

# Urbanization: Uncharted Growth

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## EXECUTIVE SUMMARY

The rush of people from the country to the city will have profound effects on urban centers across the globe. What has happened in São Paulo, Brazil, in the past 50 years serves as an example of what is to come for many cities: Stretched beyond its capacity to provide residents with necessary systems, São Paulo has massive congestion, poor public transportation, and a noticeable lack of proper sanitation.

## 12 TRENDS changing the world

A five-year research project reveals that the future of commerce worldwide will be greatly influenced by a dozen “global tectonics” that will affect business leaders across all industries:

1. Biotechnology
2. Nanotechnology
3. Information technology
4. Population
- 5. Urbanization**
6. Disease and globalization
7. Resource management
8. Environmental degradation
9. Knowledge dissemination
10. Economic integration
11. Conflict
12. Governance

In the decades ahead, urbanization — the migration from rural to urban areas — will become a predominant global trend. The rush from the farm to the city means that of the 24 major cities in the world today, in 10 years' time only three (New York, Los Angeles, and Tokyo) will be in the developed world.

Today, 47 percent of the world's population lives in an urban setting; by 2025, this proportion will rise to nearly 60 percent.

Take a look at one of these major cities, São Paulo, Brazil. Founded in 1554 by Jesuit priests, São Paulo is the industrial and financial center of Brazil, generating more than 30 percent of the country's gross national product. At nearly 18 million people, the metropolitan area is similar in size to Mexico City, Mumbai, and Seoul; it's a bit smaller than New York City, and somewhat more than half the size of Tokyo.

Fifty years ago, São Paulo wasn't even the largest urban area in Brazil, much less the largest in the southern hemisphere. Since 1960, the metropolitan region has added 13 million people — more than live in the central cities of New York, Los Angeles, and Philadelphia combined; more people than live in greater London, the ville de Paris, and the cities of Milan and Rome combined.

The implications of this population movement — this tectonic shift — from rural to urban in countries across the world are profound. It will create tremendous new pressures on federal and local governments, which will be faced with the challenge of providing physical infrastructure and social services to ever-expanding metropolitan populations. It will create new opportunities for business to satisfy a new set of requirements associated with rapidly growing urban centers. And it suggests the potential for unprecedented social, health-related, economic, and secu-

rity volatility in the future.

### Poorest will be hardest hit

The least-developed countries will see the most rapid and extreme urbanization. In 30 years, the urban population in least-developed countries will grow by approximately 2 billion people, resulting in metropolitan centers that cumulatively support more than 4 billion people.

In Africa, under the pressure of rapid population growth, traditional methods of agriculture are less capable of providing for subsistence farmers. More people are therefore moving from rural areas to centers of economic activities in the urban areas. Already by 2005, 40 percent of Africans live in urban areas. However, these cities lack the employment opportunities sought by the younger generation, and the lack of urban planning has translated into huge slums and a lack of clean water, electricity, and waste management, all accompanied with rising crime rates. These cities weren't built to handle such increases in population, nor has there been any clear planning to deal with this eventuality.

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A city such as Accra, Ghana, was designed and built for a population of around 200,000, but it will have to accommodate 4 million to 5 million inhabitants. If living conditions in cities around the globe like Accra do not improve, they will become explosive areas of social discontent and political instability.

Looking forward, urbanization trends that once dominated Europe and the United States will characterize Asia, a continent already home to eight of the 15 largest cities in the world, including Shanghai, Tokyo, Beijing, Mumbai, Calcutta, Jakarta, Seoul, and Madras. Each of these metropolises supports populations of 12 million to 23 million inhabitants. By 2025, more than 50 percent of the total Asian population will reside in cities, an increase of 35 percent from current urban statistics. In 30 years, China will have the largest urban population in the world, with nearly 828 million people. India will have the second largest, with 635 million people.

