# Key Technical Areas for Developing Infrastructure Services
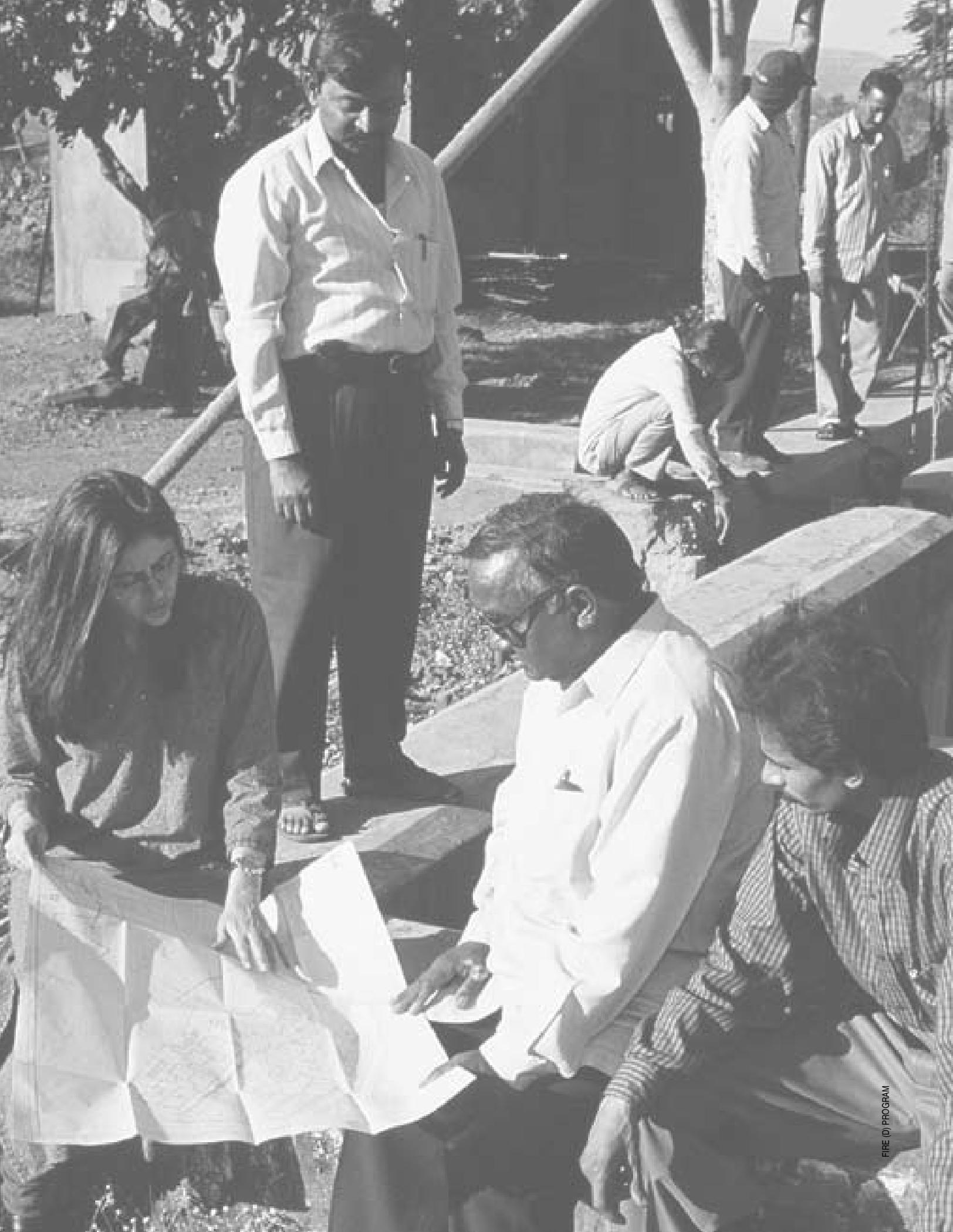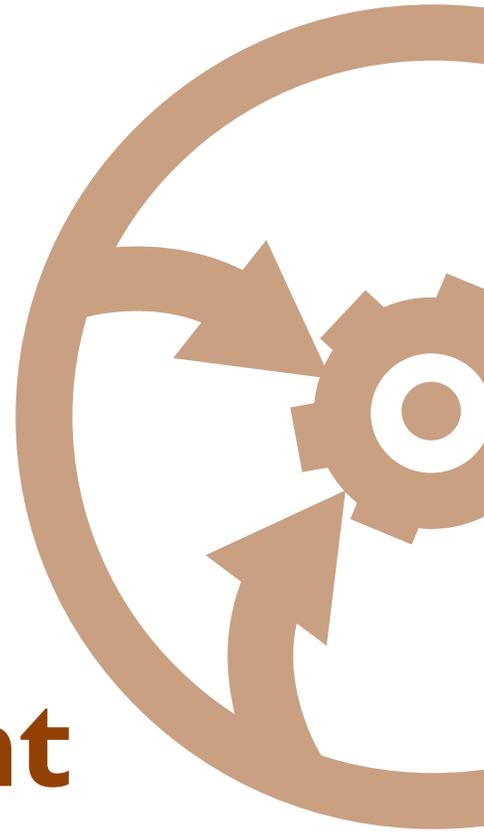
Development Planning for Infrastructure Services

FIRE (D) PROGRAM

Development Planning for Infrastructure Services

***Development planning* is a tool for improving a city's living conditions and infrastructure services. Development planning combines:** (1) broad, on-the-ground analysis of various sectors, including land markets; (2) a long-term vision for the city; (3) near-term project prioritizing; and (4) management and financial capacity evaluation. Both the short-term projects and the long-term vision should be based on the underlying local economic conditions. To help accomplish this, metropolitan planning committees in large cities can consolidate cross-cutting urban issues that affect multiple jurisdictions. Capital investment plans (CIPs) are used to guide financial planning for cities to achieve their development objectives over time.

Strengths. Development planning provides long-term and realistic direction, while avoiding inequitable, unsustainable, and fragmented development. It is more flexible and easier to prepare than master plans; can help manage urban growth, given limited resources; and can be used iteratively by decision makers.

Weaknesses. Development planning lacks statutory enforcement without amending and harmonizing the Town and Country Planning Act and the Model Municipal Acts. It is not well integrated into India's planning schools, and it has yet to be broadly replicated.

Key Things to Remember

1. **A city's spatial pattern tends to follow its infrastructure development.** Where infrastructure is constructed, increased development activity follows. Infrastructure quality and type determine a city's compactness or sprawl, the growth potential for new economic opportunities, and the populations who will be served or excluded from services and access to jobs.

2. **Cities grow in path-dependent forms that change significantly only when major investment in redevelopment occurs.** Major changes, for example, city-wide infrastructure expansion, require long-term, well-coordinated efforts among planning, finance, policy, and regulation.

3. **Urban development planning should address growth and project implementation by incentivizing positive outcomes rather than by using restrictive regulations.** Development planning is not primarily focused on spatial and land use issues. Instead, it focuses on growth and project implementation by enhancing financial feasibility, improving institutional capacity, and building consensus of diverse stakeholders.

4. **Participatory planning integrates the concerns of diverse stakeholders from government institutions, the private sector, and civil society, particularly the institutions responsible for operating and maintaining infrastructure.** This participatory approach produces projects that have the best chance for success in implementation (financially, technically, and socially). Moreover, it creates the opportunity for consensus among divergent and competing urban agencies, such as municipal corporations, development authorities, and sewer and water authorities.

5. **Technical analysis related to planning infrastructure has to be based on real, on-the-ground economic, demographic, and environmental situations.** On-the-ground realities change faster than traditional regulatory systems, such as Master Plans, can respond.

6. **Planning regulations should be simple and flexible to accommodate rapidly changing urban economic conditions.** If not, regulations risk quickly becoming irrelevant. By focusing regulations on safety and public health, rather than on every single aspect of planning and construction, the regulatory process can be simplified.

7. **The size of slums and other informal development increases because cities have not planned for growth inclusively or designed services to reach the poor.** As informal development takes up larger and larger portions of the city, scarce resources will have to be devoted to improving the conditions of marginalized communities. There is tremendous need to mainstream and regularize infrastructure services, commercial development, and housing-land policies to include the poor.

ARTICLE 3.1

Introduction to Development Planning for Infrastructure Services

Planning can be viewed from several perspectives—Master Plans, infrastructure planning, development planning, and integrated planning—all with slightly different meanings, as displayed in Table 3-1 on the following page. Over time, the FIRE (D) Program has relied on a development planning approach to serve as a practical tool for urban practitioners and policy makers who seek solutions for some of the most complex challenges facing cities today. The approach builds broad consensus around a long-term vision for cities and identifies projects, funding, and management structures to help turn the vision into reality. To be successful, planning requires analysis of land markets, because private sector activity dominates today's urban economies.

The chapter treats planning as an *analytical process* to help develop and implement sustainable and inclusive infrastructure. It is not promoting a particular planning form that results in certain design features or spatial layout, although this discussion is part of a visioning exercise from which policy makers can revise development regulations and establish short-term action plans. As a result, the chapter does not cover specific planning models, such as smart growth, energy efficiency, mega-projects, transit-oriented development (TOD), or economic zones, although these are highlighted as important features of urban development today.

Ask Yourself

If you are responsible for implementing projects
- What are the infrastructure and service provision challenges of the cities you are working in that a better planning approach could help solve?
- Given insufficient resources in cities, how can planning help decide which projects are most important? What can private sector investment accomplish, and what requires public resources?
- How can planning help build consensus about what needs to be done by the municipal corporation, the development authority, for-profit companies, nongovernmental organizations (NGOs), and civil society?

If you are responsible for setting policy
- Does the current planning and regulatory system help you solve urban challenges, or more often restrict development? How can the private sector be encouraged to invest in urban services?
- How can planning be transformed into a tool for improving the safety, livability, and economic opportunities of cities?
- What planning and governance framework would be useful to consider for addressing multi-sector challenges (such as environmental, financial, and slums) that arise when developing infrastructure?
- Can a planning framework effectively deal with challenges that span several political/government jurisdictions?
- In what way does development planning relate to traditional spatial and land use planning? Can they be integrated over time?

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Table 3-1. Planning Terminology

Planning can be viewed in different ways (as defined in this table), and those perspectives change over time and vary from one place to another around the world. Generally, early views of urban planning were a physical design, enforced through land use control and controlled by government. Recently, this attitude has shifted to consider how plans/projects are implemented.

Approach	Overview	Strengths	Weaknesses
Master Plan	Mapping desired land use; articulating building regulations	Long-term visualization of city; regulatory system strengthens it	Too rigid; quickly becomes outdated; not based on real market conditions; not oriented to implementation
Infrastructure Planning	Detailed project reports; should consider management and finance	Technical and detail-oriented; purpose is implementation	Not multi-sector; social and environmental aspect mostly focuses on mitigation
City Development Plans	Long-term vision; multi-sector analysis; consultative with stakeholders; priority projects with general costs	Rapid assessment; focus on multi-sector issues and implementation; consensus-driven vision	Financial planning minimal; assessment of management capacity not incorporated; viewed as consultant work; data are limited
Development Planning (in some places referred to as strategic planning)	Decision-making process considers development goals, priority projects, and scarce resources; participatory in nature	Multi-sector, iterative; incorporates all aspects of urban management, including poor and other social issues	Requires political consensus and institutionalization as normal local government function; no regulatory strength at this time
Integrated Planning (often achieved with topical focus, like:)	Broad term that combines development planning with land use planning	Comprehensive and aligns development objectives with land markets and regulation	Requires consistency in policy across agencies that is difficult to achieve; needs mechanisms to allow flexibility in regulation and land markets
Mega-projects	Urban regeneration; multifunctional	Powerful driver in urban development; builds cooperation among agencies	Mega-projects are often politically driven and one-off; usually supersedes regulation rather than reforming it
Transit Oriented Development	Combines mass transit projects with flexible land use, encouraging higher density and mixed use around infrastructure	Improves public transport and usage; improves efficiency; reduces need for cars	Heightened property prices along transport axes can marginalize the poor; required socioeconomic integration can be difficult to achieve
Smart growth	Compact cities; promotes mass transit; better environmental management	Multi-sector; improves environmental and energy sustainability; slows urban sprawl	Significant capacity and organization required; narrow implementation undermines prospects

Source: Adapted from UN-Habitat, 2009, *Planning Sustainable Cities, Global Report on Human Settlements*.

The Challenge for Planning in India

The development trends highlighted in Chapter 1 show that Indian cities are growing in ways that are similar to the growth patterns of many rapidly developing countries in Southeast Asia and elsewhere. The strong correlation between urbanization and economic growth means that the population will continue to be more concentrated spatially in both existing cities and new urban agglomerations. In India, 40% of the population is expected to live in cities by 2030, almost a doubling of the urban population over the next two decades.

This urbanization process has been occurring for many decades, and cities have become more and more crowded. Although evidence suggests that this is a positive trend in terms of economic growth, it also poses serious challenges for India's service delivery systems and consequently for the living conditions of the country's cities.

Planning for Growth Is a Major Challenge

Development planning is a process to positively influence the rapid changes that are occurring in cities today and that will occur in the future. In the Indian context that means planning infrastructure to support the rapid growth of private businesses, increases in population and automotive traffic, new security and safety risks, and changes in climate and pollution levels. For example, today's traffic congestion in cities has resulted from India's economic success in the midst of lagging infrastructure development: People are buying more cars as incomes rise, financial loan products are more accessible, and the automotive industry expands. Low-cost cars, epitomized by Tata's Nano, represent the new market trends. Indians bought 1.5 million cars in 2007, more than twice the number they bought in 2003.[1] Traffic in India's major cities is growing four times faster than their populations. In 2010, Delhi was identified as the fifth worst city for commuters in the world.[2]

Unfortunately, many government systems (for planning, financing, and delivering services) are slow to adapt to changing conditions because regulations and policies were conceived and implemented before their implications were well understood. In addition, the process to meaningfully update these regulations and policies is cumbersome and takes a long time. Policy makers need to first understand the changing urban context, be willing to address new challenges, package appropriate solutions (after pilot testing), and then transform new policy into action. The FIRE (D) Program has been assisting cities and states in this process for 17 years and realizes that it often proceeds slowly and unevenly. The right planning approach would help local governments make better decisions on allocating resources and pursuing projects.

Instead, urban planning in India has been prescriptive, slow, and top-down from national and state-level agencies. As a consequence, informal development is proliferating throughout cities—congesting public and environmental spaces, sprawling out on the periphery, constructing unsafe buildings, and settling where no services exist. It is estimated that nearly half of Delhi is built illegally. Some 60% of Mumbai's residents live in slums. This trend does not seem sustainable, and many times pressure builds on the political, financial, and social systems until significant reform has to be considered—occurring either from the top down or from the bottom up. In some cases, crisis stimulates meaningful reform, such as the 1992 protests among slum dwellers in Pune, which resulted in delivery of sanitation services; the 2001 earthquake in Gujarat, which led to planning and land management reforms; and the plague that broke out in Surat in 1990, which caused the local government to clean the city and reform its service delivery mechanisms.

Major health and social crises should not be the only impetus for change, but it is apparent that the traditional systems for infrastructure delivery and finance cannot successfully confront the threatening levels of pollution, the overcrowded slums and unregulated development, the contaminated drinking water, the hazardous sanitation practices, and the more pronounced safety and security risks. Funding for operations and maintenance is estimated to be 30%–45% under what average costs are for municipal infrastructure. This figure can jump to 60% when capital expenditures and costs are included.[3]

India's infrastructure development/delivery system—relying on public funding, state or parastatal institutional management, state subsidies for operations and maintenance, and rigid town planning prescriptions—began unraveling with the confluence of two national trends, highlighted in Chapter 1: (1) the pace of urbanization sharply rose in the 1970s and early 1980s, and (2) the national economy deteriorated to the point of crisis, which undermined public works funding. Ultimately, India almost defaulted on its international debt commitments during the first Gulf War in 1990–91, having only enough foreign exchange reserves to last 13 days.

1 Society of Indian Automobile Manufacturers, http://www.siamindia.com.
2 *Global Commuter Pain Study,* IBM, June 2010, http://www-03.ibm.com/press/us/en/pressrelease/32017.wss.
3 Services include water supply, sewerage, solid waste disposal, drainage, roads, and street lights. See Mathur, et al., "Norms and Standards of Municipal Basic Services," New Delhi: National Institute of Urban Affairs, Working Paper 07-01, 2007, p. 13. Also see Shridhar, K.S., O.P. Mathur, and A. Nandy, "Costs of Urban Infrastructure: Evidence from Indian Cities," New Delhi: South Asia Network of Economic Research Institutes, Phase 7 Research, 2006, http://www.saneinetwork.net/research/sanei_VII/abstract1.asp.

Deficiencies of Master Plans

Traditional planning practice, often referred to as Master Planning, has been criticized on several grounds.

- It provides a long-term perspective but neglects short-term actions, losing its effectiveness in a fast-changing scenario.
- It is rigid and static because it is treated as an end product, not as a continuous process.
- It takes a long time in preparation and approval and is often out-of-date before its implementation begins. Frequent land use changes have to be made.
- There is no symbiosis of socioeconomic dynamism and physical orientation.
- There is no integration of physical and fiscal planning efforts.
- There is an emphasis on control rather than promotion of development.
- Town planning and related land laws have not been amended to adjust to changing urban conditions.
- Norms and standards for both land use and service provision are generally too high and therefore difficult to achieve, given the realities of current capacity.
- Public participation during the process is not effective.
- Monitoring and evaluation are neither regular nor effective.
- Development management is generally not efficient because it lacks coordination among planning, executive decision-making, and various other implementation agencies. This results in delays and mistakes.
- It does not consider the demands of the informal sector.

Source: Policy Options for Framing New Municipal Laws in India, FIRE (D) Program, March 2002, adapted from *Urban Development Plans—Formulation and Implementation Guidelines* by Institute of Town Planners, India, August 1996.

Traditional Planning Tools Need Updating

The traditional system for infrastructure planning has mainly been detailed project reports (DPRs) and Master Plans (with accompanying planning regulations). DPRs are fundamentally engineering designs and cost estimates with limited management, social, and economic elements (i.e., little market and structural analysis). This narrow definition of DPRs might have been applicable historically, when government engineers predominantly designed infrastructure, when a DPR would receive full public funding, when public entities (whether state departments, parastatals, or in some cases cities) implemented and managed the infrastructure works, and when government subsidies/budget allocations covered operating costs of the services. The simultaneous pressures of growing urban populations and decreasing public budgets undermined this system and showed it to be unsustainable. Still, despite project delays, cancellations, and substandard implementation, it is widely used throughout the country.

There are now new challenges that policy makers should focus on, including congestion and mass transit solutions

Rather than looking at market demand, many of the key planning parameters in DPRs follow cues from a city's Master Plan, which provides an idealistic physical view of how land within city limits would be shaped when city development and expansion are completed. Master Plans and their associated regulations (land tenure laws, building bylaws, and land use/zoning) originated in the late 19th century in Europe, and then in the United States, to counter problems associated with the Industrial Revolution, primarily pollution and rapid urbanization. Cholera, typhoid, tuberculosis, and other public health epidemics broke out in many Industrial Revolution cities. Air and water pollution flowed from large factories, making living conditions horrific. Tuberculosis accounted for about one-third of deaths in Britain during the first half of the 19th century, while four major cholera epidemics killed approximately 200,000 people in the middle of the century.

