INDIA FINANCIAL INSTITUTIONS REFORM AND EXPANSION PROJECT

FIRE-D PHASE III

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USAID | INDIA
FROM THE AMERICAN PEOPLE

INDO - USAID FIRE (D) PROJECT

CLOSE OUT REPORT

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Submitted to:

USAID/India
American Embassy
Shantipath, Chanakya Puri
New Delhi- 110021

Submitted by:

TCG International, LLC
8403 Colesville Road, Suite 405
Silver Spring, MD 20910
Main number: 240.821.1411
Fax: 240.638.9145
http://www.tcgillc.com

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EXTENT OF FIRE (D) ACTIVITIES

*The map includes the addition of the city of Agra as a focus location for FIRE III which was added after Year 1.

ABBREVIATIONS

ADB	Asian Development Bank
ADDA	Asansol-Durgapur Development Authority
ADRSWM	Asansol-Durgapur Regional Solid Waste Management project
AMC	Ahmedabad Municipal Corporation
AMCo	Asset Management Company
ASP	Ankuram Sangamam Porum
ATR	Action Taken Report
AUA	Asansol Urban Area
BDA	Bhubaneswar Development Authority
BDP	Basic Development Plan
BISWA	Bharat Integrated Social Welfare Agency
BMC	Bhubaneswar Municipal Corporation
BOT	Build-Operate-Transfer
BOOT	Build-Own-Operate-Transfer
BPL	Below Poverty Line
BPR	Business Process Reengineering
BSUP	Basic Services for the Urban Poor
BWSSB	Bangalore Water Supply and Sewerage Board
C&AG	Comptroller and Auditor General
CAA	Constitution Amendment Act
CAPF	Capital Fund
CARE	Credit Analysis and Research, Limited
CASLB	Committee on Accounting Standards for Local Bodies
CDP	City Development Plan
CETP	Common Effluent Treatment Plant
CFC	Central Finance Commission
CII	Confederation of Indian Industry
CIP	Capital Investment Plan
CMA	City Managers Association
CREF	Credit Rating Enhancement Fund
CRISIL	Credit Rating and Information Services of India Ltd.
CSP	City Sanitation Plan
CVIP	Commercially Viable Infrastructure Project
D2D	Door-to-Door
DCA	Development Credit Authority
DDA	Delhi Development Authority
DEA	Department of Economic Affairs
DEAAS	Double-Entry, Accrual Accounting System
DP	Development Plan
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EMAS	Environmental Management and Audit Scheme
EOI	Expression of Interest
EPC	Environmental Planning Collaborative
ERP	Enterprise Resource Planning
ERR	Economic Rate of Return
ESF	Environmental and Social Framework
ESR	Environmental Status Report

FICC	Federation of Indian Chambers of Commerce
FIDIC	Fédération International des Ingénieurs Conseils
FIRE (D)	Financial Institutions Reform and Expansion - Debt & Infrastructure
FOP	Financial Operating Plan
GAAP	Generally Accepted Accounting Principles
GBWSP	Greater Bangalore Water Supply Project
GDP	Gross Domestic Product
GIS	Geographic Information System(s)
GO	General Obligation
GoI	Government of India
GoK	Government of Karnataka
GoM	Government of Maharashtra
GoO	Government of Orissa
GoTN	Government of Tamil Nadu
GoWB	Government of West Bengal
GPS	Global Positioning System
HDFC	Housing Development Finance Corporation
HH	Household
HIG	Housing Investment Guarantee
HR	Human Resources
HUDCO	Housing and Urban Development Corporation
HUDD	Housing and Urban Development Department
IAS	Indian Administrative Service
ICAI	Institute of Chartered Accountants of India
ICMA	International City/County Managers Association
ICRA	Investment Information and Credit Rating Agency
ICT	Information and Communication Technologies
iDeCK	Infrastructure Development Corporation Limited of Karnataka
IDFC	Infrastructure Development Finance Company Limited
IFAC	International Federation of Accountants
IL&FS	Infrastructure Leasing and Financial Services
IMC	Indore Municipal Corporation
IPSAS	International Public Sector Accounting Standards
IPSASB	International Public Sector Accounting Standards Board
IRR	Internal Rate of Return
ISHUP	Interest Subsidy Scheme for Housing the Urban Poor
IT	Information Technology
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KUDP	Karnataka Urban Development Project
KUIDFC	Karnataka Urban Infrastructure Development Finance Corporation
KWSPF	Karnataka Water and Sanitation Pooled Fund
LAP	Local Area Plan
LED	Local Economic Development
LIC	Life Insurance Corporation
LPCD	Liters Per Person Consumed Daily
MCD	Municipal Corporation of Delhi
MCJ	Municipal Corporation of Jabalpur
MFI	Microfinance Institution
MIS	Management Information System
MIT	Ministry of Information Technology
mld	Million Liters per Day

MMRDA	Mumbai Metropolitan Regional Development Authority
MML	Model Municipal Law
MoEF	Ministry of Environment and Forest
MoF	Ministry of Finance
MoUD	Ministry of Urban Development
MPC	Metropolitan Planning Commission
MSDF	Michael and Susan Dell Foundation
MSS	Management Support Services
MSW	Municipal Solid Waste
NeGP	National E-Governance Plan
NHB	National Housing Bank
NIUA	National Institute of Urban Affairs
NMAM	National Municipal Accounting Manual
NMMP	National Mission Mode Project
NGO	Nongovernmental Organization
NOC	No Objection Certificate
NTADCL	New Tiruppur Area Development Corporation Limited
O&M	Operations and Maintenance
OWSSB	Orissa Water Supply and Sanitation Board
PAS	Performance Assessment System
PCMC	Pimpri Chinchwad Municipal Corporation
PDC	Project Development Company
PDD	Project Definition Document
PDF	Project Development Fund
PEARL	Peer Experience and Reflective Learning
PFDF	Pooled Finance Development Fund
PFDS	Pooled Finance Development Scheme
PHEO	Public Health Engineering Organization
PIU	Project Implementation Unit
PMC	Pune Municipal Corporation
PMU	Project Management Unit
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Private-Public Partnership
PSP	Private Sector Participation
QBS	Quality-Based Selection
QCBS	Quality and Cost-Based Selection
RBI	Reserve Bank of India
RCUES	Regional Centers of Urban and Environment Studies
RFP	Request for Proposals
RFQ	Request for Qualifications
RoE	Return on Equity
SDO	Structured Debt Obligation
SEA	Strategic Environmental Assessment
SEBI	Securities and Exchange Board of India
SEIAA	State Territory Environment Impact Assessment Authority
SEWA	Self-Employed Women's Association
SFC	State Finance Commission
SHG	Self-Help Group
SIO	Slum Improvement Officer
SJSRY	Swarna Jayanti Shahari Rozgar Yojana
SLF	Sanitary Landfill

SPARC	Spatial Planning & Analysis Research Centre
SPCB	State Pollution Control Board
SPV	Special Purpose Vehicle
STEIAA	State Territory Environment Impact Assessment Authority
SWM	Solid Waste Management
SWOT	Strengths-Weaknesses-Opportunities-Threats
TACID	Tamil Nadu Corporation for Industrial Infrastructure Development Limited
TADP	Tiruppur Area Development Program
TCE	Tata Consulting Engineers
TCGI	The Communities Group International
TDC	Total Development Cost
TEA	Tiruppur Exporters Association
TERI	The Energy and Resources Institute
TM	Tiruppur Municipality
TNUDP	Tamil Nadu Urban Development Project
TNUDF	Tamil Nadu Urban Development Fund
TNUIFSL	Tamil Nadu Urban Infrastructure Financial Services Ltd.
TNPCB	Tamil Nadu Pollution Control Board
TOD	Transit-Oriented Development
TOR	Terms of Reference
TRA	Trust and Retention Account
TWIC	Tamil Nadu Water Investment Corporation
UIF	Urban Infrastructure Fund
ULB	Urban Local Body
URIF	Urban Reforms Incentive Fund
USAID	United States Agency for International Development
UTPCC	Union Territory Pollution Control Committee
VGF	Viability Gap Fund
VMC	Vijayawada Municipal Corporation
WASH	Water, Sanitation, and Health
WDR	World Development Report
WHO	World Health Organization
WSP	Water and Sanitation Program
WSPF	Water and Sanitation Pooled Fund

SECTION ONE
INTRODUCTION/EXECUTIVE SUMMARY

1.1 FIRE III Overview

The Financial Institutions Reform and Expansion (FIRE) Project Phase III (FIRE (III) aimed to increase municipal investment in environmental infrastructure (SO 13- Indicator 3) and to increase the number of men and women with access to clean water and sanitation services in selected cities (SO 16- Indicator 1). These are interrelated processes. Achieving the first is a necessary condition of achieving the second, more important goal. The way the investments are made can directly affect the number – and location and economic class – of beneficiaries. Thus, the FIRE Project in the third phase (FIRE III) provided greater emphasis on increasing the numbers of poor urban residents with access to water and sanitation services. The prevailing belief that building 'citywide' infrastructure will, by default, reach the poor is invalid. The slum areas of the city are either purposively excluded from the infrastructure development or the last to be served when cost and time overrun issues would be the most difficult to overcome. For these reasons, FIRE III did not assume the poor are served, and in final year six, the project specifically targets poor communities and established a new, high-level objective to that end.

FIRE III had initially planned to concentrate its efforts in seven states: Madhya Pradesh, Karnataka, Maharashtra, Rajasthan, Uttarakhand, Orissa and West Bengal and the city of Delhi. Work in Uttarakhand did not take off. In addition, the city of Agra was added as FIRE began supporting pro-poor activities there. In each state USAID, FIRE and local partners prepared work plans that built the capacity of the partners to implement the FIRE agenda. In the final year, FIRE III activities focused on Madhya Pradesh and Orissa, while also finishing assignments in the other states.

Common elements of the plans in each state targeted selected municipalities and coordinated with other donors and state-level partners to finance and implement specific water and sanitation projects, including supply, distribution, and efficiency improvements. Other specific FIRE (D) tasks in each state included:

- designing pro-poor water and sanitation works in Dewas, Madhya Pradesh and Bhubaneswar, Orissa slums;
- supporting special creditworthiness and urban financial management activities, including improvements in water tariff and property tax assessments and collections;
- tapping new financing mechanisms for the state, such as pooled financing with DCA credit;
- building the capacity of state financial intermediaries through Urban Infrastructure Funds, to help cities develop, finance, and implement water and sanitation projects;

- supporting the state government agency responsible for urban development to implement the urban reforms and municipal capacity building policy and programs;
- supporting cities' adoption of accrual-based accounting;
- working with the state-level city managers association to disseminate information; train local officials, and monitor progress;
- supporting citizen participation and pro-poor projects, including slum improvement programs;
- identifying indicators and how they will be measured;
- implementing provisions of the Model Municipal Law and supporting implementation of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) as a reform based scheme for financing urban infrastructure.

1.2 Summary Activities and Results

FIRE III aimed to continue the efforts, activities, and results of FIRE I and II. Since 2005, the FIRE III project has helped municipalities **increase own source revenue generation by Rs 140 billion or more than US$2.8 billion**, through the following activities under High Level Objective #1:

- Resource mobilization work in Bhubaneswar, Asansol, Durgapur, and the eight previously independent ULBs surrounding Bangalore that have now merged into five zones within the Bangalore Municipal Corporation
- Increased own source revenues related to JNNURM City Development Plans and invest planning in Nagpur, Pune, and Bhubaneswar
- Financial management interventions and resource mobilization in Bhubaneswar, Thane and Nagpur

FIRE III also worked with municipalities in selected states to help them to **invest Rs. 20 billion or more than US$403 million in critical water and sanitation services** over the life of FIRE III, in support of High-Level Objective 2 including the following:

- Investment in sewerage, water, and solid waste in Thane, Pune, Nagpur and Bhubaneswar
- Investment in solid waste in Asansol, Durgapur and Bhubaneswar
- Investment in water supply in Nagpur
- Investment in sewerage/sanitation in Agra and Sangli

FIRE III has helped **increase access to water and sanitation services for over 2,208,555 beneficiaries** under High-Level Objective 3 through the following:

- Water supply in Bhubaneswar and Pune
- Water supply in the recently merged CMCs surrounding Bangalore as a result of the GBWASP project
- Solid waste management in Asansol and Durgapur

In the final two years of FIRE III, the project increased access to water and sanitation services to over 8,000 urban poor in support of newly established High-Level Objective #4 through these activities:

- Dewas MC Support: Water Supply Project for Slums.
- Water, Sanitation and Health Initiative in Bhubaneswar (Orissa).

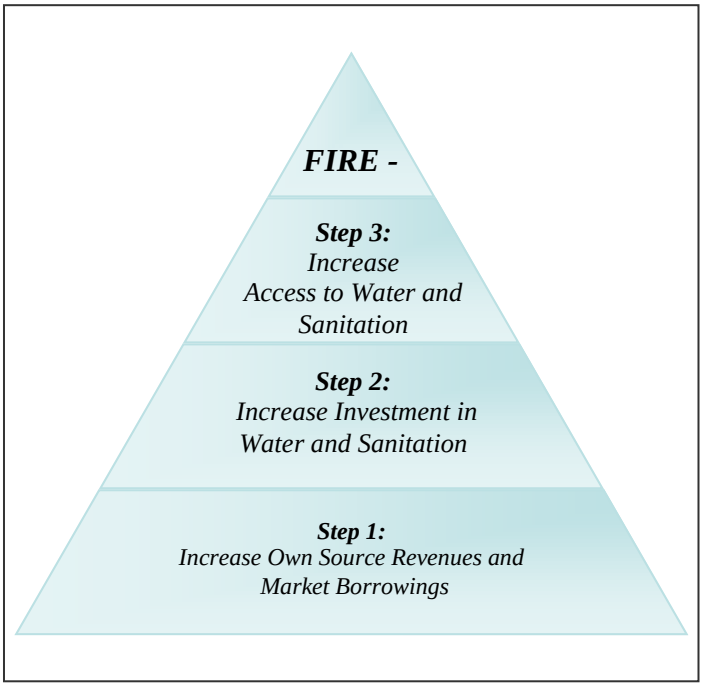
To complement technical assistance activities, the project also conducted **policy and training activities** including:

- Practitioners' guide to designing sustainable and inclusive infrastructure with a focus on FIRE (D)'s work and approach since 1994.

SECTION TWO
HISTORY OF FIRE (D) - PROJECT BACKGROUND/APPROACH

Background and Conceptual Framework

Before examining the activities and results of FIRE III, it is important to understand the background and overriding goals of the project and how they build on one another. Based on the nature of the project, we would expect results in the early part of the project that help ULBs to increase own source revenues. By the middle part of the project implementation, after those own source revenues are collected by the ULBs, we would anticipate seeing results of the investment of those revenues by the ULBS into water and sanitation projects. Then finally, as the FIRE project begins to draw to a close, and the investments have been made in the water and sanitation infrastructure, we would expect to see a large increase of men and women with access to water and sanitation.



To illustrate these points, the figure above demonstrates how the main FIRE III overriding goals build on one another. In Step One, the FIRE (D) project is working on various types of projects that help municipalities improve the management of revenues already collected as well as increase access to new sources of revenues, including the commercial lending sector and capital markets. In Step Two, FIRE (D) envisions that working with the municipalities on revenue generation projects will lead to an increased investment of these revenues in municipal infrastructure projects including water and sanitation projects. In Step Three, the team expects that increased investment should lead to increased access to the water and sanitation to the urban population, including the poor in slum areas. To compliment the work at the state and municipal levels, FIRE III is conducted policy and training work at the various levels of government.

Since its inception in 1994, the FIRE (D) Project has employed a results-oriented, hands-on approach at each of the three tiers of government in India. The technical assistance and capacity building efforts aimed *to improve the delivery of water and sanitation services within a good urban governance framework, with a special emphasis on serving the urban poor*. Over the last

17 years, the FIRE (D) approach to achieving this overarching goal has responded to evolving issues, challenges, and circumstances on the ground at each of the three tiers of government.

Phases of the FIRE (D) Project

The FIRE (D) Project has operated in three distinct phases. During the first phase (1994–1999), the program concentrated on attaining objectives of systemic city-wide infrastructure development through design and implementation of model commercially viable infrastructure projects (CVIPs)[1] and private sector participation (PSP) demonstration projects. During Phase 1, state government intervention in urban reforms was minimal. However, during the later part of this phase, the team realized that without state-level policy reforms, it would be difficult for urban projects to materialize on a large scale. *It also became evident that without urban management reforms, it would be difficult to sustainably finance and operate and maintain large-scale, city-wide urban infrastructure projects, and it would be difficult to attract either market-based financing or PSP in the majority of India's cities.*

Based on the lessons and experience from Phase 1, the second phase of the FIRE (D) Project, began in 1999 with the aim to *institutionalize better project development practices and critical urban reforms at a larger scale,* primarily through (1) creation of state-level nodal agencies or intermediaries patterned on Tamil Nadu Urban Development Fund (TNUDF) and Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC); (2) state-level interventions on policy, financing, and regulatory issues; (3) development of a national training network and training materials; (4) national urban governance reform initiatives stemming from MoUD; and (5) the setting up of state City Managers Associations (CMAs). During this phase, the team consciously focused on promoting a sound project development methodology and key urban reforms relating to management and efficiency improvements in water and sanitation services. But this management-oriented focus rapidly burgeoned as additional challenges, such as poor financial record keeping, exclusion of the poor, and weak municipal revenues, became more apparent. Because these issues also negatively affect successful implementation of infrastructure projects, the scope of the second phase inadvertently became very broad.

