CHAPTER 2 - DELIVERING EFFECTIVE URBAN MANAGEMENT

To Build Friendly and Livable Communities.

Cities should promote a harmonious and friendly social environment, and build civil, safe and livable urban neighborhoods through rational planning. They should provide high-quality public services in employment, healthcare, education, housing, social welfare and other areas. They should encourage public participation in urban planning and governance, take into consideration the practical and psychological needs of migrants to the cities, and eliminate social barriers and conflicts.

Shanghai Declaration on Better Cities, Better Life

1. ISSUES AND CHALLENGES[1]

Urban leaders understand that effective management is crucial to the successful implementation of an urban development plan. As mayor, one of your first steps might be to assess if the management systems currently in place are adequate for implementing, monitoring and evaluating the implementation of the plan and the provision of related public services.

Management challenges in metro areas abound. Cities struggle every day to meet daily operational needs while at the same time investing in the future – all with limited financial resources. Perhaps the main challenge currently facing local governments of large cities in developing nations is how to provide essential services–including housing, energy, water, sanitation, health and education--to meet the basic needs of an ever-growing population. In many developing countries such growing populations include a significant amount of people who are born in or migrate into poorly managed slum settlements. Inadequate public services related to health, education, housing and a lack of security of tenure are at the core of urban poverty and vulnerability.[2] The management of urban growth also requires adequate supply of land and appropriate plans for its use and deployment of infrastructure.

[1] This chapter was authored by Warren Karlenzig, with valuable input and contributions from Wu Zhiqiang and Mohan Peck

[2] "Managing Asian Cities: Sustainable and Inclusive Urban Solutions," Asian Development Bank, Manila, 2008, p. XIV: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

Capacities to make change happen are typically diffused between many different stakeholders. Therefore, integrated approaches, methods and skills needed to enable successful cooperation and collaboration are being increasingly used. Urban management policies and practices are always likely to impact strongly on social issues, so tools and approaches for promoting social inclusion are especially important. Promotion of public participation in decision-making is vitally important in urban management. Tools for urban assessment, visioning, scenario development and strategy planning can stimulate social and organisational learning and provide a process for enhancing stakeholders' understanding of how to prepare for and manage change, risk and uncertainty. Engaging grassroots and neighbourhood level participation in urban management, including in participatory budgeting, helps put new urban solutions into practice. This can only be successful if community leaders have access to information on the alternatives and options available.

A significant urban management challenge many mayors face is land tenure. In most African and Asian cities, for example, more than 50 per cent of urban populations live on land where title is disputed or unknown. Land registration and information systems require urgent improvement. Within and around some Asian cities only 10 to 20 per cent of land holdings are formally registered.[3]

As an urban leader you will have to plan to accommodate future urban growth, including providing the urban poor with serviced land to build and improve their own housing. In doing so, measures to secure property rights are indispensable. Such measures should ensure that women's property rights are equal to those of men, even if there are cultural hurdles to that. When considering their urban area "footprint," regional and local authorities should regulate and orient urban expansion in desired areas, while prohibiting settlement expansion or development in sensitive lands, such as watershed infiltration zones, seasonal wetlands, and forested areas. Mexico City has taken this approach with its "Plan Verde" (see case study this chapter). Through the use of such a strategic growth "footprint," government can minimize negative urban impacts and be proactive in preventing environmental degradation while reducing the environmental vulnerability of the poor.

[3] Ibid, p. X: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

As mayor, you may face the challenge that your city is growing faster than its infrastructure. This can result in uncontrolled urban sprawl that destroys established communities and increases costs of service provision.[4] Sprawl also puts local economies more at risk to the economic and expected supply constraints related to both operational energy use (gasoline, natural gas and electricity) and embodied energy (including in concrete, asphalt and steel for infrastructure development).[5]

Also, urban sustainability requires that you have an effective foundation of planning for urban land forms and land uses. Well designed land use codes and zoning mitigate both carbon emissions that contribute to global climate change as well as other pollutants from transportation that impact regional air quality. Transportation emissions per capita, for instance, can be almost four times higher in low-density urban areas than in high-density areas. Cities with high densities tend to have better-developed public transportation infrastructures and lower transportation emissions. Higher density cities restrict car use and limit parking spaces; they make non-polluting mobility such as cycling and walking easier, and they provide convenient access to public transportation. In short, you need to plan for effective transportation.[6]

Effective land use planning can counter a recent trend in large cities where industry-related pollutants are decreasing while transport-related pollutants are growing rapidly (Tokyo, Beijing, Shanghai, Jakarta and Manila).[7] Some reports state that in the People's Republic of China—deaths and illnesses of urban residents because of air pollution cost an estimated 5 per cent of annual GDP. The health-related cost of air pollution in Jakarta probably exceeds $1 billion per year.[8]

[4] Ibid, p. 5: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

[5] Scientific American magazine and some studies, such as the United Kingdom's "Industry Taskforce on Peak Oil and Energy Security" http://peakoiltaskforce.net/download-the-report/2010-peak-oil-report/ have predicted a peak global oil production by 2014-2015. See "How Much is Left: 2014, The Peak of Oil," Michael Moyer, Scientific American, September 2010, p. 75.

[6] "Reinventing the City: Three Prerequisites for Greening Urban Infrastructures," WWF International (in conjunction with Booz & Company), Gland, Switzerland, 2010, p. 5: http://www.slideshare.net/itsgowri/wwf-low-carboncities

[7] Ibid, p. 45: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

[8] Ibid, p. 47: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

One aim might be to provide multi-modal mobility options and easily accessible activities that enhance the quality of life. Land use planning should include zoning for mixed uses including light industrial (where appropriate), residential, commercial, educational, recreation and other uses. These should also be oriented toward public transit, cycling, walking and organized or city-sponsored automobile sharing services. "Transportation-oriented development" incorporating economic, social and environmental considerations in the design stage reduces greenhouse gases compared to automobile-dominated development. Transit-oriented design also enables citizens and businesses to reduce automobile ownership costs.

When making a sustainable urban land use plan, be sure that the built environment not only includes parks and open space but also accommodates and leverages natural systems that provide economically valuable ecosystem services. When properly leveraged, these natural systems can help to clean polluted water and air and prevent urban flooding through natural biological and hydrological processes.[9]

Urban management systems should include the ability to plan and model whole systems that optimize transportation and the built environment, resources including energy and water, and natural systems. This comprehensive approach will reduce resource use within cities, metro areas and regions, particularly "mega-regions." ("Mega-regions" are continuous densely populated regions spanning more than 100 kilometers with as many as 100 million inhabitants.[10]) Increasingly, as metro areas expand in developing countries, greater regional management and coordination will be necessary in order to prevent or mitigate unregulated land uses including slum settlements and automobile-dependent sprawl.

Though planning higher-density metro areas is overall an effective strategy for reducing carbon emissions (higher densities with transit oriented development reduces operational greenhouse gas production), this approach can have its disadvantages. When higher metro area densities are planned and developed improperly, for instance, urbanization may destroy or reduce the functionality of ecosystem services and inhibit resident access to parks and greenways. Dense

[9] "Ecosystem Services: A guide for decision makers," Janet Ranganathan and others, World Resources Institute, 2008: http://pdf.wri.org/ecosystem_services_guide_for_decisionmakers.pdf

[10] "UN Report: world's biggest cities merging into 'mega-regions'," John Vidal, *The Guardian*, 22 March, 2010: http://www.guardian.co.uk/world/2010/mar/22/un-cities-mega-regions

urban development may also increase surface temperatures through the urban "heat island" effect.