In response, planning bylaws and Master Plans were developed to segregate industrial land from residential land, and also to develop water and sanitation public works for improving living conditions and safety. To that extent, there have been some successful Master Plans; however, subsequent generations of planners throughout the world imposed other design values onto the system as rigid rules. Artificial limits on urban boundaries, exact prescriptions of building density, fixed housing targets, and vast swaths of urban forest reservations are all examples of planning values that have become codified and rigid despite the fact that they are no longer appropriate. Most of these ideas are specific to a previous era and have proven ill-equipped to deal with rapidly growing and dynamic cities of the 21st century.

There are now new challenges that policy makers should focus on, including congestion and mass transit solutions, new technology-driven service provision, easing of legal requirements for service connections, better energy management, and higher-performing infrastructure.

For the most part, urban migrants settle near economic opportunities. Often the settlements are in violation of Master Plan regulations. There is not enough access to tenure security and affordable housing to meet market demand (across several income levels). As a result, migrants create increasingly dense areas in the city without appropriate concomitant infrastructure, or sprawl far past the city 'limits' and out of service range, or inhabit vacant land that might have been scheduled for another use. Many times, Master Plans ignore these real settlement patterns, which is problematic for development. Master Plans rarely include the marginalized segments of the population, even excluding slums from the base maps, and do not speak to improving the situation. Implementing agencies universally have trouble implementing Master Plans as they were prepared.

Traditional Institutions Do Not Reflect Current Urban Realities: Historical Experiences Provide Alternatives

Over the past 100+ years, Western planning ideas have been exported to the developing world. 'Modernist urban planning ideas were imposed on, or adopted in, countries throughout the developing world. The main conduits for the spread of urban planning ideas were colonial governments, education and scientific institutions, professional associations, and international development agencies.'[4] In India, the British colonial government wanted to create an administrative system of indirect rule. This allowed Indians to manage many of the institutions of the colonial government, but those institutions were never designed to encourage democracy or good governance (as defined in Chapter 1). Instead, the purpose of indirect rule was fundamentally to serve colonial business and administrative needs, which implicitly meant weak municipalities, for fear of over-politicization and challenge to colonial rule.[5] Within this context, the British started diverting functional responsibilities for planning, service delivery, and infrastructure projects awaWy from municipalities—the institutions widely recognized at that time as most appropriate for delivering these functions—and into City Improvement Trusts.[6] These Trusts were controlled from the top as the East India Company originally demonstrated in the building of Calcutta (hereinafter spelled using the contemporary 'Kolkata'). In addition, a technocratic argument existed for Trusts to carry out their work professionally and separate from local, political whims.[7] This became the basis for both India's planning tradition and the establishment of Development Authorities, both of which are predominantly out of the purview of local government and are fundamentally top-down bureaucracies.

The power of Development Authorities grew during the 1960s and 1970s, due to external support from the World Bank, the Ford Foundation, and the World Health Organization (WHO), which, around the world, strongly promoted parastatal institutions on technocrat grounds of efficiency and expertise. This argument reflected trends of both the colonial and post-independence governments, which created a strong civil servant bureaucracy. Up until the 1980s, India experienced a continuous policy trend toward ever-larger central and state government agencies that supplanted local authority. This top-down approach complemented India's socialist leanings at the time; the Soviet Union actively promoted centralized planning in India that aimed to usurp and ultimately replace the market.

Many of the new institutions lacked a robust framework for good governance and civil society participation (see Chapter 1). K.C. Sivaramakrishnan points out that 'in [the] course of time, these parastatal bodies became afflicted with the same maladies, such as corruption, unresponsiveness, political interference, lack of accountability, [and] finance mismanagement'[8] as the political establishment at the state and central levels. Moreover, their insulation from local politics meant that citizens had little recourse to initiate reform. The easiest route for most people was to ignore the formal establishment and build illegally, expanding black market operations.

These institutional problems squarely contradict the rationale for expanding the powers of Development Authorities to act entrepreneurially through self-financing, land acquisition, and subsuming more functional areas, including water supply. Completely independent organizations—devoid of regulatory, finance, or planning approvals from local government—is by definition unaccountable to the city government, even more so because city residents do not have a direct political avenue to the institutions.

4   United Nations, *Global Report on Human Settlements 2009, Planning Sustainable Cities, Policy Directions,* Abridged Edition, p. 19.

5   Tinker, Hugh, *Foundation of Local Self Government in India, Pakistan and Burma,* Bombay: Lalwani Publishing, 1967. Also see Kapoor, R.M., "Policy Options for Framing New Municipal Laws in India: Volume 4 Part on Development Planning, Local Agenda for Urban Environment Management, and Community Health," New Delhi: FIRE (D) with The Times Research Foundation, 2002, p. 701.

6   Improvement trusts and development authorities are quasi-governmental organizations with separate financial accounts and revenue-raising powers. They are not democratically elected, and their board members are appointed by various levels of government. They usually have a specific development mandate and powers. They often operate with much more insulation than elected forms of government.

7   The policy case for City Improvement Trusts stemmed from UK legislation in 1890, the Housing of the Working Classes Act. However, since it followed a wider policy trend, it cannot be considered that Trusts were merely an instrument of colonial rule.

8   Sivaramakrishnan, K.C., *Power to the People? The Politics and Progress of Decentralization,* Centre for Policy Research, Konark Publishers PVT LTD: New Delhi, 2000, p. 131.

Historical Experiences of Development Planning in India

After independence, Jawaharlal Nehru, the first Prime Minister of India, invited a group of U.S. planners to prepare integrated rural development plans[9] for villages in Uttar Pradesh and a democratic urban plan for Chandigarh, the new capital of Punjab. The experience was a unique departure from the Town and Country Planning Act (the physical Master Plan approach) that had permeated Indian states. However, this new experience was limited to Chandigarh and afterward Delhi and Kolkata during the 1960s. It is notable that now the Jawaharlal Nehru National Urban Renewal Mission[10] (JNNURM), named after Nehru, places vital importance on the need for participatory planning that was also promoted in Chandigarh, Delhi, and Kolkata in the 1960s. As a result, India has a very important, albeit limited, history of development and participatory planning that the FIRE (D) Program has identified and built on.

Delhi: The challenge of institutional fragmentation undermining accountability

After India's partition from Pakistan, Delhi faced the challenge of large-scale migration and rapid growth of informal slum settlements. Nehru requested assistance from U.S. planners to respond to the growing need for housing and infrastructure. The Delhi Plan of 1962 represented a major shift from the usual physical master planning. Instead 'the Plan addressed physical, social and economic issues, at regional, district and local scales, and included both long-term strategies for managing growth, and short-term responses to blight, housing, traffic and renewal problems, providing a major paradigm shift.'[11] The plan was published and distributed for comments, but did not include stakeholder participation during its creation, as was envisioned. Illness caused the participatory planning specialist to leave the effort early, and his position was never refilled. As a result, consensus around the plan and feelings of local ownership never coalesced. In addition, multiple institutions with fragmented authority complicated the situation, and the plan never fulfilled its expectations. Primary authority for planning and land regulation was given to the Delhi Development Authority (DDA), controlled by the Town Planning Organization under the Government of India's Ministry of Health.[12] The urban local bodies (ULBs) institutions located within the planning area were not provided a role in the regulation and implementation processes. While DDA blamed spotty implementation on bad data and information systems, 'it seems likely that the planner's failure to build broad-based support and the institutional mechanisms for accountability were even more important.'[13] Planning, regulation, and implementation of the development process was, and still is, a monopoly of DDA.

One example of the lack of institutional accountability is the creation of large slum settlements, which persist to this day. In Delhi, many slum communities formed because the large-scale construction of New Delhi by DDA did not include housing for workers. 'Labor camps disbursed on small left-over but centrally located government land provided housing for construction workers—but more importantly formed the informal development pattern that has continued to today...One of the largest 'Jhuggi' settlements in Delhi was cleared and its residents resettled in 1976. Because the land was not quickly redeveloped (by DDA), it was reoccupied by a new generation of squatter families.'[14] A second example is that DDA's near monopoly on development forced the private sector out of the Delhi market. As a result, private developers have gone on to build large-scale edge cities beyond the reach of DDA in jurisdictions contiguous to DDA's boundaries. Examples include Gurgaon and Noida in the adjacent states of Haryana and Uttar Pradesh, respectively. Ultimately, fragmented institutions, unaccountable to local government, increases the likelihood of disjointed and inefficient development process.

Kolkata: Lacking leadership and stakeholder support

Kolkata also tried to create a multi-sector development plan in response to a public health crisis in the city. This crisis resulted from millions of post-partition immigrants flowing into India from what is now Bangladesh (at the time called East Pakistan). The rapid migration created dire public health problems that central, state, and local governments all linked to the inadequate supply of housing and sanitation.

'The scope of the Kolkata Plan was very different from that of the Delhi Plan, partly because of the enormity of the urban issues, the public health crises, and the regional context determining Kolkata's economic functions and population growth. The team totally *abandoned the idea of a master plan...*(W)hat came to be known as the Basic Development Plan (BDP) of 1966 focused on *strategic initiatives* to improve infrastructure, policies of future growth, programs for improving slums, projects for mobility and circulation, guidelines for housing and neighborhood development, and industrial policy.'[15] The Kolkata planning team included physical planners, social scientists, and economists. Indecisive leadership of the team fortuitously allowed dynamic tensions to arise among the different disciplines. As a result, planning innovations and improvements over Delhi's similar plan were achieved because economic and policy planning became integrated into physical planning. Innovations included prioritizing capital investments to achieve economic and social change, reorganizing administrative functions, mobilizing municipal revenues, constructing temporary shelters and night shelters for the homeless, and promoting sites and service improvements for slum communities. As we shall see later in this chapter, most all of these planning innovations have been replicated, improved, and scaled up half a century later by the FIRE (D) Program.

As with the Delhi Plan, implementation of the BDP did not fulfill most of its promises. Despite the many planning innovations, institutional conflicts arose between the Kolkata Metropolitan Development Authority,[16] which was responsible for executing the plan, and the Kolkata Municipal Corporation, which was in charge of administration of the city, including maintenance of some services. By excluding some key stakeholders from the planning process, constituency incentives never evolved to ensure that the BDP was implemented. The plan also did not include a clear vision for the city, and therefore lacked a common theme with which to tie together the various elements of the plan.

9   Today, we consider integrated planning to be a combination of legislation, public participation, and environmental development with land use, land management, housing, water and sanitation, transportation, financing, and geographic information systems and other technologies.

10   The Jawaharlal Nehru National Urban Renewal Mission, a $13 billion initiative, was launched in 2005.

11   Banerjee, Tridib, 'U.S. Planning Expeditions to Postcolonial India,' *Journal of the American Planning Association,* Vol. 75 No. 2, Spring 2009, p. 201.

12   Prior to the creation of the Ministry of Urban Development (MoUD), public works were implemented through the Ministry of Health, and, at that time, it was responsible for the capital region.

13   Banerjee, p. 202.

14   Billand, Charles, *Delhi Case Study: Formal Serviced Land Development.* USAID: New Delhi, India, 1990, p. 1-1.

15   Banerjee, p. 202.

16   Succeeded the Kolkata Metropolitan Planning Organization.

Furthermore, a conflict of interest exists when the institution responsible for planning and building bylaws, building permits and inspections, and real estate development is one and the same. There is a built-in incentive to crowd out the private sector through permit delays, land grabs, and irregular inspections because the real estate development portion of the business generates the most cash flow and therefore tends to garner the most attention. Efficient and effective regulation becomes less of a priority. However, neglecting market mechanisms for encouraging development more often than not results in a suboptimal supply of construction.

Technical Diagnostic

The lack of one institution at the municipal level with clear planning authority and institutional accountability for delivery of municipal services continues to challenge urban India to this day. India's 74th Constitution Amendment Act requires states to amend their municipal laws to empower local governments with such powers and authority as may be necessary to enable them to function as institutions of self-governance, to plan for economic development and social justice, and to implement development schemes.[17] The governance challenge in planning persists today. Few states and cities have tackled this decentralization reform and little guidance from the center currently exists. Ahmedabad is one city where planning is now undertaken at the local level and where planning has become oriented toward project implementation.

In addition to the governance-related challenges, the other most pressing issue for successful infrastructure planning is adopting a holistic or multidisciplinary approach. Accurate demographic, environmental, and economic analysis has to feed into project conception, engineering designs, and implementation. Too often, planning ignores or even tries to reverse market trends. Land prices are an extremely valuable signal of how society chooses to use urban space. Planning approaches should utilize market information to decide how to allocate resources and deliver services effectively.

Social and political considerations, such as customer preferences and willingness to pay for services, or the political/civil risk to a project should also help influence the implementation structures. The social issues are very real and can delay a project or completely undermine its feasibility. For example, mass protests and marches halted the World Bank-sponsored privatization of the Delhi water utility in 2006–07.

Similarly, financial planning helps define a project's overall scope vis-à-vis other priorities that compete for budget (or non-budget) funding. This information has to be assessed upfront to better avoid delays or overambitious projects. Other implications drawn from these challenges are discussed below.

Lessons That India's Planning Tradition Demonstrates
- Planning requires expertise across diverse sectors and analytical integration.
- Planning is tied to the institutional (governance) structures to encourage or discourage civil society participation, active involvement from politicians, and accountability in design and implementation.
- Ground realities across multiple sectors need to be examined at the neighborhood level and at the city level to find better solutions to local problems.
- Master Plans may represent an idealist's vision, but they often don't include practical solutions for rapidly changing urban areas.
- Planning for infrastructure requires tools to determine feasibility of projects, to encourage city-wide coverage, and to incentivize better implementation.

Dilemmas to Be Addressed in a New Planning Framework
- Although advocated, the lack of participatory planning and consensus building among stakeholders undermines successful implementation of infrastructure plans. Little history exists of consensus building among local governments, residents, NGOs, and businesses during the planning and project execution processes.
- Institutional fragmentation within the city area erodes accountability of Development Authorities and allows them to act separate from both the people living there and the local governments.
- Weak local institutions result from unclear legal and regulatory responsibility between states and cities, as well as limited human resource capacity in local government.

17 Government of India 74th Constitution Amendment Act of 1992.

- Segregating land in a top-down approach, as embedded in the Master Plan tradition, has undermined the usefulness of traditional planning; Master Plans have little connection with on-the-ground realities and market conditions, which ultimately become the basis of good planning.
- Development planning cannot occur successfully without paying attention to the city's slums and other marginalized communities, and forming upgrading strategies for them. Planning has to become a tool for improving the safety and living conditions of the city instead of restricting development.

The underlying challenges of planning in India have manifested themselves in the grim situation found across many cities in India. The lack of accountability and fragmentation of institutions responsible for planning and managing infrastructure means that local (city) concerns have become deemphasized. The most obvious examples affecting livability are widespread environmental degradation, the lack of potable water, near nonexistent treatment and disposal of sewage, limited collection and disposal of solid waste, increased airborne particulate matter, and proliferation of slum communities. At the same time, there is very little public awareness of the health implications and the long-term impact on the environment and on the sustainability of cities (although this is starting to change with recognition of the threat of climate change).

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Development Planning: The Forgotten Approach

While Delhi and Kolkata (as discussed above) offer historical examples of more development planning approaches, their innovations were never combined with research and professional training because the country began relying more and more on central planning. The planning innovations were quickly lost, and the experiences (both good and bad) were never incorporated into the professional discipline. This highlights the serious challenge of replicating and training new technical approaches in a country as large as India.

Sustained innovations usually result from collaborations between public and private sector actors, including educational institutions and civil society groups. Whereas the demand for better planning approaches now exists, the supply for such professional skills simply cannot be found within government, especially those needed for high-tech tools like geographic information system (GIS) platforms. Practitioners need multidisciplinary training, understanding of how infrastructure and other urban systems work, and proficiency with new technological tools. In addition, planners have to be willing to work with communities at the grassroots level rather than predominantly sitting behind a desk. Although professional upgrading begins with knowledge sharing of new innovations, development of better professional standards—even industry accreditation, similar to the Institute of Chartered Accountants—would be worthwhile.

Only recently have private sector planners emerged to assist local governments with the support of programs like JNNURM. Instead, throughout most of the 20th century, India's planning schools focused on training professionals to work within the limited legal and regulatory framework of India's Town Planning Act and then work directly for a government agency. This is changing now that private real estate developers and planning firms have been established.

Pilot Projects: Design, Implementation, and Policy Reform

The objectives of the FIRE (D) Program—increasing access to safe drinking water and sanitation and slum upgrading—required the application of many diverse planning techniques. Through a long-term process of accessing city needs, developing one-off pilots to structure individual responses to those needs, and then grouping together the individual responses to achieve more comprehensive interventions, the FIRE (D) team arrived at some of the same planning processes partially introduced in the Kolkata BDP in 1966: capital investment planning, participatory planning, and slum improvement planning. However, with a focus on private sector investment and improving local governance, FIRE (D) Program's current work goes beyond the historical experiences of the Kolkata and Delhi cases.
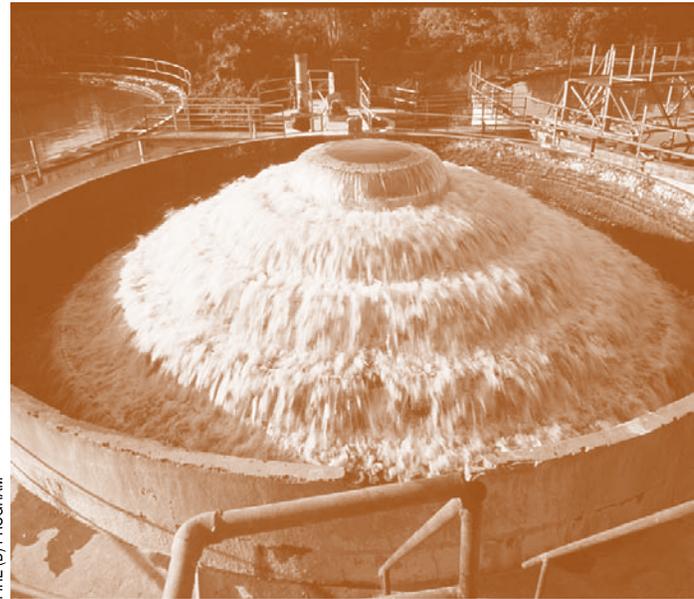
To address the underlying diagnoses and visible challenges discussed above, the FIRE (D) team designed several pilot projects from 1994 to 2010 that utilized innovative planning approaches. In most cases, these approaches used an iterative process of trial and error as planning concepts and execution adapted to the diverse Indian contexts. The team monitored the implementation process carefully and, as needed, made course corrections to achieve the objectives. In addition to providing new approaches to solve development challenges, the pilot work demonstrated new business opportunities for India's growing private sector planning firms. The evolving urban context demonstrates a serious need for planning assistance on the part of cities to build internal capacity. Private sector planners have started responding to the market demand.

FIRE (D) PROGRAM

The FIRE (D) Program's pilot projects not only addressed such issues as the environment, investment, and neighborhood planning, they also addressed these issues within the context of poor and informal settlements at a city-wide level. Some pilots and planning techniques that the FIRE (D) Program helped pioneer in India are summarized below. The subsequent articles in this chapter illustrate each of these techniques in more detail.

- **Community Participation** is critical to the planning process because it helps determine the on-the-ground conditions and communicates citizens' priorities. This information helps produce better plans, and is therefore beneficial to all other pilot areas. It also helps allocate resources to the areas of greatest need. To be productive, the local government needs to establish effective mechanisms of participation to help, rather than interfere with, decision making. Local government or NGOs will often need to spend significant time with communities to develop a productive relationship.

- The **City Development Plan** (CDP) is a tool for assisting rapidly changing cities to conceptualize broad multi-sector projects. A CDP creates a vision for the city through consultations with diverse stakeholders, including the public at large. Then, based on broad and rapid multi-sector analysis of demographic, economic, financial, institutional, and environmental data, several potential development projects are identified and prioritized. Basic cost information helps determine the overall investments required.

