

CHAPTER 9

# Building Evidence to Sustain an Urban Future

a Web-based  
resource

a global urban research commons for the 21st century is critically needed. The commons would be a Web-based resource that would gather papers, databases, and other information that have never before collected in one place. It would also encompass publications that synthesize new research findings. It would convene researchers and practitioners in virtual and face-to-face meetings on a regular basis.

disseminating  
its findings

The reasons are compelling. The urban research/practitioner community needs to be as efficient in disseminating its findings as are major corporations that employ worldwide supply chains for their products. On-time knowledge is critical to shaping rapidly urbanizing places. The sustainability of cities has become, with the vast rural-to-urban migration of the times, close to synonymous with the sustainability of the human enterprise. Cities' spatial form, technologies, and resilience in the face of climate change are ripe for intense global debate and exchange. And because poverty in the 21st century will overwhelmingly be urban poverty, a global wave of examination of its roots, development, evolution, and long-term solutions is essential.

informal  
contacts

Much can be learned through informal contacts—mayor-to-mayor, expert-to-expert networks. But a global urban research commons requires rigorous academic attention to decipher emerging key questions, test hypotheses, monitor experiments, and raise the level of analysis of the critically pressing urban issues.

To test this idea, the University of Pennsylvania's Institute for Urban Research, led by professors Eugenie Birch and Susan

Wachter, organized the weeklong Summit session exploring urban research themes. Urban researchers from five continents, from both Global South and Global North, from varieties of disciplines such as demography, economics, health, education, environment, geography, city planning, health, and housing took part.

a scholarly  
network

They identified a need for a scholarly network that crosses geographies, disciplines, and private and public sectors. Participants discovered that researchers in Latin America, Africa, China, and India felt a need to understand developments elsewhere, and that numbers of Global North scholars share many of the same concerns.

Four core questions for a global urban research commons were identified before the session, and addressed by the network of scholars in their preparatory papers and during the session:

- Where will the new urban dwellers find a place to live and will these places be sustainable?
- In what conditions will they live in their fast-growing cities?
- What basic urban services will they need to allow the improvement of their standard of living and life prospects?
- How will those services be financed and supplied?

focused  
research

The participants observed that urban growth and challenges have not, until now, been a target of focused research or action plans among scholars. Much research, noted Schuaib Lwasa of Uganda's Makerere University, is skewed with a rural bias, while censuses often have difficulty reaching informal settlements, meaning that slums are often undercounted

and therefore underrepresented politically and in provision of services. There has been some effort to address data shortfalls as urban researchers drawn from academia, the United Nations, the World Bank, and other interested institutions have undertaken important studies tracking urban growth. In fact, one participant, city and regional planning expert John Landis, observed, the world is awash in data, including the UN-HABITAT's Global Urban Laboratory's demographic surveys and demographic analyses that assemble existing research country by country. But U.N. data, researcher Mark Montgomery noted, often just covers center cities, not the total metropolitan areas—a practice symptomatic of a general lack of uniformity and breakdown by spatial factors in currently available data.

One goal, for example, would be to come to a common global definition of what constitutes urban as opposed to rural population. Current definitions not only vary wildly, but often fail to get at the expansive, de facto way that urban regions are forming globally.

crosscutting  
elements

The missing crosscutting elements of research are also broad and problematic. As Birch observed, numbers are often available on how many households in a particular city have people with specific diseases. But the numbers are rarely applied to specific neighborhoods or city sections. It is rarely known, for example, where concentrations of tuberculosis are in an urban area. High-quality epidemiology would look for clusters of sickness. Instinctively, it is known that the highest concentration is in slums. But even within slums, where are

the incidences highest? What are the appropriate crosscutting factors to tie in—thematically and at various points in time, and related to interventions that authorities may have attempted, or reforms slum dwellers themselves have inaugurated? What lessons do such data offer for comparable areas of the same cities, or indeed others with similar demographic profiles worldwide?

types and varieties of data

So a central need emerges: to start defining (and then communicating to national and city governments) just which types and varieties of data are needed to assist in more effective governance and planning. The research that does exist, participants observed, tends to focus on overall trends of population growth, development, and poverty demographics, but is not up to now on the critical spatial—place-specific—analyses and comparisons that may be vital for the welfare of future city dwellers and the earth.