Reflecting on the experiences of FIRE (D)'s first two phases, the team, in concert with the national steering committee and partner organizations, believed the time was right to integrate the various policy and project implementation aspects of the FIRE (D) Project. In so doing, the third phase (2004–2008, with extension into 2011) of the program *promoted a more comprehensive approach for creating wide-scale and sustainable urban sector reform and for increasing investment in urban infrastructure, specifically benefitting the poor, who had unforeseeably been neglected from past "city-wide" projects*. During the past 2 years, the team

[1] CVIPs are those projects that are able to raise and sustain resources from government and/or the capital, private, and financial markets largely on the basis of revenue streams generated through efficient management and from specific revenue-linked user charges and dedicated sources (such as grants, property tax, and octroi).

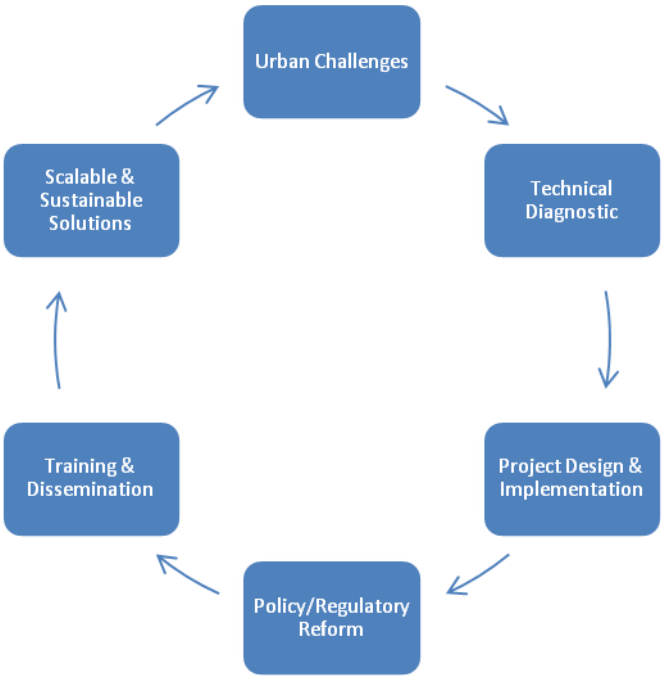
has specifically focused on slum upgrading strategies in Madhya Pradesh and Orissa to demonstrate how infrastructure services, particularly water and sanitation, can be carried out at a city scale among the poorest residents.

In addition to incorporating the poor more centrally in the infrastructure development process, the third phase of the FIRE (D) Project integrated the other key technical areas to create a more interrelated and comprehensive approach. By starting with pilot work and then elevating the experiences to national-level dialogue, the FIRE (D) Project built strong momentum to improve administrative and fiscal capability of cities, increase investment in urban infrastructure through innovative finance, and create sustainable government and nongovernment networks for promoting accountability. In recognition of its achievements, the Government of India's JNNURM, which was launched in December 2005, incorporated much of the work tested, developed, and disseminated by the FIRE (D) Project. JNNURM provided a strong impetus for deepening, broadening, and institutionalizing much of the urban agenda to all 26 states and union territories.

FIRE (D) Approach to Urban Reforms

The FIRE (D) Project developed an approach which is both comprehensive and relatively linear, but in retrospect, the work is not necessarily that straightforward for the practical reasons of working with diverse actors in rapidly changing landscapes. Instead, the process is much more iterative and circular. While designing and implementing the various project development, institutional, policy, and legislative activities, the FIRE (D) Project employed an iterative process/project cycle, depicted in Figure 1 and described below.

Figure 1. FIRE (D) Process/Project Cycle



Note: Arrows from one element of the process to another represent FIRE (D) communication strategies.

The FIRE (D) Project's provision of technical assistance and capacity building, while tending to focus on target states and cities during the later part of the project, has always been **demand-driven** by our partners and stakeholders. The team approached all requests for support with a trusty set of principles and preferred approaches for good urban governance and innovative methods for project development and financing of urban infrastructure. The project, however, has always been flexible and willing to learn based on the situational needs at a given time. In this way FIRE (D) has pushed the envelope into new substantive areas, where our partners request support.[2]

Upon request for support, the team's initial discussions with partners normally revolve around understanding and appreciating the central challenges of a particular urban problem. These could be well-known, generic problems presently affecting most states and cities of the country (e.g., the need to modernize municipal structures, to improve financial management, or to enhance

[2] The best recent example of this occurred when the combined USAID and FIRE III team visited Orissa in early 2005 to work with state officials to identify and define the program's support to Government of Orissa under Phase 3. The state readily agreed to FIRE III support on improving financial management and financial sustainability of selected cities in the state, as well as support for specific water and sanitation projects. But the team was pleasantly surprised and pleased when the state requested the project's support in fleshing out and operationalizing the response to its recent decision to devolve responsibility and accountability for the O&M of water supply and sewerage from the state-level water authority to local government in compliance with the 74th CAA and later the JNNURM. FIRE (D)'s flexibility in being able to take on this assignment has been one of its great strengths, and led to the ongoing, very successful initiative to corporatize the state's Public Health Engineering Organization.

financial viability) or a more specific issue or problem where ready solutions or a clear way forward are not yet apparent. In many cases, the ultimate solutions had very little precedent in India, like setting up a state urban infrastructure fund, designing a municipal e-governance mission, or restructuring a state water utility.

In the last case, where the problem or current situation is not well known or understood, the FIRE (D) Project would normally prepare a **diagnostic concept note** in an attempt to understand the underlying issues. With this analysis in hand, all the key stakeholders can better pin down a precise statement of the work, including a set of next steps or scope of how to proceed. Following this conceptual stage, the team would carry out a detailed assessment to gain a fuller understanding of the current situation and develop a strategy for responding to specific circumstances and needs of a particular state or city. The diagnostic's proposed or preferred way forward, particularly in the case of governance reforms, would then be implemented or **pilot tested** in one city or several cities.

Capacity building has always been a tenet of the FIRE (D) Project and has consistently produced better results. A completed urban infrastructure project is then field tested and officially commissioned, while a successfully piloted governance reform is vetted by all stakeholders and scaled up to the state level and eventually rolled out as a state policy, plan, manual, or initiative in a phased manner.

Following the successful piloting of an innovative infrastructure project, governance reform, or financing tool, the FIRE (D) Project **worked with the state or central government to scale up the activity**. The team typically approached the project's central nodal agency, MoUD, to discuss and ascertain its interest in replicating a specific state reform to a wider audience in the form of a model law, national manual, or guidance note. This is the route the FIRE (D) Project followed successfully in development and dissemination of the Model Municipal Law (MML), the National Municipal Accounting Manual (NMAM), the National Mission Mode for e-Governance in Municipalities, and the Pooled Finance Development Fund (PFDF), for example.

One condition to effectively scale up any new activity is its acceptance to policy makers and practitioners in the sector. The merits of a pilot have to appeal to the wider state and/or national audience for acceptance, and in so doing, information about the work needs to reach all the relevant stakeholders. Under FIRE (D), state CMAs and regional training centers began to take the lead in dissemination and formal training activities for state and local officials. Similarly, several state urban infrastructure funds implemented with the assistance of FIRE (D),[3] and currently under various stages of development and operationalization, could eventually serve as capacity building institutions for urban local bodies, particularly with respect to the development

[3] Specifically, the states of Maharashtra, Rajasthan, West Bengal, and Madhya Pradesh.

of commercially viable urban infrastructure projects and the accessing of domestic capital markets to finance urban infrastructure.

This cycle approach can be highly useful for cities and states. It is like visiting a doctor. The patient arrives with an ailment, but might not know what caused it or how to treat it. The doctor will examine the problem, ask probing questions and run some diagnostic tests. Only after analyzing the results will the doctor recommend a treatment. The patient tries the treatment and monitors progress, but might need to modify it over time; treatments often have side effects, both good and bad. Similarly, cities and states can tackle their most pressing issues in an iterative, yet methodological manner. What is most important is the understanding that urban management is multidisciplinary, with service delivery being affected by finance, governance, planning, and information management systems, among other things. While focusing on one intervention, both policy and project implementation need to consider the overall impact on the city to ensure the positive spillovers that are desired.

Many of the FIRE (D) Project's multi-year initiatives that have achieved national policy recognition and that have been heralded as scalable and sustainable solutions have loosely followed the above-referenced process/project cycle. The underlying on-the-ground reality always underpins the team's work through careful research at the local and state levels as a precursor to the formulation of new national-level policy or legislative frameworks. The resultant actionable proposals or scalable solutions were normally tested in several local pilots before the final recommendations were codified in a new state-level manual or law. These state-specific manuals and/or laws would be generalized, discussed, and vetted by officials of MoUD prior to being circulated to the states and cities as recommended national guidelines.

Another important area of work has been developing commercially viable structures for infrastructure projects. While the Tiruppur Area Development project, supported by the FIRE (D) Project, is given due recognition as India's first PPP for water supply and sewerage, and is considered a scalable model, PPP structuring still needs considerable attention. India's overall track record with the development of major commercially viable PPP structures in the water and sanitation sectors has not been successful.

Technical Approach for Developing Sustainable and Inclusive Infrastructure

The above discussion shows how the most successful work of the FIRE (D) Project followed a complete project cycle. Diagnosing the urban challenges and structuring the solution appropriately provided the basis for successful pilot projects. Such diagnostic is also the basis for building consensus among stakeholders, although not always sufficient in gaining local ownership (e.g. Sangli case). To gain the trust and ownership of local political institutions as well as the various administrative agencies, FIRE (D) began pursuing a more in-depth strategy of

participatory planning and technical hand-holding during project identification, design, and implementation. Such a strategy effectively communicates the benefits, addresses the concerns, and provides timely advice to all relevant stakeholders during a project's critical decision-making and approval process. Participatory planning processes are now viewed as essential to most urban projects.

Prior to the FIRE (D) Project, the idea of involving multiple stakeholders in a project was totally foreign in India. For example, in the middle 1990s, the finance industry never talked to planners or urban officials. The seminar on municipal bonds in Bangalore was the first time these diverse professionals were all in the same room. While FIRE (D) has initiated development of a common language and mode of collaboration, there is still room for improvement.

The work of urban professionals needs to address diverse local concerns, and be flexible enough to adapt to changing contexts. For this reason, many actors need to be substantially involved. Practitioners cannot rely solely on a project champion, like a municipal commissioner, or feel secure just because a contract has been awarded for a specific deliverable. And even a technically sound project design will not be sufficient to ensure successful results. Instead, practitioners need to pursue projects with diverse institutions and communities to build broad consensus. This is the only approach that provides a strong impetus to sustain projects, minimize project development risk, and provide a basis for replication.

The FIRE (D) Project has tried to be as responsive as possible to the changing concerns on the ground and to work with local partners to address them. *The FIRE (D) technical approach sought to integrate a diversity of issues by acknowledging the interrelatedness across sectors; the environment, infrastructure, poverty, finance, and governance are not divergent topics requiring either-or decisions.* A primary FIRE (D) lesson learned is that they are indeed connected and the impact on one area may have serious consequences on the others. For example, work on city sanitation plans provides engineering solutions for both environmental hazards (e.g., industrial effluent dumping into open water bodies) and sanitation problems (e.g., inadequate sewerage coverage and open defecation) that are rooted in local conditions and require diverse financing options. Structuring sustainable and inclusive urban infrastructure means holistic thinking across sectors. It begins with a participatory planning process that consults with many stakeholders and offers a wide analytical situational assessment. In this planning process, diverse issues—poverty, gender, and the environment, for example—are incorporated from the onset, rather than after the fact, as is often the case. Overall financial viability should also be examined early in the infrastructure planning process so that appropriate fiscal measures and management reforms can be taken without creating undue risk for a project once it has progressed too far. Only then can detailed project design really accommodate the wide variety of issues and concerns that arise. Finding the most appropriate delivery mechanism for infrastructure projects (whether fully public, fully private, or a combination of the two) is

based on all the diverse and underlying parameters. All of these parameters taken together help establish the desired distribution of risks, costs, and management responsibilities among the project's implementing partners, whether public or private.

Comprehensive planning and careful project development facilitate successful financial transactions by addressing the many risk elements that determine commercial viability in the minds of investors. Adept, upfront work helps secure subsequent funding and increases the likelihood of the project's ultimate success. Finally, making the approach replicable and generalized for local governments across the country requires a long-term, institution-building process. Institutionalizing scalable solutions for urban infrastructure services has been a goal of the FIRE (D) Project and its partners from the beginning. The urban reform agenda is an ongoing process, and it is the team's hope that the FIRE (D) Project's experience has positively contributed and that can provide insight into the overall process.

To continue disseminating this insight, and the FIRE (D) technical approach, FIRE III prepared a guidebook entitled: Developing Sustainable and Inclusive Urban Infrastructure Services in India: A Guidebook for Project Implementers and Policy makers in India. The guidebook, prepared under High-Level Objective 2 during FIRE II presents a comprehensive approach to developing infrastructure services, and a detailed view of the FIRE (D) Project experience. It is referenced in this report, and is available at www.urbaninfrastructure india.org.

SECTION THREE
SUMMARY OF FIRE III HIGH-LEVEL OBJECTIVES

3.1 High-Level Objective 1: Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments.

When cities reach financial viability, they expand their capacity to influence their own development path. Financially viable cities can define long-term plans and are capable of investing resources to carry them out. They can anticipate and mitigate the impacts of growth, rather than having to constantly catch up. They have the resources at their disposal to improve services and to respond credibly to the demands of their citizens, hence the high-level indicator to improve own source revenue.

But the path to financial viability, on a sustainable basis, is not an easy one. Pursuing it requires (1) reforming the processes, systems, and institutional roles of the local government and state-level agencies; (2) acquiring technical competence in numerous areas; and (3) resetting the relationship between local government, state government, and citizens to improve accountability and service delivery. This section discusses aspects of city financial viability, and how financial viability underpins the success of local governments to provide the quality services that are essential for equitable economic growth. It explains how India's urban reform agenda seeks to improve city financial viability, and describes how the interventions of the FIRE (D) Project have contributed to this long-term goal. It also identifies some of the key actions still pending on India's urban agenda.

The activities summarized in section 3.1.2 show that constraints to city financial viability can be successfully addressed and measurable improvements are possible. Broadly speaking, the problems of city viability stem from outdated institutional systems. Urban management in India was conceived before local government became the third tier of the country's democratic government. The old system, where cities are just an extension of the state government, is very different than one where local governments are autonomous, accountable to the electorate, and responsible for the provision of urban services. As this transition occurs, the underlying issues affecting financial viability become accentuated. They include:

- Decentralization processes are incomplete.
- Local financial resources are insufficient and do not match functions.
- Transfers are unpredictable.
- Municipal institutional structures, systems, and procedures are outdated.
- Local government management capacity needs strengthening.
- Mechanisms to encourage and facilitate participation and accountability are limited.

State and local governments have to pursue many reforms to address this array of issues adequately. Many of the JNNURM reforms cover aspects of financial viability. The reforms should be considered as an ongoing process to make local governments more self-sustainable, responsive to citizens, and efficient in service delivery.

3.1.1 Methodology: The Reform Process to Improve City Financial Viability

The ambitious set of reforms under JNNURM and the 13th CFC (2010–2015) should improve city financial viability. Taken together, they are comprehensive, spanning topics in administration, finance, planning, technology, service delivery, and poverty alleviation. If implemented in full, both local government structures and functions would dramatically change. However, there is limited guidance on how to implement these reforms, and there is not enough technical support to carry them out. Halfway through the initial 5-year phase of JNNURM, MoUD defined the reforms in detail: In 2008, the FIRE (D) Project wrote primers on each of the reforms to explain what was meant by them, and, to a lesser degree, the steps that would be required for implementation.[4] Implementing all 29 reforms in full would require tremendous coordination between the state and local governments, as well as the full commitment from almost every department at the local level (in addition to all the parastatal agencies working in the city), and a large technical assistance program to guide the process and build local capacity. Politicians, civil servants, staff, and civil society would all have to be committed at levels rarely seen.

In Bhubaneswar, the FIRE III has spent almost five years working principally on three reforms: (1) double-entry accrual accounting systems (DEAAS), (2) enhancing own-source revenues, and (3) transferring water and sewer service responsibility to local government. While the new accounting system has been launched, as of 2010, the State of Orissa financial reporting rules have not changed and therefore, the BMC has little incentive to fully shift systems. The BMC is currently operating two systems, and primarily utilizes the old cash-based, single-entry system, since it is the one that the staff is most familiar with. The water sector reforms experienced significant political and bureaucratic delays, although consensus had been reached on the detailed technical solution.

Fully sustaining the urban reform process is difficult because, in many ways, it requires a total transformation of local government—from an apparatus of the state to an autonomous and self-sufficient democratic institution. Legislative changes have to be followed by operational changes, increased staff capacity, and financial strengthening.

[4] See http://jnnurm.nic.in/nurmudweb/Reforms/Primer.htm.