- The **Environmental Status Report** is a first step in responding to the deteriorating environment and public health of cities. A clear understanding of the environmental challenges can help inform decision making with regard to planning and project priorities. To facilitate this understanding, the FIRE (D) team developed an approach to assess the status of the urban environment, and, in 1996, the city of Pune became the first Indian city to produce an Annual Environmental Status Report. Not only does it include environmental/natural resource analysis, it also includes public awareness campaigns to better identify public health risks, prioritize improvements, and then prepare action plans to raise the capital needed for those improvements.

- The **Local Area Plan** (LAP) is an innovation for addressing the unplanned and illegal urban development rampant in Indian cities. LAPs address the inadequacies that most Master Plans and bylaws suffer from by combining neighborhood-level data with stakeholder participation. The resulting LAP promotes more realistic and cohesive development alternatives. It encourages variations in the building bylaws across the city so that the regulatory system better matches real market potential. It also allows cities to pursue more realistic spatial plans—in small, manageable areas (in terms of implementing capacity, funding, etc.).

- **City-Wide Slum Upgrading Planning** looks at how various urban issues, such as infrastructure services, microfinance, local land markets, environmental hazards, and household economics, all affect the creation of slums and, subsequently, how these parameters can offer solutions and strategies for improving the living conditions of the people living in the poor parts of the city.

- **Capital Investment Planning** helps Indian cities cope with growing responsibilities and limited financial resources by prioritizing their financial investment demands and opportunities. It enables cities to better plan and recover costs of urban environmental infrastructure over the medium term (usually 5-year time horizons). FIRE (D) staff assisted the first two cities in India to use this approach, Vijayawada and Tiruppur, to identify feasible levels of investment and financial options.

Table 3-2. Confronting Planning Challenges in India

Pilot work	What was learned from the pilot	Pending issues	See article
Community Planning	Involving community stakeholders in significant ways improves the outcome of projects and helps mobilize resources and commitment. It requires additional time and dedicated attention by in-house staff or NGOs.	Regular and meaningful community participation is still limited in India, and the emphasis is on consultation rather than community ownership and consensus.	3.2
City Development Plan	Most useful when local government staff is engaged in the process rather than just consultants. Citizen participation and surveys proved very beneficial. Quality of CDP also depends on availability of sector data and realistic service cost information.	Financial and management plans are very weak at this point. It is unclear if proposed projects are related to land market conditions. CDPs need to be become a routine part of local government management cycles.	3.3
Environmental Status Report	Can become useful monitoring tools of the urban environment. Once established, annual updating can become a routine task. Significantly improves public awareness.	Have not become tools for improving infrastructure and service planning. Have not been replicated across the country.	3.4
Local Area Plans	Community consultations are a must and should be led by a city official rather than a consultant. Proposed projects in LAPs should only be conceptual because it takes too long for the detailed design found in DPRs. The local government can subdivide the city by existing neighborhoods and pursue LAPs in a manner that is high priority and within its capacity limitations. After LAP completion, revise planning bylaws accordingly.	The integration of spatial planning and development planning has not become a mainstream idea in India yet. Still politically difficult to simplify and/or modify building and planning bylaws to the extent that would significantly affect urban development. LAPs occur at the micro-level, and therefore need a framework for integration at the ward and city levels.	3.5
City-Wide Slum Upgrading Planning	Encourage utilities to expand infrastructure services to slums, particularly legal household connections. Delink property ownership from utility connections to encourage more paying customers and network expansion. This policy change can be accomplished by harmonizing pro-poor programs like JNNURM Basic Services for the Poor and Rajiv Awas Yojna with city-wide infrastructure provision and planning regulations.	Policy for urban development (e.g., land markets) needs to be consistent with slum upgrading goals to mainstream slums on a large scale and to encourage affordable housing. Private sector investment in affordable housing is still uncertain, but is being tested in several cities.	3.6
Capital Investment Planning	Standardize the format and require it for public grant funding. Should be based on 5-year action plans rather than a long-term horizon that is more uncertain.	Not enough focus on management capacity for medium-term implementation. Need more rigorous analysis on local government sources of capital funding and revenue enhancement.	3.7

Integrated Solution: Development Planning for Infrastructure Services

The pilots demonstrate important tools for development planning but are by no means exhaustive. On-the-ground challenges in your city will inform which of these tools are most important. The FIRE (D) Program worked in 70 cities located across 16 different states, testing the relevant aspects of planning, as required for developing sustainable and inclusive infrastructure that could attract some degree of private investment. With few exceptions, the FIRE (D) Program did not utilize all of these planning components in each city; but together, the work offers us a more comprehensive approach known as development planning (or strategic planning by some international institutions) that to a degree reflects and then builds on many of the aspects earlier introduced in the Kolkata BDP of 1966.

At the same time, we must be conscious of the failures of those past experiences, like the disregard for land market signals, the lack of stakeholder ownership, and unaccountable institutions. Under JNNURM, CDPs provide a great rebirth that is being carried forward by municipal corporations and to all the small and medium towns eligible under the Urban Infrastructure Development Scheme for Small and Medium Towns. CDPs are a good starting point, but the integrated solution offered here moves far beyond these relatively rapid assessments.

Development planning for infrastructure does not attempt to plan the city as a whole or concentrate on land use, as Master Plans do. Instead, it focuses on a planning process within a context of private market conditions and scarce public resources, forcing cities to decide on which types of interventions (water, or education, or housing) are top priority and which areas of the city should be sequenced first based on various city-specific conditions, such as rapid growth and life-threatening environmental problems. For example, a city-wide sanitation plan[18] can be used to determine where sewerage and solid waste collection are most needed and where municipal services and infrastructure deficiencies exist. From this, the planning team can identify where the networked infrastructure can be extended relatively easily, or where it could be provided only in a decentralized manner, 'off the grid,' because trunk connections will not arrive in the near future. New water and sanitation lines, as well as roads and electricity, act as magnets for residential and commercial development. Consequently, housing and businesses will expand formally or informally, depending on how restrictive local land markets are and whether residents can access finance to invest. In high-value areas, local government can mobilize private investment to improve infrastructure, while directing public resources to poorer areas. Development planning offers a process to pull together all these intersecting issues.

The Development Planning Process

Local Coordinating Team

1. A competent and locally accountable institution needs to coordinate the overall planning for the city (or perhaps a regional institution if the point of interest spans multiple political jurisdictions). This does not mean that one institution generates all the detailed plans for a specific project. There must be convergence among the various sectors, agencies, and approaches that, often and unfortunately, run the risk of being too compartmentalized. Because efforts must be made to minimize duplication, a single department in the city or other agency takes the coordinating role. This becomes ever more important because resources within cities are limited, and therefore financial convergence is equally crucial. The composition of this team and its degree of accountability to the local government is determined by the inputs and process described in these steps. As a guiding principle, this guidebook urges strong local government accountability for planning and implementation, although it is not always possible in the near term.

18 The MoUD launched this initiative in 2009. The FIRE (D) Program helped create the methodology and model Terms of Reference (TOR) for city sanitation plans (CSPs) and is conducting a CSP in Dewas, Madhya Pradesh, while overseeing several others in Uttar Pradesh and Orissa.

Figure 3-1. Elements in the Development Planning Process

Point of Interest and Urban Challenge

2. The planning/coordinating team agrees on a point of interest that development planning can help solve. This could be a broad assessment of the city, as is done with CDPs, or a more focused issue, such as deficient water and sewer infrastructure, as was the case in the periphery of Bangalore (previously eight separate local governments) where FIRE (D) staff helped structure a combined investment and pro-poor project to improve service coverage. With large-scale infrastructure, the point of interest is often regional, such as a watershed or a metropolitan transportation grid. The point of interest needs to be large enough in scope to analyze all the multidisciplinary issues affecting development on the ground.

Trend Analysis

3. The context surrounding the point of interest should then be examined, including a rapid analysis of all the data trends using interviews, maps, aerial photos, and visual surveys. To understand the broad context affecting development, the team examines: (1) population demographics, such as income and household size; (2) economic factors, such as land markets and business development; (3) infrastructure supply and demand; (4) preliminary financial factors, such as sources and uses of funds for service improvements; (5) critical institutional actors; and (6) environmental assets and liabilities. Working from this data, both positive and negative trends emerge that help determine what solutions could work.

   The preliminary city assessment is a process of gathering all relevant data that are predominantly already available at the state and city levels. Since the goal is an accurate snapshot of the situation, it is usually clear what data gaps exist for further field study. While the research should give a factual snapshot of the city for everyone's benefit, the next step is often to incorporate the assessment into a participatory framework.

Participatory Planning

4. Participatory planning has proven to be an essential element for developing sustainable and inclusive services. Working with relevant stakeholders from all the sectors being analyzed, together with city officials and civil society living in the defined area(s), helps generate new ideas and understanding of the problem. If these ideas become incorporated into a proposed project, greater commitment results, as does enhanced responsibility for achieving the full objectives. Stakeholder consultations, household surveys, and focus group discussions can all provide valuable input.

City Vision and Priority Projects

5. Much of the results of the preceding four steps becomes key elements of CDPs. A CDP, as understood under JNNURM, is best utilized for creating a medium- to long-term vision of the city that all important stakeholders help establish. The best CDPs include consultative exercises with officials of local governments and the community at large to solicit ideas, concerns, and feedback. With both the analytical assessments and community perspectives in hand, the planning team identifies broad projects that can be undertaken to accomplish the new city vision. To a lesser degree, the environmental issues, institutional arrangements (strengths and weaknesses), and financial needs are outlined in a CDP to help the city begin implementing the vision.

Detailed Sector Studies

6. Because CDPs are broad and schematic in nature, an additional step may be required to give the implementing agency(ies) a firm direction and strategy moving forward. Sector strategies often identify the key aspects of legislation that need reform so that policy makers can improve the enabling conditions for implementation. Figure 3-2 indicates some examples of sector planning that will be useful. These largely sector-specific strategies usually include cost estimates. The FIRE (D) Program has found that the costing or financial planning within many of these strategy documents is basic and does not look at available resources or private markets in detail. As a result, an additional step is required for development planning.

Figure 3-2. Example of Sector-Specific Strategies

Identify boundaries

Assess demographic economic, financial, institutional, and environmental trends

Analyze strengths, weaknesses, opportunities, and threats

Engage stakeholders

- Disaster reconstruction planning
- City development planning
- Local area development planning
- Environmental planning
- City investment planning
- Slum upgrading planning

Financial and Technical Convergence of Multiple Plans

7. For both the broad CDP level and during detailed sector studies, various agencies will be responsible for implementation. Because responsibility for urban development within India is very fragmented between municipal corporations, development authorities, state governments, and utilities, the planning team will need reasonable authority to coordinate among everyone. This involves convergence between the identified projects and sector strategies so that there is not undue duplication or contradiction in approach. This helps ensure that the city's objectives and vision can be achieved more effectively.

Financial convergence occurs at this stage through capital investment planning (Article 3.7) to identify resources, and maximize public and private investment opportunities over multiple years. Scarce resources can easily be wasted on projects that are not coordinated with one another. Laying underground infrastructure is a simple but practical example. Even with multiple implementing agencies, it is possible to cut roads and disturb traffic only once while implementing a comprehensive program of water, sewer, electrical, roads, and landscaping infrastructure. The alternative, which often happens, is cutting and recutting the road at different times, which costs more money and increases the implementation time.

Simplifying bylaws, forming metropolitan/district planning committees, and decentralizing the city planning functions from state agencies to local governments are reforms included under JNNURM and embodied in the 74th Constitution Amendment Act. To date, however, there is no consensus on how to proceed with implementation of any of these reforms. Moreover, there seems to be little enthusiasm at the state level, since significant, vested interests exist in Development Authorities, which currently dominate municipal planning and development functions, particularly related to residential and commercial development.

Empowering one locally accountable institution to coodinate development planning is most crucial when the following is desired:
- City-wide scope to projects
- Positive influence over the development path of the city (built environment, economic opportunites, and social services)
- Financially sound and sustainable implementing structures
- An implementable plan to sustain over the long term, from institutional and political perspectives

Metropolitan/District Planning Committees Can Help Build Local Accountability

With FIRE (D) Program support, the Government of India, Ministry of Urban Development (MoUD) recently released guidance on implementing the 74th Constitution Amendment Act.[19] Supported by JNNURM funding, the policy guidance includes formation of district (in rural areas) and metropolitan planning committees to help align urban management, political accountability, and planning functions. Where regional planning issues, such as mass transit or water supply resources, cover several adjacent local government jurisdictions, the proposed planning committees would ensure that consolidated and coherent plans address inter-jurisdictional issues. Local governments, Development Authorities, and other agencies would submit plans and DPRs to the planning committee for review. If any regional issues arise, the planning committee might request revisions to them. At this point, however, it is not clear how regional implementation would occur; it depends on the local institutional structures of utilities, Development Authorities, etc.

The most important issue in creating these committees is their accountability to local government. They should be composed of urban managers/elected officials (with their appointed planning experts), perhaps with representation from other agencies as well. The chairperson would have to be someone senior enough to command necessary authority, such as a state secretary or district commissioner, so long as local representatives drive the final decision making. In this way, the planning committees could help resolve inter-corporation issues.

It is important that the planning committees have a clear mandate on how the institution fits into the tiered government system. They should not be institutions created outside the purview of local governments and the electorate, because it will cause further fragmentation of authority over managing the urban space. Few metropolitan areas have planning committees as envisioned by MoUD.

19 See JNNURM Reform Primers for guidance on the state and local mandatory reforms as well as the optional reforms, written by FIRE (D) and its partner, the National Institute of Urban Affairs.

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For these criteria to be achieved over the long term, the planning process must take cues from the land markets (formal and informal economy) to design planning regulations and to situate projects based on economic realities. Unless the public sector complements and supports market activity, there will not be sufficient government resources to address the desires/ needs of the people (residents, businesses, etc.), and incorporate all the relevant geographic elements of a city (environmental hazards, space limitations, etc.). Only when all these are combined can the bulleted objectives above be achieved efficiently. This is not to say that all local governments are currently capable of performing these tasks, but the transition can occur slowly.

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Geographic Information Systems for Analytical Convergence

GIS is a method of representing information that has geographic attributes. A spatial plane or map serves as the common node of reference to compare and contrast the data. In a municipality, various organizations have data that would be useful to synergize for both planning and management functions. A GIS system can serve to enhance these synergies spatially and present them on a map in a clear manner. Some uses of GIS include the following.

- Detailed property tax maps are possible with complete land use details, ownership records, tax compliance statuses, etc. Unassessed and underassessed areas can be easily identified and brought into the tax net.
- Traffic planning, location of bottlenecks, location of flyovers, etc. can be conducted. Proper route planning and revenue maximization becomes easier for transport bodies.
- Police and other security agencies can be better prepared for routine and emergency situations or calamities.
- Utility companies can develop better infrastructure planning.
- Physical planning can be better organized with holistic information and up-to-date satellite images.

Capacity Requirements for Undertaking Development Planning

Multi-sector skills are required to pursue the development planning approach outlined above. These skills for implementation can be developed over time within a local government and/or other relevant institutions. Some of them can also be contracted to the private sector or civil society groups.

Table 3-3. Capacity Requirements for Planning

Functional capacity required	Personnel required
Creating long-term vision based on consensus	Political leaders and planning facilitator
Overall management of planning process	Manager dedicated to coordination
Participatory planning	Community organizers
Analysis of on-the-ground conditions	Economist, social scientist, institutional specialist, engineer
Integrating multi-sector information with geography of city	Mapping and GIS specialist
Service delivery and environment conditions	Environmental and/or civil engineer
Integration with spatial/built structures	Urban planner and/or architects
Capital Investment Planning	Development finance and accountant

Resources

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The Way Forward

Under JNNURM and other initiatives like the FIRE (D) Program, an early version of development planning has begun spreading across India. How can development planning become a standard tool to help local governments manage urban growth?

Make planning activities complement market trends.
- Planning regulations and enforcement mechanisms, at any level of government, cannot reverse market trends and still expect to produce well-functioning cities. This is true of every development sector, whether it is road construction, housing development, or water supply. A fast-growing market economy attracts all types of workers, who need places to live. This is a market signal for housing development and infrastructure services. In many cases, the private sector could deliver affordable housing if building and planning bylaws and land markets were liberalized. Where economic conditions do not permit a market solution, the public sector can allocate resources strategically. Instead, planners traditionally try to design cities from afar based on idealistic values, and their effectiveness in delivering services and enforcing regulations has failed.

20 Up to 30% (Rs. 26,256 crore, or US$5.8 billion) of the total 13th Central Finance Commission funding to states for local government spending will be in the form of general performance grants with mandatory reforms.

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Establish local-level departments for development planning and interagency coordination.
- Few cities have a department within their local government that can coordinate development planning across the key service sectors, including water, sanitation, roads, electricity, and housing. Establishing Project Implementation Units (PIUs) is a step in this direction, but PIUs might not have enough authority to coordinate planning for the city or to initiate policy reform. It is problematic that local governments are not usually responsible for policy changes related to service provision or implementation (often at the state level), although this is slowly changing under the nation's decentralization initiatives. Devolving town planning responsibility to local government is a mandatory state-level reform under JNNURM, and is also mandatory under the 13th Central Finance Commission's general performance grants.[20]

Create a locally accountable Metropolitan or District Planning Committee for consolidating and aligning regional issues.

■ A further complication is that some municipal services have regional dimensions, such as water supply management and transportation. Multiple political jurisdictions need to coordinate these services in a way that is accountable to the local governments for the whole metropolitan area. Megacities like Greater Mumbai illustrate this issue, because Mumbai, Thane, Navi Mumbai, etc. are really one contiguous metropolitan space. In this case, the Mumbai Metropolitan Regional Development Authority (MMRDA), a parastatal that is traditionally focused on housing and commercial development, has become a technical arm of the Metropolitan Planning Committee (MPC) through a contract. MMRDA uses its technical staff to review project and planning proposals of the member local governments on behalf of the MPC.

Harmonize sector policies to facilitate implementation of local government development objectives.

■ One criticism of development planning is that it is not statutory and therefore lacks regulatory authority. This chapter described a planning process that serves as a useful tool for infrastructure development, but the process as such is not mandatory. Although JNNURM mandated CDPs prior to the grant awards, they do not carry the authority of city Master Plans. Local governments conducted CDPs, often relying on consultants, to access infrastructure funding. It is doubtful whether many local governments would pursue the development planning approach advocated here on their own.

Even though this chapter argues that Master Plans are no longer the most appropriate tool for promoting urban development, they are statutory in nature and include regulations in the form of planning and building bylaws. Regulation is necessary for ensuring safety and promoting healthy living, but it needs to be legitimate, enforceable, and simple and easy to follow. Development planning—grounded in market realities—can help create a better regulatory framework. For example, local area plans are very effective at analyzing neighborhood land use patterns and market conditions. In Delhi, LAPs provided recommendations on revising bylaws to encourage positive local development. However, harmonization between development planning and the master planning approaches would have to occur at the ward and city levels through policy reform of the Town and Country Planning Act, the Municipal Acts, and possibly sector-specific policies.

As a practical matter, the relevant sector policies could be revised based on implementing a common, long-term vision of the city (set in the CDP). One such vision could be expanding regular planned services to all parts of the city, including slums. This example would require strategy and policy coordination among many agencies, including slum improvement office, utilities, and development authorities. MPCs and state Housing and Urban Development Departments (HUDDs) could lead in harmonizing the individual policies.

Issues on the Horizon

Development planning will ultimately have to be integrated with spatial planning as understood in the Town and Country Planning Act. Both the Town and Country Planning Act (the regulation for master planning) and the Municipal Acts (which gives responsibility for development planning functions to local governments) fall under the jurisdiction of state governments. Policy guidance on integration of both planning perspectives would stem from MoUD, but would then have to be incorporated into law at the state level. The combination of development planning and spatial planning is referred to as *integrated planning* in global practice.

