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Urban sustainability: Research, politics, policy and practice

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ABSTRACT

With the world becoming urban and virtually all population growth over the next three decades expected in cities, it is certain that key pressures of government and governance will be urban in nature. In addition, much of the global wealth and resource consumption is concentrated in urban regions, and particularly in high-income countries. Into the 21st century, these evolving urban socio-ecological conditions and pressures are reflected, in part, in the global interest in urban sustainability. This article explores the evolution of the concepts sustainability and urban sustainability and assesses where we stand now with regard to research, politics, policy and practice. A particular interest in this analysis is placed on what limits our advancement toward the sustainability condition, with a focus placed on the interplay between two variables, the limited understanding of the science behind sustainability or the lack of commitment and apprehension by governments in advancing urban sustainability.

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Into the 21st century, global urban trends have taken human civilization into unknown territory. For the first time in history, more than half the world population lives in urban areas. If this urbanization pattern continues, virtually all population growth over the next three decades is projected to take place in cities. By 2030, the world urban population is expected to be some 5 billion people (United Nations, 2012). With population increases focused in urban areas, and with global wealth also concentrated in cities—particularly in high-income countries—most world resource stocks are directed to cities, making them the source of much of the global environmental degradation (Odum, 1997; Wackernagel & Rees, 1996; WI, 2013). In fact, while urban areas constitute some 2% of the land surface on Earth, more than 75% of the Earth resources depleted in any one year are consumed by urban inhabitants (Girardet, 2000). In addition, most of this urban resource demand is disproportionately consumed in wealthy countries, while the environmental impacts of these consumption practices are global.

Compounding local population and natural resource pressures, new development patterns have also emerged with some of the largest cities in the world. Historically, the size of cities was closely aligned with the wealth of nations, with the largest cities being located in wealthy countries. Examples are provided with Rome during the Roman Empire, or the populations of Peking (China) and Cairo (Egypt) during the Middle Ages. Reversing these historical trends, currently, some of the most populated cities in the world are located in some of the poorest countries (Table 1). In many cases, these are also countries where due to poverty, the local population is experiencing acute urban, environmental and health stresses.

It should be recognized, however, that while megacities receive the media attention, it is cities of less than a million inhabitants that make up the majority of the world's urban population (UNFPA, 2007). By 2005, cities with populations of less than a million had accounted for more than 60% of the global urban population. Furthermore, over the next decade, it is these cities where the significant urban population growth is expected to occur.

In addition to these urbanization trends, the growing disparity between wealthy and poor populations has emerged at the forefront of the debates on urban-environmental pressures and governance. With increasing economic globalization and the global diffusion of neoliberalism have come deregulation, privatization and the scaling-back of government in public service provision. While these policies have benefitted some urban populations, they have also increased socio-economic pressures on large population segments, and particularly moderate- and lower-income groups. By the mid-2000s, while the richest 20% of the world's population maintained about 75% of global income, the poorest 20% held only some 5% of world income (UNDP, 2007). For the thirteen poorest countries in the world, the real average income of its population in 2010 was lower than in 1970 (UNDP, 2010). Moreover, into the mid-2000s, over 80% of the world's population lived in countries where income inequality was increasing (UNDP, 2007).

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Table 1
Twenty largest urban agglomerations, 1950 projected to 2025. *Source:* United Nations (2004) *World Urbanization Prospects*: *The 2003 Revision*. United Nations, New York; United Nations (2012) *World Urbanization Prospects*: *The 2011 Revision*. United Nations, New York.

1950			1975		
Urban agglomeration		Population	Urban agglomeration		Population
1	New York	12,338,000	1	Tokyo	26,615,000
2	Tokyo	11,275,000	2	New York	15,880,000
3	London	8,361,000	3	Shanghai	11,443,000
4	Paris	5,424,000	4	Mexico City	10,690,000
5	Moscow	5,356,000	5	Osaka	9,844,000
6	Shanghai	5,333,000	6	São Paulo	9,614,000
7	Rhein-Ruhr North[a]	5,295,000	7	Buenos Aires	9,143,000
8	Buenos Aires	5,041,000	8	Los Angeles	8,926,000
9	Chicago	4,999,000	9	Paris	8,630,000
10	Calcutta	4,446,000	10	Beijing	8,545,000
11	Osaka	4,147,000	11	Calcutta	7,888,000
12	Los Angeles	4,046,000	12	Moscow	7,623,000
13	Beijing	3,913,000	13	Rio de Janeiro	7,557,000
14	Milan	3,633,000	14	London	7,546,000
15	Berlin	3,337,000	15	Mumbai	7,347,000
16	Philadelphia	3,128,000	16	Chicago	7,160,000
17	Mumbai	2,981,000	17	Seoul	6,808,000
18	Rio de Janeiro	2,930,000	18	Rhein-Ruhr North[a]	6,448,000
19	Saint Petersburg	2,903,000	19	Cairo	6,437,000
20	Mexico City	2,883,000	20	Tianjin	6,160,000
	Average size of top 20 urban agglomerations	5,088,450		Average size of top 20 urban agglomerations	9,515,200