Effective management can integrate new sustainability ideas and approaches, knowledge management and communications in order to enhance management, decision-making and reviews. As an urban leader, you should try to assess how effective your management team performs. Performance indicators are a key tool for measuring effective management. Consider one example of a technological solution called City Cockpit. It is an integrated Management Information and Decision Support System that can assist city authorities in managing growth and changes within a city based upon key performance indicators related to areas such as traffic, environment, and finance.[11]

How cities fund new management processes until they are self-sustaining is an issue faced by all urban leaders. Researching and assessing potential financing mechanisms and tools should be part of the integrated management strategy. Public-private participation in sustainable infrastructure development, for instance, should be investigated during the strategic planning phase in functional areas including water supply, sewage treatment, solid waste management and public transit.[12] Mexico City, in developing its $1 billion Plan Verde (Green Plan), worked with international non-governmental organizations as well as with public and private foundations and international development banks in order to develop successful funding partnerships.[13]

You may also wish to explore land monetization and taxation policies, which are important considerations in successfully financing sustainable development. The strategy of aggressively monetizing land assets is likely to be most successful on the level of large cities. Revenue from land monetization should be distributed equally between metropolitan area and municipal governments; such funding can provide partial support for metro-area strategic planning

[11] "City of the Future", Siemens Corporation, p. 2. Accessed 20 August 2010: http://www.it-solutions.siemens.com/b2b/it/en/global/Documents/Publications/city-of-the-future_PDF_e.pdf

[12] "India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth," McKinsey Global Institute, April 2010, p. 75: http://www.mckinsey.com/mgi/reports/freepass_pdfs/india_urbanization/MGI_india_urbanization_fullreport.pdf

[13] "Experience Green Living," Mexico City Plan Verde website. Accessed 20 August 2010: http://www.mexicocityexperience.com/green_living/

programmes.[14] Considering the importance of large cities on national economies, measures should be taken by national and state governments to provide local governments with greater control over tax policy: they must be able to set and define the tax rates.[15]

2. MENU OF OPTIONS: EFFECTIVE MANAGEMENT

2.1. SLUM UPGRADING

Urban slums comprise approximately one billion people, according to UN Habitat, and are expected to double by 2020.[16] In terms of urban planning and design, though, instead of being perceived only as locales of grinding poverty that need to be eradicated, slums are increasingly being upgraded. They are high density, pedestrian-friendly, mixed-use, made from recycled material, adaptive to changing conditions and can be socially inclusive with strong neighborhood social networks. What they need are provision of basic services, more public safety, and better integration into the local economy.

Some of the latest approaches to slum urban development work focus on improved stakeholder participation in planning improvements. The planning group should consist of representatives from the slum community, the local small-business community, service providers, financial institutions, local institutions, non-governmental organizations, community-based organizations, and other citizens. One of the most common approaches for slum upgrading has been the "in-situ" method of upgrading infrastructure including water, utilities, buildings and streets. Working with local leadership councils and implementing improvements on a localized scale helps cities

[14] Ibid, pp. 74-80: http://www.mckinsey.com/mgi/reports/freepass_pdfs/india_urbanization/MGI_india_urbanization_fullreport.pdf

[15] "Managing Asian Cities: Sustainable and Inclusive Urban Solutions," Asian Development Bank, Manila, 2008, p. XI: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

[16] "Course on 'Upgrading informal urban settlements' being developed," the World Bank, accessed 28 September 2010: http://wbi.worldbank.org/wbi/news/2009/10/16/course-upgrading-informal-urban-settlements-development

successfully upgrade the conditions of their slums without changing the essential layout and fabric of the community.[17]

The main reasons why rehabilitation and upgrading offer the most feasible solutions to the problems presented by slum and squatter settlements include:

- the burden on public funds can be considerably less than for public housing and relocation, if upgrading programmes are designed using principles of affordability by the residents and the mobilization of popular action;
- the provision of security of tenure and access to credit, and people's participation in terms of savings and labour can be mobilized and directed to upgrading activities;
- there are political and practical reasons against relocating total communities on the scale that is common in many cities;
- given the precarious nature of the informal sector activities (community dependency, location, etc.), relocation removes people from employment sources and reduces their capacity for economic survival; it is difficult to transplant informal sector activities to public housing and apartment blocks and expect them to survive;
- social and economic survival of slum and squatter communities depends to a large extent on community organization and neighbourhood relationships. Relocation and public housing destroys the social fabric of poor urban settlements.

2.2. IMPROVE LAND REGISTRATION SYSTEMS

Poor land registration systems can be a large damper on urban development in developing countries. Improving such systems would provide numerous benefits, among them security of ownership and land tenure rights, as well as more efficient land transfers, and the ability to use a land title as collateral for loans. Improved land use and management can directly provide better information on land ownership and rights for physical planning and can facilitate the

[17] "Vietnam urban upgrading programme," the World Bank, accessed 28 September 2010: http://info.worldbank.org/etools/urbanslums/Map.html

development of other planning tools such as information banks covering land use, land values, population etc. It can also provide a tool to restrict certain land uses with a negative environmental impact. The expenses for improving land registration systems can be quickly recovered by increased property tax revenues.

In reforming land registration systems, urban managers can face institutional, technical and economic challenges. Efforts can be hampered by shortage of skilled staff and lack of interdepartmental coordination. Technical problems may include the inefficiency and inflexibility of the existing system and the high standards required for land surveys. While the financial costs of improving land information systems are often not small, it has been shown in many countries that the costs for improving the registration system can be recovered within a very short time span with revenues from land transfers and/or property taxes. It should also be noted that registration of such a scarce and valuable commodity such as land may also be a politically sensitive matter.

2.3. LEVERAGING PRIVATE SECTOR PARTICIPATION

Public-private partnerships are a rapidly evolving means and model for both the financing of and the delivery of city services. Public-private partnerships are considered "creative alliances" formed between a government entity and private companies to achieve a common purpose. A wide range of interests have joined these partnerships—including non-governmental institutions, health care providers, educational institutions, non-profit associations, such as community-based organizations, and intermediary groups, such as business improvement districts. Partnerships have been most common in energy systems and infrastructure, waste management, wastewater treatment, and public transportation infrastructure planning and development.

In North America, these partnerships have completed real estate projects including mixed-use developments, urban renewal through land and property assembly, public facilities such as convention centers and airports, and public services such as affordable housing.[18] Projects in the

[18] "Ten Principles for Successful Public Private Partnerships," The Urban Land Institute, February 2005: http://www.uli.org/ResearchAndPublications/Reports/~/media/Documents/ResearchAndPublications/Reports/TenPrinciples/TP_Partnerships.ashx

nations of Asia and Latin America have focused on transportation (Bus Rapid Transit in Mexico City), wastewater (Guangzhou and Beijing), solid waste (Shenzhen, China) and telecommunications (India).[19] Successful public-private partnerships are predicated on factors that include proper preparation, securing coordinated leadership, creating a shared vision among stakeholders, gaining participation of the non-profit sector and civil society, understanding and communicating risks and rewards, negotiating a fair "win-win" deal, and establishing a decision-making process that stakeholders consider clear and rational.[20]

In some large cities at the level of functional city services, cities are moving to a model of greater corporate participation from the department level down to the level of service provision or even project management. Agencies or services such as transportation, water supply, and waste management have been cost-effectively managed through public-private partnerships. Cities utilizing these approaches are sometimes more able than public agencies to effectively and quickly tap into the private industry networks of expertise that are needed for complex departmental functions and capital-intensive projects.[21]