JNNURM is clearly promoting development planning and will continue building on this tool. CDPs, as a first step in pursuing development planning, are currently tied to grant funding and should require periodic revision over the medium term (every 5 years). While a city's vision may stay consistent for the long term, the priority projects, the funding strategy, and the management capacity change frequently. If CDPs become more routine, it will not be too difficult for a city to update 5-year action plans on realistic implementing capacity and current financial conditions.

Specific urban challenges also evolve over time as the economy, social patterns, technology, and living conditions change. Currently, the public health of cities has grasped the attention of policy makers and practitioners. The growing congestion of cities has to be matched with better services to prevent new

health and disease crises. City sanitation planning is an initiative undertaken by MoUD to analyze sewerage, industrial and solid waste, water quality, and environmental conservation in a more holistic manner.

With escalating concern about climate change, a similar approach could be applied to energy consumption and production. Energy is another multi-sector issue spread across households, transport, building construction, and industry. Production can obviously be more (renewable sources) or less (fossil fuels) environmentally sustainable. In response, new planning practices, broadly called *sustainable urbanism*, incorporates green/environmental-friendly design into (1) energy and infrastructure systems, (2) the built forms of cities, and (3) the natural environment.

City sanitation plans and sustainable urbanism offer two examples on the horizon that view planning from a development perspective rather than merely a physical form. The development planning approach discussed in this chapter is flexible enough to incorporate new challenges as they arise in Indian cities. At the same time, a more flexible policy and regulatory framework needs to exist to translate planning into implementation.

Recommendations for Planning in India

■ Because infrastructure spurs development, plan for areas of the city with the greatest potential benefit, such as those that already have dense populations (formal or informal settlements), growing/expanding new areas, and other strategic interests like promoting economic opportunities and jobs.

■ Utilize a development planning process that relies on on-the-ground market realities and diverse stakeholder inputs to produce more effective projects. Assemble a multidisciplinary team that will undertake technical analysis and that will coordinate with service providers, government agencies, and civil society.

■ Establish regular avenues for participatory planning to consult communities, solicit feedback, and generate consensus on projects. Such participatory processes can be integrated with normal management of cities, such as ward committees or welfare societies, and can be coordinated by the office responsible for development planning.

■ Consider land markets, the environment, economic development, social structures, municipal finances, and engineering aspects of the city when undertaking development planning. Ensure that the institutions that will ultimately operate and maintain the infrastructure provide input from the very beginning.

■ To encourage private sector participation, keep planning and building regulations simple and flexible to accommodate constantly changing urban conditions. Restrictive regulations often act as disincentives to growth, and should be used sparingly to ensure safety to built structures, the environment, and people's health. Focus restrictive regulations on these aspects for all service sectors.

■ Make it possible for the entire population, including slum dwellers and marginalized groups, to connect to infrastructure services if they would like to and can reasonably afford it. The best way for planning slum upgrading is to determine how infrastructure services can expand throughout slum areas, and how to improve security of tenure. These will spur private investment by communities, including housing and economic development.

■ Regional planning issues require coordination between local governments to ensure convergence of infrastructure and other services. The regional institution responsible for this should still be locally accountable to each respective jurisdiction to prevent further government fragmentation across the metropolitan area.

■ Review CDPs every 5 years, and revise accordingly. Using this time horizon allows cities to have more realistic and implementable plans. Be conservative about what can be accomplished given management and other resource constraints. Pursue regulatory revisions that might cause bottlenecks in implementation.

ARTICLE 3.2

Community Participation

What Is Meant by Community Participation?

Community participation engages the people most affected by an initiative (i.e., development project) in ways that makes them part of the solution. People cannot be forced to participate in a project, but usually if it affects their lives, they are interested in engaging, and should be given the opportunity wherever possible. This is a fundamental principle of democracy.

Community participation is important for many reasons. It helps both government and the private sector prioritize investments and allocate scarce resources more appropriately. Understanding the market demand for services and the priority needs of a community are both essential parts in the process of determining the most beneficial prioritization. Projects that are defined and designed with community input help ensure local ownership and improve the likelihood of desired outcomes. An ill-conceived project is one that disregards the ground realities provided by the community and other market data, and the consequences of ill-conceived projects range from outright failure to wasted investment, underutilized services, or poor operations and maintenance (O&M). Community participation can contribute very positively not only to the planning process, but also to O&M by institutionalizing customer feedback mechanisms, by paying user charges, and even by managing certain service elements (e.g., community groups have been successful in door-to-door solid waste collection).

Promoting development through participatory processes is about engaging, enabling, and empowering citizens to be actively involved in making decisions about issues that affect their lives, and holding those in charge accountable. Strong community involvement is a key aspect to good governance and accountability (as defined in Article 1.2). It is one of the most important approaches for sustainable development.

However, community participation does not occur automatically. Local and state governments need to establish mechanisms to facilitate it, starting with awareness campaigns around key issues (e.g., see Article 3.4 on environmental status reports). Equally important is establishing neighborhood associations and ward committees. In addition, communities that have been historically marginalized (e.g., slum communities) need active support from local government in order to participate effectively. Mobilizing communities to participate in development initiatives is beneficial for building local capacity and citizen trust, and for making projects more inclusive and sustainable.

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There are many avenues for engaging communities in development initiatives. In a democracy, citizens are supposed to be involved in many aspects of governance, and certain Jawaharlal Nehru National Urban Renewal Mission (JNNURM) reforms, such as the participation law, promote this engagement. With regard to infrastructure services, community participation can take place during several development stages (see Table 3-4).

Table 3-4. Stages when Community Participation Is Beneficial

Stage/activity	Role that a community can play
Needs assessment	Expressing opinions about problems and prioritizing desirable improvements
Planning	Formulating objectives and setting goals
Mobilizing	Raising awareness among community members about needs; establishing or supporting community structures
Training	Participating in formal or informal training activities to enhance communication, construction, and O&M skills
Implementing	Engaging in management activities; contributing resources directly to construction, and O&M through labor and materials; contributing money toward projects costs
Monitoring and evaluation	Participating in project appraisal and providing regular feedback; recognizing other improvements that can be made

Identifying Stakeholders

It is not possible for each and every member of a community to participate equally, but avenues of participation should be available for those interested, and local government (or other appropriate agencies) should attempt to identify key groups and individuals to be actively involved. The FIRE (D) Program suggests involving as many different groups of people as possible who are directly affected by a proposed project, who are knowledgeable about the sector, and who may have other stakes (e.g., politically or as a business). A stakeholder is most relevant if he/she has influence in a project's success or failure. Ultimately, the project needs to be cultivated in such a way that the stakeholders want it to succeed; in this respect, stakeholder participation is critical.

Stakeholder analysis is a useful tool to assess whom a project will affect and who should be considered key stakeholders.[1]

- Primary stakeholders are directly affected by a project and will likely come from within the communities covered by the service.
- Secondary stakeholders are local government agencies, important civil society groups, and nongovernmental organizations (NGOs) related to the sector.
- External stakeholders are other interested parties that have a role to play in planning and implementation, such as development authorities or the state government.

Not all the stakeholders will need to be involved from the initial project concept and planning stages, although it is best to involve groups early enough to understand each of their concerns and perspectives. Some stakeholders are important, but only get involved at certain stages of the development process. A *participation matrix* is a tool for identifying when different stakeholders are most involved (see Table 3-5). The columns indicate who should be informed about the project, who should be consulted during various activities, who needs to be close partners in order to achieve the intended outputs, and who has the ultimate control for making decisions at each stage.[2]

1   To better understand the key stakeholders in a certain sector, the stakeholder analysis tool lists all the relevant groups in a chart. The planning team gauges the impact of a proposed project on each stakeholder group, as either positive (+) or negative (-). And the influence of the stakeholder on project success is ranked between 1 and 6, with 1 for maximum influence and 6 for minimum influence.

2   Srinivasan, Lyra, 1993, *Tools for Community Participation: A Manual for Training Trainers in Participatory Techniques*, PROWESS Project, United Nations Development Program and World Bank Water and Sanitation Program, Washington, DC: USA, http://www.chs.ubc.ca/archives/?q=node/1008.

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Table 3-5. Participation Matrix

| Stage of the project	Inform	Consult	Partnership	Decision making
Rapid assessment priority setting		• Local government agency • Community • Private sector	• Donors • NGOs • Community organizations	
Program design		• Community leaders • Focus groups (women, men, and children)	• Donors • NGOs • Community • Private sector	• Project implementing agency
Implementation	• Donors	• Local government agency • Community	• Donors • NGOs • Community	• Project implementing agency (could include private sector)
Monitoring and evaluation	• Donors	• Local government agency • Community	• Donors • NGOs • Community	• Project implementing agency • Consultants
Policy reform and scale-up		• Donors • NGOs • Private sector	• Local government and implementing agencies	• State and central government

Encouraging More Significant Community Participation

The quality of community participation varies from insignificant (and perhaps even being manipulated) to active involvement, where community stakeholders are considered real partners who can offer expertise as well as resources. The challenge is to move up the ladder of community participation (Figure 3-3) from more passive agreement, to consultation, and finally to active and genuine participation, where the community has significant influence in making decisions.

This advancement achieves better project results that are more holistic and sustainable over the long term. However, the prerequisite is that stakeholders are knowledgeable of the issues—the problems, challenges, options, and best solutions. Thus, building awareness is a necessary part of community participation. Also, there needs to be mechanisms to incorporate diverse ideas, and ultimately the will to compromise to find workable solutions.

In this regard, policy makers need to establish participatory mechanisms, even if they do not work with communities directly. Policy makers must plan for participation at a city scale that includes multiple stakeholders and service providers. Table 3-6 shows several mechanisms to enable good community participation.

Figure 3-3. Ladder of Community Participation
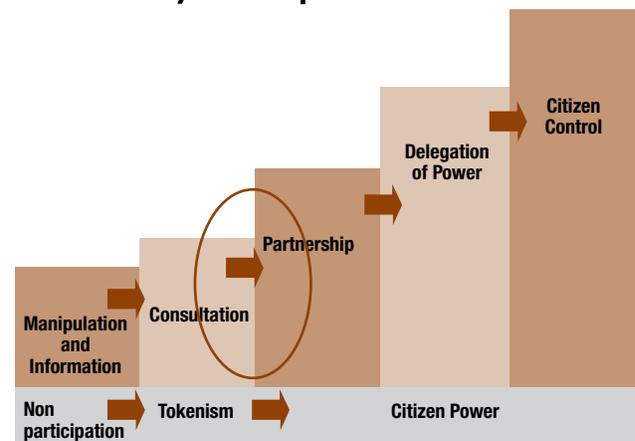
Table 3-6. Policy Makers Establish an Environment Conducive to Participation

Identify NGO partners	• Identify NGOs with appropriate skills in community mobilization, action planning, and possibly small-scale implementation. • Establish a contracting mechanism for accessing NGO support. • Ensure capacity building of staff to improve understanding of community participation.
Integrate community demands into city development plans	• Create mechanisms by which community needs and ideas get integrated into city development plans, such as in-situ slum upgrading or community contracting for housing development.
Participatory budgeting	• Prepare guidelines for translating community priorities into budget allocations (e.g., earmark funds for community groups that are willing to participate and organize themselves).
Create voice platforms	• Set up voice platforms for community interactions with government agencies. Community feedback should be recorded, acted on, and integrated in the development planning process.
Convergence of various agencies	• Bring together partner agencies into a coherent local government structure: A process has to be created to coordinate all the diverse agencies that exist within Indian cities. Align the project objectives of different agencies, streamline administrative procedures, improve legislation, and ensure that overall responsibility lies with one democratic institution.
Social and gender audits	• Create mechanisms for social and gender audits, and integrate the audit results into development plans. Use tools, such as geographic information systems (GIS) and citizen report cards, to measure outcomes.
Capacity building for community participation	• Government agencies need to build adequate capacity to engage in community participation. • Identify senior officials with relevant skills and understanding to coordinate community participation.
Policy environment	• Encourage policy changes based on successful outcomes of community projects (e.g., simplifying service connection rules).

Undertaking Community Participation

Practitioners working on the ground employ various tools to encourage community participation. Although some stakeholders have expertise in a particular sector and can readily contribute to the development planning process (e.g., a utility or NGO), many others have little experience but a material interest in the outcome (e.g., community residents). There is a role for community coordinators and planners to engage the various stakeholders and incorporate their knowledge into the overall planning process. The following techniques are good ways to collect community information and build consensus on key project parameters and solutions.

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Community mapping obtains information from a community relative to the location of various assets and problems, which may not be obvious from observation alone. This tool illustrates how a community views its present situation and what it visualizes as the main opportunities and threats. This method is most effective when used in a small group that can draw a map of the area where they live.

Ranking is a process through which community members list their priorities for different urban services (e.g., water, sanitation, transportation, education). This ranking generates ideas for projects and helps prioritize which projects should be pursued first.

Diagrams and charts illustrate urban relationships, such as business activity, transportation networks, resource flows, or project timelines. Calendars, budget and expenditure charts, and leadership/decision trees are all useful examples. Refer to Table 3-7 for a sample calendar that charts seasonal variations in health and hygiene.

Table 3-7. Seasonal Chart for Health and Hygiene

Problem	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Poor health				■	■			■	■	■		
Poor access to latrines	■	■	■					■	■	■		
Poor drainage							■	■				
Large amounts of solid waste	■	■						■	■			
Low availability of water				■	■	■	■					

Focus group discussions and general public meetings are the most common participatory activities. Surveys provide more detailed information, especially if disaggregated information is required (e.g., household affordability and market demand for particular services) to understand variations within and across communities.

Less-cohesive or marginalized communities require more intensive engagement throughout the development planning process. This is an appropriate role for NGOs or possibly local government if dedicated staff exists. Some communities have been historically marginalized, are newcomers to the city, or are poorly educated on key issues. Yet they can have significant insight on local issues that affect service delivery. Table 3-8 provides a generalized process for working intensively with slum communities, as one representative example.

Table 3-8. Implementing Community Participation for Slum Upgrading

Mobilize communities	• Make a **transect walk** of the settlement to understand topography, services, and resources available. In so doing, identify the primary community stakeholders. • Work with communities to prepare **resource and site layout maps**. These highlight both troubled areas and available resources.
Organize communities	• Quick wins that are highly visible and easy to accomplish build trust and community cohesiveness (e.g., cleaning a public space). • Organize street meetings to identify problems using visual tools to explain causal relationships. • Form **neighborhood groups** based on their priority issues (composed of committed volunteers). • With time, federate representatives (including women) of the small neighborhood groups at the settlement level, and formally link the structure to city **ward committees**.
Plan slum upgrading solutions	• Organize **focus group discussions** to generate slum upgrading options; develop basic implementation plans. • Engage other key stakeholders, like service providers and political leaders. • In partnership with relevant stakeholders, identify design options to cover the whole **community** (e.g., infrastructure) and for households (e.g., housing improvements, water connections, financing programs).

Implement slum upgrading	• The appropriate agencies implement the upgrading projects with support of:
	  • Community oversight committees
	  • Community contracting arrangements for small physical and social works (e.g., housing construction)

Set up O&M systems	• Utilize community O&M systems for common services, such as community toilets or cleaning drains. Often, community groups can formally engage in the work and collect user payments.

Key Things to Remember about Community Participation

■ Community participation is a process that takes time to nurture—building consensus around key issues in spite of competing interests and diverse stakeholders, identifying the real representatives of a community (versus those who try to hijack the process), and building community leadership that is effective at producing results.

■ Community participation requires a new mindset that matches community planning and implementation tools with local policies and procedures. Because several development solutions may exist for any community, a flexible approach is highly useful.

■ No shortcuts exist and local conditions vary by community. A community must be engaged and supported throughout the development planning process.

■ To achieve quality results, local government agencies have to contribute financial resources and time.

ARTICLE 3.3

City Development Plans

A City Development Plan (CDP) integrates the diverse perspectives of an urban community into a single vision for long-term development. Juxtaposing the city's vision against ground realities, through analytical studies, shows both the opportunities and challenges for development. The CDP process helps local government prioritize initial investments and identify civil society partnerships that can help realize the long-term vision. The goal of the process is to build consensus around priority projects, and then create strategies for implementation (financial and managerial) so that the appropriate agencies can move into more detailed planning and project design phases.

Most of the CDPs prepared under the first phase of the Jawaharlal Nehru Urban Renewal Mission (JNNURM) did not embody the full development planning approach advocated in Article 3.1, and instead represented a mere compilation of projects. The Ministry of Urban Development (MoUD) revised the CDP toolkit in December 2009,[1] suggesting the 14 steps that are highlighted in Figure 3-4.

Figure 3-4: Steps for Preparing a City Development Plan
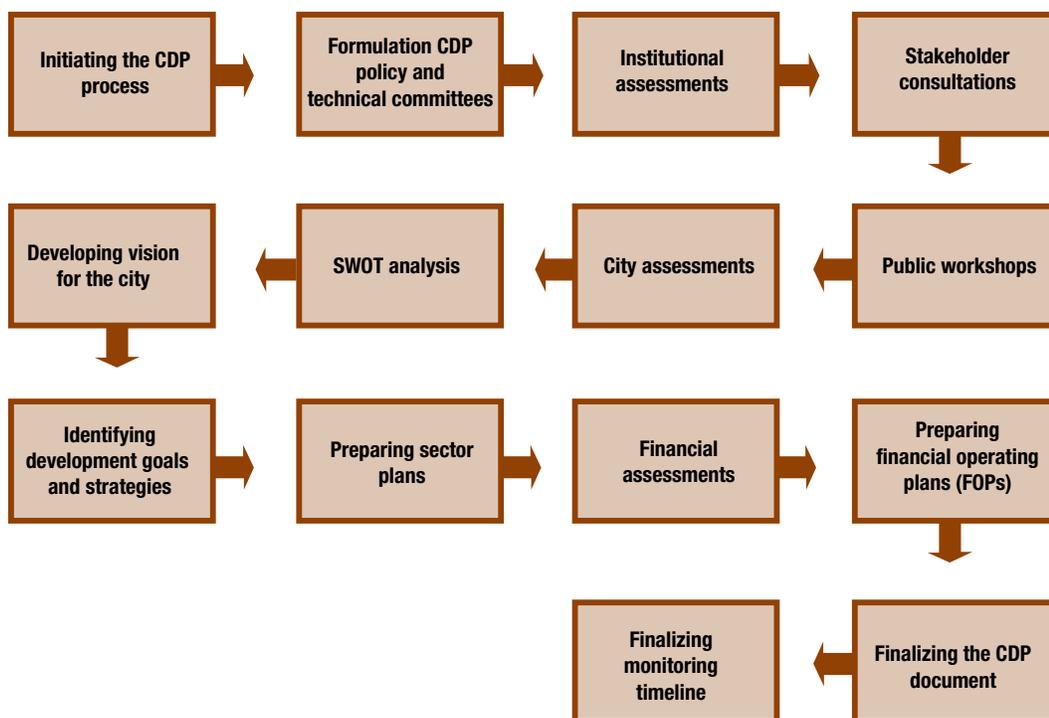
The FIRE (D) Program contributed to the revised guidelines by sharing the lessons from CDPs in Nagpur, Pune, and Bhubaneswar. That being said, the development planning approach discussed in Article 3.1 treats CDPs as relatively rapid and broad-based because experience in India shows that CDPs are best utilized to create a long-term vision of a city and to identify medium-term projects. As such, CDPs should be conducted regularly, every 3–5 years, depending on infrastructure development project cycles.[2]

It is possible to unbundle certain elements of the CDP process (listed in Figure 3-4), such as sector plans (e.g., city sanitation plans), which, by nature, require a lot of detailed analysis and sector expertise. The time it takes to conduct detailed sector plans should not delay a CDP unnecessarily. Also, the findings of sector plans often remain relevant for longer periods of time than the initial investments identified in a CDP. For example, implementing a city sanitation plan or slum upgrading

1 JNNURM's 2009 *Revised Toolkit for Preparation of City Development Plans* is available at http://jnnurm.nic.in/nurmudweb/Brochures_Published/Revised%20CDP%20Tool%20kit%20Summary.pdf.
2 For example, if it takes 5 years to implement a water project, from initial planning to completed construction, it may not make sense to conduct another CDP until afterward.

plan could be a 20-year effort that includes many separate project phases, articulated in subsequent CDPs. In contrast, financial operating plans (FOPs) should be revised more frequently than CDPs, on a yearly basis as part of the regular budget cycle (see Article 3.7).