Approaching the Reform Process to Improve City Financial Viability; Individual reforms. There are two ways that the FIRE (D) Project approached the challenge of making cities more financially viable. The first was to pursue reforms individually, in the "pilot *cum* scale-up" process. This approach takes advantage of the interests of local stakeholders to define areas where an active demand for reforms already exists. A demand-oriented approach has good potential to succeed in most cities, if the leadership and key stakeholders remain stable. A major risk to this approach is that project champions frequently get transferred to other jobs. This approach can also appear ad hoc because it is based on local situations that vary from one city to another. Still, FIRE (D) always relied on a set of guiding principles to help prioritize areas of work and define broad urban objectives (e.g., accessing market finance for infrastructure expansion, improving financial autonomy).

The FIRE (D) reform process begins with a clear understanding of the urban challenges and where opportunities for intervention exist. With detailed analysis of those challenges, local solutions emerge, especially when all the relevant stakeholders (e.g., state government, local government, and other agencies involved in service delivery) are closely involved. Stakeholder involvement is essential because each agency has both vested interests in the current system and crucial roles to play in changing it. Not only does this represent a huge coordination challenge, but it can also be a source of apprehension and even resistance. Consequently, a dedicated team, with adequate resources, needs to work closely with all the stakeholders, on a daily basis.

Since many urban reforms represent a new way of conducting government operations, it is advisable to test small but significant pilot projects before adopting them on a city- or state-wide scale. Large-scale replication presents a second set of technical, coordination, and legislative challenges that will be inappropriate to address before knowing whether the local technical solution is correct. Initiating small pilot projects first also makes sense when local or state capacity is limited.

Comprehensive programmatic approach. Although local understanding of urban reforms varies widely, many of the technical solutions have already been thoroughly vetted and standardized (e.g., accounting systems, legislative reform, and resource mobilization). Therefore, adapting these to fit the local context should take less time than the initial pilot projects, when no precedent existed.

While a comprehensive approach to urban reforms takes more initiative and resources up front, it can also mitigate the risks of individual champions changing jobs, as well as other inefficiencies associated with an individual reform approach. An economy of scale exists when pursuing multiple interventions because interconnected constraints (e.g., legislative changes) can be addressed simultaneously.

JNNURM was conceived as a comprehensive approach, but it needs to consider the many implementation challenges—prioritizing reforms, sequencing them, and providing a strong support structure. The project management/implementation units have primarily focused on the infrastructure projects instead of the reform initiatives. Dedicated teams (one at the state level and one within each local government) should also be in charge of propelling the reform initiatives forward.

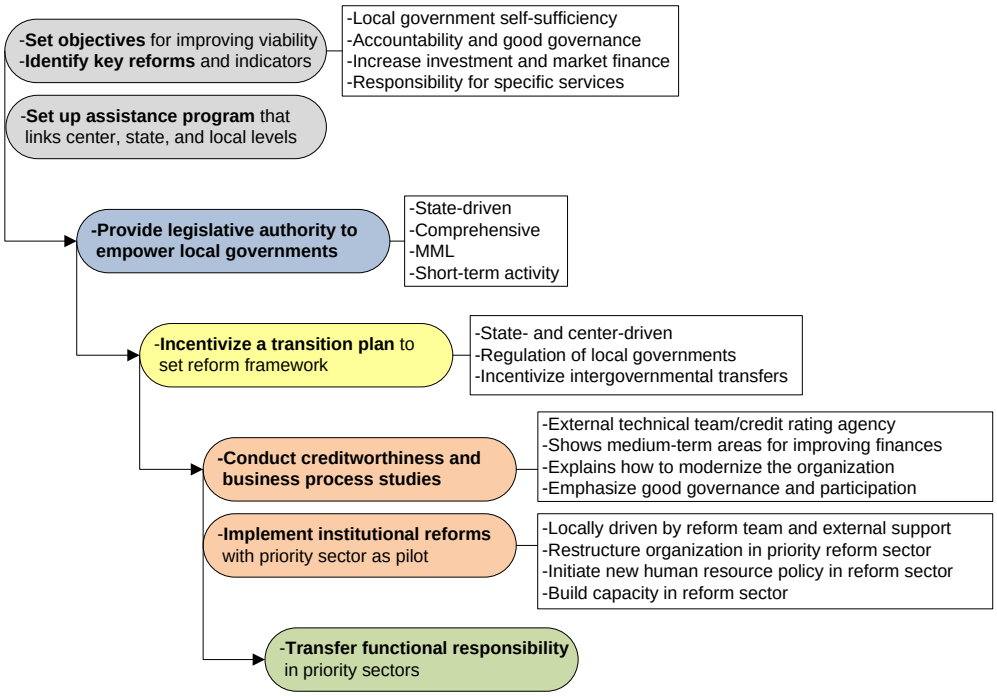
There are four prerequisites to establishing an appropriate framework for implementing comprehensive reforms. These should be designed and articulated before work begins.

1. Define reasonable **objectives for local governments** to meet, in terms of the level and quality of services within their sphere of responsibility.
2. **Identify the reforms**—at the national, state, and local levels—that would make it possible to produce the desired outcomes, including changes in local government authority.
3. With the objectives and reforms identified, develop **cohesive programs of assistance** to help implement the reforms, monitor results, and make adjustments until the new system is sustainable and self-reinforcing.
4. Develop a **phased approach for implementing the reforms**, to be supported by the assistance program.

The exact sequencing of the reforms depends on each particular situation. Local-level reforms are nearly impossible to implement unless a minimum acceptable policy framework for fiscal decentralization is already in place. The legal-policy framework provides the background for local government action (e.g., a law that permits flexibility in setting rates for taxes and tariffs). At the same time, any attempt to implement reforms in local government will point out weaknesses in the larger policy environment that will need to be addressed.

Financial management and resource mobilization are natural places to begin local-level reform, since nothing major can occur without having control of new resources. However, caution is necessary with improving own-source revenue, if basic governance structures are not in place to control and transparently utilize the resources.

Figure 2. The Comprehensive Reform Process



A. Set Objectives and Identify Reforms

The overarching objective of the 74th CAA is to decentralize urban management authority and create democratic, self-governing institutions at the local level. Local government reform should seek to attain this vision, first and foremost.

At the same time, specific objectives will still vary by state or city, and therefore it is worthwhile to prioritize them from the onset. Each bulleted example below illustrates a potential focal point to establish a reform program:

- Government transparency and financial disclosure
- Own-source revenue enhancement
- Improvement in service delivery and transferring responsibility to local government
- Poverty alleviation and inclusive growth
- Democratic reform and citizen participation
- Encouragement of private sector economic development and participation in urban services

B. Set Up Assistance Program

In most cases, local governments will have difficulty fully implementing the reforms without technical assistance. Local governments can contract private firms to help implement individual reforms, such as accounting or e-governance systems. But the comprehensive approach is more

challenging because many departments and agencies outside local government will be involved. There needs to be technical support in place to help guide the process with the local and state governments. The team(s) need significant authority and must work closely with the mayor and the municipal commissioner in the local government, as well as with the secretary of housing and urban development in the state government. Significant resources should be planned and allocated for an assistance program.[5]

C. Provide Legislative Authority

Changes to policy at the state level are generally outside the control of local governments, but are intrinsic to the decentralization process. In fact, most local-level reforms under JNNURM are predicated by legislative changes at the state level. For this reason, MoUD has instructed all states to revise their municipal acts in accordance with the model municipal law (MML), under FIRE (D). The legislative changes should be completed with specific objectives in mind, as discussed in Step A. Although the decentralization process is iterative—legislative reform will be required intermittently as legal bottlenecks occur during implementation—the FIRE (D) Project recommends taking an expansive legislative view from the onset, as occurred in Kerala and Andhra Pradesh, because many overlapping legal issues affect urban performance. A local government's authority to make decisions on human resources, financial mobilization, private sector participation, and organizational restructuring can affect the success of each and every service area.

Alternatively, a non-comprehensive approach could be pursued by focusing on sectors where local government already has authority, such as solid waste management, while at the same time working with the state government on legislation as the need arises.

D. Incentivize Transition Plan

The time and resources it takes to effectively devolve authority to local governments is almost always underestimated. Comprehensive legislative change, as suggested under the MML, is only the beginning of the process. Staff at both the state and local levels will continue operating as usual, unless instructed differently. Changes in operating procedures and substantial on-the-job training will be required before any significant reform occurs. For this to occur, a better understanding of the technical reforms, and leadership in initiating them, will have to take place.

In addition to establishing an assistance program, the state government can define a transition period with key milestones to phase implementation. Specific milestones could trigger the adoption of new rules. State government should consider implementing the reforms in one or more cities, first, and then applying the lessons to the entire state over subsequent years.

[5] For MoUD guidelines on reform hand-holding, see http://jnnurm.nic.in/nurmudweb/brochure.aspx.

A phased transition plan should include incentives. Apart from statutory requirements, the most significant incentive that state governments provide is grants. Restructuring the transfer system can produce two benefits simultaneously: Target priority reform/sector areas and encourage local governments to change their operations. In Maharashtra, FIRE (D) helped restructure the capital grant system in the water sector to encourage better O&M, through water and energy audits and leak detection-repair projects.

E. Conduct Creditworthiness and Business Process Studies

Two essential and complementary studies shape the reform process, in detail, for local governments. A creditworthiness study examines the overall financial strength of an organization and its ability to meet financial commitments. The study looks at the performance of each department to identify opportunities for improvements over the short and medium terms. FIRE III has conducted this analysis as a diagnostic tool for designing resource mobilization/financial strengthening projects. A credit rating agency or other financial advisor would be appropriate to engage in this assignment.

Business process reengineering (BPR), as it is called in the private sector, is the other crucial study to help design a comprehensive reform program. The BPR process analyzes how decisions are made within an organization, and whether the organization effectively fulfills its objectives. BPR begins by mapping the organizational structure of local government and the data flow within that structure. In doing so, it looks at how the local government interacts with urban residents and state-level agencies. The study then recommends how to improve operational efficiency based on the objectives/decisions that have to be made by the organization. Technology and management upgrades are key aspects of BPR analysis, which is one reason why it is utilized in designing e-governance systems.

Both studies analyze key indicators on urban performance. If an urban indicator system does not already exist in the state, these studies can provide a baseline on financial and operational performance that should be monitored regularly during the reform process.

F. Implement Institutional Reforms

Implementing institutional reforms (including management, administrative, and organizational changes) is time and resource consuming. But this is critical to city financial viability and the sustainability of the decentralization process. Technical assistance, of the nature provided by the FIRE (D) Project, is very helpful, but cannot be a long-term substitute for internal professional capacity.

Local government capacity is undermined by a range of staffing issues. These include low salaries, mandated by state and GoI regulations, making administrative work in local governments a low-prestige job. Increases in municipal revenues can provide additional

resources to train existing staff and to attract more technically experienced newcomers, so long as GoI regulations do not unduly limit the ability to craft competitive compensation schemes. Unless reforms can be introduced that incentivize, reduce, or reassign staff, local government will continue to find it difficult to manage urban services effectively.

To implement institutional reforms, it may be easier to take one priority sector and reengineer it comprehensively, instead of reforming the entire local government at once. SWM might be a priority sector because the legislative mandate already exists within local government. Reform in the SWM department could be the starting point to replicate across other departments.

As a pilot, the department in charge of SWM might need to be restructured to encourage efficiency and better service delivery. Staff can be reorganized, additional expertise hired, and salaries changed based on individual performance. At the same time, sector reforms, such as changes to SWM operations and user charges, should start being phased in. Better citizen interface, including grievance redressal and information disclosure, is another important aspect of service reforms. Under a comprehensive approach, all aspects relating to service operations are important.

G. Transfer Functional Responsibility

Transferring the functional responsibility of any sector does not make sense without good systems of (1) accountability and transparency, (2) organizational structure and decision making, (3) administrative capacity, and (4) financial management. Functional transfer should take place as these areas improve in a local government, as part of the concerted process described here. It would be a failure to transfer functional responsibility to an institution without adequate capacity. For example, in an effort to decentralize water and sanitation services, the State of Maharashtra deputed public health engineers from the state government to local governments, which ultimately were not prepared to absorb the staff or begin managing the infrastructure services. Within a short time, the state government had to reverse the initiative. Transfer of responsibility without a concomitant strengthening of capacity threatens the decentralization agenda. At the same time, functional devolution cannot completely wait until a local government is financially viable because it is an iterative and ongoing process that takes place over many years.

3.1.2 Key FIRE III Activities

Based on the methodology and approaches summarized above, FIRE III continued on the progress made in prior FIRE phases against the USAID/India Strategic Objective (SO) 13, "Increased transparency and efficiency in the allocation and mobilization of resources in selected states". The findings for Intermediate Result 3.1 "Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as

compared to resources received from central and state governments" are discussed below. FIRE III was instrumental in increasing own source revenues in 12 ULBs in the states of Karnataka, Orissa, Maharashtra, and West Bengal, as recorded in Section 4 covering results.

Municipal accounting and Financial Management

A double-entry, accrual accounting system (DEAAS) is the foundation of good urban management because it provides decision makers with a complete financial picture of the city, rather than simple cash flow balances of the old systems. Under DEAAS, municipal assets and financial transactions can be verified and managed more efficiently, the true cost of services can be determined, cost-recovery tariffs can be set, and realistic budgets can be created. The FIRE (D) Project tested DEAAS in individual cities in Tamil Nadu, Maharashtra, and Orissa, and then worked on an approach for replicating the reforms across all local governments in particular states. Introducing a new system requires in-depth training for accounting staff and for other departments that need to utilize the improved information. New accounting and financial reporting systems also require legislative changes at the state and city levels.

Table 1. Key Events that FIRE (D) has Contributed to Local Government Accounting Reforms

1999
Tamil Nadu Department of Municipal Administration and Water Supply approves a pilot to test a new DEAAS in 2 municipal corporations and 10 municipalities.
2000
Tamil Nadu Department of Municipal Administration and Water Supply expands the new DEAAS system to its remaining 3 municipal corporations and 92 municipalities.
ICAI circulates the *Technical Guide on Accounting and Financial Reporting by Urban Local Bodies in India.*
2001
The 11th Finance Commission recommends the introduction of DEAAS.
The Supreme Court of India recognizes the defects of cash-based accounting and directs the Government of India to develop guidelines for a DEAAS that could capture the full costs of services.
2002
The Union Budget of 2002–2003 establishes the Urban Reforms Incentive Fund (URIF). Ten percent of the fund is earmarked for introducing DEAAS in local governments.
The C&AG task force provides its policy recommendations for financial management in local governments: (1) uniform formats for accounting and budgeting, (2) uniform approach to costing of urban services, (3) public disclosure, and (4) initiating the switch to DEAAS.
2003
MoUD issues Model Municipal Law.
2005
ICAI constitutes CASLB to revise the accounting standards for local government and integrate them with global best practices. It is also committed to assisting local governments in implementing DEAAS.
The C&AG and MoUD issue the NMAM, a comprehensive DEAAS toolkit. The FIRE (D) Project tests the NMAM in five cities with the help of chartered accountants.
MoUD launches JNNURM in 63 cities for reforming urban governance, expanding infrastructure, and providing basic services to the urban poor. The 7-year program makes accounting reforms mandatory for all participating cities.

2006
CASLB publishes a *Preface to the Accounting Standards for Local Bodies* to support the implementation of the NMAM.
The Urban Local Government Public Disclosure Law is approved by the central government to improve transparency and accountability in local governments. The law requires publishing specific information, such as audited annual statements and indicators for various services.
MoUD and the Ministry of Finance issue *Guidelines for Issuing Tax-Free Municipal Bonds by Local Bodies.* It requires local governments to implement DEAAS and to have their financial statements audited to secure tax-free status on municipal bonds.
2007
MoUD releases the *National Municipal Accounting Training Manual* (for municipal staff) and the *National Municipal Accounting Training Manual for Elected Representatives and Top Management* as additional tools to help implement the reforms.
2009
MoUD issues the *National Municipal Assets Valuation Methodology Manual* to provide detailed steps on valuing local government fixed assets, as envisaged in the NMAM. The FIRE (D) Project also supports the *User Requirement Report* that specifies the technical parameters for developing accounting computer software (which can be combined with an e-governance platform if desired).
2010
By year-end 2010, ICAI finalized four *Accounting Standards for Local Bodies* covering revenue from exchange transactions, borrowing costs, property plant, and equipment and events after the reporting date. Furthermore, ICAI has several additional drafts in circulation.

Model Municipal Law (MML) and Karnataka Municipal Act (Karnataka)

The FIRE (D) MML activity continued into the third phase. The FIRE (D) project supported the Government of Karnataka to amend the Karnataka Municipal Acts to incorporate more elements of the 74th Congressional Amendment as well as features of the MML relevant to the State. FIRE III partner, Times Research Foundation (TRF) of Kolkata, prepared and submitted an issues paper to the Government of Karnataka (GoK) dealing with issues such as constitution and government, municipal finance, and municipal revenue. A second paper deals with urban infrastructure and services, public health, regulation and powers and procedures. Afterward, the GoK organized a steering committee meeting to discuss the papers and the various policy decisions that must be made before making cabinet recommendations.