Mega-cities — metropolitan areas that support more than 10 million inhabitants — will be a key by-prod-

## Urbanization stats

- As much as 3 percent of the Earth's land area has already been urbanized, an increase of at least 50 percent over previous estimates.
- Coastal environments have much higher concentrations of urban land area (10 percent) and urban populations (65 percent) than other ecosystems.
- Far fewer Asian and African urban residents live in coastal and cultivated areas than residents of the Americas, Europe, and Oceania; however, population densities in coastal cities of Asia and Africa are much greater than those on other continents.
- Approximately 7 percent of urban dwellers now reside in the world's largest mega-cities, whereas experts had previously estimated this number to be around 4 percent.

Source: Global Rural Urban Mapping Project, Center for International Earth Science Information Network, 2005

# Underground infrastructure: Hidden risk

The rapid underground expansion of mega-cities takes place with little knowledge of associated risks and few plans to minimize the effects of a natural disaster, United National University experts warn.

With growing land pressures in cities (which contain about 50 percent of all people today), creating new space underground becomes increasingly attractive. In many places, however, studies of potential natural disaster risks are often neglected, according to Srikantha Herath, UNU senior academic program officer.

“The concentration of people and wealth in such underground spaces is expanding and merits careful examination,” said Herath. “Such facilities in many areas have not been used sufficiently long to be exposed to various types of extreme hazard events of low frequencies. Modeling a variety of catastrophic events is essential for building contingencies into underground infrastructure designs, including evacuations and the emergency containment and transport of flood waters, for example.”

Via underground interconnections, water can travel considerable distances away from the flood source. However, there are often no subsurface maps; underground space is usually mapped in relation to a building overhead.

“It is essential to plan and construct underground space based on information such as connectivity and to design carefully all uncovered entrances to underground spaces,” said Janos Bogardi, director of UNU’s Institute for Environment and Human Security in Bonn, Germany. “At the same time, underground spaces should be designed to withstand multi-hazards. For example, fire risks require planners to also include the ability to seal off and compartmentalize underground space quickly.”

Underground disasters can also pose dangers to those in buildings overhead, he adds. Floor utility spaces in multi-story underground structures cannot hold large amounts of water and may collapse floors below. Ventilation ducts may also be compromised.

“The frequency of underground flooding events is surprisingly high in places,” noted Herath. Tokyo records, for example, show 17 incidents from 1999 to 2001, some involving fatalities despite extensive precautions. Most floods occurred in the rain and typhoon months, July to September. Many such coastal mega-cities are vulnerable to flood events given a terrible combination of conditions, such as a heavy rainfall combined with tides or sea surges caused by winds or earthquake. Global warming is predicted to make extreme rain events more frequent, he added.

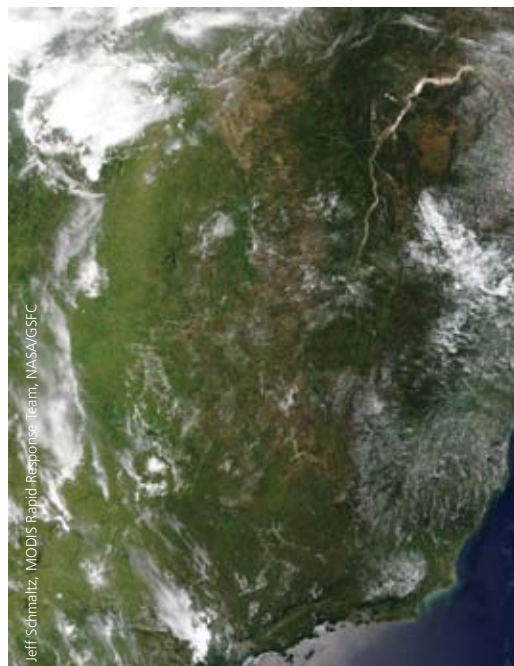
**Rapid urbanization carries with it new challenges associated with rural development.**

Cities such as Jakarta and Mumbai will become a feature of Asian urbanization as they join the ranks of New York, Shanghai, and Tokyo, currently the world’s largest metropolitan areas. By 2015, Asia will have 18 mega-cities, Latin America will have four, and North America will have two. Europe will not have an urban center at this magnitude. Tokyo, now the largest city in the world with a population of approximately 26.4 million inhabitants, will be rivaled in size by Mumbai, with a projected population of 26.1 million people. Lagos will have an estimated future population of 23.2 million people.