Changes to CDP guidelines. MoUD revised the following CDP components based on the experiences during JNNURM.

1. **The organizational framework for preparing CDPs** was split into two committees.

   ▪ A policy committee is headed by the city's mayor and provides strategic guidance and political support in preparing the CDP.

   ▪ A technical committee(s) consists of sector experts.[3] It operates under the guidance of the policy committee, and it coordinates with the key stakeholder groups.

2. **City assessments** examine trends of the current urban situation and anticipated trajectory. This information can be used to establish indicators for measuring achievements. The revised guidelines recommend that city assessments cover four broad areas: (1) socioeconomic information, (2) the physical environment, (3) infrastructure services, and (4) institutions. Urban poverty, along with cultural heritage, have been identified as cross-cutting themes to be addressed.

3. If the goal is to develop consensus on the overall vision and priority projects, **stakeholder consultations and participation** have to be central components of CDPs from the onset. Stakeholders include citizens, public institutions, businesses, civic and professional organizations, and training and educational institutions.

4. **SWOT analysis**[4] determines unique features of the city, based on the most important urban trends, and suggests the important areas on which to focus development planning.

5. **The vision and goals** of the city derive from all the location-specific analysis in the preceding steps, as well as from the interests of the population. Realistic goals need to consider the issues that impede service delivery within the existing institutional structure, and what changes could take place to promote better service provision. Through consultations with key stakeholders and civil society, the desired shape of the city emerges.

6. **Sector plans** should be prepared for all the critical sectors included in the CDP (the original guidelines only specified water and sanitation sectors) for at least 5–10-year periods. The FIRE (D) Program advises taking a longer-term approach while assessing trends, since large-scale infrastructure, when implemented correctly, lasts for many decades.

7. **A financial assessment and FOP** determine how a city will pay for the priority projects, since there will not be enough grant money from the central and state governments. Although financial analysis was alluded to in the original CDP guidelines, this component requires a lot more attention. The revised guidelines provide a 10-point plan for preparing an FOP (see Figure 3-5, below, and Article 3-7 for more detail). Note that it may be inappropriate to prepare an FOP at this time if there are metropolitan/regional develop issues that need to be consolidated among various government jurisdictions.

3   Technical committees might be formed for such sectors as land use and infrastructure; heritage, conservation, and cultural and tourism development; the environment and disaster management; social, livelihood, and local economic development; institutional strengthening; and so on.

4   SWOT stands for strengths, weaknesses, opportunities, and threats.

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Figure 3-5. Undertaking a Financial Operating Plan
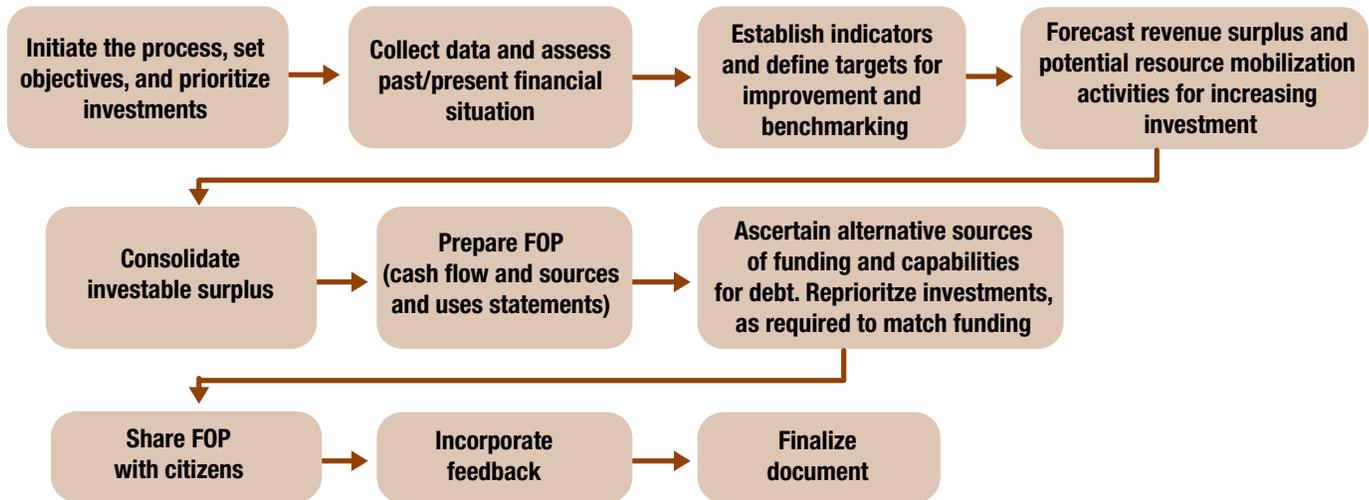
8. **The policy committee sets the time frame** for finalizing each component in the CDP process. A unified CDP document has to be ready before making a realistic FOP, and the FOP has to be completed prior to the year's budget in order to be fully incorporated. The committees present the draft CDP to the public for comment and verification, and then the relevant comments are integrated into the draft CDP. Finally, the municipal corporation votes to officially adopt it.

Lessons Learned while the FIRE (D) Program Prepared City Development Plans

State municipal acts should include CDP preparation. To facilitate ongoing review and preparation of CDPs on a more regular basis, the state municipal acts should include relevant enabling provisions.

Review and update CDPs regularly. CDPs should be flexible and dynamic documents, updated regularly, every 3–5 years.

Consult all key stakeholders, especially the urban poor. Meaningful consultations are critical for understanding citizen needs and priorities. These consultations need to be organized at different stages of CDP preparation. Meaningful consultations build consensus and foster local ownership and accountability. With more diverse participation, stakeholder inputs provide a fuller range of analysis— of both the assets and the problems of the city—that will result in a richer, more thought-out plan.

Create mass awareness through media campaigns. Awareness campaigns encourage active participation and local ownership. Give the public every opportunity to understand and be involved in the process; this builds consensus for subsequent implementation.

Service performance studies and demand surveys strengthen city assessments. Statistically significant sample surveys of multiple demographic groups throughout the city are very helpful to understand the current situation on the ground. Whereas official data simply list overall service coverage, these surveys disaggregate the quality of coverage across a city. For example, a water utility's data may show that delivery is satisfactory in a particular ward based on average numbers. But at the micro-level, surveys show systematic inequity within wards. In one survey conducted by the FIRE (D) Program, an affluent community reported water consumption of 250 lpcd,[5] while slum dwellers in the same ward reported less than 100 lpcd. Demand surveys are very useful in gauging quality of life information that helps prioritize infrastructure projects. (See Article 5.3 for more detail on how demand surveys contribute to project development.)

5   Liters per person consumed daily.

A CDP should complement existing spatial plans or inform their revisions. The CDP is not a substitute for spatial planning exercises. While spatial plans concentrate on land use, building codes, and aesthetic characteristics, CDPs focus on service delivery.[6] CDP analysis can support Master Plans by refining the scopes, by suggesting changes based on the ground realities, and by prioritizing implementation. Conversely, CDPs can incorporate findings from more detailed studies as important inputs into the process (e.g., doing-business surveys or slum profiles).

Institutionalize a project implementation unit (PIU) for coordinating project development and implementation among various agencies. A PIU needs diverse technical skills for good project implementation and contract management. Day-to-day management and oversight of the PIU can consist of representatives from all relevant local government departments and parastatals. The local government can either employ professionals or access external consultants in urban planning, municipal finance, infrastructure engineering, and urban management. For good results, the in-house staff needs to have enough capacity to manage, guide, and fully utilize any external consultants.

The time it takes to conduct CDPs varies by city. Cities that have already undergone management reforms can conduct the CDP process more easily, since they will likely have better organized databases and regularly collect information on urban indicators. In the cases where cities lack readily available data, the time-consuming activities should be started first. Nondependent activities can occur simultaneously, led by different CDP team members. For example, base map preparation and stakeholder consultations can occur at the same time.

Incorporate the sequencing of urban reforms and other institutional issues into CDPs. In many cases, key reforms, such as augmenting revenues or improving data systems, need to be implemented prior to, or in coordination with, infrastructure projects. The implementation timeline indicated in a CDP should consider the reform process as well as municipal capacity building and staff training needs.

Cities should conduct "shadow" credit ratings. Credit ratings provide good insight into a local government's financial performance and management practices. Analysis of revenue generation activities and expenditures over the last several years reveals a local government's ability to meet its financial commitments on a timely basis, including debt service (creditworthiness). It also provides an indication of how much market borrowing a municipality will qualify for and can safely sustain. Consequently, it also pinpoints necessary reform initiatives or potential revenue-generating activities as precursors to approaching private capital market. This aspect is integral to establishing a comprehensive reform program, as discussed in Chapter 4.

6   Neither adequately covers local economic development (LED) planning, to which more attention should be given.

ARTICLE 3.4

Environmental Status Reports: Planning Better Infrastructure and a Sustainable Habitat

Introduction

In 2010, the Government of India launched the National Mission on Sustainable Habitat (the Mission) to begin addressing the problems associated with climate change. The Mission focuses on urban areas, by mitigating environmental risks that result from climate change and developing more environmentally sustainable cities for the future. In the future, a changing climate may cause regional droughts or floods, rising sea levels, or more volatile storms. All of these could pose serious threats to cities and the large populations that live there.

In addition to proactively planning for natural disasters, developing more sustainable cities overall can help improve the environment and better safeguard fragile, natural resources. As a result of rapid urbanization and economic growth in India, maintaining a quality environment has proved to be a serious challenge. Other serious concerns that have potentially negative environmental and health consequences include water and air pollution, deforestation, industrial contamination, and improper disposal of solid waste.

For some time the environment has been a growing concern, both internationally and in India. The 74th Constitutional Amendment Act (1992), the Solid Waste Management Rules (2000), and the Model Municipal Law (2003) all emphasize local governments (in addition to regional initiatives) taking a larger role in managing the urban environment. But without a clear understanding of the environmental challenges facing a particular locale, it is impossible to address environmental protection and climate change with the seriousness that they require.

As a first step to developing more sustainable infrastructure and cities, the FIRE (D) Program developed an approach that assesses the status of the urban environment, and, in 1996, the city of Pune became the first Indian city to produce an annual Environmental Status Report (ESR). Maharashtra incorporated the ESR approach into its Municipal Act for preparation by local governments on an annual basis. It is the only state in India where local governments regularly conduct environmental analysis.

The Environmental Status Report Framework

Information is the crucial foundation for sound decision making by local governments. And a clear understanding of urban environmental issues and problems can provide essential data for planning and investment decisions by municipalities wanting to develop more sustainable cities. The ERS documents the prevailing conditions in cities and sets the agenda for improvements. The ERS framework set out below integrates the natural environment with community participation and urban infrastructure services.

The environment in an urban setting is shaped by many interconnected forces. The local context is characterized by existing natural and historical resources, land use and economic activity (industrial, residential, governmental, etc.), and population, as well as demographic trends. Together, these trends influence the demand for environmental infrastructure services, such as sewerage, water supply, and solid waste management. The capacity of current services, in relation to future demand, contributes to the environmental impact. While the main concern should be the overall health impact on the population, the risks to a city's cultural and architectural heritage must also be considered.

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Therefore, the ESR process takes a multi-sector approach and considers cross-cutting issues within this context. Analysis of the following key sectors sets the stage for preparing an ESR:

- Population and growth trends
- Land use and housing conditions
- Natural resources
- Historical and cultural heritage resources
- Water, sewer, and solid waste management services
- Roads, traffic, and transport
- Environmental pollution
- Public health impacts
- Public institutions, community groups, and nongovernmental organizations (NGOs)

Key Elements to Consider before Conducting an Environmental Status Report

Time Period. For a city implementing an ESR for the first time—as was the case in Pune—trends can be discerned from information and data from the past several years. In subsequent years, the first report will serve as a baseline point of reference, as well as an inventory of available sources of information. ESRs should be conducted on an annual basis, and each should build on the previous ones.

Spatial Coverage. Analysis should not always be confined to municipal boundaries; environmental impact must often be assessed over a larger area. In the case of Pune, the Pune Municipal Corporation (PMC) had to provide water supply and drainage services to villages within 5 km of its boundaries. So, it may be necessary to extend the study area beyond municipal boundaries.

Distributional Issues. Within each sector or subsector, both the macro-situation and specific environmental issues in every jurisdiction and socioeconomic group must be assessed. Depending on available data, this may not be possible for an initial ESR. In future ESRs, analysis of distributional issues should be assessed more precisely, and processes should be set up to achieve that.

Compatibility of Zoning across Sectors. Often, spatial variations must be assessed by comparing information from different sources and across sectors. In Pune, demographic information by zones was from the census of India. Service-related information was from local electoral wards, while the Pune Development Plan was based on traffic zones and zones for environmental services like water and sewerage were based on technical considerations. It may be necessary to standardize these sources to allow for a meaningful spatial comparison and analysis across sectors.

The Planning Process for an Environmental Status Report

Public participation is an important aspect of the ESR framework. Since the report can be an aid to setting sectoral priorities, budget allocations, and making financial decisions, the process should be as participatory as possible and should involve citizens, local community groups, NGOs, and other stakeholders. The planning department of the local government, in partnership with municipal engineers and environmental consultants (as needed), lead the ESR process through the following seven steps.

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1. First Public Consultation to Assess Environmental Concerns
First, the planning team identifies key stakeholders who have a mandate for overseeing environmental protection, public health, and urban quality of life. The stakeholders should include government officials, utility companies, citizen groups, technical experts, and concerned citizens. To begin, the municipal commissioner organizes a meeting to discuss, synthesize, and document the environmental concerns of the key stakeholders already working in the sector. The issues and concerns identified at this meeting become the starting point for the report and sectoral diagnosis. The stakeholder meeting also contributes to greater public awareness by linking public concerns with city-level decision making.

2. Environmental Situation Analysis with Mapping

Starting with the stakeholders' biggest concerns, a trained planner or engineer begins collecting information on the existing environmental situation and identifies information gaps. The analysis is based on information provided by the stakeholders and from field inspections. The field inspections generally include tests on particle contaminants in the air, open sewers, and/or cesspits; solid waste dumping; and/or uncontrolled landfills.

The FIRE (D) Program recommends that all the relevant data be mapped in order to present an overall environmental snapshot of the city with hazardous locations clearly marked. Global positioning systems (GPSs) and geographic information system (GIS) technology can be used to geocode specific locations. The environmental information is then combined with available city data and maps, such as roads, ward boundaries, buildings, and locations of sewer and water lines. The output is an environmental hazard map.

3. Public Health Threats

While the environmental hazards are being mapped, an expert analyzes the health impact and consequences of each hazard. The health impacts are also added to the map, creating a clear connection between the environmental hazards and the health risks for residents living in the immediate vicinity.

4. Second Public Consultation on the Environmental Assessment

The maps and technical assessments form the preliminary results for discussion with the stakeholders identified in the first step. Feedback from stakeholders helps refine the analysis and points to where further studies may be needed. Sectoral working groups can be established to assist in developing more detailed studies and action plans for each priority issue. The planning team could present relevant case studies for additional insight and possible replication. Meaningful action plans will require the involvement of all concerned public agencies.

5. Action Plans for Specific Sectors

In this step, the planning team, with assistance from sector experts (including some of the key stakeholders), conducts detailed sector studies to gain deeper understanding of the most urgent problems, as well as their causes and potential solutions. The solutions can be drawn from best practices in India or globally. At this point, the solutions are only conceptual in nature, so long as they directly address the environmental problems (to be designed later as part of a Detailed Project Report). The planning team organizes the solutions as action plans for inclusion in the city development plan (CDP) or other infrastructure projects.

6. Third Public Consultation to Determine Targets and Priorities

A third public consultation with key stakeholders helps build consensus around the detailed studies, proposed solutions, and conceptual action plans. If most of the experts and key stakeholders agree on the need for action, then those issues can be moved to the next phase of planning, whether as part of the CDP or as a standalone infrastructure project, revision to the building bylaws, pilot project, or legislative measure.

Another important aspect of this consultation is to determine the indicators for monitoring environmental issues and evaluating the progress of projects into the future. The indicators should stem from the environmental data already collected and found to be most relevant to the specific urban location. Once the indicators and benchmarks are established, the local government can form a monitoring and evaluation plan, which may include partnership with NGOs or academic institutions that normally collect and analyze data. An agreed-upon indicator system will make the following year's ERS much easier to update.

7. Raise Public Awareness

Printing the ERS, releasing it to the media, and posting it electronically on the local government's website helps create momentum for change. The maps can be used by the wider community, for example, in classrooms or by welfare societies. Building awareness of both the environmental problems and potential solutions will generate demand for improved services like clean water, sewerage collection and treatment, solid waste improvements, and slum upgrading. This demand, in turn, helps move subsequent projects forward into implementation.

Experience of India's First Environmental Status Report

Based the framework developed by the FIRE (D) Program, the PMC decided to proceed with India's first ESR in 1996. The PMC wanted to follow the recommended participatory process to determine environmental problems and subsequent action plans. This participatory process promoted tremendous public awareness and linked public concerns to city-level decision making.

The municipal commissioner solicited the views of local NGOs and technical institutions about critical environmental concerns, and these issues were incorporated in the structure of the first report. MASHAL, a local NGO that specialized in environmental planning, assisted in the preparation of the draft report. The report included a sector-level database based on readily available information from the PMC, local NGOs, and research institutions.

Because state law mandated that the ESR be presented on a specific day, the PMC only had enough time to complete the initial stakeholder meeting and situation analysis. Based on the 250-page draft report, the PMC produced a 16-page summary, in the local language, that included sectoral analysis, maps, and charts.

The commissioner presented this summary to the General Body of the PMC and the report's findings were widely discussed. The summary was made available at all ward offices and distributed to schools to raise awareness about the city and its environmental challenges. The report was also disseminated through training activities at the Yeshwantrao Chavan Institute of Development Administration in Pune.

The Pune ESR reaffirmed the need for an environmental assessment tool to help municipalities define their planning priorities. The ESR documented the increase in slums as a major environmental problem leading to the generation of considerable solid waste and untreated sewerage. The report also called for equitable distribution of water and made safe drinking water the highest priority. It emphasized the need to treat drainage water to make it usable for irrigation, and it suggested several policy issues, such as the need for state and municipal governments to regulate vehicles to check traffic congestion, noise, and air pollution.

Based on the ESR, Pune worked with the FIRE (D) Program to plan a large-scale water supply and sewerage project that would greatly improve the coverage and treatment across the city. Other cities in Maharashtra began conducting ESRs on a regular basis, using a similar process to the one described above and as mandated by state legislation. Unfortunately, other states have not followed this lead, although the ESR is recommended in the Model Municipal Law.