A starting point was suggested: determining a limited number of critical statistical measures of demography and spatial distribution of population, data that should meet many local government needs but also facilitate statistical comparisons worldwide, nationally, regionally, and locally.

### visualization tools and challenge

sustainability

For sustainability it is imperative to know not just the overall magnitude of urban population growth but where it is most likely to occur and its impact on the environment. What will be the human imprint on the land as a result of the additional

1 to 2 billion people coming to the cities? How can the exciting visualization tools, such as GIS or Google Earth, now made available by technology, be applied to the actual form of development, especially in a world of exploding Global South populations? What are and will be the demands for land, especially in vulnerable places? Can an urban spatial build-out data tool for these times be created, and then be applied for improved decision-making? The questions were a major theme of the Summit research discussions.

Satellite photography, for example, can show actual land area that is covered by buildings, as opposed to rural or undeveloped territory. One instance is the LandSat-based analyses of selected world cities developed by Summit participant Stephen Sheppard of Williams College and his associates. Such data are extremely useful in showing spatial expansion over time, and would seem ripe for worldwide application covering all cities—a development that could be aided, participants said, if NASA, with its constant global satellite monitoring, took a greater interest in urban observations.

Already researchers at Nairobi's Regional Center for Mapping of Resources and Development (RCMRD) are using high-resolution satellite remote sensing data from LandSat and the QuickBird (launched in 2001 by DigitalGlobe) for their city. Wilber Ottichilo of RCMRD told participants how the data, interpreted through GIS, has been applied in such areas as natural-resources management, utility mapping, and hydrological studies.

Improved  
satellite data

Improved satellite data is made all the more imperative by the recent-day decentralization of power from central to local governments across the Global South, emphasized in the sessions. Yet the data from the sky cries out for integration with basic demographic information to help cities improve their service delivery, health, and economic prospects—for example, numbers of households, age distribution, fertility and mortality rates, and other drivers of urban growth.

Providing quality GIS data systems and tools to Global South cities could increase their municipal governance capacities dramatically, it was suggested. But latest technology might deliver even more. One example: two- and three-dimensional visualization of city form and its incremental change over fairly brief periods of time. Architects, urban designers, and public and private decision makers could all benefit, seeing ways to think beyond their individual projects to an entire district, city, or region. The process could also be democratized, exposed to a cross section of city residents for their reactions.

### issues of sustainability

What are the issues that call for immediate investigation? For example, what are the environmental and social impacts of rapidly growing slum settlements on the Global South cities' immediate and long-term sustainability? Conversely, for people moving to cities from rural areas, what are actual quality-of-life prospects? Cities can be the world's most formidable wealth creators, but they are also subject to deep divisions and areas of

long-term  
sustainability

grinding, fearsome poverty. For instance, research tells us that people experience better health in cities than in rural areas but worse health in urban slums than anywhere.

a typical life  
cycle of a slum

One critical question: Is there a typical life cycle of a slum? Historically, most urban settlements shift from primitive to mature over time. But what happens to people within the life cycle? The improvement in favela conditions and living standards over time, cited by Susanna Pasternak of the University of São Paulo, was an example. She reported that most adults in Brazilian favelas are gainfully employed, some have cars, and their makeshift homes have added rooms, with stoves, radios, refrigerators, color TVs, even computers. Such advances are clearly tougher to register in such deeply poor countries as those of sub-Saharan Africa and Southeast Asia. The challenge is all the tougher for slum residents living without any kind of land title or way to provide collateral for a loan for basic home improvements. Microfinance and housing microfinance still make a difference. A study of the variables and trends could yield extraordinarily valuable insights into the potential of innovations in this area.