Resource Mobilization and Creditworthy Enhancement

The FIRE (D) Project pioneered a methodology for resource mobilization (i.e., financial strengthening), starting in Indore, Madhya Pradesh, that is widely accepted across India. It is an essential tool for improving city financial viability and should be part of any municipal reform initiative. The methodology seeks to increase own-source revenue by focusing on institutional reforms that improve revenue performance and save costs (rather than trying to just raise tax rates and user charges). It has proven very successful, with local governments experiencing 15%–30% annual own-source revenue increases over a sustained period. This money is crucial for increasing investment in services and improving overall city financial viability. The FIRE III, team worked in Bangalore, Bhubaneswar, Asansol, Durgapur, and Siliguri.

- **Bangaloare, Karnataka**. In the 8 ULBs surrounding the city core, FIRE III supported the State Directorate of Municipal Administration (DMA) to enhance creditworthiness and urban management systems, in conjunction with the Greater Bangalore Water and Sanitation Project (GBWASP). Main activities included an assessment of the DMA's ongoing property tax and mapping systems, as well as an assessment of advertisement tax potential for all eight ULBs. To initiate the resource mobilization support, FIRE III had to wait until the property survey was finished, although the team assisted in this effort. FIRE III then prepared action plans for all the eight ULBs.
- **Resource Mobilization in West Bengal: Siliguri, Asanasol, Durgapur**. The objective of this FIRE III activity in these three ULBs is to improve financial sustainability thru the facilitation of resource mobilization, assessment of financial standing, action planning and the provision of hand holding and monitoring. After initial financial assessments, the team drafted action plans and presented them for government approval.
- **Bhubaneswar, Orissa**. FIRE III assisted in the initial financial diagnostic as well as the implementation process in Bhubaneswar. Significant focus related to property tax reform and improving the use of markets and other municipal properties.

Delhi Jal Board Water Meters (Delhi).

FIRE III assisted the Delhi Jal Board (DJB) in its metering initiative within the National Capital Territory Region. The objective of the activity is to support DJB install and maintain approximately 300,000 water meters over a six-year period. Specifically, FIRE III helped to prepare procurement documents, including legal vetting and supporting the process through award and installation of the meters. The procurement documents were developed and bids received. However, per the Jal Board, the project was put on hold.

Capital investment plan in Thane

FIRE III expanded its role in supporting the Thane Municipal Corporation (TMC) to include the preparation of financial and resource mobilization plans for the funding the projects envisaged in TMC's approved city development plan (CDP). This helped TMC understand how it would raise funds needed for its contribution to all the projects envisaged in the approved CDP. Alternative financing sources include IFC, MMRDA (GoM), and the Corporation's own revenue, as well as a Rs. 100 crore municipal bond issuance (which was not issued).

Related Training Activities

FIRE III training support for India's urban sector has been provided to various institutions and entities at national, state and local levels. Many of these trainings have been in coordination with USAID and the National Institute of Urban Affairs (NIUA), which is responsible for this function on behalf of the Government of India. FIRE III Training activities related to this High Level Objective have included:

- *Financial Management on-the-job Training PHEO, Orissa*
  Attendees: 21 (Women 1/Men 20)
  Funded by USAID
  As part of FIRE (D)'s ongoing support for water sector reform in the State of Orissa, the team presented the three financial management manuals (accounting, costing and budgeting) and started in depth training on them.

3.1.3 Lessons Learned

Over the course of FIRE III, many lessons were learned. The following is a discussion of the key lessons learned, thoughts on the way forward, and recommendations based on FIRE (D) experience in activities related to High-Level Objective #1.

City financial viability is central to the urban reform agenda. Both JNNURM and the 13th CFC make grants conditional on urban reforms, providing a catalyst for change. Nevertheless, many key implementation mechanisms are still being developed. To this end, more discussion on prioritizing and sequencing reforms would help determine how the reforms fit together.

FIRE (D) emphasizes a decentralization reform process that focuses on three broad areas: good governance at the local level, city financial viability, and urban service delivery. City financial viability is crucial to enhancing the resources and technical capacities of local governments, so that they can effectively manage infrastructure development and become more responsive and accountable to citizens.

Utilize benchmarking and monitoring as a tool for advancing urban reform.

- There is growing experience on urban indicators, most recently with MoUD's service-level benchmarking program in 2010 and Gujarat's state-wide initiative with support from the Gates Foundation. Furthermore, MoUD commissioned credit ratings for all 63 JNNURM cities. In other countries, credit ratings are required regularly for all municipalities as a way to track urban financial performance through time. There would be tremendous benefit for the reform agenda if a national urban indicator and monitoring system tracked service delivery, municipal finance, devolution of authority, and good governance indicators. Current practices of "self-certification" and using legislation as a primary marker provide only minimal information. The 13th CFC has recommended local government audits by C&AG as a condition for receiving grants. This represents an important step forward for financial management reforms.

Adopt permanent institutional mechanisms for advancing urban reforms.

- An assistance program has to become a permanent feature of the reform process to support the slow and long-term nature of decentralization and to strengthen local capacity. A

technical team placed within a local government should work with the diverse agencies to implement reforms. At the same time, a state-level team (possibly a more permanent SFC) should guide legislative changes, direct resources for carrying out reforms at the local level, and monitor progress throughout the state. The central government needs to organize a rigorous training network, channel resources into priority areas, and evaluate progress to reinforce the reform programs.

Without building dedicated, professional capacity, reforms can go only so far.

- Today's urban challenges are complex, and the solutions require skills beyond the capacity of most of India's local governments. There are some areas that local governments can improve themselves, but, for many sectors, there is a limit to what nonprofessionals can accomplish. Experience in implementing accounting and e-governance reforms shows how important financial and information and communications technology professionals are. Transformative change, of the nature implied by India's urban reform agenda, will be difficult to accomplish without administrative changes that liberalize human resource policy and produce better urban management. It is time to establish a dedicated urban cadre of professionals and to make civil servants more accountable to locally elected officials and residents. Technical certification programs are one element of administrative reforms that the central government can initiate.

Strengthen grant programs to incentivize change.

- The acceptance of conditional grants under JNNURM and the 13th CFC could represent an important step in diminishing local government dependence on intergovernmental transfers. With a better benchmarking and monitoring system across the country, the reform indicators can provide much more substantial information on the progress of reforms. At that point, grants should be tied to verifiable progress. The next evolution should target grants to sectors that are top priorities, but that receive little attention. The limited experience in Maharashtra of linking water sector grants to energy audits, leak repair projects, and management improvements is a valuable example. Ultimately, intergovernmental transfers should not be spent on establishment costs or O&M of urban services. They should be spent on more costly projects and to correct market inequalities, like services for the poor.

3.1.4 Constraints and Solutions on the Horizon

The above-mentioned points will advance the reform process from where it is to today. Most of the items have been discussed nationally. There are other issues that are a little more distant. Primarily, the reform process, thus far, has shown that local governments are still subservient to state governments and parastatal agencies. Almost all the reforms under JNNURM and the 13th CFC depend on state government action and direction. Either local governments cannot initiate reforms on their own or the municipal system does not really provide the incentives to do so. All

grants from the center still flow through state governments, financial reporting is to state governments, and key municipal staff postings are appointed by state governments. In the future, local governments should be able to access center funding directly, based on objective performance indicators and even competition. Financial reporting should be a public exercise and submitted to external auditors, in addition to state-level regulators.

Another major issue for local governments is linking development planning to resource mobilization and then to project development. Few local governments do this today in India (Ahmedabad is one exception), but there is growing consensus that the responsibility for planning has to shift to local governments. When this occurs, local governments will be able to guide the full infrastructure development process advocated by FIRE (D)[6]. This will warrant careful analysis to ensure that the organizational structure of local governments is such that they can effectively assume the role of development planner.

Recommendations for Improving City Financial Viability in India

- To improve city financial viability, central and state governments must establish concrete assistance programs that advance both operational and fiscal decentralization, monitor their impacts, and make adjustments over time.
- Central and state governments can encourage change in local governments by offering predictable rewards to those that make necessary financial reforms.
- State Finance Commissions can contribute to municipal fiscal autonomy by broadening the scope of their work beyond recommendations for allocating grants and proposals for increasing local government own-source revenues.
- The pace of local government reforms will increase when local governments develop resource mobilization projects that include realistic and concrete benchmarks and systems for monitoring and evaluating progress.
- Once local government accounting is modernized, the accounting system will provide critical information that facilitates a wide range of subsequent financial and operational reforms.
- The use of information and communications technology increases both the efficiency and the transparency of local government financial operations, particularly when combined with administrative reforms.
- Allowing citizens to participate in the establishment of priorities and to monitor progress helps ensure that local government investments in services are effective and address citizens' real needs.

[6] See: www.urbaninfrastructureindia.org

3.2 High-Level Objective 2: Increased municipal investment in urban environmental infrastructure in selected municipalities.

Even well-designed urban projects struggle to find funding. Large-scale infrastructure—water and sewer systems, electricity grids, roads, and public transportation networks—are all capital intensive and expensive because of their nature, size, technologies, materials, and breadth of area covered. Furthermore, their design and construction are intended to last a long time. Properly built infrastructure can last 30–50 years, or longer, even as city-wide operating systems require capital improvements periodically. The financing of infrastructure projects consists of a large capital investment during construction followed by smaller but continual operations and maintenance expenditures.

India's traditional approach to infrastructure financing relied on government grants and budgetary transfers, usually presented in national and state 5-year plans. The Government of India and state governments controlled the amount of funding and its purpose, even if the projects were local. Despite good intentions, the grant and transfer approach proved to be inadequate. For decades, the demand for infrastructure services increasingly outpaced the funding levels provided through grants and transfers to meet the demand. It resulted in low overall quality of services and restricted household access, especially for the poor.

Municipal borrowing was typically guaranteed by state governments and financed by central government-owned institutions, such as the Housing and Urban Development Corporation Limited (HUDCO) and Life Insurance Company (LIC). Both HUDCO and LIC were mandated by the Government of India directives to lend a certain amount to specific sectors, including the urban sector. The combination of directed lending and state guarantees undermined the lending rigor that normally encourages better project development.

With the advent of economic liberalization during the 1990s, HUDCO and LIC have had to compete with other financial intermediaries, notably commercial banks, for mobilization capital, for customers to lend that capital to, and for control of non-performing assets. This paradigm shift has gradually led to a withdrawal of directed lending by institutions like HUDCO and LIC. Fiscal pressure on state governments has also forced them to reduce explicit state guarantees for municipal borrowing. Hence, the last two decades have been characterized by attempts to explore alternate forms of borrowing through municipal bonds and commercial borrowings from banks, which do not involve state government guarantees.

Ever since the 1998 Rakesh Mohan Committee Report quantified the financial implications of bringing India's infrastructure up to a globally competitive standard, it has been clear that public budget resources, whether central, state, or local, will always be insufficient on their own to fund the infrastructure investment needed by Indian cities. Estimates indicate budget allocations can

only fulfill about 20% of India's infrastructure needs. In any case, funding infrastructure directly from annual budgets does not work well because the construction costs of most projects are just too large to be covered in 1-year budgets. ***The urban infrastructure financing challenge has been to devise ways for public resources to be used to leverage private investment in urban infrastructure so that the entire funding envelope is expanded.*** In part the challenge is being addressed through mobilization of private equity investment through the public-private partnership (PPP)/private sector partnership (PSP) mechanisms. The FIRE (D) Project has undertaken pioneering work to attract long-term private debt financing to urban infrastructure. The FIRE (D) introduction of the municipal bond as a financing mechanism represents one of India's major achievements in bringing market-based debt financing to urban infrastructure.

In India, PPPs and capital market borrowings have both gained creditability since the start of the FIRE (D) Project in 1994. The Government of India has initiated essential enabling legislation, and, as a result, the infrastructure finance tools available to Indian cities are growing. Once the municipal bond financing mechanism was successfully established, it quickly became clear that only a limited number of India's 5,000 Urban Local Bodies (ULBs) were likely to be able to issue municipal bonds of their own. Small local governments simply do not have enough financial resources to support the scale of investment required to make their own bond issues practical. To address this second-level challenge, pooled bond financing provides a mechanism that aggregates the small projects of multiple local governments into a single financing at sufficient scale to attract market resources. FIRE (D) also helped design and structure alternative financing for local government, such as leveraging real estate assets for project investment.

3.2.1 Methodology

Increasing investment in environmental infrastructure in a sustainable manner is not a simple process. The FIRE (D) methodology to achieve this high-level objective has been to assist local governments in developing the appropriate means to a range of financing options or "mix" centered on mobilizing long-term debt in the Indian capital markets to supplement public sector investment.

The FIRE (D) Project diagnosed most of the problems that make it difficult for local governments to access private credit and to supplement public sector grants. First, a local government has to become creditworthy and improve its internal resources, as covered by high-level objective 1, as well as bring forward a commercially viable infrastructure project. But that is not enough.

- Before lending money for a local government project, capital market investors require an assessment of the risk of the local government defaulting on its debt (Solution: credit ratings).

- The capital market needs a financing mechanism that is attractive to private investors through standardization, and legally recognized securities (Solution: municipal bonds).
- Because most local governments are small and relatively weak financially, and only need to borrow small amounts for their projects, a specialized financing mechanism is needed to allow smaller local governments to access private debt capital (Solution: pooled financing).
- The long and risky project development process required of local governments means that early funding and technical assistance for project development is needed to make their projects more financially viable (Solution: urban infrastructure funds [UIFs]).
- For the urban poor to access municipal infrastructure (especially water and sanitation services), better targeted subsidies and access to credit in a form that accommodates the poor is essential (Solution: microfinance).

After diagnosing the overarching problems standing in the way of long-term commercial financing for urban infrastructure, FIRE (D) addressed them through a series of pilot projects that pioneered the innovations now widely used in India. Indian private investors are now able to assess the risk of financial default through a credit rating of the local government and its project financing structure before investing. Using municipal bonds, private investors have a simple-to-use, legal mechanism for channeling their funds into the local government's project and recovering their repayment. But local governments are not the only issuers of municipal bonds. State-level UIFs have also proven to be an important intermediary for channeling commercial financing into urban projects, especially for smaller local governments whose projects are not large enough to access stand-alone financing at a reasonable cost. And when it comes to providing cost-effective financing to poor urban families so that they can upgrade their access to water and sanitation, the role of microfinance is emerging as a crucial complement to capital market project financing.

FIRE (D) Approach: Pilot Project Design and Implementation ⇔ Policy/Regulatory Reform

As work progressed on FIRE (D) pilot projects, the need for new or revised policies and regulations became apparent. This led to both policy reform and adjustments to the pilot projects themselves. This iterative dynamic strengthened both the enabling environment for urban infrastructure financing and the pilot projects. The following are some key examples.

- **Choosing Debt**. Most municipal debt consists of term loans from commercial banks, government-owned banks, or other types of financial intermediaries like UIFs. The process of accessing term loans differs from the process of accessing other types of debt, such as municipal bonds, but the key underlying principles, regarding project development, are equally important.

- **Municipal Credit Ratings.** To help investors assess the risk of default on local government bonds, FIRE (D) piloted the first municipal credit ratings for the Ahmedabad Municipal Corporation (AMC) prior to its bond issue.
- **Municipal Bonds.** To address the need for a standard investment vehicle for local governments to attract private investors, FIRE (D) piloted the AMC bond issue, the first in South Asia to be issued by a city without a guarantee from a higher level of government, and supported the development of tax-exempt bond legislation.
- **Pooled Financing.** To create a model mechanism that allows smaller local governments with fewer resources to access private debt capital, FIRE (D) piloted the first two-pooled bond issues by the Tamil Nadu Urban Development Fund (TNUDF) and the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC).
- **Urban Infrastructure Funds.** To better manage and fund local governments' project development process, FIRE (D) helped establish the UIFs in Maharashtra, Madhya Pradesh, Rajasthan, and West Bengal, and supported the creation of the national Pooled Finance Development Scheme.
- **Microfinance.** To help the urban poor gain access to municipal infrastructure through the provision of credit and subsidies to those in need, FIRE (D) designed a specialized microfinance product in Bhubaneswar.

There are other financial innovations that are current issues for the country, including (1) the conversion of increased land value into a financing tool; (2) the Government of India's gap financing scheme; and (3) how to best orient debt, equity, and grant money to secure the resources needed for capital improvements. Currently, public budget resources, in the form of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) grants, remain the main funding source for urban infrastructure projects in the country. JNNURM wisely provides an incentive for cities to implement key financial and management reforms. However, there is also the potential for crowding out of market investment, since local governments are tempted to structure projects to rely predominantly on free money. With appropriate planning of commercially viable projects, the supply of commercial financing could better complement grant funding and eventually grow to meet the extreme financing demand. There may always be the need for additional reforms to strengthen this evolving market, but compared to many other countries, India is in a good position to utilize a market-driven approach to infrastructure financing to supplement government funding.

FIRE (D) Approach: Mixed Financing for Urban Infrastructure

As a result of the FIRE (D) pilot projects and the subsequent dissemination of their lessons, there is now a well-established approach to mobilizing commercial financing for urban infrastructure projects in India. The approach can address both large- and small-scale projects and has proven to be a robust response to the challenge of supplementing government funding with private investment in urban infrastructure. The steps needed to complete a project financing transaction

differ depending on the mechanism employed, but the goal of identifying the investment potential of projects and then translating it into financing is the same. With a PPP approach, the goal is to bring in private sector resources and expertise through various types of service contract agreements. For debt market financing, contracts are also important to define the terms of lending. But because the connection between the investors and the project is more remote, there needs to be a standardized institutional mechanism to structure the financing. In India, this mechanism is the municipal bond.