In Maharashtra, the annual ERS has generated tremendous awareness of environmental issues across the state, and the tool has become institutionalized over the years. However, the ESR has not been utilized in project development as anticipated. At this point, it is a standalone tool for information gathering and dissemination to the public. Ultimately, it needs to be a vital input into infrastructure development and legislative initiatives. Only then will projects have the positive and large-scale impact on climate change and environmental sustainability that the Government of India envisages.

ARTICLE 3.5

Local Area Plans

What Is a Local Area Plan?

A local area plan (LAP) is a conceptual plan for physical and economic development of a small geographical area, like a neighborhood. It offers development options with feasible site designs and cost estimates, based on underlying market and social characteristics. The area is defined by cohesive features, such as geographic boundaries, physical development layouts, and other socioeconomic patterns. LAPs serve as a third tier of planning, under the Master Plan and zonal plans,[1] both of which cover broader sections of a city.

The planning process is participatory: The planning team works with the local community, various government agencies, and multidisciplinary experts. Consequently, LAPs are expected to produce more inclusive and sustainable growth. Due to a market-oriented approach, LAPs have the potential to significantly reduce building violations by ensuring that the supply of legitimate real estate keeps pace with demand. However, this is predicated on whether the relevant agency adopts the new "area-specific" bylaws that the LAPs recommended.

The FIRE (D) Program developed the planning tool while supporting the Municipal Corporation of Delhi (MCD) confront a tremendous amount of illegal building construction throughout the city. The MCD pilot initiative focused on five distinct geographical areas within Delhi. Based on the experience in Delhi, the FIRE (D) Program recommends a highly participatory process (see Figure 3-6) that includes input from key stakeholders, such as residents, businesses, and institutions like schools and health facilities.

Examples of Local Area Plans

- **Open areas on the urban periphery**—*provide access to plots, with regular shapes and full infrastructure services*
- **Old congested areas**—*focus on traffic management, improve infrastructure and overall living conditions*
- **Disaster-prone areas**—*secure housing and infrastructure with retrofit work*
- **Deteriorated heritage sites**—*conservation work and improvements of the surroundings*

Figure 3-6. Area Development Planning through Stakeholder Engagement
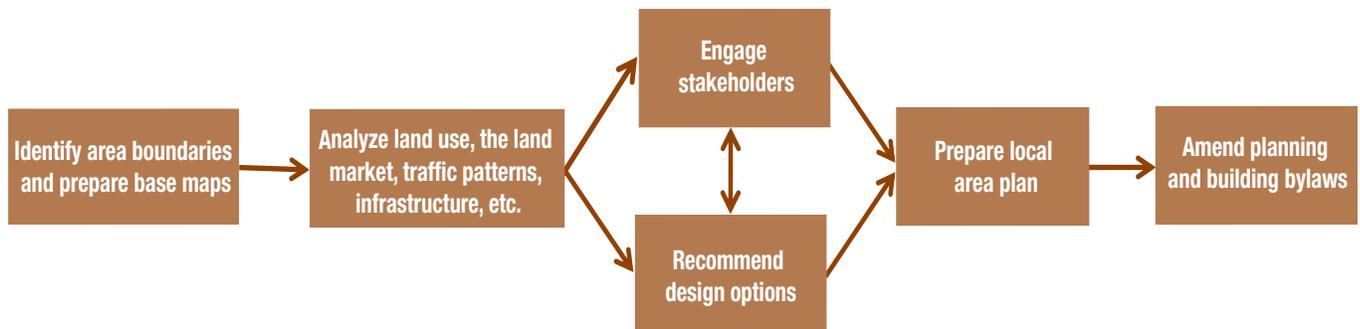
Conducting a Local Area Plan

1. **Identify Boundaries and Prepare Base Maps.** The first step for the planning agency and/or its consultants is to define the area by identifying hard urban boundaries, such as busy roads, railways, and waterways. Ideally, this step is initially considered in the zonal plans, since their level of detail shows how different neighborhoods interact with one another. The boundaries need to be drawn in consultation with local communities and relevant development agencies. Wherever possible, existing maps should be utilized (after verification), and where maps are not available or are outdated, satellite images can be used to create a base map.

   Once the area boundary has been delineated, a complete physical survey of the area will capture all above-ground structures, such as buildings, roads, walks, and building footprints. And a cadastral survey provides information on plot boundaries. It is important for all critical aspects of land market—land ownership, land use, estimated real estate values, number of floors/size of buildings, quality of construction, and authorized or illegal tenure—to be researched. All this information can be integrated into the base maps using geographic information system (GIS) software.

1 Zonal plans are expected to detail the provisions of the Master Plan. While there are 16 zones delineated for Delhi, as of 2008, only 6 zonal plans have been sanctioned.

2. **Analyze Land Use, Buildings, Traffic, and Other Development Patterns.** At this stage, the land market information (collected in Step 1) is linked to socioeconomic characteristics, such as population densities, heritage and cultural attributes, and business activities. It is worthwhile to understand how infrastructure and business activities connect to the surrounding neighborhoods. The data in this step are usually collected through stakeholder consultations, household surveys, and small group discussions throughout the neighborhood. Most of this information can also be incorporated into the GIS databases and portrayed on the maps. Note that accurate and up-to-date data are required for the area to fully understand its development potential. During consultations with stakeholders, the findings of the research and analysis should be presented and thoroughly discussed.

3. **Develop Design Options.** The data collected above should provide information on demand and supply of urban services, including infrastructure of all types. Market analysts can also explain how this information relates to business opportunities for various services, and demand for real estate development.

   From this analysis, various development options emerge, guided by a vision for the neighborhood. The community stakeholders, along with the local government, need to define a vision for the area during public meetings, or based on a CDP or other planning exercise. Development options may include infrastructure enhancements to match population densities and future development potential, land use changes to reflect market demands and transit capacity, and/or conservation work to preserve heritage and cultural sites.

4. **Prepare Local Area Plan.** Conceptual site layouts and renderings can be sketched for several options. The planning team shares these with community stakeholders and solicits their feedback before determining a preferred option. Basic cost estimates also help determine the preferred option. The team identifies possible funding sources (e.g., betterment fees; sale of excess municipal assets, such as land and buildings; sale of development rights; user charges; and increases in property tax income). The LAP should consider development options that can attract commercial financing, as well as projects that require government subsidy, like social housing and slum upgrading.

The institutional arrangements for implementing a LAP should also be considered, whether through private development or led by public agencies. The public sector will usually need to be involved to make appropriate infrastructure upgrades and achieve other social objectives. Furthermore, some development options may require amendments to the planning and building codes to facilitate long-term growth. For example, universal building-height regulations neglect variations in land markets throughout a city. Many aspects of the bylaws could benefit from localized variations, such as land use, building permit procedures, safety specifications, access for the disabled, and amount of open and recreational spaces.

Piloting Local Area Plans with the Municipal Corporation of Delhi

Despite being the capital of India, Delhi is plagued with unplanned and illegal development. With 40% of its buildings illegally constructed, the city struggles to provide adequate infrastructure, collect taxes, or even identify all properties in its building stock. Growing numbers of commercial buildings in residential areas have created serious congestion and land use compatibility issues, prompting litigation in the High Court of Delhi and ultimately the Supreme Court of India. In 2005, the courts ruled that the government[2] failed to effectively regulate construction and land use. The courts ordered all commercial properties in residential areas to be sealed, and all illegal construction demolished.

Delhi's building regulations are inadequate and complex; instead of facilitating organized growth, they incentivize illegal development. The limited supply of land (government agencies own most of the land in Delhi) and rapid population growth result in high property values and market demand for high-density development. But when building and planning regulations fail to respond to prevailing market conditions, by mandating low-density development for example, the incentives for illegal construction increase. As is the case in many Indian cities, Delhi's Master Plan provides only a broad

2   With Delhi's complex governance structure, the MCD, the Government of the National Capital Territory, and the Government of India were all party to the proceedings. The MCD carried out the court order with an appointed monitoring committee.

and top-down view of the city. It does not provide accurate base maps or a representation of on-the-ground and market realities.[3] Maps are not updated regularly, and many swaths of the map are blank despite being fully built up. Rarely do city maps include information on slums, although they make up about a third of the total population.

While the Delhi Development Authority (DDA) prepares the master and zonal plans, the MCD is mandated with their implementation. The MCD has little ownership of these plans, since it is largely excluded from the planning process. Further, the MCD, with only three planners on staff, lacks the institutional capacity to implement a Master Plan. The weak institutional framework leads to arbitrary investigation of violations (under these conditions, it is impossible to pursue all violations) and, as a consequence, breeds corruption.

Facing an impending court case and a very difficult regulatory situation prescribed by the Master Plan, the MCD wanted to examine how to reform its building bylaws. In December 2003, the MCD contacted the National Institute of Urban Affairs, which, along with the FIRE (D) Program, analyzed the situation and recommended regulatory reforms.

The regulatory revamping included the entire building bylaw system (procedural, performance, and planning bylaws).[4] The goal was to simplify the bylaws and increase flexibility in development, particularly by encouraging private sector activity. The revisions focused government oversight on the most critical building safety, environmental protection, and congestion/infrastructure deficiency issues.

The FIRE (D) Program found that a market-oriented approach to bylaw reform has the greatest potential to reduce building violations. By aligning regulations with market demand, the supply of legitimate real estate opportunities increases. For example, high land values in a location represent a market signal that the area is desirable and can support larger-scale development.

Each area of a city differs, based on localized conditions. To understand this better, the FIRE (D) Program suggested that the LAP concept include a proviso that the process should inform local variations to the bylaws. After drafting the initial LAP guidelines in 2005, the MCD began testing the process in five very diverse areas of the city:

- Vasant Vihar, an upscale residential area proposed for redevelopment
- Ballimaran, a heritage site that is a part of the walled city
- Karol Bagh, a special development zone
- Sangam Vihar, an unauthorized colony
- Yusuf Sarai, an urban village

3   The Master Plan maps Delhi, scaled at 1:20,000, prescribes land use in a very generalized manner.
4   The new building bylaws can be found at www.dda.org.in/planning/building_bye_laws.doc and http://203.145.172.177/mcd/adds/buildingByeLaws.jsp. Click on No 5. Final Building Bylaws 26 July 2005.

Yusuf Sarai is considered an "urban village," with narrow interior streets, open drains, minimal services, and dense *kutcha* (temporary) housing. However, it is located in a rapidly growing part of the city. The average density is 986 people per hectare, and the total area is 7.6 hectares. Yusuf Sarai is strategically located in the MCD south zone, along the busy Aurobindo Marg Road, linking the inner and outer ring roads (between Green Park extension and the All India Institute of Medical Sciences). Increasingly, this location attracts high-end retail along the main road, which dramatically contrasts with the informal markets and *kutcha* residences in the interior lanes.

The LAP strategy for Yusuf Sarai recommends site redevelopment, since land values support mixed-use properties with floor-to-area ratios up to 4 (the current average is 1.5–2.5). The concentration of *kutcha* and rental housing could allow plot amalgamation to improve road/traffic networks and infrastructure upgrading. This strategy preserves the current population while delivering badly needed services. It can also regularize construction and facilitate the commercial growth that is already prevalent informally.
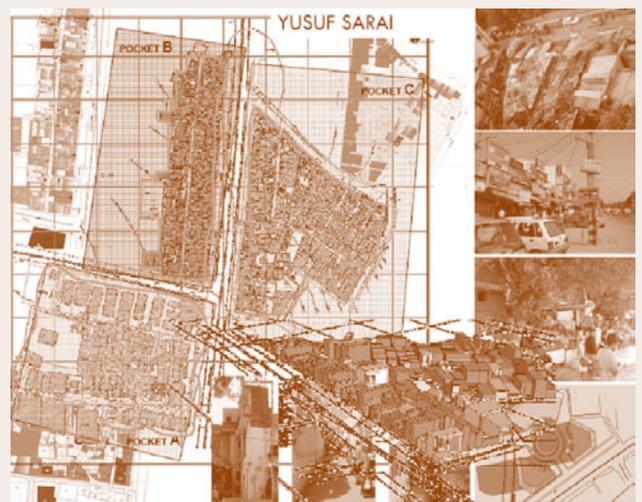
Lessons from the Pilot Project

- The MCD lacks institutional capacity to lead the LAP process (not to mention conduct the analysis in-house). The town planning department of the MCD is grossly understaffed. Besides the Chief Town Planner, there are only three dedicated planners, who, during the pilot, were consumed with enforcing court orders or other bureaucratic responsibilities.
- Zonal plans could specify the LAP boundaries to encourage more urban cohesion. The zonal planning exercise is broad enough to identify changes in socio-cultural homogeneity, land use, or built typology throughout the city.
- The base maps and property databases available for Delhi are inaccurate and outdated, since urban settlements have not been resurveyed since independence. As a result, the MCD added map preparation to the LAP scope of work. Because this task is specialized and time-consuming, it should be a separate project undertaken for the entire city.
- Stakeholder consultations are complex because many diverse views need to be reconciled before forming a clear vision for the area. This requires a strong public awareness campaign and multiple public meetings, with the government (the MCD and the DDA, in the case of Delhi) taking a proactive leadership role.
- The LAP has been conceived as the third tier of planning below the Master Plan and the zonal plans. For such a system to be effective, it is important that each lower tier conforms to the intent of the higher levels. While the Master Plan provides a vision of the city's structure and form, the LAP provides locally specific detail that is relevant for implementing projects. The LAP cannot substitute or compensate for a faulty Master Plan.

The Way Forward

Both the revised Master Plan for Delhi and the Draft of Delhi Municipal Corporation (Amendment) Bill (2005) highlight the LAP process.

- During the LAP pilot, the DDA released the draft Delhi Master Plan (2021) and solicited public feedback. The first draft only made a cursory reference that LAPs could be prepared by the local body. But in response to the Supreme Court orders (mentioned above), the Master Plan underwent two additional revisions. The version published in February 2007 offered a major advancement by highlighting the LAP process in the introduction.[5] And the final Master Plan provided operational guidance for LAP preparation.[6]
- The proposed amendments to the Delhi Municipal Corporation Act under this reform initiative have steadily moved forward. The act is in the final stage with the Delhi State Assembly for approval. The draft legislation also allows Resident Welfare Associations to prepare LAPs for their neighborhoods and to submit them to the MCD for sanctioning.

5   See page 3 (b), "Public Participation and Plan Implementation: Decentralized Local Area Planning by participatory approach," FIRE (D) Project Note No. 41, *Delhi Local Area Plans*, November 2009.
6   See page 124:3 (13), "Wherever required, the Technical Committee of [the] DDA shall formulate policy guidelines for sanctioning LAPs, layout plans, comprehensive schemes…The Technical Committee shall be empowered to call for the plans for development organizations and local bodies, and would give directions wherever necessary," FIRE (D) Project Note No. 41, *Delhi Local Area Plans*, November 2009.

ARTICLE 3.6

Slum Upgrading: A Case Study on Bhubaneswar, Orissa

When Mr. Patnaik became the Slum Improvement Officer (SIO) for Bhubaneswar in 2007, he knew that slum upgrading[1] was clearly a responsibility of the local government—and now it was his responsibility. He also knew that Bhubaneswar, the capital of Orissa, was a Jawaharlal Nehru National Urban Renewal Mission (JNNURM) selected city and, as such, would receive a large amount of money for infrastructure and poverty alleviation. The pro-poor component of the central government Basic Services for the Urban Poor (BSUP) grant for Bhubaneswar is Rs. 40.8 crore (US$9 million).

The BSUP grant provides a great opportunity to undertake slum upgrading projects and enhance the ULB's capacity in the process. Currently, none of the SIO's office staff are planners, engineers, architects, information technology (IT) or geographic information system (GIS) specialists, or finance professionals, although these development-oriented professions are critical for pursuing slum upgrading. As a civil servant from the Orissa cadre, Mr. Patnaik did not arrive on the job with technical knowledge of slums or development, but would have to learn quickly. And although the city had development powers, all the city's functions, e.g., planning, building regulations, and permits, lay with the state parastatal Bhubaneswar Development Authority (BDA). Consequently, real estate development, whether in slums or otherwise, has never been a focus of the ULB. Without having responsibility for providing most urban infrastructure, the ULB has never invested significantly in improving services to slums. Its minuscule capital budget only invests in minor community-level interventions, like forming self-help groups (SHGs).

The SIO's office has 7 community mobilizers for more than 300,000 slum dwellers (1 staff member per 42,000 slum residents) and a few administrative staff. There is also one computer specialist deputed from a local IT and mapping company called the Spatial Planning & Analysis Research Centre (SPARC). For coordinating the pro-poor development of one-third of the city, the ULB has devoted very limited resources.

- Given this situation, how will the SIO utilize the JNNURM BSUP grant to maximize its impact?
- What is the best way for the ULB to accomplish slum upgrading on a city-wide scale given its limited authority over development and scarce resources?
- What types of upgrading programs are progressing in the India and Bhubaneswar contexts?

While thinking about these questions, Mr. Patnaik first realized he had a more basic problem: He did not know how many slums were in the city, where they were located, or what living conditions existed in them. Multiple departments at the city and state levels loosely dealt with slums based on their respective functional areas. For example, the Public Health and Engineering Organization (PHEO) knew of many slums through its work building hand pumps or stand posts in underserved communities on behalf of the ULB. But no one had an overall, comprehensive view of the situation. As a result, it was very difficult to pursue any city-wide approach for improving living conditions.

1   The objective of slum upgrading in Bhubaneswar, per the 2010 Citywide Strategy, is for every slum family to have a legal and *pucca* house with minimum relocation; a house where a family can live, work and sell; a house with private municipal services and access to schools, health care, food security, and social security; and for every poor family who migrates to the city to get access to affordable rental or for-sale housing with basic services.

FIRE (D) PROGRAM

A. Evict and Eradicate

In the absence of credible information, most city officials rely on their limited perceptions of slum dwellers: Slums are filled only with poor people, who do not contribute very much to the city or the economy, encroach land and disregard government regulations (most land in Bhubaneswar is owned by the state government), and do not seem to mind living without improved municipal services because they are used to it, having migrated from rural villages. For decades, this attitude reflected the thinking for many policy makers in India (and across the world). It justified many policies during the 1960s, 1970s, and 1980s, directly or indirectly, to prevent slums by (1) discouraging rural-urban migration (through rural incentive programs); (2) limiting the growth of cities (through regulations and minimal investment); and (3) physically eradicating slums periodically.

Typically, encroachments are bulldozed (or burned in some cases) overnight, and the slum dwellers relocate to the periphery of the city. At times, the relocated households (HHs) receive formal tenure on the new sites, as was the case for 17 slums in Bhubaneswar that were relocated between 1985 and 1998. These 5,300 HHs resettled in four slum clusters on the edge of the city, several of which were on protected forest land (which posed a possible contradiction with granting land tenure). Apart from tenure rights, the state/city provided small additional support, like hand pumps. No formal infrastructure was ever built, and to date the houses are still "temporary" shacks.

Although recent political pressures have more or less ended outright slum eviction policies, the idea lingers and was even openly discussed at a recent stakeholder meeting in Bhubaneswar. Currently, the most popular slum improvement schemes involve relocating the poor into new houses that are built with either public funds or private investment. Many people also believe that consolidating slums into new high-rises will free land for other development.

B. Experience with the Basic Services for the Urban Poor Grant

Uncertain about the on-the-ground realities in slums and with limited or no internal capacity, local government usually relies on central government schemes as a guide; these schemes run the risk of becoming narrowly defined prescriptions. Many, like Swarna Jayanti Shahari Rozgar Yojana (SJSRY) livelihood training support, are specific in scope, while others, like BSUP, are broad but can only fund a few discrete projects. Although Mr. Patnaik knew that a comprehensive approach was required, he also realized that he would not implement such a long-term approach since, as a civil servant, he shifts assignments every 6 months to 3 years. His primary concern was to make some progress, wherever possible, and to implement a few key projects with the BSUP funding already sanctioned.