slum residents

Closely related is the now-intense issue in many Global South cities: Should slum areas be demolished in the name of urban renewal and economic development—or is slum upgrading, tapping residents' entrepreneurial skills, a better course? There is widespread belief, based on sterile high-rise settlements for poor families that spread across the Global North after World War II, that the high-rise buildings themselves spawn negative social conditions. But are other

tapping  
residents'  
entrepreneurial  
skills

factors—accessible jobs, schools, parks, for example—more critical? If low-income people in Hong Kong can live successfully in very high buildings, why not in other parts of the developing world? A careful analysis of varying countries' and cities' experiences, both with removal and upgrading, could provide a powerful tool for current-day debates.

Related questions are clear: In cities with slums and restrained government resources, what is known of most productive first steps? Are they provision of effective water supply, sanitation, education, or providing public transportation links to jobs? Or is providing self-help resources to organized tenants more critical? Or concerted efforts to provide land-tenure rights to residents? How can these programs be paid for? How can credit markets be galvanized, so that when microfinance is used, it can be extended from microenterprises' microfinance to housing and communities? And when public–private partnerships are employed, can these strategies compliment one another?

stark class  
differences

### enter the market—and inequality

The fortunes of today's cities, the participants agreed, are heavily determined by globalized market forces that create new economies and opportunities and are especially powerful when wedded to the surge of consumer demand of rising middle classes in many Global South cities. Clearly they are a part of cities' seeming magnetic power in these times.

true mobility

deeply  
disturbing  
factors

The dilemma is that left unguided, market forces may

produce highly inequitable impacts. The market, for example is increasingly providing serviced townships for rising middle-class population groups in such nations as India. Yet there is a profound irony: Because of the paucity of basic urban services such as clean water and sanitation offered to the entire population, and especially those living in slums, those who cannot afford to buy into the new serviced townships will end up being forced to pay more for public services than the wealthier households negotiate, in effect, for themselves. The most pressing need is to provide services for the poor who cannot depend on the market. In the absence of such provision, the resulting divisions, some noted, could well be kindling a political crisis for India—and the world.

Already, in many developing nation cities, the poor—especially those without land tenure—are reported to pay as much as 20 to 30 times what middle-to-upper class people do for basic services. So what reforms, accomplished either by local government or self-organizing of the poor, can be developed to provide critically needed services to all, not just the privileged groups and classes?

The issue is sharpened by the competition of cities as they work actively to attract knowledge workers to bolster and expand their local economies. The more highly skilled workers, whether native or immigrant, almost instinctively look for safe compounds—for example, India’s “serviced townships,” or gated communities, around Johannesburg—where they will be isolated from crime and enjoy better schools and higher-

quality services. Yet the vivid differences in lifestyles and circumstances can lead directly to serious crime threats from some of the underprivileged and hopeless peoples of these cities. Even militarylike armaments appear around homes of the privileged. The idea of a shared civil society suffers.

Research on alternative development plans—or ways of organizing with these communities to provide for themselves and link to public services—is critical to deal with the stark class differences apparent today. Because if properly channeled, market forces, in today's world, are what provide the critical capital for cities to shake poverty and develop more coherent and strong societies.

The dilemma seems to be that at the individual and family level for rural residents, moving to cities can result in less hunger, better health, and more educational and economic opportunities. The entrepreneurial vigor and determination of the Global South's country-to-city movers is a strong force. But for sustained growth in levels of achievement, the building of networks, sharing of skills, and support of local government are vital if the society is to offer true mobility and be sustainable.

