodder Education, 2008. Print.

<sup>16</sup> Rabinovitch, Jonas. "Innovative Land Use and Public Transport Policy: The Case of Curitiba, Brazil." *Land Use Policy* 13, 11996 51-67. Web.24 Apr 2009. <[http://www.sciencedirect.com.libezproxy2.syr.edu/science?\\_ob=MIImg&\\_imagekey=B6VB0-3VWPNC943&\\_cdi=5912&\\_user=783137&\\_orig=search&\\_coverDate=01%2F31%2F1996&\\_sk=999869998&view=cwchp=dGLzVtb-zSkWz&md5=41ac34dfdf1ff02df444fb9dc4ebc3db&ie=/sdarticle.pdf](http://www.sciencedirect.com.libezproxy2.syr.edu/science?_ob=MIImg&_imagekey=B6VB0-3VWPNC943&_cdi=5912&_user=783137&_orig=search&_coverDate=01%2F31%2F1996&_sk=999869998&view=cwchp=dGLzVtb-zSkWz&md5=41ac34dfdf1ff02df444fb9dc4ebc3db&ie=/sdarticle.pdf)>.

massive population influx, Curitiba’s planners collaborated to begin the framework of what is today an urban environmental success story.

The approach was unusual for its time: the Curitiba Master Plan views transportation and land control as inextricably linked, citing the necessity of “an understanding of how land use and transportation are tied to the success or failure of a comprehensive urban policy and its potential impact on national development goals. When used in concert with a coherent urban policy, a city’s land use/transport system can be a strong inducement for beneficial growth”<sup>17</sup>. Transportation networks of the city were redesigned to decongest the center of the city while preserving historic areas, reserving the center of the city mostly for pedestrian use. The Curitiba Integrated Transportation Network is a masterfully crafted example of efficiency in public transportation. Designed as “trunk and branch system” (where “trunks” are high-demand expressways and “branches” accommodate slower travel between and to less densely populated areas), the Network has been instrumental in 28% of commuters who once traveled by private car switching to public transportation. An estimated 75% of all commuters in Curitiba use the system<sup>18</sup>.

The Network recognizes that building densities along public transportation routes are at least as important as the vehicle used when assessing environmental and social impacts of transportation. Developing the city this way was designed to manage urban demographics and stabilize urban growth patterns. The need for non-static land use policies initially drove the development of housing to the city’s corridors, reducing the cost of mobility within the city without contributing to congestion. Housing for the urban poor was heavily subsidized and located proximate to “trunks” of transportation to facilitate the mobility of the urban poor to and from their places of work. In Curitiba, employment and housing issues are synced. Transportation is accessible and affordable to everyone. In addition to the location of housing projects, planners also considered the impact of high density living. Housing in Curitiba falls into one of four density categories; highest density households account for 20% of those in the city (for benefits of high density living, refer to Section 1.3). The experience of Curitiba has contributed to the increasingly potent viewpoint that “the housing problem in developing countries is fundamentally a land problem”<sup>19</sup>. By linking land use and rights to transportation, Curitiba built a socially and environmentally progressive system that, inherent in its structure, improves the livelihoods of its citizens.

### Section 3: IMPLICATIONS FOR DEVELOPMENT WITHIN AND ACROSS CITIES

How do discussions of sustainability relate to development within and across cities? The example of Curitiba offered above illustrates the necessity of incorporating the urban poor into any framework for urban sustainability internally. Many questions of external development—mitigating the sustainability gap which is most flagrant between industrialized cities of the global North and global South; the former generally have greater means to either invest in technologies that counter pollution or the finances to “sell” pollution “credits” to nations of the global South. Examining in greater detail what “sustainable development” means both for the urban poor and for cities of the global South striving to industrialize at competitive levels with their global Northern counterparts offers suggested insights into the direction of their respective developments.