The city decided to use the initial BSUP money to finish upgrading some of the slums that were relocated over 15 years ago. BSUP was to pay for infrastructure improvements (including social infrastructure, like schools or health clinics) and provide money for new housing equivalent to 90% of the construction costs. The Rs. 40.8 crore (US$9 million) would be used in 3 clusters of 18 total slums. Since the grant was primarily used for residents with below poverty line (BPL) cards, approximately 60% (about 1,960 HHs) in the slums were covered. The government subsidy equaled Rs. 208,000 per HH. Although the remaining HHs in the slums did not receive a subsidy, they benefited from neighborhood-wide infrastructure improvements.

In 2009, a year after the grant was sanctioned, the project had still not begun. The grant money actually flowed to the state government's Housing and Urban Development Department (HUDD). HUDD initially worked with engineers to assemble and manage the grant proposal, rather than with the SIO or any of the slum dwellers themselves.

In implementing the project, the city's engineering department first tried to tender the construction work to one large firm, which generated only a little interest from builders, but sparked serious outcry from the political establishment. The department tried to tender the work several other times, and finally decided that only the infrastructure would be built through a contract, while HHs would receive cash transfers. The SIO's office then became more directly involved in managing the cash transfers, based on inspections of set construction milestones, to be completed by the HHs (on their own or by hiring others). But without financing, only a few HHs had the upfront capital of Rs. 23,000

(10% of the housing costs that residents were responsible for) required to participate. This approach produced only 40 of the expected 1,960 houses before the SIO's office began working with a local nongovernmental organization (NGO) and microfinance institution to facilitate the effort. The pace of construction and the level of community involvement has now picked up.

Theoretically, the SIO could hire in-house professionals to implement the project and even use grant money to do so, but this has proved difficult without his direct control over the money and without providing a strong case for his bosses' approval and state sanctioning. Furthermore, it is very difficult for the ULB to attract top professionals due to relatively low compensation and a poor work environment vis-à-vis the private sector.

The Municipal Commissioner, Madam Sarangi, suggested contacting the USAID FIRE (D) Program, which had already been assisting the ULB in financial management reform, enhancing municipal revenues, and conducting Bhubaneswar's city development plan (CDP). The FIRE (D) team agreed to assist, as long as a pilot upgrading project could be tested on the ground. This was readily accepted, since money for the pilot would come from the Michael and Susan Dell Foundation (MSDF) rather than from the ULB or JNNURM BSUP grant.

FIRE (D) PROGRAM

In 2008, the FIRE (D) Program started exploring three areas with the SIO: (1) understanding the policy environment for slum upgrading, (2) identifying and surveying all city's slums, and (3) launching a pilot with MSDF, and then incorporating the lessons from the pilot into a city-wide slum upgrading strategy.

C. Policy Environment for Slum Upgrading

Orissa's new Municipal Act, passed in 2003, is based on India's Model Municipal Law that the FIRE (D) Program supported. Orissa's Municipal Act takes an even more progressive view of slum upgrading than the model law, emphasizing in-situ (on-site) upgrading, while minimizing relocation. It also indicates that all slums need to receive basic services irrespective of tenure or tenability status.[2] The relevant chapter of the Act gives a framework from which ULBs can develop a strategy for implementation.

1. List all slums on a map with settlement characteristics.
2. Ensure all slums receive basic services (non-regular municipal services), including, for example, water hand pumps, stand posts, and community toilets.
3. Assess the tenability of each settlement through a participatory consultative process.
4. Understand that all tenable sites can be upgraded in-situ, while sites that cannot be made tenable need to be relocated.
5. Prior to in-situ upgradation or relocation, current slum dwellers have to receive a form of tenure security. Land transfers or disputes are settled at this time.
6. "Micro plans" in each slum or group of slums, with community participation, determine specific slum upgrading interventions to pursue.
7. Prepare detailed plans for funding and implementing projects.
8. Monitor the results
9. Finally, "de-notify" the settlement as a slum.

While the basic framework is relatively clear in the Act, it does not indicate **how to upgrade slums at scale,** i.e., how to implement city-wide rather than on a project-by-project basis. Also, the question of funding is not addressed, and, ultimately, not much can be accomplished without political will to pay for the effort. But it does offer a strong starting point for engagement with the city.

2   "Tenability" refers to whether a site is fit for human habitation based on life-threatening safety, health risks, or other public interest, to be determined through fair due process.

D. Bhubaneswar Slum Profile, 2008

Through the SIO's request, the FIRE (D) team worked with the ULB's community organizers, as well as Utkal University students and GIS experts from SPARC, to create a GIS database of all the low-income settlements in the city. The team recorded the population, the level of existing services, slum locations, ownership status, and other data. SPARC linked this information to a city map that included Bhubaneswar's road network, political wards, and other basic geographic features. The team published the slum profile at the end of 2008.

Figure 3-7. Sample Charts from the Slum Profile

Quality of Housing — Pucca 7%, Semi-pucca 29%, Kutcha 64%

Source of Drinking Water — No. of slums with the type of source: No source 29, Other nearby sources 36, Hand pump tube wells only 153, Stand posts and Hand pump tube wells 96, Stand posts only 63
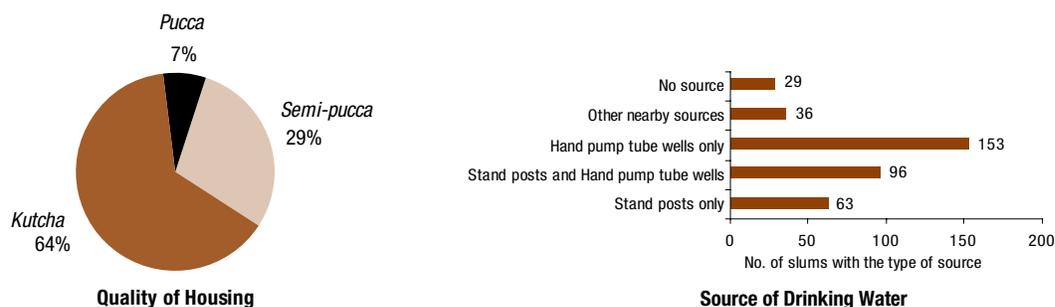
The profile identified 377 slums distributed throughout the city, consisting of 308,000 people or 30% of the city's population. Slums grew rapidly during the previous decade (78% increase), mostly due to the vast devastation caused by the 1999 super cyclone. Others slum dwellers migrated to the city to search for jobs, particularly in the construction sector. Between 2001 and 2008, the number of slums in Bhubaneswar grew from 190 to 377, thereby adding about 2 slums every month.[3]

Table 3-9. Service Deficiencies in Slums

Average slum size	159 HHs, 816 people
Lack of tenure security, i.e., encroachment	281 slums (75%)
Temporary (*kutcha*) structures as housing	37,268 HHs (64%)
Dirt roads connecting slums to surrounding city	126 slums (33%)
No water supply inside the slum	65 (18%)
No access to toilets/open defecation prevalent	48,386 HHs (80%)
No street sweeping	179 slums (47%)
No storm water drains	256 slums (68%)
No streetlights	133 slums (35%)

Water, shelter, and sanitation are some of the most essential municipal services and are also very high priorities for slum dwellers, according to focus group discussions. No slums have HH water connections, and about 80% rely on hand pumps and/or stand posts, with intermittent quality. On average, most slums receive 2 hours of water per day.

With minimal HH and community toilets, nearly 80% of the slum residents defecate outdoors, in and around their neighborhoods. The public health effects are serious: Waterborne disease is one of the largest causes of death worldwide, and respondents in Bhubaneswar reported 8,517 cases of diarrhea/dysentery, gastroenteritis, infective hepatitis, and typhoid during just 4 months of surveying. Basically, 13% of the population experienced a water/sanitation-induced sickness during the survey period.

3   Based on comparisons from the 2001 census.

Figure 3-8. Preferences of Slum Dwellers

Priority Needs in Slums
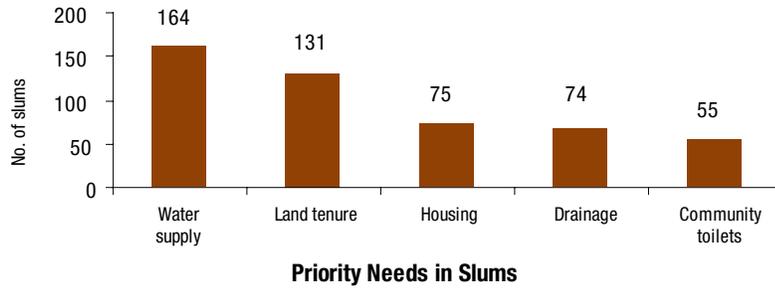
E. Incremental *In-Situ* Improvements

Water, Sanitation, and Health Pilot with Michael and Susan Dell Foundation. With these alarming figures in mind, the FIRE (D) team discussed with the SIO and the commissioner how to confront the water-sanitation-health problems with a small pilot project in selected slums. Because city officials and the water utility were very skeptical that slum dwellers would be willing or capable of paying for regular infrastructure services, the ULB first chose the three relatively "easy" slums of Gyannagar, Kapileswar, and Baragada to initiate the project. All these slums have secure tenure rights, are located in the historic part of the city, have permanent pucca houses, are near to municipal water and sewer networks, and are average in size.

After several discussions, the idea emerged to focus on improving water, sanitation, and health (WASH) services for slum dwellers by providing legal, piped infrastructure connections and toilets at the HH level. Through other slum upgrading work in Sangli and Agra, the team learned that HH toilets are the most sustainable way of ensuring good maintenance over the long term. Best practices also show how important it is to work with slum communities to plan and implement solutions. The team for the project included BISWA, a local NGO and microfinance institution that led the community mobilization; PHEO engineers to design infrastructure extensions; and MSDF, who provided a grant for the infrastructure. Microfinance provided capital to HHs for investing in toilets, baths, and legal service connections (water and sewer). To complement this initiative, the team conducted livelihood enhancement training, formed community savings groups, and provided affordable family health insurance. Table 3-10 lists the illustrative costs of the first slum, which had 83 HHs.

Table 3-10. Costs for Water and Sanitation Pilot Project in Gyannagar Slum

Item	Quantity	Paid by	Cost (Rs.)
Underground water supply infrastructure	200 m	MSDF grant	383,000
Underground sewer infrastructure	250 m	MSDF grant	277,000
Capital cost of HH WASH solutions	55 HH solutions (serving 74 HHs)	HHs through BISWA financing	384,000
Community toilet water storage/connection	5 stalls	Bhubaneswar Municipal Corporation (BMC)/PHEO/MSDF	20,000
Technical assistance/planning/ community mobilization	Team of 10 people working for 6 months	MSDF/USAID FIRE (D) Program	903,000
Subsidy/gap funding (grant for partial connection fees)	55 HH solutions (serving 74 HHs)	MSDF grant	207,000
Total Project Costs			**2,174,000**

The community-based process yielded better services to the slums, including the first slum in the city to receive HH water connections. The infrastructure also increased the value of slum dwellers' homes, improved public health, and facilitated better management of household finances (through a SHG program). Open defecation in the streets dropped from 90% to 20% of the targeted population after 1.5 years of work. And other, nonparticipating families have become excited about the improvements and discussed a second wave of construction.

F. Slum Redevelopment through Public-Private Partnerships

As outlined above, Bhubaneswar has two ongoing models for slum upgrading: the FIRE (D) pilot and the JNNURM BSUP. The BDA is also pursuing a third model similar to Mumbai's well-publicized Daravi redevelopment plan (also replicated in Pune and other cities), where government-owned land with higher than normal density rights are awarded to private developers who agree to build a set number of fully serviced, low-income housing units (whether on the current slum site or elsewhere). A completed project includes new low-income housing, given free of charge to slum dwellers, as well as market rate developments that the private partner sells openly. This model is driven by very high land values and restrictive development/zoning regulations, both of which create the extraordinary conditions to fuel redevelopment.

Essentially, this model can be financially feasible for a project if the value of the land reserved for market rate redevelopment is greater than the total development cost (TDC) of the low-income portion of the project (housing, infrastructure, amenities, community mobilization, etc.). And if that land value is worth more than the low-income project TDC, the government could recapture some of the value by mandating a "bidder's premium." In Bhubaneswar's project, the value of land (Rs. 486 million on 23.4 acres) reserved for market rate development far exceeds the cost of the low-income project for 192 households (costing Rs. 53 million, excluding financing costs).

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However, there are several parameters that determine whether the model works, particularly uncertain fluctuations in the real estate market. In Mumbai, the global recession postponed the project because financing dried up (much of the US$5 billion was being mobilized internationally) and the demand for high-end, market-rate units slumped. Also, transaction costs—including the bidder's premium to the government as well as other formal and informal payments—are contentious and risky. Beyond financial feasibility, the political risk is high for a private partner if the slum communities and their politicians do not reach broad agreement. To date, India has limited experience in participatory planning processes that bring government, private developers, and communities together for building consensus on big projects. At this point, the uncertainties are probably undermining the potential for city-wide replication. While Pune has pursued variants of this approach for 15 years, as of 2010, only 7 projects have been implemented.

Moral hazard is another problem with this model. Relatively wealthy people always manage to capture some of the units reserved for the poor; at other times, beneficiaries sell their new units quickly to make windfall profits. With bigger subsidies, moral hazard becomes a bigger problem, and as of now the public-private partnership (PPP) model circulated around the country promotes free housing for the poor. In one recent Pune project, 50% of the beneficiaries rented out their units to middle-income families and college students within months of project completion. In addition, government restrictions on resale have not typically worked anywhere in the world.

G. Comparing Intervention Types

Table 3-11. Summary of Current Models Being Considered in Bhubaneswar

Intervention	Example	Pros	Cons
Expand basic services and livelihood programs	PHEO works; BMC SIO	Quick; affects a lot of people; addresses human rights	Slums continue to exist because the upgrading is not complete
Incremental upgrading *in-situ*	FIRE (D) project pilot	Brings regular services into slum; encourages self-investment	Takes time; neighborhood design uneven and not ideal
Redevelopment *in-situ* (significant rebuilding and realignment in the)	BSUP JNNURM	Makes significant change to neighborhood; incorporates community amenities	Very costly for public sector; some households excluded
Near site relocation or redevelopment of current site with PPP	PPP project under BDA	Leverages private investment; makes significant change to neighborhood; adds additional market housing, commercial development, etc.	Projects are difficult/timely to negotiate; will only work in parts of city with high land value; difficult to ensure benefit to slum as promised

With several ongoing pilot initiatives, Bhubaneswar has good experiences to draw on for planning city-wide slum upgrading. Still, the SIO might be uncertain which model to replicate widely, or in what situations each intervention type makes the most sense. It is possible that none of them will work uniformly throughout a city: For example, BSUP funding will never be enough to address all the slums.

To assist policy makers it is worthwhile to highlight some guiding factors or questions for framing a feasible strategy. Given that city-wide slum upgrading is big in scope and long term in nature, policy makers need to carefully consider local commitment and capacity. It takes significant financial commitment to increase investment, political commitment to reform policies, and technical commitment to create workable solutions. Key considerations for replicating a program on a large scale include:

- **Willingness to dispose of government land** and/or acquire significant land for slum dwellers, with **tenure security**
- **Willingness to change land and service regulations** to facilitate infrastructure expansion, smaller housing units, higher densities, simplified building bylaws (including rules on service connections to non-land owners)
- **Public investment** by expanding infrastructure services into slum areas and facilitating financing to make microfinance, mortgages, construction finance, etc. more available to the sector
- **Strengthening of internal government capacity** to implement, coordinate, and/or monitor projects

These items are most critical because (1) the public sector needs capacity to undertake long-term development projects even if it is primarily in a coordinating role; (2) policy needs to incentivize private sector investment (households, real estate developers, financial institutions) to generate enough momentum to replicate widely; and (3) public investment (in infrastructure, land, etc.) will always be required to reach the poorest households.

One example how policy change can have a potentially large and sustainable impact is the growing interest to create small housing products for low-income families on a purely private model. Although this would never address the poorest slum dwellers, it could help the top 15% of them (9,000 households in Bhubaneswar) based on current income distributions in cities like Bhubaneswar. It could also encourage entrepreneurs to expand rental housing options. However, for this to work, the local building bylaws would have to lower the minimum unit sizes, small housing loans and mortgages would have to be made available to the poor, and the transaction process would have to be simple and receive support from local NGOs. In this situation, the public sector would have to facilitate the right policy conditions but would not be the main investing or implementing partner. If the conditions are right it could be sustainable through private interests.

Table 3-12. Relative Subsidies and Management of Interventions[4]

Upgrading program	Equivalent subsidy per household (Rs.)	Provided by	Management required by ULB
Incremental upgrading *in-situ:* FIRE (D) pilot	45,000 (road, drains, water, sewer)	Infrastructure investment by public sector/utility	Coordination between utilities; community mobilization for household connections
Redevelopment *in-situ* (significant rebuilding and realignment in the): BSUP JNNURM	208,000	Public sector	Public sector implementation and/or outsourced contract
Near site relocation/redevelopment of area with PPP	275,000	Leveraging government land	Monitoring; contract management; community mobilization

Without addressing critical underlying policy and operational issues, most upgrading efforts will be limited to more one-off projects. Under these circumstances, other slums will continue to exist and grow. The reality is that slums offer a solution for the urban poor who cannot afford formal housing in the city. It may be easier for policy makers to defer tough decisions about upgrading slums, relocating people, or transferring tenure rights. But without action, slums will proliferate as cities grow and new jobs need to be filled. Many countries in Latin America, for example, did not initiate major upgrading programs until 70%–80% of their cities became slums. At that point, service expansion and upgrading becomes unavoidable because slums can no longer be addressed with minor measures.

Deciding how to use scarce resources is always a critical question for policy makers and those responsible for implementation. Assuming that a major objective is to maximize the use of public resources, i.e., benefit the greatest number of households possible, it will be useful for the SIO and policy makers to understand the relative costs of each intervention. The chart below highlights the public costs[5] of three models and describes the management requirements to undertake the work.

The BSUP model involves the most government coordination and management of funds. At Rs. 208,000 per household, it is an expensive grant that is unlikely to cover the entire city. Within slums, there is real concern that this model favors current BPL card holders (only 60% coverage on average), who are not necessarily the poorest households, according to household surveys conducted in 2009 in Bhubaneswar.

Although the PPP model provides the largest subsidy, it is not a budgetary item, since the government leverages its land assets. The private partner manages implementation, while the government has to ensure that all contract provisions are fulfilled.

The most cost-effective model is expanding infrastructure services to existing slums, because the housing upgrades are the responsibility of slum dwellers, who invest over time. Many cities around the world have very vibrant and built-up neighborhoods, like Lajpat Nagar in Delhi, that have benefited from this model. It does require close coordination among the various agencies responsible for infrastructure construction. An incremental approach through service expansion has especially high potential for scalability when it is combined with city-wide infrastructure projects (such as those being undertaken with JNNURM), or through annual augmentation of specific areas of the the city.

In contrast, the BSUP and PPP models probably have less scalable potential for the overall city, but could be utilized in specific areas. For example, PPPs would be most appropriate for strategic areas of the city that can support high-density construction, mixed uses, and high market demand. In contrast, difficult to develop or isolated areas of the city would require more public-led investments under BSUP. See Figure 3-9 for an illustrative set of questions to help decide which potential course would be appropriate for a specific slum or area of the city.

Based on the ULB management capacity, anticipated funding, and functional authority, the SIO and other policy makers should evaluate which experiences make the most sense to scale up. Perhaps they are all relevant in varying situations and should be viewed as a set of tools.