Rapid urbanization carries with it new challenges associated with rural development. Rural communities will languish as their populations diminish, and governments will likely attempt to develop their countryside to slow emigration to the cities. Projects providing rural areas with electricity, potable water, better roads, new transportation facilities, and employment incentives could improve living conditions and slow the demographic shift from country to city.

Because of the unique challenge associated with these mega-cities being situated in the least-developed countries, we also need to examine how certain past attempts to export our own market economy have failed.

Economist Hernando de Soto says “The function of a market economy is to exchange, but, startlingly, five-sixths of the global population is outside of the capitalist game due to legal systems that do not grant property rights over assets. Property does more than certify ownership; it’s an incentive. An integrated property system is the mother of many other institutions — it makes credit systems possible; no, more, it allows police to ‘skip trace,’ locate criminals, and make people accountable for their actions.”



**This Moderate Resolution Imaging Spectroradiometer image from the Terra satellite on Feb. 9, 2003, shows sun glinting off the river systems in eastern Brazil. Spotty clouds hang over the coastal regions, and scattered fires have been marked in red. At bottom center, a brownish-gray patch amid the green vegetation marks the location of São Paulo. To the northeast along the coast, a similar patch is the city of Rio de Janeiro.**

## Urban populations by region, 2000 vs. 2030

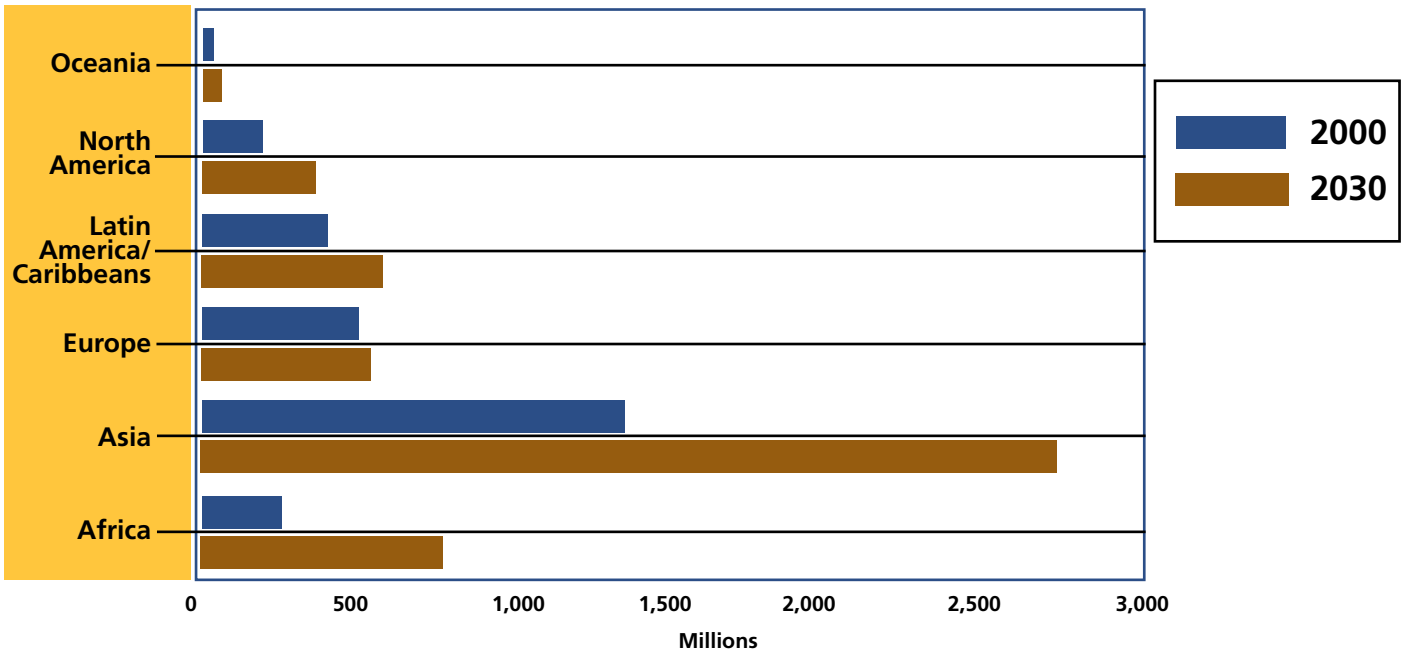
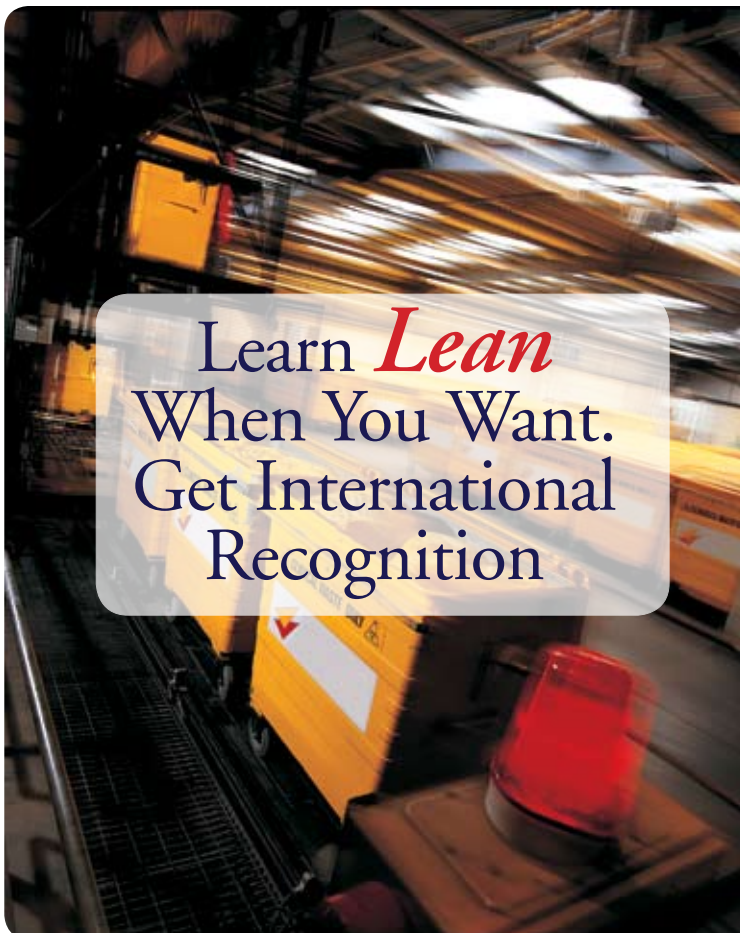


Figure 1. In 30 years, China will have the largest urban population in the world, with India close behind.



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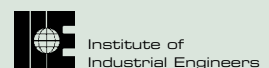
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## Share of regional populations in urban areas, 2000 vs. 2030