#### 3.1: Urbanization’s Effects on the Urban Poor

The Curitiba case study mentions a rural exodus and subsequent mass drive toward urban areas as the chief motivating factor behind generating the Curitiba Master Plan in its current form. Many other cities around the globe have confronted similar phenomena, and similar patterns of intercity development have been replicated cross-locationally. The social patterns of contemporary urbanization generally include increased socioeconomic and/or racial segregation, polarization, and ghettoization. These effects are widely taken as negative indicators of social sustainability<sup>20</sup>.

Patterns of urban poverty are widely underestimated because most national and international estimates of urban poor are based on defining a poverty line by income level, which applies to all areas within a bounded territory (city, nation, continent, etc). Calculating this poverty line is highly politicized and often fails to account for non-food material needs of the

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<sup>17</sup> *ibid*

<sup>18</sup> *ibid*

<sup>19</sup> *ibid*

<sup>20</sup> See 12

poor. These calculations also fail to include political marginalization and degraded housing quality experienced by the urban poor. In fact, most environmental problems have political roots, and when the urban poor are disenfranchised from contributing to the environmental sustainability of their own ecosystems, any attempt at sustainability is ultimately compromised<sup>21</sup>. A more sustainable approach followed by many cities is to include the urban poor in decision making with participatory approaches; though not without fault, many cities have been met with success upon their inclusion. One major issue faced by cities and the urban poor simultaneously is that urban expansion outlined in the previous paragraph generally occurs without the necessary expansion in social services for optimal functionality of a city and its inhabitants; this effect is particularly pronounced in cities of the global South<sup>22</sup>.

### 3.2: Industrializing the Global South

In the age of Kyoto controversy, how to sustainably industrialize the global South is a hot topic. Can inhabitants less industrialized cities enjoy the same or similar qualities of life as their neighbors to the global North without a net increase in pollutants? Recent research indicates that such a phenomenon is possible, but only with great effort on all levels of society. The key to improving industrial environmental performance in the global South, says Hardoy, is not only appropriate legislation on air and water pollution and waste management, but this legislation must be accompanied by measures to increase industry's accountability. Hardoy outlines 4 steps to sustainable industrial production, and the 3 actors who must contribute for sustainability measures to be effective. The 4 steps include controlling current levels of pollutant emissions, making industrial production cleaner and more efficient, institutionalizing environmental management for more efficient regulation, and the eventual restructure of industrial systems to reach zero emissions and planning for future environmental effects of current actions.

Using these steps, individual firms are required to take voluntary but often economically feasible pollution reduction measures, such as purchase "end of pipe" technologies (technologies that capture pollutants at the end of industrial production after they are produced but before they are released into the atmosphere). Cities are responsible for instituting services and policies to facilitate these voluntary purchases, and nations must implement appropriate regulations to penalize firms who flagrantly ignore the inducements offered by city governments. Evident here is the fact that any change in industrial pollution is incumbent upon industries themselves, and, except for states with more direct control over industries, such initiatives will take place at the behest of firms and with the encouragement of cities. By no means should this fact suggest that cities are powerless or have no role to play. As a larger and growing proportion of the world's population lives in cities and pollutant emissions are projected to rise, cities have instrumental roles to play. Many urban communities have adopted "Local 21s" or agendas committing individual urban areas to environmental, economic, and political/sociocultural sustainability<sup>23</sup>. Without such efforts, no long term change is possible.

#### SUMMARY

With world population burgeoning, urban environments are a more sustainable alternative to suburban living and yield many benefits to urban citizens and other inhabitants of this global ecosystem. Cities' contributions to cultural development and preservation, mitigating pending environmental crises, and a more stable economic state abound. To actualize the full potential of cities as more sustainable areas, transportation and land use networks should be assessed and altered to the benefit of all inhabitants of the city and its environment. Curitiba, Brazil, stands as an example that these changes are not only possible, but beneficial. The Curitiba case study is particularly relevant to concerns about the urban poor. Concerns about the sustainability gap both within different socioeconomic classes in cities and across cities of the globe are necessary to examine in any comprehensive attempt to work with natural environments and avoid anthropocentricizing conversations about sustainability.

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<sup>21</sup> See 1

<sup>22</sup> ibid

<sup>23</sup> ibid