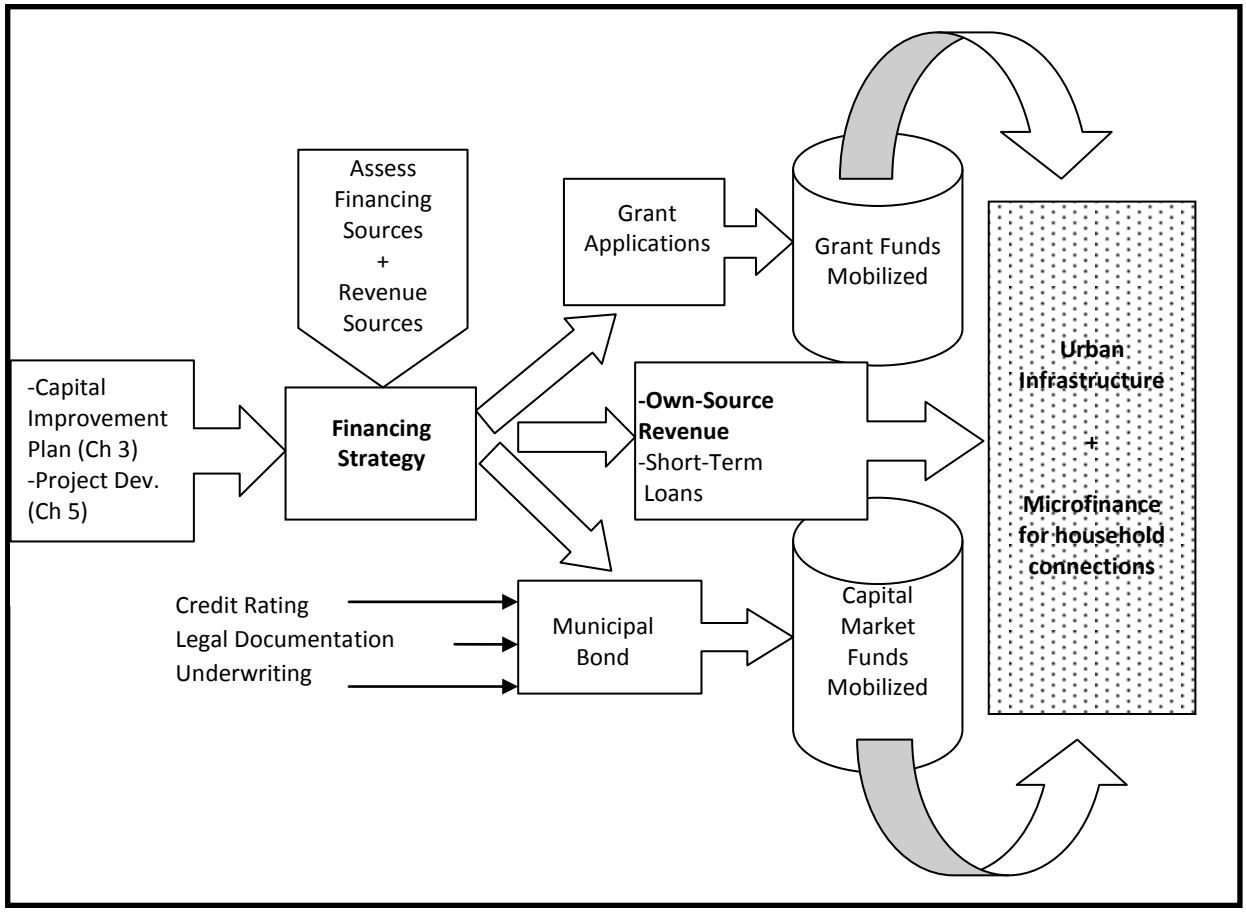
The debt financing process starts with a local government capital investment plan, followed by the creation of a financing strategy based on potential sources of financing (both grants and loans) and sources of revenues to repay any debt (both project revenues and broader tax/transfer revenues). Third-party professionals help translate the financing strategy into a specific financing structure suitable for a market transaction. These professionals include:

- Public finance advisors to design the structure of the financing and help the bond issuer manage the transaction process (costs approximately 1% of project costs)
- A legal team to prepare all of the documentation required for the issuance of bonds (legal, printing, marketing, and other document-related expenses cost approximately 1.5% of project costs)
- A credit rating agency to review the financial viability of the project financing structure and quantify the risk of default on the bond issue (costs approximately 0.1% of bond issuance)
- An underwriter who will purchase the bonds and then resell them to the ultimate investors (costs approximately 0.5% of project costs)

Prior to a capital market transaction, the issuer will need clearances from the Securities and Exchange Board of India (SEBI), the Ministry of Urban Development (MoUD), and the Ministry of Finance (MoF) for tax-free status if it is a municipal bond. Tax-exempt municipal bonds allow investors to earn tax-free income and therefore offer the city a lower nominal interest rate compared to corporate bonds with similar risk and term characteristics.

The mixed financing approach to urban infrastructure financing developed by FIRE (D) specifically for the India context is illustrated in Figure 3 below.

Figure 3. FIRE (D) Mixed Financing Approach to Urban Infrastructure Financing



It has been more than 10 years since the AMC issued India's first municipal bond not guaranteed by a state government with FIRE (D) assistance. In the last 8 years, mostly during FIRE III, 12 cities and 2 state-level agencies have issued municipal bonds, raising Rs. 15,491 million.[7] This demonstrates that bond financing for infrastructure is feasible, but also shows there are still constraints on the widespread use of municipal bonds as an infrastructure financing mechanism in India.

3.2.2 Key FIRE III Activities

Based on the methodology and approaches summarized above, FIRE III worked on several activities to increase municipal investment in environmental infrastructure.

[7] Ravikant Joshi, "Developing India's Municipal Bond Market: Constraints & Way Forward," a presentation to the Conference on Developing India's Municipal Bond Market, Mumbai, December 10, 2007.

Greater Bangalore Water and Sanitation Project (GBWASP)

The eight urban local bodies surrounding Bangalore City experience rapid growth due to burgeoning investment in industrial estates and IT parks. This rapid growth has severely strained existing rudimentary water and sanitation systems. The GBWASP project was launched, with FIRE III assistance, to bring water and sanitation services to eight ULBs surrounding Bangalore. FIRE III assisted the Karnataka Urban Infrastructure Development Fund Corporation (KUIDFC) in project development and financial analysis for the structuring of the water component of the project. The FIRE III project chose to replicate the pooled finance model that it had successfully developed in Tamil Nadu. FIRE III structured the Greater Bangalore Water and Sewerage Project (GBWASP) based on existing feasibility reports and updated analysis through independent review.

The original investment parameters have been summarized in the following table:

Parameter	**Component Value**	
	Rs. Million	USD Million
Water Infrastructure	3405	79.18
Sewerage Infrastructure	3181	73.98
Total	**6586**	**153.16**
Funding Pattern		
State Grants	743	17.28
Beneficiary Contribution	1194	27.77
Market Borrowing (pooled finance)	1000	23.25
Loan from Multilateral Agency (World Bank)	2291	53.28
Others	1358	31.58
Total	**6586**	**153.16**

By end of 2010, in total, US$87m has been spent on the water component alone, and a beneficiary contribution of US$83m has been collected, compared to the original estimate of USD $27.8m. The increase in distribution pipelines stems from rapid growth of the city, and likewise the revised estimated cost of the project now stands at Rs. 537cr (USD $107.4m), almost 60% over initial estimates. BWSSB tendered for distribution expansion to 153 villages, which have been merged into the BBMP area.

BWSSB has also launched a network rehabilitation project to reduce high water losses. Bids have been called for the South Package, due to rapid vertical growth in the urban core and 40% water losses in the piped system, some areas of the new network are not receiving enough water.

Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

As part of the technical advisory services provided by FIRE (D), the project assisted the Ministry of Urban Development (MoUD) to establish its flagship program for urban infrastructure investment. JNNURM provides funding for infrastructure projects to participating cities and states that undertake key urban reforms and identify projects through participatory planning practices. JNNURM covers 63 of India's largest and most important cities. Besides increasing investment, the goal of JNNURM is to improve planning, revenue generation and management, investment and expenditure, and overall capacity levels for public health and well-being, economic opportunities of city businesses, and promote growth in household incomes, especially among the poor. FIRE III worked on several aspects of JNNURM including:

- **Developing JNNURM Policy Guidelines on Financial Management.** Efficient and transparent financial management is a prerequisite for a livable city, enabling it to provide adequate civic services in a timely manner to its citizens. Topics discussed that are incorporated in the JNNURM include: accrual based accounting, financial reporting, accounting standards, activity-based costing, statutory auditing, internal controls and internal audits, and procurement policies. Such activities will help shape better expenditure and revenue management thus improving the efficiency and effectiveness of municipal services.
- **JNNURM Policy Guidance Note on Financial Viable Cities**. This note describes various policies that need to be improved upon or implemented at the municipal level including revenue improvement action plans, management information systems, property taxes, municipal asset management, user charges, simplified billing and collections, expenditure management, staff training and building financial management capacity, public communication, outsourcing, and local leadership. Each is discussed in terms of problems and solutions as well as how to implement such solutions. Resultant of the policy changes, cities will be more prepared to service the increasing needs of urban centers.
- **City Development Plans in Pune and Nagpur (Maharashtra) and Bhubaneswar (Orissa).** As a JNNURM initiative, MoUD has begun to develop City Development Plans (CDPs) in several cities throughout the country as a way of facilitating the development of well functioning/livable cities. The CDP is the first step under JNNURM in defining a reform-based program of urban infrastructure development for 63 key Indian cities. FIRE III supported the development of a three-month scope of work for carrying out CDPs, including a citizen survey and shadow credit rating. FIRE III supported the Municipal Corporations of Pune, Nagpur and Bhubaneswar in the formulation of CDPs. Based on the lessons learned from these three exercises, FIRE III developed how-to guidelines for undertaking CDPs in other JNNURM cities.
- **JNNURM Reform Primers**. MoUD requested the team to prepare primers, or guidebooks, for the 29 reforms under the JNNURM. These primers address the background, rationale, steps and outputs to achieving the reforms stipulated under

JNNURM and help to facilitate a better understanding of reform agendas among states and cities in order to enhance sustainability.

- **Knowledge Management through the PEARL Initiative**. FIRE III assisted with a new MoUD JNNURM initiative called Peer Experience and Reflective Learning (PEARL) network. PEARL is an initiative to support cities in actively and voluntarily networking with each other for cross-training purposes to facilitate implementation of JNNURM. It encourages knowledge sharing on urban management, reforms, and governance to help cities achieve the JNNURM mission objectives. PEARL is based on the premise that similar cities have similar issues, so it is more efficient to share lessons learned between cities rather than reinventing solutions to the issues that are facing them. For PEARL, cities are "peer-paired" meaning that cities of similar size and socioeconomic profile are joined together for maximum impact. FIRE III assisted in conceptualizing the PEARL initiative and helped the JNNURM cities in the PEARL category of "Environmentally Sensitive Cities" to become operational. Also, FIRE assisted in identifying the Uttarakhand Academy of Administration as the Knowledge Manager for the initiative and NIUA as the nodal agency for the government.

West Bengal Regional Landfill and Solid Waste Management

In 2005, the Government of West Bengal (GoWB) set up a Solid Waste Management Mission under the Municipal Affairs Department with a broad SWM mandate that included developing regional SWM facilities under public-private partnerships (PPPs) and providing technical support and seed capital for infrastructure. The Asansol-Durgapur Development Authority (ADDA)—the nodal agency under JNNURM projects for the AUA—located an abandoned open-cast mine pit, in Mangalpur, as a suitable site for the first regional sanitary landfill in the country. The site would also house one of the three planned processing facilities (the others were planned for Asansol and Durgapur).

The FIRE (D) team planned an integrated solution from point of waste generation to safe disposal and recycling. To encourage commercial viability and to service several local governments in one project, FIRE III recommended unbundling various aspects of SWM, including (1) the labor-intensive activity of door-to-door (D2D) collection, (2) the logistical challenges of transporting waste to disposal sites, and (3) the capital-intensive processing of waste and sanitary disposal at a centralized location. The unbundling plan requires that local governments own and maintain equipment and vehicles for waste segregation at the source. Self-help groups (SHGs) contract with households, welfare societies, and the local governments for D2D collection to reach 100% coverage. The SHGs aggregate the household trash in strategic collection points (e.g., one per neighborhood) that are easy for the local government to reach with their trucks and that are conveniently located near the processing plants. The local governments also collect directly from bulk waste generators (e.g., industries, bigger institutions, and markets) and transport the waste to one of the three processing plants. JNNURM funds are

used mostly to pay for the capital costs of the transport vehicles and other equipment related to waste collection. FIRE III structured the overall project, costing US$7.2 million, with partial funding coming from JNNURM. Although the project is not fully constructed yet, the municipalities have invested over US$2.3 million in the facilities.

Citywide sewerage project in Thane. FIRE III helped develop a US$100 million sewerage project for the entire city, including the slum areas. The activities conducted include: (1) a technical review of the detailed project reports for the laying of pipes and sewerage treatment plants, (2) project finance modeling, which brings funds from three sources (bond, loan from financial institution, and own source revenues), (3) led meetings and provided advisory services on the development of the bond issuance, (4) supported the municipality through the process of getting a rating of "AA" from CRISIL, (5) Conducted an assessment of the municipality's financial situation, and (6) contracted Acute Consulting to conduct a survey and design of the slums where services will be provided. As of the FIRE III closeout, implementation has progressed significantly.

- All four components of Thane's sewerage project— Ghodbandar road, Kopri, Kalwa and Mumbra— have been sanctioned by JNNURM. Bids have also been finalized for these works.
- Implementation of sewer collection, pumping stations and sewage treatment plant at Kopri has started and is ongoing.
- Sewerage in slums has not yet started. Government of India is supporting more comprehensive BSUP projects, which include construction of houses and infrastructure in slums. Hence, GoI is not considering sanction of only sewer network component in the slums. The work is therefore not progressing.
- TMC is planning to take a loan from MMRDA for partial project financing. Hence, there is currently little scope for the municipal bond issuance to move forward.

Work of sewerage in slums is not progressing due to a lack of clarity about slum upgrading responsibilities and project structuring between GoI's JNNURM and the Basic Services for the Poor (BSUP) program. The sewerage work is likely to be redeveloped under BSUP program or another pro-poor specific mechanism.

Water Recycling in Delhi

FIRE III supported the Delhi Jal Board in a wastewater recycling and reuse initiative that will put in place a program to reuse wastewater from the Okhla Sewage Treatment Plant for the construction industry and large commercial and industrial complexes. FIRE III developed a TOR for the project, which lays out an assessment to determine the quantity of water that can be treated for reuse. The demand assessment determines a cost at which the recycled water can be marketed in order to make the project financially viable. The draft demand assessment

recommended a 10mld wastewater treatment and recycling plan with membrane bioreactor technology. After review and additional field verifications, a revised report was submitted recommending two separate plants of 5mld each.

This represents a US$6 million investment in wastewater treatment and recycling at the DJB's Ohkla STP. USAID and FIRE (D) representatives met with DJB's Member Secretary (Water) in December 2006, at which time it was agreed to place the recommended 10 MLD recycling plant before DJB's board for approval. However, due to considerable change in DJB personnel who were supporting this proposal, this investment has not taken place although the organization is still considering it and wanted to conduct additional assessments.

Urban Infrastructure Funds (UIF)

To better manage and fund local governments' project development process, the FIRE (D) project helped establish UIFs in Maharashtra, Madhya Pradesh, Rajasthan, and West Bengal, and supported the creation of the national Pooled Finance Development Scheme.

UIFs are subnational financing entities established by state governments (sometimes in collaboration with private sector partners) to facilitate urban infrastructure investment for on-lending to local governments and other implementing institutions that may have difficulty raising commercial investment on their own. UIFs mobilize resources from central and state governments, from donors and multilateral development banks, and from private financial institutions.

FIRE (D) replicated the UIF model in the states of Maharashtra, Madhya Pradesh, Rajasthan, and West Bengal. Drawing on the lessons and evolution of the Tamil Nadu Urban Development Fund (TNUDF) and the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC), FIRE (D) created a model for UIFs that can be adapted to help local governments in many states have greater access to commercial debt financing for urban infrastructure development.

- **Madhya Pradesh**. FIRE III recommended to the state government that they establish the Madhya Pradesh Urban Infrastructure Fund (MPUIF) as a Trust under the Indian Trusts Act, with the Government of Madhya Pradesh (GoMP) and other contributors to the MPUIF subscribing to "units" of the MPUIF Trust, such as a product development fund or capital fund. FIRE III recommended US$20 million initial investment with one third from GoMP and two thirds from external investors such as Central Bank of India, IDFC, HUDCO, and LIC. A Grant Fund was proposed for GoMP funding at US$ 7 million and additional funding from interested international donors. The Trustee Company, with representatives from all significant contributors to the MPUIF, would be responsible for the strategic management of the MPUIF, and a private Project Development Company would be the secretariat and recommend investments from the MPUIF to a Credit

Committee comprised of representatives of major capital contributors and independent experts. The Project Development Company would be paid a retainer fee plus a success fee (payable on projects achieving financial closure) and their performance would be reviewed regularly by the Credit Committee.