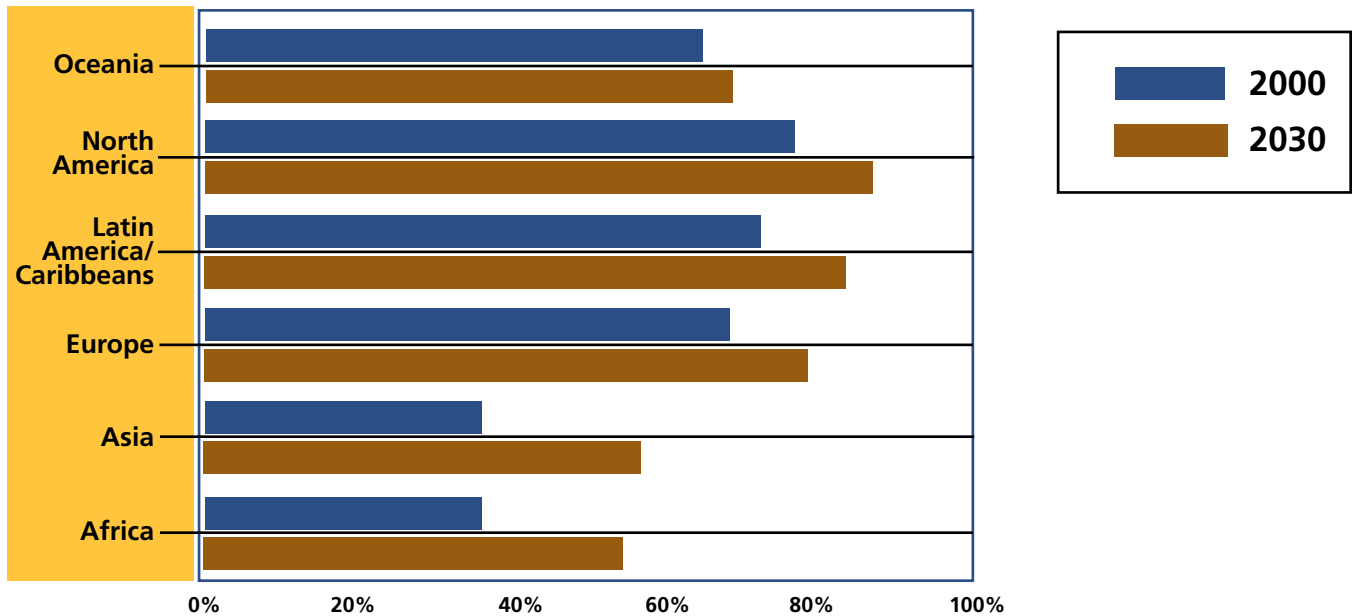


Figure 2. Business will need to offer creative solutions to produce sustainable market mechanisms.

There needs to be a concerted effort by both government and business to help solve these problems. Both urban and rural development present profound opportunities and challenges. These activities will require substantial financial support and private-sector investments. Even so, in addition to funding, it will require new and creative solutions from business to produce the sustainable market mechanisms.

### Urbanization implications

What are the implications of urbanization for business?

The first area of opportunity will flow from the renewal and modernization requirements of mega-cities. The exigencies of size and population density in large urban centers will allow business to play an enhanced role in innovation, investment, and economic growth. Transportation shortcomings, improper allocation of resources, housing shortages, inadequate waste control, extensive air and

water pollution, and city congestion will all take their toll on the quality of life in cities.

With the proper planning, the huge labor force of unemployed youth that has migrated from the countryside could be tapped to build some of the necessary infrastructure that these mega-cities so desperately need. Creative financing could provide jobs to serve the urban population in the building of roads, hospitals, schools, and other necessary social assets.

Second, business has an opportunity to work with governments in rural development, which could serve to alleviate the burdens brought on by the rise of mega-cities.

Just like globalization, urbanization brings opportunities as well as problems. It seems that almost by definition, mega-cities are also vulnerable cities. The challenge is to develop solutions to the problems associated with the phenomenon while at the same time realizing its positive pros-

pects for economic growth, social justice, and environmental sustainability.

Today, São Paulo is a humid and polluted city with some of the widest highways in the world. Despite this fact, there is massive citywide congestion, poor public transportation systems, and a noticeable lack of proper sanitation, with only 30 percent of the cities sewage treated and the rest flowing into rivers.

It is almost unimaginable what this mega-city will look like in only 10 years with the effects of uncharted urbanization. Without dedicated efforts both locally and internationally, where can we expect the hospitals, schools, and security facilities to find themselves? It is hard to comprehend that we might look back on a picture of São Paulo's slums as images of better times.

For the rural poor in Brazil, São Paulo shines as a beacon of opportunity. If we take a look, we too can see that the possibilities these mega-cities have created are huge. ❖

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