2011			Projected 2025		
Urban agglomeration		Population	Urban agglomeration		Population
1	Tokyo	37,200,000	1	Tokyo	38,700,000
2	Delhi	22,700,000	2	Delhi	32,900,000
3	Mexico City	20,400,000	3	Shanghai	28,400,000
4	New York-Newark	20,400,000	4	Mumbai	26,600,000
5	Shanghai	20,200,000	5	Mexico City	24,600,000
6	São Paulo	19,900,000	6	New York	23,600,000
7	Mumbai	19,700,000	7	São Paulo	23,200,000
8	Beijing	15,600,000	8	Dhaka	22,900,000
9	Dhaka	15,400,000	9	Beijing	22,600,000
10	Calcutta	14,400,000	10	Karachi	20,200,000
11	Karachi	13,900,000	11	Lagos	18,900,000
12	Buenos Aires	13,500,000	12	Calcutta	18,700,000
13	Los Angeles-Long Beach-Santa Ana	13,400,000	13	Manila	16,300,000
14	Rio de Janeiro	12,000,000	14	Los Angeles-Long Beach-Santa Ana	15,700,000
15	Manila	11,900,000	15	Shenzhen	15,500,000
16	Moscow	11,600,000	16	Buenos Aires	15,500,000
17	Osaka-Kobe	11,500,000	17	Guangzhou	15,500,000
18	Istanbul	11,300,000	18	Istanbul	14,900,000
19	Lagos	11,200,000	19	Cairo	14,700,000
20	Cairo	11,200,000	20	Kinshasa	14,500,000
	Average size of top 20 urban agglomerations	16,370,000		Average size of top 20 urban agglomerations	21,195,000

[a] The urban agglomeration around Essen, Germany.

These income differentials translate directly into global consumption patterns. By 2007, while the world's wealthiest 20% accounted for 76.6% of total private consumption, the world's poorest 20% accounted for only 1.5% of total private consumption (World Bank, 2008). The global impacts of this resource distribution, and consumption, are substantial and fall on the world's most marginalized. In 2008 alone, due to poverty related causes, about 1004 children below the age of five died every hour worldwide (UNICEF, 2009).

Into the 21st century, given the anticipated world population concentrations, the on-going rise of mega-cities in poorer countries—along with the social and health stresses expected in these cities—and the direct and indirect impacts of urban populations on the natural environment, urban stresses will most likely be the most significant pressures on world governments and governance.

It is also apparent that there is an urban, socio-economic and environmental coupling in dealing with urban stresses, and this is encapsulated in the discourse on urban sustainability. By the late-1980s, and particularly after the publication of *Our Common Future* by the WCED (1987), the concepts 'sustainable development' and 'sustainable societies' permeated the global discourse on the pursuit of a socio-ecological condition that balanced the needs of humankind while preserving the quality of the natural environment and the functioning of its ecological systems over time. Due to growing urban pressures, the interest in sustainability also took on an urban focus. The recognition of the disproportionate consumption and environmental degradation driven by urban inhabitants gave rise to a new perspective on cities, captured effectively by Odum (1997, p. 290) who argued that "cities are parasites on the biosphere." In addition, the newly emerging global urbanization patterns, the rapid rise of megacities in poorer nations and a series of local stresses with devastating regional, national and transnational consequences—including the Bhopal gas tragedy, Love Canal, Chernobyl and Three Mile Island—reinforced the interdependence between the local (including urban and surrounding regions) and global, and placed cities and their regions at the forefront of sustainability discussions by the late-20th century.