Also to be considered: Ordinary crime, terrorism, government instability, and ethnic/tribal rivalries are deeply disturbing factors in many of the world's growing cities today. Extreme density among recently arrived slum dwellers can exacerbate such problems. One can imagine targeted research on the best global models to build both self-help mechanisms and more cohesive societies in fast-growing areas, thus avoiding as many of the threats as possible.

a global urban summit sampler

## Observations of Research Session Participants

### Quandaries of Urbanization

UN-HABITAT's Urban Indicators Data Base suggests the global rural-to-urban transition is almost complete in Latin America but continuing full steam in Africa and Asia. The most stunning figures come from the cities of sub-Saharan Africa, with an overall annual growth rate of 4.6 percent. The explosive growth of such cities as Dhaka, Bangladesh, and Lagos, Nigeria, is leading to extreme problems of adjustment, including plummeting conditions in housing, health, and education. Yet there are alternatives. Bogota, for example, is a world leader in slum prevention. An agency controls the perimeter of the city, locating small pockets of growing slum populations, then providing those areas with an office providing technical services such as design, critical services, and land-development advice. The resulting communities are low-income, but not slums.

Why do some countries have slums and others not? China has few. Governance and financing are important.

— nefise bazoglu, un-habitat

### Chinese Growth Dilemmas

There are 600 million people in China's cities today; by 2050 there could be 1 billion. And there is strong growth of per capita GDP. The overt national government policy has been to restrain the growth of large cities and instead encourage the development of small- and medium-sized cities incentivized, by land leasing first introduced in 1988, to make deals for new commercial enterprises. The result: urban sprawl as local governments try to capture new industries and revenues, allowing most new development to go to their outskirts.

— anthony yeh, university of hong kong

The average size of an apartment in China today is four times per person larger than 20 years ago. Office space per worker is also much larger.

— douglas webster, arizona state university

One-eighth of the urban population of the Urban South live in megacities; they're actually a relatively small part of the population.

— stephen sheppard, williams college

### The Ugandan Example

Lots of research is skewed with a rural bias. Censuses have great difficulty reaching informal settlements, meaning slums are underrepresented in many statistics. We do know in Uganda that although the country is just 13 percent urbanized now, the population of Kampala, our prime city with 1.2 million people in 2002, is exploding: now it accounts for 39 percent of the nation's total urban population. The city is growing rapidly, with promotion of industry and the private sector driving some of the real estate growth. Uganda is also seeing growth of trading centers with populations comparable to urban areas. We experience such problems as major outbreaks of cholera, malaria, and dysentery in urban areas. High percentages of the population are without fresh water supply or sewer service. Yet we have a transportation problem, with more and more private cars.

—shuaib lwasa, lecturer at makerere university, kampala

### India's Planning Challenges

About 12 percent of the world's urban population growth is occurring in India; three of its 393 cities with more than 100,000 people are among the eight largest on the planet and contribute significantly to the global economy. But the state of urban public services is far from satisfactory. There is a major nationwide reform, the Jawaharlal Nehru National Urban Renewal Mission, providing reforms-linked financial assistance to state governments and some localities. But multiple public institutions are professionally weak, lack financial resources, and have limited autonomy and financial powers. The states are slow in devolving functions and funds to municipalities. Most local bodies are weak, with multiple managers, overlapping functions, and lots of time off for lunch. Urban infrastructure is lagging badly. Almost all city areas have treated water supply, but the quality and distribution are inadequate. Thirty to 50 percent of solid waste remains untreated.

—vinod tewari, the energy and resources institute (teri), india

### Small-City Quandary

The Global South's smaller cities, where most early 21st-century population growth is projected, are seldom equipped with highly qualified

municipal staff. They often lack basic capacity. With decentralization by central governments, smaller cities are being asked to pay more of their own costs without an adequate revenue base.

— mark montgomery, population council and suny at stony brook

#### Fate of Cities

Most national governments have lost the power to decide on the size or territory of cities. Cities are becoming multi-nodal, dynamic, with the historic center meaning less.