2.4. NEW MODELS FOR STRUCTURING, MANAGING AND MEASURING CITY PERFORMANCE

New models are emerging to structure, manage and measure critical strategic changes needed for sustainability planning. One model, for instance, makes use of two tools for describing, measuring and managing city sustainability: strategy maps and "balanced scorecards." This strategic approach has been widely used in the corporate sector in China, North America and Europe. For municipal government sustainability functions, the US city of Charlotte, North Carolina used the balanced scorecard approach to monitor sustainability-related initiatives using relevant metrics for greenhouse gas reduction, transportation and land use planning, wastewater

[19] "Cities and Green Growth: Issues Paper for the 3rd Annual Meeting of the OECD Urban Roundtable of Mayors and Ministers," 25 May 2010, OECD Conference Center, Paris, p.33

[20] "Ten Principles for Successful Public Private Partnerships," The Urban Land Institute, February 2005: http://www.uli.org/ResearchAndPublications/Reports/~/media/Documents/ResearchAndPublications/Reports/TenPrinciples/TP_Partnerships.ashx

[21] Ibid

management, and natural system conservation.[22] For instance, Charlotte developed a one-page graphically illustrated strategy map for the process, which provided the city's critical objectives, combined with desired goals, and enabling objectives. Charlotte used the balanced scorecard-type approach to parse the city's critical strategic objectives, such as "maintain water quality national permit compliance," into measures, ("per cent/number of incidents out of compliance"), targets ("achieve 100 per cent compliance by 2012") and, finally, actionable city and department initiatives.

2.5. NATURAL DISASTER RISK MANAGEMENT

Urban management systems should also incorporate comprehensive risk management strategies. Risk management is fast becoming a major priority for city governments because of regional climate change impacts, including drought, extreme heat events and flooding. A significant number of large cities are located in areas susceptible to flooding. The Intergovernmental Panel on Climate Change has estimated global sea level rises of 0.18 to 0.59 meters this century.[23] Large vulnerable cities in developing nations include Dhaka, Jakarta, Tianjin, and Manila. The increase of less predictable and potentially violent or dangerous weather events has the greatest implications for those residing in poor quality housing, which is frequently located in flood-prone or geologically unstable zones.[24]

Disaster risk management stresses the need for active participation of local actors in design, development, implementation and monitoring of activities related to phases of disaster cycles. Cities can better prepare for natural disasters through preparation and publicizing of hazard maps and evacuation routes, as well as through development of early warning systems (including cell phone text-based system for those who may not have other communication devices). Anticipation of likely natural disasters that may occur on a repeated basis, such as tropical cyclones and

[22] "Charlotte's Balanced Scorecard," Lisa Schumacher, City of Charlotte, North Carolina, United States, PowerPoint Presentation, 2007: charmeck.org/.../charlotte/.../City%20of%20Charlotte%20Balanced%20Scorecard.pdf

[23] "Coastal zones and sea level rises," United States Environmental Protection Agency website, accessed 27 August, 2010: http://www.epa.gov/climatechange/effects/coastal/index.html

[24] "Managing Asian Cities: Sustainable and Inclusive Urban Solutions, Asian Development Bank, Manila, 2008, p. 45: http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf

hurricanes, necessitate coordinated evacuation drills and the development of special shelters for citizens.

An early warning system, specified evacuation procedures and the construction of cyclone shelters in Dhaka and other parts of Bangladesh, for instance, have significantly reduced deaths from these seasonal tropical storms that include high winds, heavy rainfall and often inundate low-lying areas with tidal flooding. Cyclones and sea level rises are thought to be exacerbated by global climate change, thus Bangladesh's natural disaster risk management activities can also be classified as climate change adaptation, which can potentially make its cities eligible for international funding addressing climate change.[25]

2.6. PROACTIVE REGIONAL PLANNING FOR URBANIZATION

Proactive regional urban planning approaches have been carried out on a national level in China, where planning focused on the creation of new urban areas in specific coastal locations. The nation purposely shaped a pattern of dynamic urban concentration on its East Coast at the beginning of its modern economic development period for a number of economic and geographic reasons.[26] China's announcement in August 2010 indicates that it is now moving in a similar proactive direction for sustainability planning: the National Development and Reform Commission endorsed a low-carbon pilot programme for the eight cities of Baoding, Xiamen, Hangzhou, Guiyang, Nanchang, Chongqing, Shenzhen, and Tianjin as well as for low-carbon pilot programmes in five provinces. This undertaking demonstrates a significant sustainability-related approach in proactive regional planning for urbanization. Under the low-carbon cities programme, the eight municipalities and five provinces will plan for low-carbon industry

[25] "Investing in a safe future," Australian Government, June 2009, (accessed 28 September 2010): www.ausaid.gov.au/publications/pdf/disasterriskreduction.pdf

[26] "India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth," McKinsey Global Institute, April 2010:
http://www.mckinsey.com/mgi/reports/freepass_pdfs/india_urbanization/MGI_india_urbanization_fullreport.pdf

technology investment while attempting to reduce citizen and municipal energy consumption on a regional basis.[27]

Greater London's Master Plan uses a top-down planning process with a multiple-decade time horizon. London's plan differs from other multi-decade planning initiatives in that it addresses the economy, transportation and housing at general levels that increase in complexity when moving down to the individual borough level, which is the smallest scale unit of administrative governance or the most local level of government in London. Micro-planning is applied in detail in all 32 of the metro area's boroughs. By this mechanism the city has addressed, for instance, land use planning issues 20 years in advance, such as congestion planning of peak morning traffic on a neighborhood basis.[28] The Greater London Authority and its boroughs share authority in planning.

[27] "China launches low-carbon pilot in select cities, provinces," Online People's Daily, 19 August 2010, accessed 15 September 2010: http://english.peopledaily.com.cn/90001/90778/90862/7110049.html

[28] "India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth," McKinsey Global Institute, April 2010, p. 107:
http://www.mckinsey.com/mgi/reports/freepass_pdfs/india_urbanization/MGI_india_urbanization_fullreport.pdf

3. CASE STUDIES

3.1. NEW YORK CITY: ROLE OF INTEGRATED SUSTAINABILITY PLANNING AND MANAGEMENT

A view of New York City's Manhattan skyline at night.

In 2007 New York City and its mayor, Michael Bloomberg, released a plan to make the city, the largest in the United States, into a more sustainable city by 2030. Called PlaNYC, it sets goals for reductions in energy and water use, culminating in a planned 30 per cent reduction in

greenhouse gas emissions by 2030. The greenhouse gas emission reduction goal was later codified into law under the Climate Protection Act (Local Law 55).[29]

Besides reducing greenhouse gas emissions and water use, PlaNYC creates a rich assessment of quality of life in the city of more than eight million, sometimes illustrating issues by using stories about real people living in the city, such as a six-year-old boy named Sasha. Using breadth and depth of analysis written in direct, non-academic language for the average citizen, PlaNYC covers housing, open space/parks, brownfields, water quality, water supply network, transportation, energy, air quality, climate change, and city street greening.

The plan provides numerous detailed maps showing the location of city amenities in 2007 in the context of future conditions that the plan will be addressing. A map of "Current Playground Access and Proposed Schoolyard-to-Playground Sites," for instance, plots 290 under-utilized schoolyard sites throughout the city that could be converted to public playgrounds. Shaded areas indicate on a neighborhood-by-neighborhood basis where there is "adequate" existing playground access and where there is "inadequate" playground access, as well as non-residential open space.[30]

PlaNYC 2030 was based on input from town hall meetings and roundtables with thousands of citizens as well as business leaders, advocacy organizations, leading academic experts and practitioners from various sustainability disciplines. The city also set up a website by which to receive input for the plan before it was drafted.