- **Rajasthan**. FIRE III was asked to advise the state government on how best to adapt the existing Rajasthan Urban Infrastructure Finance & Development Corporation Ltd. (RUDIFCO) to the UIF model. FIRE III recommended that that RUIFDCO establish a project development fund as a "revolving fund" of about US$ 4 million and competitively select a Project Development Company to identify urban infrastructure projects, along with RUIFDCO and the ULBs and develop them so as to mobilize external funding. It was also recommended that RUIFDCO create a credit enhancement fund of about US$10 million and a capital fund of about US$30 million both of which would be managed by an Asset Management Company remunerated by a fixed fee per project evaluated and a "success fee" based on the repayment of the debt/release of the credit guarantees. To enable ULBs to implement comprehensive projects across all segments of the city, it was proposed that RUIFDCO establish a grant fund of about US$ 20 million that would fund these "economically unjustifiable" segments of ULB projects. FIRE III also recommended that RUIFDCO be managed by an in-house staff to oversee the work of the Project Development and Asset Management Companies, as well as to manage the functions of the nodal agency for the JNNURM in Rajasthan.

- **West Bengal**. The Government of West Bengal asked FIRE III to recommend how best to establish the West Bengal Municipal Development Fund (WBMDF). In this case the appropriate structure involved creating a company under the Companies Act with a projected capitalization of US$27 million provided by DFID (63%), the Government of West Bengal (20%), and ULBs and urban development authorities (17%). The day to day functioning of the company was to be outsourced to a Asset Management Agency responsible for appraising project proposals and sanctioning funds, helping the ULBs in formulation of commercially viable urban infrastructure projects, facilitating access to institutional finance and/or capital markets for increased investment in urban infrastructure, and recommending short-term investment of the WBMDF's available capital. The Fund's capital was to for project development, credit enhancement of ULB or WBMDF bonds, direct lending to projects, and project grants to close a "viability gap" for non-remunerative components of ULB projects targeting the urban poor through improvement of slums, and development of low-income housing.

Pooled Finance Development Fund

A major central government accomplishment of FIRE (D) was the creation of the Pooled Finance Development Fund, which enables ULBs, including small and medium-sized municipalities, to raise funds from the market on a sustainable basis to meet their investment needs. The Pooled Finance Development Fund provides credit enhancement to ULBs to access market borrowings based on their credit worthiness through State-level Pooled Finance Mechanism viz. a State Pooled Finance Entity. An allocation of US$80 million under the five-year plan has been made for the scheme. The FIRE (D) project had direct involvement in this project by preparing the overall scheme design, the cabinet note, answering queries of different ministries and advocating for the concept in different forums after successfully piloting the concept in Karnataka and Tamil Nadu. FIRE (D) also helped the Ministry of Urban Development in finalizing the guidelines and toolkits for accessing this fund.

City Sanitation Plans (CSP) for State of Orissa, City of Agra (Uttar Pradesh) and City of Dewas (Madhya Pradesh)

This activity identified investment opportunities for improving city sanitation through comprehensive planning based on local, on the ground conditions with regards to sewerage, drainage, solid waste management, industrial waste, etc. FIRE III completed this activity in two different manners: (1) prepared CSP funding proposals to MoUD on behalf of the State of Orissa and City of Agra, Uttar Pradesh, and (2) conducted a CSP in Dewas, directly.

In Orissa, eight class I cities were awarded US$175 thousand to undertake the CSPs, with guidance from FIRE (D). Eleven firms responded to a procurement organized by the FIRE III team, along with NIUA. Nine firms met the minimum qualification criteria, and based on their financial bids, two firms were selected to prepare CSPs for eight cities in Orissa. The full procurement process took 10 weeks to complete. The Government of Orissa launched the assignment on 25 October 2010 in Bhubaneswar.

The proposal for Agra is approved in principle and funding will be channelized through the state government. MoUD sanctioned US$50,000 for the Agra Municipal corporation to prepare a CSP. The funding will be channeled through the State Government. FIRE III supported Agra in issuing an EOI to hire consultants and prepared the scope of work. Agra signed a contract with ASCI to prepare the CSP.

FIRE III team procured a consultant for preparing the CSP in Dewas. FIRE (D)'s procurement included: soliciting interest of selected consultants; preparing a RFP; reviewing technical and financial proposals from 4 bidders; short listing 2 bidders; and negotiating the final composition of the team and work plan with the top-ranked bidder, Alchemy Urban Systems. Alchemy provided technical support to internal FIRE III staff to jointly prepare the CSP.

Practitioners' Guidebook to Structuring Urban Infrastructure: a Retrospective on the FIRE (D) Approach

The goal of this book is to explain the process for infrastructure development in India so that more cities and states can take advantage of the lessons learned from FIRE (D). It documents the accomplishments and technical approach throughout the project's history in a manner useful to practitioners in the urban sector in India. It has substantial interest from many of FIRE (D)'s partners including the regional training centers, NIUA and the Ministry of Urban Development. The publication is divided into three sections: (1) introduction to provide the urban context in India, history of the FIRE (D) project and main overarching themes; (2) technical sections to cover infrastructure planning, urban reforms, project development and financing; and (3) way forward in terms of institutionalizing all the progress to date and addressing new challenges in the sector. A small number of Advance Copies of the Guidebook, titled, "Developing Sustainable and Inclusive Urban Infrastructure Services in India: A Guidebook for Project Implementers and Policy Makers in India" have been produced and is available electronically at http://www.urbaninfrastructureindia.org. TCGI is currently seeking resources to publish additional copies for distribution to India practitioners from Cities Alliance.

Related Training Activities

FIRE III training support for India's urban sector has been provided to various institutions and entities at national, state and local levels. Many of these trainings have been in coordination with USAID and the National Institute of Urban Affairs (NIUA), which is responsible for this function on behalf of the Government of India. FIRE III Training activities related to this High Level Objective have included:

- *City Sanitation Plans (CSP) Conference*
  Attendees: 120 (Women 20/Men 100)
  Funded by MoUD
  The FIRE (D) presented its approach to CSPs, which MoUD has adopted as the model scope of work. MoUD convened all the donors and other relevant stakeholders to review the progress of CSPs, to date.
- *Peer Review of FIRE (D) Guide to Infrastructure Development*
  Attendees: 54 (Women 14/Men 30)
  Funded by USAID
  FIRE (D) partners, including NGOs, private firms, other donors, and government officials from the central, state and local levels reviewed and commented on the draft book. Outside reviewers provided detailed comments on all the technical chapters.

3.2.3 Lessons Learned

Over the course of FIRE III, many lessons were learned. The following is a discussion of the key lessons learned, thoughts on the way forward, and recommendations based on FIRE III experience in activities related to High-Level Objective #2.

- **Choosing Debt.** Due to its relative ease, term loans are an important and growing way to finance infrastructure development. Commercial lending has improved the appraisal process for government-owned banks. Financial viability of cities remains critical. Lending criteria must be standardized to facilitate transactions. Combining term loans with bond refinancing could increase overall financing and help reach financial closure

- **Municipal Credit Ratings.** Ratings are an important step to issuing municipal bonds. Ratings provide an objective assessment of the risk of default. The ratings process increases financial transparency. Ratings make governments more accountable for their actions. Wider use of municipal credit ratings needs to be encouraged so that local governments understand their current level of creditworthiness, and how to improve it.

- **Municipal Bonds.** Municipal bonds are an excellent way to mobilize long-term debt financing for urban infrastructure, more complicated than obtaining a bank loan, able to offer longer terms than bank loans, able to reduce interest rates through credit enhancements, and able to substantially reduce the annual debt service burden of the issuing local government. By following the identified steps, a local government can successfully mobilize long-term private debt financing. Relatively few municipal bonds have been issued, so a municipal bond market has been slow to develop in India. More standards are needed for municipal bonds. Incentives need to encourage their use by local governments and investors.

- **Pooled Financing.** Pooled financing has enormous potential for financing small and medium-sized local governments on good terms. Pilots demonstrated the value and workability of the mechanism. Successful pilots led governments to make an important commitment to supporting pooled bond issues in the future. Expanding the use of pooled financing will be at the cutting edge of municipal finance in the coming years. There have been few pooled bond issues so far. More states need to establish UIFs to expand the use of pooled bond issues.

- **Urban Infrastructure Funds.** Successful UIFs focused on providing support for the development of commercially viable infrastructure projects. They are structured to cater to all types of local government infrastructure projects, with an emphasis on private sector participation. Some of these funds also combine direct project finance with their

support for project development. Relatively few states have completed the process of establishing their UIF. The relative merits of public sector or private sector management of the UIF remain open to debate

- **Microfinance.** The urban poor do not have enough money saved to cover infrastructure improvements. Home improvement lending in urban areas can be a new market for microfinance. It is essential that the monthly payment capacity of a household matches the financing terms for the infrastructure option it chooses. Households must also be able to afford ongoing service payments. In the pilot project, 90% of the households were ultimately able to finance their access to infrastructure through micro-loans. Relatively few Indian MFIs work in the urban home improvement sector. Indian MFIs need a stronger capital structure to make larger home improvement loans with longer repayment periods. Before Indian MFIs can scale up lending for large slum upgrading programs, the current regulatory environment needs to be reformed.

3.2.4 Constraints and Solutions

For India's new urban infrastructure financing system to continue to develop, there needs to be a substantial increase in the volume of commercial investment (through new bond issues, long-term loans, or PPP equity). This means that projects have to become more commercially viable: local governments need to improve their creditworthiness and internal management and then develop projects and capital investment plans (CIP) with commercial financing in mind. This is the only way enough investment will be raised for massive infrastructure improvements across the country. JNNURM or similar central government programs simply cannot supply all the funding required.

At the same time, capital market investors need to demonstrate an increased appetite for municipal bonds as a component of their investment portfolios. These requirements are two sides of the same coin. On the one hand, there are constraints on the demand for capital from local governments; on the other hand, there are constraints on the supply of capital from the investment community. The most important of these constraints are summarized as follows.[8]

Constraints on the Demand for Capital through Municipal Bonds

1. There are too few creditworthy issuers seeking capital market financing.
2. There are too few financially viable projects seeking capital market financing.

[8] Discussed by expert group, which convened to consider ways to finance urban sector projects, chaired by Secretary, MoUD, in August 2008, and submitted to the Planning Commission, Government of India. Summary found in Vaidya, Chetan and Vaidya, Hitesh, 2010, "Market-Based Financing of Urban Infrastructure in India," in Kochar, S. and Ramchandran, M. (eds.), *Building from the Bottom*, Academic Foundation, New Delhi: India.

3. There is a lack of professional support to help issuers design bond structures that respond to investor needs while providing the issuer with the longest possible tenor, lowest possible interest rate, and lowest possible cost of issuance.
4. There are a variety of "administrative" constraints that inhibit and discourage potential issuers of municipal bonds, such as unclear authority and rapid changes in leadership.

Constraints on the Supply of Capital through Municipal Bonds

1. Institutional investors with long-term funds face regulatory constraints (e.g., mandatory holding requirements) on purchasing municipal bonds, as do commercial banks.
2. Investors perceive municipal bonds to be risky for a variety of reasons.
3. The fixed cap on tax-free interest rates for municipal bonds does not respond to market conditions. Municipal bonds become unattractive when market rates exceed the cap.
4. Municipal bonds are relatively illiquid investments for lack of an active secondary market where municipal bonds can be traded.

Emerging challenges in urban infrastructure finance include organizing support for improved project development, adapting microfinance to help the urban poor finance their in-house access to water and sanitation, and addressing local governments' need for financing that bridges the gap that sometimes remains even after combining government grants and private debt financing.

FIRE III overcame these constraints by following the methodology above and as detailed at www.urbaninfrastructureindia.org.

The Way Forward

The funding and reform agendas of JNNURM and the Pooled Finance Development Scheme (PFDS) will help address some of the constraints on the use of municipal bonds on the demand side. At the local government level, there is a great need for officials to broaden their thinking about approaches to financing urban infrastructure. One way to achieve this is to prepare a city financing strategy that is linked to the local government's city development plan (CDP). The concept is to estimate the financing requirements for the local government's prioritized capital investments on a rolling year-by-year basis for the next 5 years ahead. Once the annual funding mobilization targets are clear, then potential sources of funding can be identified and matched to the projects: local government surpluses, general capital project grants from the state or central government, sector-specific grants, loans from government institutions, PPPs, and capital market debt financing. Experience-based assumptions about the amount of time required to tap each source are essential to the phasing of the plan. Ultimately, the local government's city financing strategy becomes a roadmap to finding the resources it needs to implement its CDP. This encourages more creditworthy issuers to enter the capital market for their funding needs.

The crucial supply side constraints can only be addressed by the institutions responsible for the regulation and development of the financial markets. Determining the possible regulatory and administrative adjustments is the first step toward resolving key constraints on the use of municipal bonds.

In this context, it is useful to note the perspective of one of India's major institutional investors on how the municipal bond market could be deepened.[9] In stark contrast to U.S. investors, Indian investors believe that municipal bonds are a relatively risky investment. The lack of adequate awareness of municipal bonds has amplified this risk perception. The investors' point of view stems from a number of factors. First, they see insufficient political consensus on the urban reform agenda promoted by JNNURM due to interference by state and political parties in local government decision making in some states. Second, they see a general inability among local governments to execute commercially viable projects. This is reflected in inadequate user charges and a perception of local governments as inefficient users of capital. Third, there is evidence of a poor and deteriorating position of municipal finances. For example, many cities have struggled to overcome the elimination of octroi revenue and replace it with another buoyant and reliable source of income. This is compounded by a fear of unlimited public debt in the absence of legislation establishing a debt ceiling. There is also the problem of a lack of full financial disclosure and standard accounting policies in most local governments, as well as the absence of compulsory audits. This leaves doubt about whether most local governments are amenable to greater public scrutiny.

The same institutional investor points out several other factors that make municipal bonds appear risky in India. There is a lack of continuity among the top management of local governments, and a change of guard can change fiscal and financial management priorities. There is a lack of a financial and management track record at individual local governments, which is compounded by a lack of available public information and the difficulty of assessing performance of project execution and management of services. There is concern about excessive co-mingling of funds from a bond issue with the general fund because there is no clear monitoring and accountability mechanism. There is also concern over the lack of legal precedent and clarity concerning the options available to investors in case of a municipal bond default. Most of these issues relate to good governance at the local level and technical capacity.

The perceived risk of municipal bonds in India is also the result of operational problems that need to be resolved.

- Development of the municipal bond market is linked to overall debt market development. At this point, even the corporate bond market and securitized assets markets are illiquid (little secondary trading).

[9] UTI, "An Investor Perspective on Municipal Bonds in India," presented at the International Conference on Developing India's Municipal Bond Market, December 10, 2007.

- Municipal bonds from different states have different supply and demand conditions, causing trading levels to vary significantly.
- No two municipal bond issues are exactly alike in structure. The lack of a standard benchmark for issue structure makes comparison and pricing difficult.
- The sizes of the issues are too small for there to be reasonable trading. This makes it hard to determine the fair market price for a bond.
- Finally, there is very limited credit information on issuers. Most don't have to report anything about their finances to anyone other than the rating agencies. Some have to make occasional financial reports available, but only if bondholders demand it at the time of issuance.

Overcoming investors' wariness of municipal bonds and taking steps to deal with operational problems facing the municipal bond market represents the immediate action agenda for national, state, and local governments. Some issues are relatively simple to address, such as promoting more standard bond models. Other problems will prove to be more intractable, such as the reluctance of local politicians to impose adequate user charges for services, or the lack of management continuity arising from the reassignment of senior civil servants to new posts. Further development of the municipal bond market as a source of much-needed debt financing for urban infrastructure will undoubtedly come with the application of India's great traditions of ingenuity and adaptability.

Recommendations for Infrastructure Finance in India

- Compare the investment needed for the city(ies) to achieve appropriate infrastructure coverage to the funding currently available from state government or national government programs, and estimate the gap that remains to be filled through increased commercial financing.
- Obtain an institutional credit rating for the local government to identify areas for improvement of financial management. Then make the rating results public as a demonstration of commitment to financial transparency.
- Compare the terms of repayment that banks are willing to offer on their infrastructure loans to the development, construction, and operations cycle of the infrastructure to be built. Do a similar comparison using municipal bond parameters.
- Determine how best to aggregate small infrastructure projects required by a wide range of local governments into a single investment vehicle that can attract long-term capital market financing.
- Establish and make use of institutional arrangements that provide project development and financial structuring assistance to local governments by making use of private sector professionals.
- Encourage local MFIs to develop new loan products that can enable the urban poor to finance their household connections to infrastructure on terms that take into account their actual financial circumstances.

3.3 High-Level Objective 3: Number of men and women that benefit from increased access to water and sanitation in targeted municipalities.

The objectives of the FIRE (D) Project —increasing access to safe drinking water and sanitation —required the application of many diverse techniques. The process revolves around an in-depth assessment of a city's needs, developing one-off pilots to structure individual responses to those needs, and then grouping together the individual responses to achieve more comprehensive interventions on a larger scale. Good governance practices, particularly related to professional and efficient management of services, have always been an important focus for attaining this high-level objective.