— stephen malpezzi, university of wisconsin-madison

#### Coastal Boom

Roughly 2.7 percent of the world's land area is urbanized. But 64 percent of coastal systems are urban. And the world is likely to continue to draw people to coastal areas, with relatively high densities, already the pattern in every continent of the world. Imagine a 10-meter sea level rise: 60 percent of the people of Bangladesh live within the 10-meter zone. China is experiencing 1 percent a year overall population growth, but 2.4 percent in its low-elevation coastal zone.

— deborah balk, baruch school of public affairs,  
city university of new york

#### Climate Change

The Chinese and Southeast Asians are not talking much about climate change. Remember that the average building in China lasts for economic purposes just 15 years. So to move millions of people is perhaps no big deal. Imagine a 6-to-10 meter sea rise, endangering 85 percent of China's output? It would not happen; the Chinese would see it coming, build dikes, move their factories.

— douglas webster, arizona state university

#### Urban Growth Models

Models are good at characterizing and comparing urban change processes over place and time. But they need serious improvement to anticipate the future and simulate the effects of varied inputs.

Planners can produce an end-state vision — of how a city might look

and function in 2030 or 2050. The question then is how to get to that point? The problem is that today's models are good at showing factors that have impacted growth patterns in the past. But they are not so good on forecasting or comparing alternative futures.

— John Landis, University of California, Berkeley

### Age

An aging population is often missing from projections of demographic change in the next half century. It is increasingly agreed that we will have 2.5 billion or so more people, the world population growth rate will slow, population increase will end in the developed world while slowing in the developing world. But we will have a three-time increase in the numbers of the old. Slums are now overwhelmingly composed of young people, but that may change. Aging and urbanization will integrate in ways we haven't begun yet to imagine.

— Joel Cohen, Rockefeller University

### Health

Is urbanization good or bad for health? The evidence is not clear. Cities in some areas are better; diarrhea is a grave problem in rural areas, and far lower in urban. Motor vehicle and pedestrian accidents are high in urban areas, a bit lower in rural. (Hanoi, for example, has moved from rickshaws to racing motor bikes in just ten years.) The risk for diabetes rises sharply with urbanization — overweight conditions are much greater in cities. But in many rural areas, especially less-developed ones, undernutrition is an issue. Mental health problems rise in urban areas: old people are often found dead, with lack of any social connection. Urbanites also contract HIV/AIDS much more than rural people. The same is true of substance abuse.

— Timothy Evans, World Health Organization

In health field, prevention of HIV/AIDS, the use of preventive models is difficult. What helps? Partnership in development of knowledge, data work with affected communities. Not recommend: just an academic point of view. Engage the local constituency at the start rather than as an expert at end, so you come to conclusions at the same time. Second,

engage the media right from the beginning so they can help in the translation because academics cannot do that.

—afaf meleis, university of pennsylvania, school of nursing

#### Education Opportunities

Government and society have no choice — we must address the need for education of the urban poor. No country can develop without engaging the majority of its population. But there is a huge equity problem: the affluent go to the best schools and universities, and there are far too few places for the poor. Government has to do more even though education consumes the largest part of budgets. The rich should be taxed more for schools and scholarship programs. And the poor themselves have to learn to pay where and as they can to qualify for specialized advanced education.

—kilemi mwiria, ministry of education and parliament, kenya

#### Education of Girls and Women

Kenya made a big step forward in 2003, introducing free universal primary education and abolishing school charges. But in urban slums schools have low enrollment, high rates of waste due to high numbers of dropouts, absenteeism, and low completion rates and achievement. A vital next step: strong focus in developing nations, and especially the slums, on education of girls and women as a key to the future. Girls' education raises economic productivity, reduces fertility rates, lowers infant and maternal mortality, and improves health and nutrition. And it sets the stage for women's absorption into the economy, self-employed or as employees. This is critical because women are the foundation of life in urban slums due to their multiple roles as family homemakers, caretakers, workers, and producers and managers of food. It is especially distressing that more than 30 million girls in sub-Saharan Africa are missing from school. When uniforms are required but hard to afford, the boy is usually sent to school while the girl stays home. Often girls don't dare to go to school because of lack of toilet facilities.