New York City developed the plan to face the challenge of adding nearly one million more residents by 2030 with an increasingly antiquated infrastructure network (the city's subway system, for instance, dates back as far as 1904).[31] Mayor Bloomberg also predicted that the

[29] "PlaNYC 2030," New York City, United States, accessed 20 August 2010. Site includes 2007 Plan: http://www.nyc.gov/html/planyc2030/html/home/home.shtml and 2010 Plan Update: http://www.nyc.gov/html/planyc2030/downloads/pdf/planyc_progress_report_2010.pdf

[30] New York City PlaNYC 2030, Open Space, p. 32-33: http://www.nyc.gov/html/planyc2030/downloads/pdf/report_open_space.pdf

[31] http://en.wikipedia.org/wiki/New_York_City_Subway

coastal city would be facing an increasingly unpredictable and volatile environment, ostensibly from the impacts of climate change.[32]

In order to help develop and manage the plan, the city reorganized its departmental functions to reflect the growing importance of sustainability in urban issues. New York City was the first major US city to merge its sustainability and planning management functions in 2007,[33] a move that was followed by US green city trendsetter Portland, Oregon, a small city of about 600,000. New York City's Long Term Planning & Sustainability Office coordinates and oversees efforts to develop and implement a strategic vision for the City's future through coordination with city agencies and the Mayor's Advisory Board for Sustainability.

The city developed several major goals as part of PlaNYC 2030, including:

- Turning a landfill into the largest city park developed in more than a century
- Expanding a subway line to augment the nation's already highest rate of public transit use: use forecasts were made on all the city's subway lines through 2030 to determine congestion based on demographic and ridership trends
- Launching a public outreach effort to get citizen and community input on developing plans and projects, or what Mayor Bloomberg called "a citywide conversation"
- Developing an inventory of more than 1,300 neighborhood playgrounds to see where more are needed
- Developing power plant efficiency forecasts for next 25 years
- Creating and preserving affordable housing for 500,000 residents by 2013
- Phasing out pollution-causing trucks using heavy-diesel fuel in the city fleet
- Lowering global warming carbon emissions by 30 per cent by 2030
- Developing a new tunnel and filtration plant for water delivery to the city from its protected upstate fresh water sources

[32] New York City PlaNYC 2030: http://www.nyc.gov/html/ops/html/long_term/long_term.shtml

[33] New York City Office of Long Term Planning & Sustainability, New York City, United States, 20 accessed 20 August 2010: http://www.nyc.gov/html/ops/html/long_term/long_term.shtml)

The 2007 plan also set 127 individual milestones for which the city has actively tracked progress toward its original goals by issuing a 2010 progress report. The 2010 report indicated that: 72 of the 127 milestones were achieved or mostly achieved; 41 milestones were not yet achieved; 11 milestones were reconsidered; and 3 milestones were reported as "not available" in 2010.

By category, New York City's plan addresses eight major areas for which it conducted planning meetings for input that included the presentation of research and discussion of the larger goals and more detailed milestones. A summary of the goals and milestones the city achieved between 2007 and 2010 in seven categories is outlined below:

Land Use and Transportation Planning: The city completed 19 land use re-zonings that direct development to areas well-served by transit. The city added a Bus Rapid Transit line and more than 200 miles of bicycle lanes. New York developed pedestrian plazas with successful conversions of auto-dominated space to pedestrian and mini-park space in Times and Herald squares.

Air Quality: The city enacted a clean air law for public school buses, reducing emissions that children and residents are exposed to and lowering the retirement age of buses with old technology that produce more pollutants.

Water Quality and Supply: New York City acquired almost 29,000 acres of land to protect its water supply. All 14 of the city's wastewater treatment plants were able to meet national ambient water quality standards for pollutant removal by 2010.

Green Buildings: The city passed a green building plan that requires sweeping code changes for greater energy efficiency and implementation of renewables, including solar thermal hot water heating units.

Street Greening: After first doing an inventory on the number of trees in the city--five million trees were tallied--PlaNYC 2030 set out to increase that number by 20 per cent, or one million. The city reported planting more than 322,000 trees by the time of its 2010 plan update.

Energy/ Energy Efficiency (includes greenhouse gas emissions reductions): New York City completed 86 energy efficiency projects in its government buildings as part of an effort to reduce city greenhouse gas emissions 13 per cent by 2017.

Parks: PlaNYC 2030 utilized an effective metric for determining how easily residents can access their local parks: that is, how many city residents live within a 10-minute walk of a public park? Even with more than 29,000 acres of parks, New York City has less park land per resident than average US cities.[34] The plan stated the importance of improving access to parks in underserved neighborhoods where parks have been scarce. By strategically adding 300 acres of parks between 2007 and 2010, the city reported an 8 per cent increase in the number of residents that live within a 10-minute walk of a public park, with 84 per cent of city residents having such access in 2010, up from 76 per cent in 2007 when PlaNYC 2030 was released. The plan has a goal of having a public park within a 10-minute walk for nearly every resident of the city by 2030.

Another exemplary approach undertaken by PlaNYC for improving park access was to convert schoolyards to public playgrounds: between 2007 and 2010, 113 schoolyards were converted to public playgrounds.[35]

City Fleets: The city greened 25 per cent of its taxi fleet with the introduction of hybrid gasoline-electric vehicles.

Lessons Learned:

New York City's PlaNYC 2030 is credited by experts as one of the best examples to date of an integrated sustainability management plan because of its widespread citizen and expert input, its associated executive and legislative leadership, effective analysis and communications, metrics and transparent follow-through. Interestingly, one indicator of the plan's success besides tangible and widespread areas of progress has been the ability of the plan to adapt to changing times and conditions by reconsidering a limited number of milestones. The 2010 progress report declared that 11 milestones, or about nine per cent of 127 total plan milestones, were no longer relevant or feasible.[36] One of these reconsidered goals was making 43 high school fields available for

[34] See pp. 32-33: http://www.heartpark.org/RedondoBeachIsParkPoor.pdf

[35] PlaNYC Progress Report 2010," City of New York, United States, April 2010, p. 16: http://www.nyc.gov/html/planyc2030/downloads/pdf/planyc_progress_report_2010.pdf

[36] "PlaNYC 2030," New York City, United States, accessed 20 August 2010. Site includes 2007 Plan: http://www.nyc.gov/html/planyc2030/html/home/home.shtml and 2010 Plan Update: http://www.nyc.gov/html/planyc2030/downloads/pdf/planyc_progress_report_2010.pdf

competition athletics throughout the city. The economic crisis combined with a thorough analysis of expected costs from such a programme convinced city officials to reconsider the goal.[37] Demonstrating flexibility on particular milestones illustrates that changing conditions need not mire entire sustainability plans with a lack of progress but instead can actually strengthen the overall planning process.

3.2. SLUM UPGRADING IN PHNOM PENH, CAMBODIA[38]

Substandard housing and squalor typifies these slum dwellings in Phnom Penh.
Photo credit: Dr. Stephen C.F. Chan

Phnom Penh has experienced extensive development, but commercial and public interests have remained on a collision course with the specific needs of the urban poor. As a result, the poor have been left worse off and struggling to secure a place in the aggressive commercialization of land markets.