4   All three intervention types in the chart above assume that slum dwellers receive a secure form of tenure rights prior to slum upgrading. Secure tenure does not mean a title or freehold. It could also be a license to stay on the land for 10 years, a long-term lease, community rights, or any of a number of other scenarios.

5   This does not include the private investment made by households themselves.

Figure 3-9. Deciding on a Slum Upgrading Intervention Using a Decision Tree Approach

Tenability: Is the physical location both life-threatening and unfeasible to mitigate?

Relocation project:
1. Develop offsite where infrastructure can be extended, 2. Relocate residents, and 3. Secure the old site to prevent future encroachment

Yes ← | → No

Tenure: Does current land ownership and land use codes allow upgrading? Is the slum notified/authorized?

Yes | No → Policy process to authorize slums and strengthen tenure rights

Infrastructure access: Does the nearby area have infrastructure networks with adequate capacity? Or, will it be constructed in the next three years?

Yes | No → Network expansion, decentralized infrastructure, and basic service delivery

Building structures: Is the construction quality good within the slum *(pucca/kutcha)?*

No | Yes

In-situ redevelopment, or relocation project

Incremental upgrading program: Onsite infrastructure, livelihoods, social services, and on-plot development through microfinance and subsidies

Further site analysis required:
• Population density relative to building/land use patterns in city
• Strategic use of site based on the land market?
• Survey slum residents for desirability, affordability, livelihoods, service provision, etc.
This analysis helps determine whether PPP opportunities exist, or whether a market exists for purely private sector construction, or whether the public has to fund upgrading works

ARTICLE 3.7

Capital Investment Plans[1]

Introduction

Local governments in India have to cope with growing functional responsibilities despite continually weak finances.[2] Even with Jawaharlal Nehru National Urban Renewal Mission (JNNURM) support for capital projects, local governments have to cover a portion of the development cost themselves (Table 3-13). The portion born by local governments generally depends on the type of government scheme and level of state support that can be accessed. Still, the required capital expenditure usually represents a vastly larger outlay than is currently provided, because the infrastructure needs in Indian cities are extremely large.

Table 3-13. JNNURM Funding Pattern

City Population	Central Gov't. Grant	State Gov't. Grant	Local Gov't. Grant/Loan
Greater than 4 million	35%	15%	50%
1–4 million	50%	20%	30%
Less than 1 million	80%	10%	10%

Given the need for cities to invest more in development projects, it is increasingly important that they do a better job of prioritizing their financial investment demands and opportunities. A capital investment plan (CIP) is a valuable tool for prioritizing infrastructure investments, budgeting resources, planning fund utilization, and urban management. The CIP is the final part of the larger development planning approach discussed in this chapter, and provides urban managers with a strong mandate to move into detailed project design, and then financial mobilization and implementation. The CIP is the stage where programmatic and overall financial convergence occurs for city development projects. It is most appropriate for a municipal council's standing committee and/or a metropolitan planning committee to undertake, perhaps with the support of a project implementation unit (PIU) or financial advisor. The **CIP framework** includes:

1. Prioritization of infrastructure projects
2. A financial operating plan (FOP)
3. A budget for capital improvements

In India, FOPs were first introduced by the World Bank and the FIRE (D) Program in Tamil Nadu and Andhra Pradesh in the mid-1990s. Vijayawada was one of the first cities to utilize the full CIP framework that this article describes (see case study below). Since then, other cities have undertaken various forms of financial planning, usually with reference to specific projects that need to be funded. However, the overall concept is not yet the institutionalized practice that it deserves to be.

One of the major critiques of JNNURM was the absence of rigorous financial planning within the city development plans (CDPs). In reality, CDPs provided a wish list of infrastructure projects but no serious prioritization or analysis of how the local governments would pay for the projects. It cannot be overlooked because, in almost all cases, the capital outlay by the local government represents a large increase over any past investments. Insufficient investment planning has contributed to delays in implementation as well as to the modification of projects to fit the central and state grant allotments. Fortunately, the Ministry of Urban Development (MoUD) revised the CDP guidelines in 2010 to include FOPs.

An FOP is a tool used in (1) sizing investments, given limited resources, or (2) setting levels of resource mobilization required for a desired level of investment. In the first case, there is a set level of resources from grants, internal own-source revenue, or debt capacity. This becomes a deciding factor for prioritizing projects. In the latter case, recommendations for additional resource mobilization emerge, such as increasing user charges for services or improving collection rates (see Chapter 4 for additional discussion of this issue).

1 Also referred to as Capital Improvement Plans and City Infrastructure Priorities.
2 The next chapter on city financial viability discusses how local governments can improve their fiscal and functional performance.

Although resource mobilization (e.g., financial strengthening) is paramount for making cities more financially viable, it involves an ongoing reform process that takes place over many years. Significant gains can be made over several years, but it is risky to rely on increases in user charges of a particular service, for example, to make funding a capital program viable. For the most part, the CIP will be based on a municipal finance framework (overall income receipts and expenditures of a local government). It can assume certain improvements in revenue generation, but changes in user charges as well as willingness-to-pay studies should be completed at the more detailed project structuring stages (see Chapter 5).[3]

Steps for Conducting a Capital Investment Plan

The value of a CIP is its orderly and routine method of planning and financing a government's required capital improvements. A CIP lists each proposed capital project—the year and month when it will be started and the amount expected to be expended on the project each year. The costs of each project are aggregated for a programmatic summary of all capital construction for each year. The total costs are compared with funding available from all sources, including grants, current and future revenues, and borrowings. In the end, a CIP represents a realistic balancing of project requests and financial capabilities.[4] The process is described in the following seven steps.

1. Establish Policy Criteria

A CIP needs to be formulated by local decision makers responsible for overall financing and project implementation. It should be based within the standing committee, or potentially the metropolitan/district planning committee, so long as the respective local governments ratify it.[5] Since a CIP is a compilation of diverse projects and funding sources, its development should be a multi-stakeholder activity.

This chapter recommends that the CIP occurs after conducting a CDP and any relevant sector strategies so that capital projects have already been identified and vetted by the appropriate agencies. In this way, the CIP does not focus on estimating broad costs or project scopes; instead, the initial list of priority projects is an input. However, to make the activity more routine and useful, the decision makers in charge of the CIP will have to decide on a process for submitting capital requests. It would make sense to have a cutoff date prior to the local and state governments' annual budget cycles so that the CIP can be prepared and then discussed before funding decisions.

3 User charges rarely pay for capital costs of infrastructure projects in India. Current reforms call for user charge increases over time to fully cover operation and maintenance costs.

4 Joseph, James C., 1994, *Debt Issuance and Management: A Guide for Smaller Governments*. Chicago: Government Finance Officers Association, page 5.

5 A problem with the envisaged metropolitan/district planning committees is that they are not responsible for implementation or financing. Although the institutions can help plan for larger regional projects and assist in convergence with local projects, they are not truly empowered to carry out a CIP.

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The CIP is a bridge between the short and medium terms. The initial projects match the medium-term horizon of the CDP, but are then updated and re-presented each budget cycle to become a real tool for management and municipal finance.

In addition, new capital requests arise regularly, even if large-scale/megaprojects only arise intermittently as the result of CDPs or other strategic exercises. All annual capital requests should be included in the CIP, as should large-scale infrastructure projects. From a policy perspective, it will be important to define what counts as capital improvements for inclusion in a CIP—potentially by establishing a value cutoff or some other easily defined parameter.

2. Adopt Standards to Rank Project Requests
Because the CIP serves as a tool for project convergence and prioritization, it must provide a methodology for ranking projects. There is rarely enough money to fund every infrastructure need. Therefore, it would be valuable to create a uniform set of standards that all the agencies involved could use. Part of the ranking standard should consider project phasing and implementation. For example, a city-wide water project may include bulk water supply, pipe rehabilitation, and network expansion components over several years. The CIP needs to indicate *in which order these will occur* and how funding decisions will weigh these requests against other requests for sewerage, transportation, or other infrastructure. Alternatively, *access to grants* that are earmarked for specific projects in the near term could be a parameter in ranking. Another possibility is *public opinion* that was previously solicited during the CDP or through ward committees, a complaints hotline, or other venues. To avoid controversy after the fact, the standards to be used in ranking capital project requests should be adopted early in the process and only after widespread discussion and input.[6]

3. Determine Capital Investment Needs
Working from the list of projects identified in the CDP and submitted as part of Step 1, the agencies involved should indicate when their projects would require funding, and how the funds would be used over 5 or more years. For example, it might take 6 months to put a project team in place, a year for technical design, and another 6 months before a construction contract begins. An annual estimate of costs should be compiled for each project, and the projects should be ranked according to a methodology established in Step 2 above. Total investment needs are displayed on the bottom line. See Table 3-14 as an illustrative example that has been adapted from FIRE (D) Program work in Nagpur.

6   Joseph, 1994, page 7.
7   Projects have not been ranked with any criteria in this example.

Table 3-14. Capital Project Requirements (in Rs. lakhs)[7]

Project	Total	2006–07	2007–08	2008–09	2009–10	2010–11
Water						
Pench IV Water Supply	41,500	13,500	20,000	8,000	0	0
Water & Energy Audit	8,000	0	3,000	3,000	1,000	1,000
Network System	11,500	1,000	6,000	3,000	1,500	0
Leak Detection	700	300	400	0	0	0
Sewerage/Wastewater	52,000	0	10,000	15,000	15,000	12,000
Storm Water Drainage	24,500	0	0	4,500	10,000	10,000
Solid Waste Management	5,000	0	1,000	2,000	2,000	0
Roads and Bridges	99,000	4,000	37,000	35,000	13,000	10,000
Traffic Management	155,200	200	2,000	53,000	50,000	50,000
Social Amenities	1,600	0	600	500	500	0
Slum Development	155,000	1,000	40,000	40,000	37,000	37,000
Total Capital Expenditure	**554,000**	**20,000**	**120,000**	**164,000**	**130,000**	**120,000**

4. Ensure That the Needs of the Poor Are Being Addressed

For a variety of legal, historical, and socioeconomic reasons, "city-wide" infrastructure projects, such as water and sewer systems, do not usually take into account connecting slum communities. However, the Government of India is increasingly focused on improving services for the poor. State and local governments should develop pro-poor strategies for service delivery, including network expansion throughout slums. This investment needs to be incorporated in the upfront cost estimates of infrastructure projects.

5. Access to Financial Resources

In every government, there are limited resources available to expend on capital projects. The challenge is to identify the full range of potential resources and determine how these funds can be used to meet the highest priority needs. This requires a detailed review of the municipality's financial records. Sources of funds include cash transfers from the state, local own-sources revenues, leveraging strategic assets like the sale of land, the ability to borrow funds, and even savings that can be generated through more efficient and effective management and operations. In India, most large-scale projects receive significant central and state grant funding, and this will be a core component of the resources available.

At the same time, local government tax revenue is often weak, which limits the amount of annual budget resources on a pay-as-you-go basis. If most of the infrastructure requests are to be implemented over the medium term, as a result of the CDP exercise, a local government should consider accessing debt in the form of bank lending, municipal bonds, or pooled financing schemes (see Chapter 6 for a discussion of when these various schemes are appropriate).

In partnership with the accounting department, a financial advisor can be consulted on realistic financial assumptions for this section in order to estimate own-source revenue trends and debt capacity. Once identified, these resources should be itemized and listed by year in a similar fashion as the capital expenditures above.

Table 3-15. Sources of Funding (in Rs. lakhs)

Project	Total	2006–07	2007–08	2008–09	2009–10	2010–11
Private Sector Investment						
Traffic Management	150,000	0	0	50,000	50,000	50,000
Slum Redevelopment	100,000	0	25,000	25,000	25,000	25,000
State Agency						
Roads and Bridges	64,000	4,000	20,000	20,000	10,000	10,000
Slum Redevelopment	40,000	0	10,000	10,000	10,000	10,000
JNNURM						
Center Grant	100,000	0	25,000	25,000	25,000	25,000
State Grant	40,000	0	20,000	15,000	5,000	0
Local Government Contribution	60,000	6,000	20,000	19,000	5,000	10,000
Total Sources	**554,000**	**20,000**	**120,000**	**164,000**	**130,000**	**120,000**

6. Investment Options and Scenarios

Assuming the implementing agencies can access the above-listed funding on a timely basis, the local government will be most concerned about mobilizing its own contribution amounts. Under JNNURM, local government contributions are much higher than routine capital expenditures. In the Nagpur example above, the local government contribution of Rs. 60,000 lakhs over 5 years is 1.5 times the local government's usual level of investments. As a consequence, investment decisions will have to be made to balance funding availability with the infrastructure development objectives of the city.

By looking at the local government's revenue and expenditure trends over the past several years, and by evaluating the prospects of current reforms in the local government, a financial advisor can estimate the likely municipal cash flow over the medium term. The trends are then compared with the investment funds required. The following table captures the results of this analysis.

Table 3-16. Local Government Resources Available (in Rs. lakhs)

	Total	2006–07	2007–08	2008–09	2009–10	2010–11
Income	248,000	41,000	46,000	50,000	54,000	57,000
Expenditure[8]	173,500	31,000	32,200	34,900	36,600	38,800
Debt Service	12,700	7,200	1,600	1,300	1,300	1,300
Surplus for JNNURM	61,800	2,800	12,200	13,800	16,100	16,900
Compared to Funding Required	60,000	6,000	20,000	19,000	5,000	10,000
Gap/Surplus (-)	1,800	-3,200	-7,800	-5,200	11,100	6,900

Table 3-16 shows that the local government will have a slight surplus (Rs. 1,800 lakhs) over the 5-year investment plan, given the observed trends of increasing income and expenditures. However, a gap of Rs. 16,200 lakhs exists for the first 3 years (2006–09) as project construction and expenditures gain momentum.

The CIP can offer different investment scenarios to bridge this gap. Usually, three options—low, medium, and high investment levels—are developed and analyzed. The low investment option tests the consequences of a minimal investment strategy; the high tests a maximum investment strategy; and a medium position provides a mix. Based on the options, local government leaders can decide which level of investment to follow and what the consequences will be. A couple of implications from Nagpur are as follows.

- **Low Investment Option.** Only invest the surplus amount, thereby scaling back the number of projects in the CIP (from Table 3-14); work with state and central governments on timing of grant disbursements to better match investment needs; or shift implementing schedules, such as delaying costly items like road and bridges, or slum projects in the case above.[9]
- **High Investment Option.** Implement the full plan and cover the funding gap through debt (loans and/or municipal bonds). The local government, in the case above, could pay 20% of its contribution each year, in cash, while also borrowing Rs. 20,000 lakhs to cover the 3-year funding gap (assuming debt with 9% interest, 7-year tenure, and debt service coverage ratio of 2.5 yearly).[10]

Often, the high investment option will exceed the local government's current financial capabilities. When this occurs, the CIP can point toward a potential resource mobilization program (developed in Chapter 4) that indicates what reforms would be required to mobilize additional own-source revenue and/or undertake a borrowing. This was the avenue required in the Vijayawada example that is highlighted below.

8   For simplicity, this category includes minor and routine capital expenditures.
9   Note that this may be difficult if private investors are contributing resources or if one project has to be completed before another begins.
10 Debt service coverage ratio is the amount of cash flow available to meet annual interest and principal payments on debt. The basic calculation is net operating income divided by total debt service. Lenders will require 1.5-2.5 at a minimum. The debt calculation incorporates several "out-year" trends for the full repayment period. Chapter 6 on financing discusses options for issuing debt through loans and municipal bonds.

7. Approving the Capital Investment Plan and Annual Budget

After completing the above steps, the local government will have to approve the CIP and decide which investment scenario to pursue. No matter which investment scenario is chosen, the first year of the plan typically becomes the capital budget. Therefore, the CIP process has to be finished prior to council approval of the fiscal year budget. State involvement and budget timing might also be taken into account if intergovernmental transfers make up a significant portion of a local government's budget.

Each year, the CIP is reassessed, revised and extended for another year. In this way, it can become an active management tool instead of a one-off exercise, which has usually been the case in India. On a yearly basis, the local government should review the ongoing projects and any additional ones in the pipeline to get a better sense of progress and problems. As a result, every year's capital budget becomes better aligned to the broader strategic needs of the city.

Case Study: Prioritizing Vijayawada's Infrastructure Needs

In the mid-1990s, Vijayawada was the third largest city in Andhra Pradesh, with a population of 700,000. The city witnessed rapid growth over the previous two decades with an average decennial growth rate of 43.15%. A review of urban services revealed that the local government, the Vijayawada Municipal Corporation (VMC), appeared to be meeting the demand for services in a reasonably efficient manner. Several important issues, however, did emerge in relation to water supply and sewerage. Inadequate storage capacity left substantial numbers of residents dependent on public stand posts, low-pressure zones resulted from drawing of water through pumps, and sewage was disposed into irrigation canals that were also used for drinking water by villages downstream. Thus, the city needed significant new investment.

Municipal Finances

An analysis of the finances of the VMC identified several important strengths and weaknesses. Important strengths included:

- VMC was able to maintain an efficient balance between expenditures and incomes.
- Capital income from loans had been negligible, while capital expenditures had been substantial. The VMC placed strong emphasis on regular repayment of the loans.

To increase revenues available to pay back some outstanding loans, the local government sought to revise the property tax assessment system. While the issue unfortunately became the focus of legal proceedings, the courts ruled in favor of the VMC with regard to determining rentable values (now an ill-advised method of property assessment).

Investment Options and Phasing

In this case, the FIRE (D) Program worked with the VMC to conceptualize projects of varying scope that would match its financial capacity. The infrastructure requirements in Vijayawada were assessed for a projected population of 1.1 million by the year 2011. Based on this demand, the FIRE (D) Program developed scopes with low, medium, and high investment levels for several types of projects, including water supply and sewerage.

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Table 3-17. Investment Level Options (Rs. lakhs)

Option	Water Supply	Sewerage	Others	Total
Low	3,989.8	5,132.9	4,666.3	13,789
Medium	5,132.9	5,132.9	7,309.8	17,575.6
High	5,198.8	7,155.5	8,472.1	20,826.4

Each investment option represented a different level of network expansion and service quality, relative to the anticipated future demand. The investments were spread over 9 years based on the following considerations:

- Urgency: focus on existing developed areas
- Phasing: bulk water source development, for example, is subject to distribution capacity; the sewerage network is dependent on the supply of water, etc.
- Scale of projects: size relative to the need for one, two, or multiple projects
- Revenue implications: projects involving new user charges must be carefully timed to meet income needs

Financial Viability

The FIRE (D) team analyzed the financial viability of the VMC relative to the proposed investments. This analysis indicated that the maximum level of investment that the VMC could sustain was the low option, even when assuming generous revenue improvements. The analysis included both debt capacity calculations and the prospects of income growth from implementing key reforms.

Based on several alternatives for revising tax rates and tariffs, it was decided that the VMC should focus on property tax and water and sewer charges. Faced with crucial decisions, the VMC agreed to form dedicated account categories for water and sewer, and started pursuing the reforms indicated in Table 3-18.

The CIP process forced the VMC to holistically evaluate demographic and economic trends, municipal finances, and service gaps. This understanding enabled the local government to develop and prioritize infrastructure projects that would best match the overall needs of the city to its financial capacities.

Table 3-18. Financial Viability Recommendations

Identified	Sized	Percent
13,789.3	9,905.1	72

Major Assumptions

- Increase property tax rates by 50% in 1999 and 2004.

- Increase water charges by 40% every 3 years, starting 1998.

- Increase both water and sewer connection fees by 25% once every 3 years, starting 1998.

- Increase sewage rent from Rs. 25/month to Rs. 50/month in 1998, and thereafter increase 50% every 3 years.

- Full transfer of water and drainage tax collected, as part of property tax, to respective accounts.