—faith macharia, forum for african women educationalists, kenya chapter

## Housing

Housing finance has expanded throughout the world in recent decades, but a large share of the low-to-moderate income urban population in developing countries still has very limited access to long-term housing finance. Subsidized loans have proven ineffective in improving overall housing finance because they operate on a limited scale only and are not sustainable. The U.S. subprime lending sector provides affordable financing options for moderate-income households and immigrants without adequate proofs of income, but the associated risks have proven to be substantial. On the other hand microlending has emerged from an innovative idea to become a viable financing option for the poor over the past decade.

— kyung-hwan kim, sogang university, seoul, korea

Houses in Brazil's squatter settlements in the year 2000 were usually made of brickwork, often with two stories, and were served with electricity, drinking water, and garbage collection. The critical problem: Only a little more than half were connected to public sewage systems.

— susana pasternak, university of são paulo

highly  
inequitable  
impacts

## new challenges

A variety of other challenging new research questions emerged from the Summit, including these:

- What drives urban form in the Global South cities? Is it development of land at the urban periphery? Jobs? Friends and relatives urging new residents to join them? It is not clear how close Global South growth incentives are to those in the Global North. In the United States, for example, investment in a new road provokes investment. Is the same true in developing countries, or are other forces, magnets, stronger? And are the patterns different between larger and smaller, growing cities?
- Should megaregions be considered in the Global South as they are in the Global North (See Chapter 5)? The Chinese have already begun to do so, as Douglas Webster, a professor at the Arizona State University related at the sessions, noting rapid growth of the Beijing–Tianjin–Hebei megalopolis in particular. (That megaregion’s rapid rail system links cities of 10 million each by a mere 29-minute ride.) Along with urban analyst Robert Lang of Virginia Tech, Webster has identified 12 megaregions in China; three of them will account for 65 percent of the GDP but only 18 percent of the country’s population by 2020. Megaregion analysis could be helpful to focus transportation priorities, decide on areas for development, identify environmental priorities, analyze watersheds, and the like.

critically  
needed services  
to all

The clear determination at the end of the Summit research week was to push forward with a global urban research commons to consider, test, and

global urban  
research  
commons

evaluate all these topics, and more. The model would include a major focus on strong academic standards on the one hand, but also be characterized by total willingness to collaborate and work with practitioners of urban arts in cities across the globe. The objective would be to make the research accessible, practical, and informed by practice—thus useful to public and private decision makers upon demand.

There was simply zero likelihood, University of Pennsylvania’s Birch and Wachter noted after the week’s meetings, that the scholarly network to study and develop the array of issues highlighted in the Summit sessions could develop without the real-time interchange of views on global urbanization and its challenges that was the focus of the Summit sessions.

real-time  
interchange  
of views

Whether the future funding is foundation, international organization, NGO, or private, there was broad and strong agreement among participants that the urban research mission they identified is critical for 21st-century cities, and by extension to the world they lead.

urban research  
mission

So what would a global urban research commons be? It would be a network of analysts and scholars at work in varied cities united through virtual and physical meeting. The Commons would serve as an umbrella or clearinghouse for existing efforts. It would seek to bring together research on issues that link urban-planning needs and applied research from across the global research community. And it would promote data sharing and purchase of needed data sources. It would translate and disseminate data widely, and seek to do so in a very timely manner, helping scholars and practitioners enrich one another’s ideas. It could, for example,

a network of  
analysts and  
scholars

take the research, Podcasts and other products from the collaboration laboratories (“co-labs”) around the world that were described in Chapter 5, and make them quickly but also permanently available for researchers, governments, NGOs, and other interested audiences.

What binds all of this together? Susan Wachter offered a concise summary of the desired outcomes of urbanization: economic growth, sustainability, and equity.