[37] "PlaNYC Progress Report 2010," City of New York, United States, April 2010, p. 22: http://www.nyc.gov/html/planyc2030/downloads/pdf/planyc_progress_report_2010.pdf

[38] UN Habitat, State of Asian Cities Report 2010/11, Ch. 4, Box 4.11

In 1998, the Squatter and Urban Poor Federation together with other non-governmental organizations and the Phnom Penh municipality established the Urban Poor Development Fund to provide shelter loans to a specific community to support their relocation from a forthcoming inner-city development project. Since then, the Fund has diversified in response to other community needs. The Fund has supported the development of a new City Development Strategy, the basic principle of which was the vital need for a vision of the city's development that was shared between various stakeholders.

The Urban Poor Development Fund provides low-interest loans for housing, improved settlements and income generation for the benefit of those urban poor communities that are actively involved in a community savings process. Loans are made only to communities, not to individuals, through their savings groups.

Besides providing a much-needed source of affordable credit, the Fund supports the poor in several ways:

- adding capital to community savings accounts to help community residents overcome financial constraints
- innovations in housing and settlement improvements, as well as negotiated tenure formats that demonstrate fresh solutions and test new kinds of institutional set-ups.

Following the establishment of the Fund, in 2004 UN Habitat and the City of Phnom Penh launched a partnership for Urban Poverty Reduction to strengthen the human dignity of the urban poor. Poor communities were supported in efforts to form community organizations that launched community consultations on local problems. The communities then initiated negotiations with city authorities and built working relationships between the communities and the Phnom Penh municipality. These negotiations led to the financing and execution of site improvements identified in the community.

The aims of the partnership were to strengthen the self-confidence, competence and dignity of the urban poor by reducing their poverty, vulnerability and social exclusion through:

- empowering communities to improve their access to affordable basic services and better living environments;
- optimizing the outcomes of the community-based infrastructure and basic services provision in slum and squatter settlements in Phnom Penh from lessons learned in the use of the Urban Poor Development Fund;
- promoting the direct involvement of poor communities in the design and implementation of improvement activities;
- assisting the municipality in achieving the target of "improving 100 slum-squatter settlements per annum," a commitment made by the Cambodia Prime Minister in May 2003.

A range of activities were undertaken to meet those aims. Community Action Plans were implemented in the areas of water and sanitation, drainage, solid waste disposal, access roads and walkways, health and income generation as proposed by communities. Housing was improved or upgraded either in the slums or at relocation sites. Municipal staff were trained in the implementation of pro-poor policies and on partnering with poor communities. Key to the success was the direct involvement of poor communities in the design and implementation of slum upgrading activities.

As a result of these activities, over 160 new community organizations formed. More than 350 improvements in community infrastructures and basic urban services were achieved, such as footbridges, concrete lanes, drainage and toilets – many built by the communities themselves. More than 31,000 families benefited from such improvements, which resulted in a greater sense of ownership by participating communities. More positive perceptions were created within the poor communities of themselves and of the local authorities by becoming a part of municipal decision-making. And human dignity was improved through better living conditions.

Lessons Learned:

Supportive approaches such as slum upgrading efforts are founded on the belief that slum and squatter settlements have an inherent potential for improvement. Supportive policies seek the inclusion of slum and squatter areas in the urban development process, as well as the social and

economic integration of the residents into the surrounding communities. Supportive policies should be designed to improve the conditions in slum and squatter settlements. For example, security of land tenure acts as a stimulus for residents to improve their own dwellings and provide for some of their needs as a community; therefore local governments should wherever possible legalize slum plots, either on an ownership or leasehold basis. The most successful upgrading approaches are those that combine efforts of local governments with those of the business community, finance institutions, community-based organizations and non-governmental organizations.

3.3. GHANA IMPROVED LAND REGISTRATION SYSTEM[39]

Since independence the citizens of Ghana dealt with a dysfunctional land administration system resulting from two overlapping systems: the inefficient state land bureaucracy and customary tenure. Long and expensive procedures taking up to 5 years and involving 6 different agencies discouraged many from utilizing state institutions to register land. Many instead dealt with land issues by means of unrecorded, traditional practices within clans or tribes. The turning point was the establishment of land administration reform by the Ministry of Lands, Forestry, and Mines. This reform was piloted in greater Accra and the city of Kumasi.

About 80 per cent of land in Ghana is held by the customary owners: tribes and their leaders, clans and families, and "tendamba" — traditional owners of land and groves, typically the first settlers in communities. The remainder belongs to the state.

During colonial times data on land ownership were not comprehensively recorded. According to custom, most transactions happened without documentation, and boundaries were not defined by surveyed maps but by such physical landmarks as hills, streams, and trees. Because landmarks are not a reliable way of delimiting land, litigation over ownership and boundaries was a constant problem.

[39] Peter Kuntu-Mensah, On the Implementation of Land Title Registration in Ghana, FIG Regional Conference, Accra, Ghana, 2006

Attempts at reform - Numerous attempts at correcting the situation were initiated and failed, including the 1962 Land Registry Act, which disallowed the registration of the oral transactions and made it compulsory to register all instruments affecting land. The deeds registration system however failed to ensure title security. Its flaws included inaccurate maps, multiple sales of the same parcel, use of unapproved development schemes, haphazard developments, conflicting land uses, and time consuming land litigation, among others.

Then in 1986, the government enacted the Land Title Registration Law, introducing title registration as the official system for recording property. The purpose of the new system was to promote title security by registering the title rather than just the transaction. Under title registration the registrar and the state guaranteed the title and its authenticity and there would no longer be any need to trace ownership back to the root title. The new law also promoted accurate parcel or cadastral maps to reduce fraud and multiple registrations of the same parcel.

But implementation of registration proved slow. By some accounts, less than 5 per cent of land in these districts had been registered 15 years later. A 1996 study reported an average turnaround time of 5 years to secure concurrence to a private land transaction. As a result, only 10 per cent of land buyers in the two pilot cities ever approached the Lands Commission for official certification, choosing instead to ignore the law.

The reasons for the failure were many. The reform was inadequately funded and resourced and suffered from personnel and logistical problems. There was also widespread duplication of efforts and lack of coordination among land administration agencies, notably the Title Registry and the Lands Commission.

Much of the confusion was due to lack of public outreach. The Land Title Registration Law was not publicized widely enough and the public remained largely unaware of the change in legislation. Public education was conducted mainly through the distribution of flyers and brochures, while 40 per cent of the population was illiterate.

The government realized that it was failing in its goal to secure land tenure in the country. Problems were particularly acute in the urban and peri-urban areas, where the growing population and rapid urbanization increased the social and economic demand for land. In those areas, tribal chiefs often sold communal land to commercial entities and small farmers were then

forced off their land. The resulting homelessness, poverty, and violence showed that land tenure security was a problem not just of economic development but of basic rights.

Effective land administration reform - It was at that point that the government Ministry of Lands, Forestry, and Mines introduced the National Land Policy in June 1999. The policy outlined the bottlenecks to efficient and effective land administration, stressing such problems as indeterminate boundaries, weak and fragmented land administration, and inadequate tenure security. The new government implemented the policy through the Land Administration Programme. The programme, supported by international donors, is to last 15–20 years and consists of 5-year phases. The first phase, known as the Land Administration Project, began in 2003.

The goal of the Land Administration Project is to create a sustainable and well functioning land administration system that is fair, efficient, cost effective, decentralized, and provides land tenure security. The launch of the project created public awareness of land management problems throughout the country. Special emphasis was given to education. Public figures became involved, including the president.