3.3.1 Methodology

A. Development Planning

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 in order to adapt planning concepts and project execution to 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 firms.

The FIRE (D) Project's pilot projects not only addressed such issues as the environment, market demand, investment potential, and neighborhood planning, they also addressed these issues within the context of poor and informal settlements at a city-wide level. Pilots and planning techniques that the FIRE (D) Project helped pioneer in India that contributed to increased access are summarized below.

- **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.

The FIRE (D) Project 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 increase access and attract some degree of private investment. With few exceptions, FIRE (D) did not utilize all of these planning components in each city; but together, the work offers a more comprehensive approach than what is known as development planning (or strategic planning by some international institutions) and to a degree reflects and then builds on planning processes introduced earlier in India.

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 moves far beyond these relatively rapid assessments. It 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[10] 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 pulls 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, FIRE (D) urges strong local government accountability for planning and implementation, although it is not always possible in the near term.

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

[10] The MoUD launched this initiative in 2009. The FIRE III 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.

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.

Figure 5. Example of Sector-Specific Strategies

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 5 indicates some examples of sector planning that will be useful. These largely sector-specific strategies usually include cost estimates. The FIRE (D) project 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.

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, which identifies resources and investment opportunities over multiple years. Scarce resources can easily be wasted on projects that are not coordinated with one another. Laying underground infrastructure is an example. Even with multiple implementing agencies, it is possible to open 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 opening, closing, and re-opening the road at different times, which costs more money and increases the implementation time.

B. Assessing Market Demand and Willingness to Pay for Infrastructure Services

Whereas better planning systems provides the foundation for infrastructure, more market-oriented project development helps deliver services sustainably to all segments of the population. Traditionally, urban services including water and sanitation have not been subjected to market study because they were regarded as non-market, public goods. However, private sector provision of services is slowly emerging in many cities, in response to under-supply and poor-quality infrastructure. Private sector investment in the power and telecommunication sectors led the way in the 1990s, following regulatory reforms. Now, transportation has received considerable private sector attention. In a similar fashion, environmental infrastructure benefits from in-depth market demand analysis.

Commercial investors are very concerned with market demand and customers' willingness to pay because these data can signal profit opportunities. Market demand studies are standard tools applicable to most urban services. Because they utilize surveying work and data collection, in-depth market studies require some resource expenditure. Therefore, the studies can be pursued if initial financial prefeasibility is favorable. Market studies provide valuable inputs for designing infrastructure to increase access and be more commercially viable.

FIRE (D) deployed a standardized methodology to help determine market viability for urban services: (1) forecasting future demand levels, (2) identifying user preferences, and (3) determining customers' willingness to pay. This assessment helps identify the type of service improvements preferred by different consumer groups and provides accurate guidelines for tariff setting. It is therefore a key tool for service providers and politicians for initiating tariff reform

and for increasing access. Nevertheless, it still remains politically challenging to reform tariffs and user charges in accordance with JNNURM.[11]

Undertaking a Rapid Market Assessment for Water Projects

Step 1. Identify Different Consumer Groups

The demand for water needs to be analyzed among relatively homogeneous user groups. In many cases, a distinction is made between domestic and non-domestic users. Furthermore, the demand from domestic users is separately analyzed for those already connected to the system (existing connections) and those to be connected under the proposed improvement project (new connections).

While the price elasticity of demand[12] for water is normally negative, i.e., an increase in price is expected to a reduce demand and consumption, the degree varies significantly across user groups. For many industrial and commercial users, as well as upper-income households, the price is largely inelastic, meaning that an increase in price will have little effect on demand. In contrast, other domestic users, especially low-income households, experience steeper demand elasticity. For them, price changes have a significant impact on consumption.

Household surveys confirm that those with higher incomes are more able and willing to pay for a given quantity of water as compared to households with lower incomes. However, in relative terms (as a percent of income), higher-income households pay much less than the poor.

[11] User changes need to be reformed to cover at a minimum O&M costs and potentially also capital costs.

[12] The price elasticity of demand is a measure that describes the degree of responsiveness of the quantity of water to a given price change and is defined as follows:

$$ep = \frac{\text{percentage change in the quantity of water demanded}}{\text{percentage change in the price per unit of water}}$$

Willingness to Pay for Improved Water Services in Bangalore

The Greater Bangalore Water Supply and Sewerage Project aimed to improve the supply and distribution systems in the eight, separate municipalities surrounding the city center. During project development, a study of current water supply deficiencies, coping strategies of households, and willingness to pay for improved services was conducted. Through household surveys, information was collected from 8,000 residential units, 500 industrial units, 10,000 commercial establishments, and 500 institutional consumers. Additional insights into how cost-sharing arrangements could help the poor were gained through focus group discussions in slums. Results included:

- Only half of the consumed water comes from municipal sources. The other half is privately accessed from tanker trucks and bore wells.
- Seventy-five percent of the water in slums is delivered through public stand-posts (free of charge). Slum dwellers also pay Rs. 8–10 per kiloliter (kl) for other private sources of water.
- The quality of water varies across the city; some areas are contaminated with f-coli and e-coli bacteria, while others experience unhealthy levels of nitrates and fluoride.
- O&M costs, resulting from the improved system, are planned to be Rs. 16/kl. Currently, high-rise apartment residents and wealthy households pay twice that amount, and the average household cost for water (public and private sources) is Rs. 24/kl. Non-domestic users typically pay far more than this.
- Apart from middle- to lower-income households (including slum dwellers), the various user groups expressed a willingness to pay the Rs. 16/kl cost envisioned under the project, and many users were willing to help cross-subsidize the poor.

Source: Ahmad, J.K., S. Misra, and S. Zaheer, 2004, *Demand for Improved Water Supply and Sewerage Services in 8 ULBs in Greater Bangalore*, Draft Report, World Bank: New Delhi, India.

Step 2. Understand Service Demand for Each Consumer Group

In addition to price and income, other factors influence the demand for water. Refer to Table 2 for a checklist of some of the factors influencing demand for domestic and non-domestic users.

Consumer preferences can be ascertained by collecting data during field observations and representative household surveys. Household surveys should include:

- Family size, occupation, income, etc.
- Level of current consumption,[13] water quality, and costs of all regularly used sources
- Preferences for future water supply, with regard to the quality of service, type of facility(ies), and willingness to pay for the preferred level of service

[13] The quantity of water consumed through the connection and non-connection sources.

Table 2: Water Demand Determinants for Domestic and Non-Domestic Consumers

Domestic	Non-Domestic
Population. The overall population (especially the growth rate) is very important. Population growth may consist of natural growth and migration. Small differences in demographic trends have large effects on water consumption.	*Size and Type of Industry*. Logically, the size and type of industry will affect the quantity of water consumption.
Access and Costs of Alternative Sources. If water from other sources is of good quality and is readily available, people are generally less interested to replace them.	*Industrial Growth*. Economic development, construction patterns, and regional growth strongly influence future demand for water.
Availability and Quality of Service. If the existing municipal service is generally satisfactory, unconnected households will usually be more interested in connecting to an expanded system.	*Legal Requirements.* In certain special economic zones, industries must apply for a permit to use any alternative sources (e.g., groundwater), and are often required to connect to piped systems, if available.

Assessing the ability and willingness to pay is essential for price-setting. Two approaches are used for making reliable estimates of a household's willingness to pay.

- The direct approach, also known as the *contingent valuation method*, uses stated responses when an individual/family is surveyed about preferences and costs.
- The indirect approach uses data on *observed water use behavior (revealed preference)*. Measuring the quality, quantity, and costs of alternative sources of water, such as tankers, bore wells, and bottled water, is a good estimate of how much additional money people are willing to pay for improved municipal services.

Since private markets for urban services have begun emerging in many Indian cities, the demand study should include a reconnaissance survey of prices being charged by other private operators to get a better sense of the overall market.

Furthermore, the study should examine various types of charges that can be levied on the user groups. For example, an unserviced area that would need network expansion could be levied a development charge, as well as normal connection and consumption charges. For low-income users, in particular, the study should establish an affordable "lifeline" rate (i.e., the minimum-accepted quantity of water that everyone should receive and can afford).

Step 3. Develop Detailed Tariff Categories

Detailed tariff categories need to be established for the various user groups. Though a wide variety of charges could be levied, most service providers do not adequately tap this diversity. Tariff categories will depend to a great extent on existing tariff charges; the complexity of the system; and the management capacity of the utility to set appropriate charges, bill customers, and collect payments efficiently.

Step 4. Make Demand Forecasts

Estimate the increase in the number of connections and consumption of water within each user group by collating urban growth trends with the project design.

- Estimate the number of total connections across user groups during the project's life, based on past growth trends, network expansion, facility standards, and institutional capability.
- Estimate overall consumption and production requirements for each user group, based on current use and stated preferences. In this calculation, include unaccounted-for water that results from leaking pipes and illegal connections.
- Set targets for service improvements by comparing forecasted demand to current capacity. Specific targets many include increased number of supply hours, improved water quality, higher water pressure, and a shift from public taps to piped house connections.
- Integrate the findings within the tariff categories to understand how new price-setting will affect consumption of water and demand for new connections. This will help in conducting revenue forecasts.

Step 5. Initial Tariff-Setting and Demand Adjustment

Initial tariff proposals for each user category can be identified based on the market study, the willingness of different user groups to pay, and the proposed service improvements. The feasibility of each proposal must be tested against political implications, affordability, existing price levels, and the past experiences with tariff revisions. Based on these proposals, it must be determined whether tariff changes will have an impact on demand. Consumption forecasts can be adjusted based on the price elasticity of demand. While price elasticity estimates should be worked out for a detailed market study, notional adjustments for the main user groups can be made based on good judgment.

C. Managing Service Delivery Better

Planning and project orientation that better serves all segments of the population will help to develop better infrastructure for cities. But implementation over the long term—to maintain physical assets in good working condition and ensure that customers are satisfied and can easily connect to that infrastructure—is a challenge that requires good governance and management practices.

For sustained and comprehensive change, an organization's structure, financial management, financial mobilization, and service regulation all need to reinforce one another. The FIRE (D) Project assisted cities, states, and utility companies (depending on the institutional arrangements in that local area) in reforming its water and sewerage sector by taking each of these aspects into consideration.

FIRE (D) began by analyzing the current institutional and financial operations, the organization's track record in delivering services, and all the constraints affecting the initiative's main objectives:

- Autonomous corporations that are structured to deliver improved water and sewerage services
- Accountability to the local government
- Regulation through a contracting framework

- Financially viable operations, with declining financial support (subsidy) from the state government over the medium to long term

The situation assessment of existing infrastructure services usually reveals high degrees of water loss, much the population unconnected to the services, and weak internal capacity to change this (e.g., in Bhubaneswar 42% of the population are connected to the water supply, while only 35% of the population has sewerage services). Apart from inadequate services, the main institutional weaknesses include (1) no accountability to municipal corporations, (2) minimal focus on consumer satisfaction, (3) little emphasis on individual connections, (4) high level of unaccounted-for water (both leaking pipes and commercial losses), (5) a large number of staff (especially ministerial staff), (6) high energy costs, (7) no incentive-based remuneration system, (8) low cost recovery and poor collection efficiency of user charges, (9) lack of autonomy and excessive centralization that delays decision making, and (10) dependence on state government for subsidizing operations and maintenance (O&M). These problems are interconnected and similar in nature to ones faced by many local governments. They stem from a restrictive policy environment that has created weak governance structures and consequently low institutional capacity. A systematic approach to address the underlying structural issues can begin to encourage better and more sustainable service delivery.

In India, corporatization is viewed as one of the best ways to professionalize services and start to detangle them government control and budgetary limitations. A corporate structure allows the entity to develop a business model most suitable for the services to be provided. It disentangles the core competencies of water and sewerage provision from the wide-ranging activities that a state government undertakes. As a result, the corporation can focus on its specific mandate and strengthen the skills, systems, and finance to provide better coverage and to increase efficiencies. Several important benefits should accrue:

- For the state government, the process should free financial resources over time. For example, the potential savings in the State of Orissa could be Rs. 82 crore (US$18.2 million) over an 8-year period (based on the draft business plan). This figure stems from a gradual reduction in water and sewerage subsidies that can be reinvested in other services, such as housing, education, and livelihoods training for the poor.
- For the local government, greater control over infrastructure planning and service delivery improves its ability to guide development and be responsive to citizens' concerns.
- For customers, improved coverage and service quality leads to better public health. Greater customer satisfaction also arises from more professional management and better service levels.
- For the organization's staff, professional management and autonomy improves the work environment. A corporate structure can also reward employees (through bonuses and promotions) far more easily than can the government.

Whereas the above benefits stem from improved management and governance, specific operational initiatives, such as energy audits and optimization programs (electricity is currently 50% of operations costs), are more encouraged in a corporate structure to save costs and improve efficiencies.

Transferring responsibility to the local government. A decentralization process has several components. The state transfers all the water and sewerage "undertakings" (assets, liabilities, rights, claims, and proceedings) to the local government or another institution, which becomes the owner and responsible party for providing the infrastructure services. Considering the inadequate expertise of most local governments in managing these services, a separate corporation could act as an asset management company for operating the infrastructure services on behalf of the local government. This is a much more feasible and easier process than trying to depute state-level engineers to local governments. Furthermore, it is unrealistic for every small city or town to manage its own water and sewerage systems in the near term. A corporation can provide asset management services to more than one city.

What is most important is a direct accountability to the local government, if it does not already provide the services. A regional water corporation, for example, can operate and maintain the infrastructure through a performance-based contractual arrangement with the respective local governments, not unlike a private company. The local government and any other regulatory authority review the prescribed performance indicators regularly and periodically rebid the work. Over the long term, other companies could bid on the service contracts, and this competition encourages better performance. At the same time, the water corporations could work in other jurisdictions needing similar assistance.

Transition plan. The steps for creating a corporatized entity take considerable time to fully implement, and therefore should be divided into several phases. In Bhubaneswar, the FIRE III divided the process into five steps:

1. Ring fence the portion of PHEO that serves the Bhubaneswar area (i.e., separate out the budget, accounts, staff, and infrastructure assets from the overall organization)
2. Create a separate business unit within PHEO dedicated to managing the ring-fenced area
3. Based on specific attributes of the ring-fenced portion of PHEO, develop a business plan and organizational structure for the corporation, including modern financial management, customer services, and investment systems
4. Undertake the legal process of corporatization, while working with all stakeholders on the performance contract mechanism
5. Begin corporate operations while providing continued institutional development support (for both the new water corporation and the local government, which needs to manage the contracts)

While better institutional structures set the stage for better service delivery and financial viability, these objectives will not be realized without also improving financial management, incentivizing better performance, and providing objective regulation and oversight. Improved financial management on a sustainable basis is a challenging task. Training and communication strategies play a major role in changing the staff mindset. Furthermore, institutional reforms need

to be used in tandem with a number of other investments to achieve the desired improvement in decision making and service delivery.

3.3.2 Key FIRE III Activities

Water Sector Reform in Orissa

To help initiate reforms in the state water sector and to help facilitate the transfer of responsibility for water from the state to ULB level, FIRE III worked with the Government of Orissa and other state counterparts. FIRE III conducted extensive activities related to this project including the preparation of Terms of Reference (ToR), evaluation of institutional, financial and human resource issues related to the transfer, policy reform, and preparation and implementation of an action plan. FIRE III also identified a citywide sewerage project for the city of Bhubaneswar, which was languishing in MoUD, for funding by the Japan Bank for International Cooperation (JBIC) as part of the USAID-JBIC Cooperation Agreement. JBIC (now JICA) agreed to pursue the development of this project.

The water sector reform project in Orissa envisaged the transfer of water and sanitation service responsibilities from the State Department PHEO to the State's urban local bodies (ULBs) in accordance with India's 74th Constitutional Amendment Act. As the pilot ULB for this initiative, the Bhubaneswar Municipal Corporation (BMC) will assume ownership of the water and sewer infrastructure within its jurisdiction (including assets, liabilities, rights, claims, proceedings, etc.). However, the operation and management of this infrastructure will be contracted to a State-owned but financially autonomous, corporate entity. The public sector company, to be established under this project, will comprise of PHEO's divisions currently responsible for the Bhubaneswar area. This process includes "ring fencing" or separating out the portion of PHEO covering Bhubaneswar, and then "corporatizing" it under the Companies Act, 1956, which governs for-profit companies in Orissa. The contractual arrangement between BMC and the new corporatized entity will be a performance-based contract, i.e. BMC makes payments to the State-owned corporation based on a set of performance indicators of service delivery. Ultimately, improvements in WSS service delivery stem from (1) better financial management, (2) corporate-structured governance with output based incentives, and (3) local accountability of the new model to the ULB.

The State Cabinet note to corporatize PHEO was approved in January 2010. In anticipation of questions that the Cabinet might have had, FIRE III prepared short background notes on the key elements: (1) legal authorization for provision of water and sewer services by a corporatized entity under the current municipal laws (which has received a legal opinion but currently sits with the Orissa State Law Department for final approval); (2) options for the organizational structure of the proposed corporate entity, and; (3) an outline of a model performance-based contract to govern the delivery of services between the corporatized entity and the ULB. With

Cabinet approval, FIRE III has moved into the implementing phase of the work, but has to wait for approval from the Law Department before legal formation of the corporate entity can happen.