The Ministry of Lands, Forestry, and Mines then began exploring ways to resolve the disagreements and lack of coordination among the various land administration agencies. In May 2006, the Ministry issued a directive calling on all agencies of the government to observe the new law, and the Lands Commission was ordered to stop registering deeds belonging to family and individual owners in the compulsory registration districts. The results were impressive. Within 34 days anyone could complete a property transaction in one of the pilot districts.

The directive, which went into effect on 1 June 2006, dramatically increased the workload of the Land Title Registry. To keep up with the demand, the registry recruited new staff and began computerizing its databases in 2008. Information technology is helping the agency deal with the heavy workload brought on by the change and is further reducing the time required to search for a title.

The Ministry of Lands, Forestry, and Mines is working to sustain its progress within the framework of the Land Administration Programme and is working to expand the registry's

operations to the rest of the country. The Ministry has already established 6 land registries under the Land Administration project, one in each regional capital in addition to the two already in Accra and Kumasi.

Lessons learned:

First, the success of any land registration reform is contingent upon a well-designed public outreach campaign. Lack of such a programme can only lead to confused applicants and cumbersome transactions.

Second, lack of coordination and turf battles among existing government authorities can hamper efforts. Duplication and bottlenecks must be overcome, which often require negotiations.

Third, it is crucial to build the capacity to implement reforms. After publishing the Directive in May 2006, the Ministry of Lands, Forestry, and Mines had to recruit new staff and computerize databases in order to allow the registry to deal with the higher workload, thus smoothing the transition for Ghana's landowners.

3.4. MEXICO CITY'S PLAN VERDE

Mexico City has made enormous strides in reducing urban air pollution. Photo courtesy of UN Habitat.

Mexico City has improved its dubious standing of two decades ago, when it was the world's most polluted city. In an interview some years later, the city's mayor described that birds were literally dropping dead in mid-air from air pollution.[40] Its achievement is due to an ambitious and far-reaching plan impacting city management and citizen actions, called "Plan Verde" (Green Plan). In 1990, there were a total of 333 days in the nation's capital in which the ozone level rose above the Mexican national standard. By 2009, the number of days above the standard fell to 180. In

[40] "Marcelo Ebrard, the battle-hardened and reform-minded mayor of Mexico City," City Mayor Interviews, 10 June 2010, accessed 10 September 2010: http://www.citymayors.com/interviews/ebrard-interview.html

addition, the average hours per day that the ozone standard is above the norm has also fallen--from an average of 4.9 hours per day in 1990, to just 1.5 hours per day in 2009. In 2010 this large city of about 20 million citizens no longer ranked among the top 10 cities with the world's worst air quality.[41]

In 2006, Mexico City developed its 15-year Plan Verde to reduce carbon emissions by seven million metric tons between 2008 and 2012. Nearly 20 city agencies are working together to optimize the city's $1 billion-per-year investment in the plan, which represents about seven per cent of Mexico City's total yearly budget.[42] In addition to bettering air quality, the plan has other major goals. Plan Verde includes what it refers to as "seven pillars":

1. land conservation;
2. public spaces;
3. air pollution;
4. waste management and recycling;
5. water supply and sanitation;
6. climate action planning; and
7. transportation and mobility.

Plan Verde includes major financial investments in public transportation, recycling programmes, and in developing new green spaces. The city's efforts to control atmospheric pollutants include replacing aging taxis, microbuses and government fleets with lower emission vehicles, introducing a bike-sharing programme, and building a world-class bus rapid transit system. In addressing its regional air quality challenges, the city was able to significantly impact its global greenhouse gas emissions. Mexico City reported reduced greenhouse gas emissions by 2 per cent

[41] "Mexico City presents comprehensive plan to tackle environmental conditions," City Mayors, 1 May 2010, http://www.citymayors.com/environment/mexico-green-plan.html

[42] "Experience Green Living," Mexico City Plan Verde website. Accessed 20 August 2010: http://www.mexicocityexperience.com/green_living/

after the first year of the plan, or 750,000 metric tons. Plan Verde also includes a business and citizen education component.[43]

Waste Management - Mexico City is attempting to transform one of the world's largest waste management systems into a showcase for Latin America. The city is implementing an ambitious recycling programme that aims to increase the amount of trash recycled by 79 per cent. Management of solid waste under the plan promotes recycling in households, commercial and service businesses and industrial facilities. Plan Verde has also developed a permanent education campaign to encourage the separation of waste into organic and inorganic waste. Mexico City is building new state-of-the-art waste disposal facilities and modernizing all other waste selection plants so it can recycle, compost or burn for energy 85 per cent of Mexico City's trash by 2012.

Land and Eco-System Services Conservation - 59 per cent of the total area of the Federal District is designated as conservation land. In order to protect this highly valuable land, Mexico City is creating a specialized surveillance corps to enforce the laws and restrict settlements on conservation land. Mexico City has created a special police unit of 1,500 officers to enforce environmental regulations in the land conservation areas. The Federal District under the Plan Verde has a regional emphasis on land and ecosystem services conservation, including analyzing and protecting clean air, food, forests and water surrounding the urban area. Mexico City is restoring the nearby Magdalena River Basin and Eslava River Basin, planning on reversing their degradation by 100 per cent by 2012. The city also plans to protect 27 per cent of the conservation land through the establishment of a payment system for environmental services to the owners of regional forests who abide by the city's conservation requirements under Plan Verde.

Water Supply and Water Quality - The unique geographic characteristics of the Valley of Mexico City presents challenges to the city's water supply. Water is a vital commodity for Mexico City, as the Valley of Mexico is prone to periods of drought that may become more frequent with the impacts of climate change. In 2009, low-reservoirs due to drought caused the

[43] Plan Verde web site, Mexico City, Mexico. Accessed 20 August 2010. http://www.sma.df.gob.mx/planverde/ also see: http://www.mexicocityexperience.com/green_living/ "Earth Day and the World's Cities," Marcelo Ebrard, 17 April 2008: http://www.huffingtonpost.com/marcelo-ebrard/earth-day-and-the-worlds_b_541708.html

city to ration water to five million of its residents.[44] Mexico City is investing in treatment and recovery systems that will reduce water leaks and losses, such as modernizing the Mexico City Water System infrastructure. The water recovery strategies outlined in the Green Plan can result in water savings of up to four cubic meters per second. In addition to modernizing its water supply network by replacing 100 per cent of obsolete or damaged pipes by 2012, Mexico City is increasing the reuse and treatment of water by improving the drainage system and building water treatment facilities in key city locations. The city has also started a social awareness campaign to educate businesses and consumers of their role in reducing water consumption and improving water efficiency.

Habitability and Public Space - Mexico City is retrofitting its arid cityscape with rooftop gardens and green roofs. The city aims to install 500,000 square feet of garden roofs by 2012. It has a goal of increasing green public spaces, ensuring nine square meters of green space per resident, an increase of 3.6 square meters from 2008 levels. New green roofs, parks and gardens will not only transform the image of the city and improve the quality of life of its communities, but also filter pollution, cut energy use, and absorb noise. The new green public spaces will be strengthened with eco-system services such as treated water networks and rainwater collectors. Cultural amenities under Plan Verde include park benches, play structures and access ramps for children, seniors and disabled people along with improved public lighting.

Air Quality and Transportation - Mexico City is devoting significant resources to improving the air quality in its metropolitan area. To reduce the effects of population growth and an increased vehicle fleet, the city has plans to replace 100 per cent of official government vehicles with fuel-efficient and low-polluting units by 2012. The trend of clearer skies continues. In the first three months of 2010, there were 24 days when the ozone level was above the standard (just 26.7 per cent of total days), with the average hours per day above the level falling to just 0.8 hours.

To improve mobility choices, Mexico City is devoting significant resources to increasing safe and energy-efficient mass transportation in the city. The city is investing $2 billion to construct a 12th metro line by 2012 and is providing subsidies to replace taxis with newer, more energy

[44] "Back to the Source," National Geographic magazine, April 2010, p. 23.

efficient and cleaner vehicles. In addition to these projects, Mexico City has restricted private vehicle usage on certain days and in certain high-traffic zones as part of the "Hoy No Circula" programme that reduces both traffic and emissions. It has also introduced a bicycle mobility strategy that includes free bike rentals and the creation of 21 kilometers of new bicycle paths in 2009, with further expansion in future years. The city is building bicycle parking infrastructure at major Metro subway stations. These programmes are intended to help the city achieve its goal of increasing bicycle trips from one per cent to five per cent of total trips in the city by 2012. At the 2010 launch of its free bike rental programme, called Ecobici, the city installed 1,100 bikes at 85 stations around the city center.

Lessons Learned:

A serious challenge to Mexico City's economy and environment—consistently poor and even dangerous air quality-- prompted the city to initiate measures to overcome the crisis. By focusing on addressing poor air quality through multiple areas of city influence including land use and planning, transportation, waste management, and climate action planning, the city was also able to simultaneously produce effective programmes and progress in areas that were seemingly unrelated, such as water use and supply. Meanwhile, the city has kept its primary focus on air quality improvement by putting overall emphasis on measuring and publicly reporting air quality improvements. Mexico City has proven that an integrated sustainability plan is effective in tackling a serious "single" challenge by addressing multiple areas of influence. Through effective programme management, combined with public and media visibility it has also ensured progress on other related sustainability issues.

3.5. PARTICIPATORY CITY BUDGETING IN PORTO ALEGRE, BRAZIL[45]

A transition to participatory budgeting in the city of Porto Alegre in the 1990s was highly successful in improving urban management. City residents were empowered to decide on

[45] Andreas Novy and Bernhard Leubolt, *Participatory Budgeting in Porto Alegre: Social Innovation and the Dialectical Relationship of State and Civil Society,* Urban Studies, Vol. 42, No. 11, 2023– 2036, October 2005

virtually any use of municipal resources—from street paving, to cultural initiatives, to education, to sanitation services, to pay scales for municipal civil servants. Its positive impacts on city management included greater transparency, greater rationality in administrative procedures, strict control of finance, constant public monitoring of governmental performance, and an established routine of efficient allocation of public resources. These changes allowed the level of investments in the city to increase significantly, greatly improving the provision of basic services and indicators of social development.

City leaders of Porto Alegre faced the following problems in the 1990s:

- Nearly 98 per cent of revenues were needed to pay the municipal staff.
- Executive control and financial management were very weak.
- The tax system was not indexed to inflation, preventing the city from coping with the high inflation rates at that time.
- Under decentralization, the municipality had received many new responsibilities but lacked sufficient financing for them.

The above conditions jeopardized the administration's ability to fulfill its campaign promise of implementing policies to help poor citizens and left it uncertain of a proper course at the beginning of its tenure. The country had recently emerged from years of military/authoritarian rule and citizens and local government wanted to explore taking democratic governance to new levels.

In this context of administrative confusion and lack of resources, the administration sent government staff into community neighborhoods to conduct inexpensive public works and to cement personal contacts with citizens and leaders of community organizations. The municipality relied on this network of relationships to solicit public participation in the first meetings on participatory budgeting.

At the same time, the new administration made efforts to increase revenues. The administration submitted various proposals to the city council for new laws. One of these laws modified the property tax, a major source of municipal revenues, to make it progressive. Other modifications that the new laws introduced included indexation of taxes for waste collection and water. These

measures solved the revenue crisis, so the city could have resources for infrastructure improvements and enabled the introduction of participatory budgeting.

The Administration divided the city into communities and allowed existing community associations to represent their constituents. City officials decided that community associations themselves would decide how the city should be divided into representative areas. It also promised to include the newly formed City Council in local decision making processes.

In launching the preparations for participatory budgeting, two conditions should be mentioned. First, the decision to integrate community associations into the municipal decision making structure went smoothly because many of the new municipal leaders had been community leaders themselves. The people involved in the dialogue already knew each other and were familiar with local conditions. Second, the community associations sought and received full autonomy for the participatory budgeting process. The City Council and the Mayor could review and make suggestions, but had no authority over the participatory budgeting decisions. This was a landmark decision, and one that was in agreement with the new administration's political views.

Participatory Budget Process - On an annual basis, two main roundtable meetings coordinated by the municipality are preceded by several smaller meetings organized by the communities themselves. Thematic meetings are also held to attract groups like trade unions and professional organizations.

At the first roundtable meeting, photos of public works are presented to demonstrate the status of the previous year's investments. City officials can submit proposals for discussion, which can then be accepted by a simple majority vote. Direct, continuous relations between high-level government personnel and the community have a profound impact on educating officials about citizens' wishes and on educating citizens about government programmes.

At the second roundtable, participants choose the investment priorities for their regions, make a list of demands, and elect the Council representatives. The Council then considers various demands for services, and discusses criteria and priorities for budget allocations. It develops the budget proposal and submits it to the Mayor and the City Council for review. The City Council

then votes on the budget and sets the level of financial resources that will be available for the next year.

The main goal of the process is to prepare a detailed budget that balances demands and financial viability. The criteria, which aim to balance funding priorities among the sections, are:

- Lack of public services and/or infrastructure
- Total population in the particular section of the city
- Priorities of the community in relation to the city's priorities.

Council members from each community of the city choose and rank four of the seven standard priorities: basic sanitation; land and settlement regulation; transport; education; health services; street paving, including water and sewerage systems; and city organization. The priorities each community selects are graded from highest (4) to lowest (1). After the second roundtable meeting, all 16 regions' grades are added to determine the overall highest priorities for the following year. In one year, the communities decided that land and settlement regulation (including housing construction, land regulation, and resettlement of marginalized populations) would be the top priority. In other years, the top priority was street paving (which usually includes basic water and sanitation, because that infrastructure is under any paved street). Each community's priorities are then compared with other regions in order to have an equitable distribution of financial resources.

Results and Impacts - A key result of participatory budgeting is its effect on local participation and interest. As revenues recovered and the level of investments increased, citizen participation grew dramatically. Political gains were also recorded. Specific political results included: increased approval ratings, decrease in nepotism and unethical practices, and increase in democratic practices (including among low-income groups),

There was also a positive effect on municipal government of increased functional efficiency, improved staff morale, improved monitoring resulting in less waste and delays, reduced costs of public works, and greater transparency with respect to taxes paid and services rendered.

The increased investment funds that Porto Alegre made available for infrastructure through the participatory budgeting process resulted in improved basic services. The initial successes in

infrastructure improvements also facilitated the development of public-private cooperative efforts.

With a priority on basic services in the peripheral regions of the city, Porto Alegre's infrastructure noticeably improved within a period of ten short years. The sewerage system expanded dramatically growing from 46 per cent coverage to more than 85 per cent. Slums were upgraded and housing was built for the homeless. Significantly, the number of students enrolled in school doubled.

Lessons learned:

- Participatory budgeting processes can empower communities and lead to increased transparency and efficiency of government operations.
- Municipal governments must have the political will to share decision-making. In some cases, a government may agree to share its mandate with no preconditions; in other cases, the government may keep a portion of power under its own control.
- The success of participatory budgeting is contingent on the ability of the city to raise sufficient revenues for infrastructure improvement to improve basic services.
- Social participation in participatory budgeting processes is proportional to the government's commitment to the process, and its ability to maintain the schedule of public works.
- One long-term political objective of participatory budgeting is to transform the municipal government into a public institution in which special interest groups hold no sway. The new political behavior also affects community leaders, among whom authoritarian and unethical practices may have been pervasive.
- The participatory budgeting experience presupposes a minimum background of social organizational traditions in the city, especially in the poorer regions. If no such traditions exist, then participatory budgeting's development will be slow and difficult, and require a step-by-step approach.

3.6. DISASTER RISK MANAGEMENT, MUMBAI, INDIA[46]

The city of Mumbai rebuilds after a natural disaster. Photo courtesy of UN Habitat

On 26 July 2005, 99.4 cm (39.1 inches) of rain fell during a 24-hour period on Mumbai, bringing the city to a standstill. The unprecedented rainfall caused severe human and economic losses. Flash floods and landslides resulted in over 5,000 deaths in Maharashtra State and 445 casualties in Mumbai. An additional 194 died due to various water-borne illnesses related to the deluge.

Thousands of school children were stranded due to flooding and could not reach home for up to 24 hours. Adding to the chaos was the lack of public information. Radio stations and many television stations did not receive any weather warnings or alerts from government agencies. The rain water caused the sewage system to overflow and all water lines were contaminated. The government ordered all communities to add chlorine to their water tanks while they decontaminated the water supply. Thousands of animal carcasses floated in the flood waters,

[46] http://nidm.gov.in/idmc/Proceedings/Flood/B2-%207.pdf

raising concerns about the possibility of disease. Reports in the media warned of the threat of waterborne diseases, and hospitals and health centers geared up to distribute free medicines in case of any outbreaks.

Suburban train systems were completely disrupted. Road traffic was chaotic where the streets were still useful, but many major roads were completely flooded. The airport closed for two consecutive days. Electricity service was shut off to avoid electric shocks. Damaged infrastructure included 50,000 residential buildings, 40,000 commercial establishments, and 30,000 vehicles (cars, trucks, buses and trains)

Apart from the heavy rains, three factors contributed to the scale of the disaster: an antiquated storm-water drainage system, uncontrolled and unplanned development in the northern suburbs, and destruction of mangrove ecosystems. The drainage system was extremely inadequate in terms of potential flow rate and it was clogged in several places. Ninety-seven per cent of the outflows to the sea were not equipped with floodgates and as a result, there was no way to stop the seawater from rushing into the drainage system during high tide. Development in the northern suburbs of Mumbai is haphazard and buildings are constructed without proper planning. The drainage plans in those suburbs were developed in an ad hoc manner, not systematically. Mangrove ecosystems which exist in and around the city were being destroyed and replaced with construction. These ecosystems serve as a buffer between land and sea. It is estimated that Mumbai lost about 40 per cent of its mangroves between 1995 and 2005, some to builders and some to slums.

After the 2005 floods, the local Disaster Management Office designed a plan to reduce the impact of future extreme weather events. Most of the efforts related to flood control. Substantial public works were undertaken to de-silt the entire sewerage system. This included micro tunneling to ensure adequate discharge of monsoon water at several chronic spots, and cleaning of railway culverts. Flood-gates and sluice gates were installed and manned to operate during high tide and low tide. Twenty-six automatic weather stations with rain-gauges were installed to monitor the system. The Mithi River was dredged to widen and deepen its channel. Finally, 85 pumps were installed at chronic flooding locations; these are manned by operators with communication systems.

Significant efforts were made to control communicable diseases. To control water and food-borne diseases, the government launched a cleanliness drive through a communication campaign that included wall posters, slides of do's and don'ts, as well as messages through various major media channels. Hospitals have been included in planning efforts, so they can be quickly put on alert. Adequate stocks of medicines are maintained. Water sampling capacities have been built up. Food security teams are ready to take urgent steps.

A contingency plan has been drafted for a range of other city services. These include emergency transport system services, establishment of relief camps for displaced persons, and hygiene counseling.

Finally, enhanced monitoring and advanced warning systems are now in place that would alert the population about impending disasters. The new monitoring system will be linked to first responders so that the city services can respond in a nimble and flexible manner. A flood warning system has been put in place; six command centers have been established and will ensure better coordination of city services with local non-governmental organizations and community-based organizations.

4. BETTER CITY, BETTER LIFE: POLICIES OPTIONS FOR EFFECTIVE URBAN MANAGEMENT

Strategy 1: Develop planning for integrated sustainability management

POLICY OPTIONS	
option 1	Prepare a city or metro-area wide sustainability plan with participation from a broad representation of stakeholders, including citizens, civic groups, all levels of government (national, state and local), businesses, experts and academia.
option 2	Develop long range plans for sustainability and resilience, including land use and transportation planning, sustainable economic development, food and energy security, open space and natural habitat protection, and educational and

	cultural development.

Strategy 2: Develop a set of integrated policies targeting the urban poor to foster economic progress and social equity.

POLICY OPTIONS	
option 1	Work with utility companies, private sector and community-based organizations to advance the provision of basic services to under-served urban communities, particularly water supply, electricity, slum upgrading, sanitation and waste management.

Strategy 3: Shift toward dense, mixed-use urban development to ensure a low-carbon and resource-efficient city.

POLICY OPTIONS	
option 1	Develop plans and mechanisms to reduce urban sprawl. Design growth in transit-served mixed-use corridors while protecting valuable natural areas needed for eco-system services, such as wetlands, forests and other lands of high biodiversity and resource valuation.
option 2	Inventory current and forecast projected carbon emissions—including operational energy use for buildings and transportation, product use and waste. Develop metro-area wide and city climate action plans.

Strategy 4: Improve integrated city and metro sustainability management capabilities.

POLICY OPTIONS	
option 1	Facilitate aligned sustainability management mechanisms across departments,

	including waste, energy, water, streets, building and transportation management. Strengthen management systems for land management.
option 2	Utilize goals to measure and manage sustainability performance indicators for areas including waste, water, energy, health, transportation, local food, parks and open space, citizen engagement and other categories chosen by citizens and government. Deploy strategic tools such as scorecards, maps and dashboards to make results easy to understand and act upon.

Strategy 5: Create transparent and engaged sustainability programmes and communications

POLICY OPTIONS	
option 1	Publish, publicize and make available sustainability planning sessions and resulting plans, documents and milestones. Update plans and processes through meetings, online publications and announcements. Consider engaging stakeholders through a participatory budgeting process.
option 2	Utilize public events, campaigns, and tools, including social media, to inspire citizens and businesses to contribute ideas, observations and personal innovation both to city officials and directly to one another.

Strategy 6: Develop natural disaster risk assessment and management capabilities

POLICY OPTIONS	
option 1	Perform natural disaster risk assessment and put in place city plans to respond effectively to higher probability risks as they occur.

5. RELATED LINKS:

http://www.adb.org/Documents/Studies/Managing-Asian-Cities/part02-07.pdf
Managing Asian Cities: Sustainable and Inclusive Urban Solutions, Asian Development Bank, 2008

http://www.mckinsey.com/mgi/publications/india_urbanization/index.asp
Site for 2010 McKinsey Global Institute Report "India's Urban Awakening: building inclusive cities, sustaining economic growth"

http://www.mexicocityexperience.com/green_living/)

http://www.nyc.gov/html/planyc2030/html/home/home.shtml
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"Reinventing the City: Three Prerequisites for Greening Urban Infrastructures," WWF International (in conjunction with Booz & Company), Gland, Switzerland, 2010

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