Initial work relates to ring fencing (separating out) of PHEO accounts and staff, as outlined in a *Review Report* of PHEO. The report assesses PHEO's current organizational structure, operational workflow and financial management (accounts, budgeting, and costing); and subsequently, it proposes the organizational changes required to both ring fence the Bhubaneswar portion and improve internal operations/efficiency to match generally-accepted corporate standards. To date, the accounting, budgeting and service costing manuals are finalized as well as the new entity's opening balance sheet, including fixed assets. The fixed asset valuation process was long, due to the extensive infrastructure constructed over the past 30 years, which required surveying/categorization. A methodology for valuation and a comprehensive list of assets is now established and incorporated into the accounting system (based on FIRE (D)'s national policy work for valuing municipal fixed assets). The team has recently begun implementing these manuals and started training PHEO staff on how to use them. With closeout of the project, FIRE (D) is coordinating with JICA, which has a project based on Bhubaneswar to take over the long-term technical support needed to complete the PHEO corporatization initiative.

Institutional reform of the STEM water authority in Thane

The STEM Water Authority was a joint committee formed by three municipalities, and led by Thane Municipal Corporation (TMC) under Section 32 of the Bombay Provincial Municipal Corporations Act, 1949, with the approval of the Government of Maharashtra, Water Supply and Sanitation Department, through its resolution dated February 29, 2000. The STEM Water Authority came into effect on March 23, 2000 on the basis of a Memorandum of Understanding (MoU) between the three corporations.

The STEM Water Authority began exploring options to restructure its institutional framework in response to legal and taxation considerations and also with the objective to expand its scope of operations. Accordingly, in December 2002 the municipal commissioner of Thane requested the FIRE III to support its organizational development.

FIRE III worked with Mr. K. N. Patel (senior legal council to STEM), Nishith Desai and Associates (our legal advisors), STEM officials and representatives of the three ULBs, to evaluate potential organizational structures and the implications therein. These were discussed with the State Government (UD and WSS departments), STEM's Executive Committee, and STEM's Governing Council. The general consensus was to establish STEM as a public "water company". The premise for the same was as follows:

1. A corporate structure would separate ownership from management control and impose a new regulatory and operating environment on the operations of STEM, in terms of:
    - Separate accounting and reporting (company formats with accountability to the companies board);
    - Valuing all assets and liabilities - definition and reporting;
    - Streamlined administrative structure;
    - Autonomous decision making (e.g. it would insulate day-to-day decision making from political interference); and,
    - Operational dynamics (e.g. formal agreements for water sale and purchase, formal mechanisms for tariff setting and collection etc.)
2. It offers the potential to invite private participation, as subscription, into the company. The company can also be privatized at a later date.

FIRE III provided technical assistance to the water authority, including: (1) undertake valuation of assets and estimate the equity base of the STEM water Authority; and, (2) draft legal documents for company incorporation. In 2010, the Executive Committee appointed a chartered accountant to finalize the Memorandum and Articles of Association. The Committee also finalized a Shareholders' Agreement [previously drafted by FIRE (D)], and has incorporated the water utility company.

Municipal E-governance

India's National e-Governance Project brings government services and information to India's population via an easy to use internet website. FIRE III completed an assessment of four state level governments (Andhra Pradesh, Karnataka, Maharashtra, and Tamil Nadu), which fed into the design of a Mission Mode Project on e-Governance. FIRE III partnered with Price Waterhouse Coopers to develop four design modules to roll out e-Governance in a phrased manner. The modules included process reengineering, standards for e-Governance, technical guidelines, implementation framework, and rollout mechanisms.

The municipal component is affecting the 423 largest cities during the first phase; it impacts up to 55% of India's urban population (16 million people) by increasing efficiency, transparency and citizen relations within local government. FIRE III contributed significant resources to this effort through feasibility assessment and project design; and in return, the Indian Government pledged $263 million for phase 1 implementation. Despite significant implementation costs for the Indian Government, computerized and web-based government services produce enormous benefits, including improvements in the following: tax and utility fee payments; building registrations and permits; municipal accounting; government information management and procurements; data sharing and public information; and grievance redress.

- Similar projects suggest that municipal revenues will increase by 25% each year for the first three years due to ease of tax and fee payments. Phase 1 cities will see revenues rise by more than $3.6 billion.
- Reduced wait time for services will produce further increases in municipal savings along with higher staff productivity and improved city management. Anticipated savings from increases in efficient city management are $155 million per year for all 423 cities included in phase 1. With appropriate discounting, future estimated savings will more than offset the implementation costs.
- The project will stimulate over $16 million for local businesses contracted by the government to help implement the phase 1 start-up.

Through call-centers and neighborhood service-centers, the project provides the poor with access to e-government services and information.

3.3.3 Lessons Learned

- Set clear goals and orient project development to achieve these goals. The project objectives need strong support and commitment from key stakeholders and the public at large.
- Base project structures on market conditions to achieve commercial viability and long-term sustainability. Combine normative goals with an assessment of market conditions to define the design concept. Ensure market demand and emphasize good project economics.
- Include all segments of the population, including the poor, in project design. Most people value improved urban services. The poor are usually willing and able to pay for services, although special considerations need to be taken, including flexible payment mechanisms, minimum tariff categories, and alternative legal arrangements for delivery.
- The optimal institutional arrangement and delivery system is based on local issues, like politics, regulation, legal enactments, and historical system performance. The prefeasibility and feasibility studies should convey helpful information about the appropriate project structure. The best institutional arrangements seek to mitigate risks while improving service delivery. Select a project structure that allocates risks to the parties best suited to manage them.
- Commercial viability means that O&M and capital costs are fully funded without jeopardizing service quality, customer coverage, or environmental protection. Ensure financial sustainability, and supplement project cash flows with alternative revenue sources. Finances have to be analyzed up front so that there is time to pursue necessary reforms and mobilize resources as appropriate.
- Incentivize management and delivery of services by utilizing contracts more effectively, and by strengthening institutional accountability and professionalism. Introduce competition where possible.

3.3.2 Constraints and Solutions

The process for improving municipal services has not universally translated to better environmental infrastructure across India because the traditional government institutions that deliver services are financially weak and politically ingrained. This is changing slowly with several landmark demonstration projects by FIRE III as well as other donors. With application across multiple sectors, the FIRE III development process should become a mandatory training component for all municipal and state officials[14]. This is not to say that officials will be able to, or even should, undertake all the planning, financial analysis, or market studies in-house, but the process should be well understood by all.

Funding Project Development for Improved Services

- Project development is relatively long and costly compared to the traditional approach (3%–5% of the total project costs). For large-scale projects, however, it is not a relatively huge cost. Still, project development is an up-front outlay that few investors will fund. Local governments may find it difficult to allocate the necessary amount from annual budgets. The FIRE (D) Project has supported institutional structures, namely, the national pooled finance fund and state-level infrastructure funds that include project development grants. However, these are not widely utilized to date. They need better integration into the infrastructure development process, although this may be difficult unless commercial viability is a main objective moving forward.

Better Regulations

- Environmental regulations need stronger enforcement mechanisms to drive investment in water, sewerage, and solid waste management. According to government estimates, only 63% of sewage in cities is collected. Two-thirds of all sewage is then released untreated into rivers, which has contaminated 75% of all surface water in the country.[15] In most cities, collected solid waste continues to be dumped in open pits. Although the environmental costs are staggering, it will remain a problem until a robust regulatory system is in place to regularly monitor performance and enforce better standards.

Professional and Accountable Management

- Without a commitment for professional and accountable management of urban services, developing projects in a commercially viable format will be a wasteful exercise. This is why improvements in urban financial viability are prerequisites. Performance monitoring, cost accounting, human resource development, and financial strengthening are all necessary inputs for building efficient organizations. Public accountability and regulatory oversight channel public demand for improved services. Over time, revisions in user charges have to

14 The FIRE (D) Process is found at www.urbaninfrastructureindia.org
15 Central Pollution Control Board, India, 2009.

build financial sustainability commensurate with improvements in service level and efficiency.

Pro-Poor Orientation

- Social inclusion and services for the poor should be approached in a city-wide and systematic manner. Although special assistance is necessary for the poor, infrastructure expansion into slums should be integrated into larger projects so that market demand analysis, supply augmentation, and financing can all be coordinated effectively. As necessary, use output-based aid, targeted subsidies, microfinance, and water-sanitation-hygiene education programs. (See Objective 4. below for a summary of FIRE III activities in this area).

3.4 High-Level Objective 4: Increased Access to Water and Sanitation Services by Urban Poor.

Previously, increased access to water and sanitation for the urban poor was part of High Level Objective #3. In 2009, it was elevated to become a new high-level objective for FIRE III (covering the final two years of the project), during which separate results were captured and recorded. Nevertheless, the key activities listed in this section cover a summary of all major pro-poor activities under FIRE III. The major activities with recorded results are Bhubaneswar and Dewas slum upgrading projects, while previous activities also took place in Sangli and Agra, among other locations.

3.3.1 Methodology

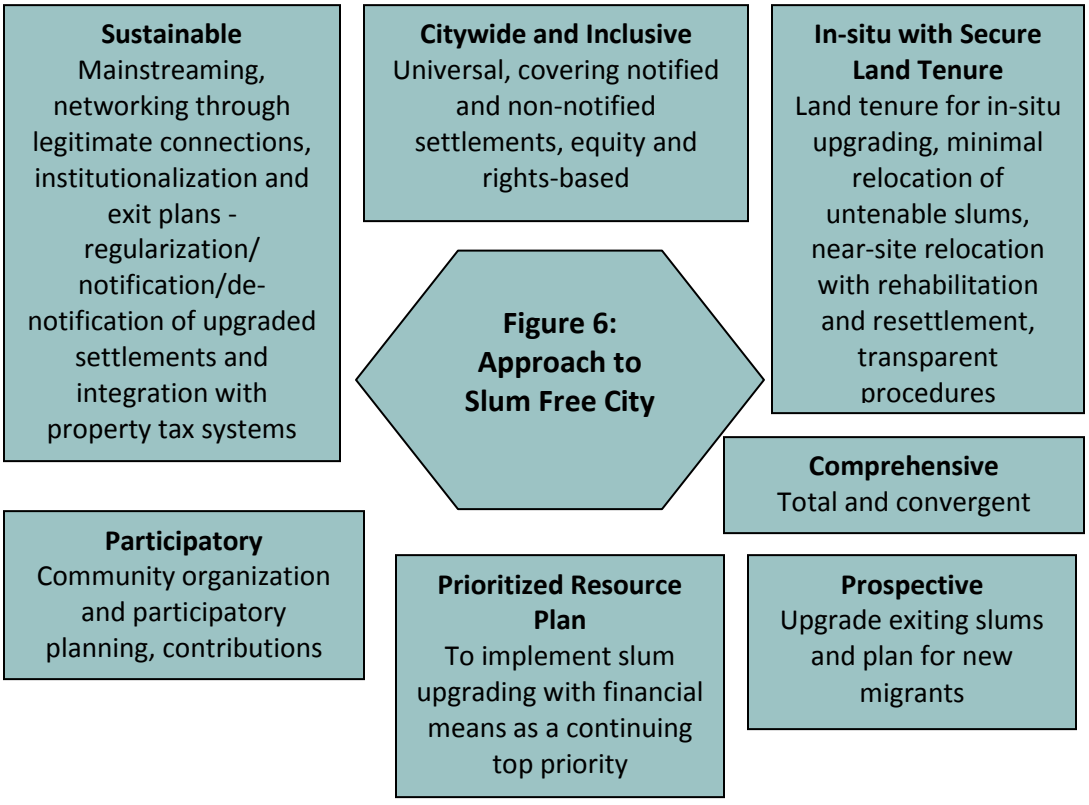
Vision and Aproach

The Government of India (GoI) would like all cities to become slum free by 2020 by promoting inclusive urban development. This has forced cities and states to create slum upgrading plans and begin implementation. FIRE III has been one of the lead organizations in this initiative.

Box
Slum Upgrading in Bhubaneswar: Vision 2020
Every slum family has a legal and pucca house actualized with minimum relocation; a house where they can live and work, and sell; a house with private municipal services and access to schools, health care, food security and social security; and a City where every poor family who migrates to the City gets access to affordable rental or for-sale housing with basic services.

FIRE III adopted a multi-pronged approach to building and maintaining slum-free cities with the following principles (Figure 6):

- **Citywide and Inclusive**: All slums in the city are included, both authorised and unauthorised, through a phased and incremental manner, mainstreamed with city services for legitimate and equitable development.
- **In-situ Upgrading with Secure Land Tenure**: Promote in-situ upgrading of all tenable slums through appropriate land tenure arrangements. Relocation should be minimised and determined through a transparent process.
- **Comprehensive**: The development process should converge all essential components for sustainable poverty reduction.
- **Participatory**: Slum communities need to be organized and federated so that they have a strong voice in the process of planning, implementing, monitoring the upgrading process.
- **Sustainable**: Sustainability is ensured through mainstreaming, integration, and institutionalization within regular city systems.
- **Prospective**: Consider both existing slums as well as new migrants who could potentially form new slums if affordable housing and services are not adequately created.
- **Prioritize**: Use scarce financial resources to the maximum effect through a priorization process.



In-Situ Upgrading or Redevelopment with Basic Municipal Services

The focus of FIRE III is improving municipal services, with emphasis on water, sanitation, and health. As a result, the fundamental premise for slum upgrading is that all slums shall have access to basic municipal services of water, sanitation, power, roads, transport, etc. on an equitable basis relative to the entire city. At the same time, a comprehensive slum upgrading strategy (that GoI is promoting) needs to integrate many other issues and coordinate the activities of each. The reason is that significant community development has multiple pillars. If an implicit goal is transforming the slums into healthy neighborhoods, significant weight in the following will be required:

1. Public health and environmental infrastructure
2. Housing and land security
3. Transportation and other infrastructure
4. Education and training
5. Healthcare
6. Livelihood activities and local economic development (LED)
7. Welfare and other social services

Although there are other important issues, these have been useful categories to guide a comprehensive strategy. A healthy and vibrant community needs access to jobs both locally and around the city. Workers need to commute to those jobs with relative ease. The community needs to be safe and clean with a positive physical and social living environment. Housing configuration has important implications to the overall built environment and social networks. And the community needs the opportunity and incentives for a better future. In this regards, education, healthcare, wealth creation and welfare services are crucial elements. With these issues interlocked, foundations of a sustainable and improving community emerge.

A comprehensive approach that addresses each of these issues takes intensive planning, coordination and attention to phasing. For example, it would not make sense to build new housing before underground infrastructure extends to the location or without having qualified tenants or homebuyers. In terms of phasing and addressing the issues comprehensively, all available resources are mobilized at the local and higher levels. Slum communities have significant human and even financial resources when pooled together. Therefore, a comprehensive approach develops optimum mechanisms to catalyze this latent potential. From a financial perspective this would imply both outside leveraging resources and improving the efficiencies of money flowing through the communities. The poor need access to local banking and microfinance centers that are partners in this strategy and will institutionally help to recycle money within the community.

One important FIRE III methodology for city-wide slum upgrading connects these issues, as follows:

1. Review City Development Plans. The city-wide strategy begins with CDP review, since it provides important analytical information of the overall city such as demographics, economics, finances and environment. It also articulates a vision for the city and identifies priority projects where current and future efforts will be directed. It offers a good starting framework because local government already endorses its content.

2. CDP and JNNURM update. It is important to understand where the city is in terms of project preparation and CDP implementation, including mandatory reforms and DPR submission. Through discussions with the municipal staff, the team learns what the anticipated phasing and management of CDP projects are and how the projects specifically relate to slums communities. Does the city have an explicit pro-poor strategy that will be rolled-out in the CDP projects? Or, are the slum/poor areas considered a separate issue? In this activity, it will also be important to better understand project affordability and the planned financial programming of CDP projects. Any comprehensive slum upgrading will have serious costs and therefore will need to be analyzed relative to other commitments/obligations.

3. Data collection and stakeholder identification. Often, many groups, such as local government, NGO's, donor agencies, and private businesses have programs addressing pro-poor issues. Likely, all the relevant groups do not talk to one another regularly or coordinate their activities. Through small group meetings and a stakeholder workshop, all the activities are mapped with the ultimate goal of linking them in more productive and strategic ways.

At the same time, other characteristic data gets collected, such as the demarcation of slums, their legality, the basic composition and proximity to other urban assets like transit nodes, hospitals, government offices, educational institutions, markets, etc. Ideally, this information can utilize the mapping software and databases that the city is establishing as part of the mandatory property tax reforms.

4. Stakeholder workshop #1. A stakeholder conference early in the process helps explain the initiative. The process for planning and implementing the slum upgrading initiative will be discussed. During this conference, it will be important to discuss what each stakeholder group is responsible for during the planning process and what the key data inputs will be. From this a household survey will be designed to capture all the relevant slum information.

5. Community planning begins. The NGO responsible for community participation begins working with the residents to explain the objectives and process, as well as solicit their goals and aspirations. This can be accomplished in larger community meetings (e.g., in Bhuj FIRE II

conducted productive community meetings with a thousand people) or smaller focus groups (if there are women's groups, trade guilds, etc.). The NGO will then conduct household surveys of statistical significance across geographic and demographic fields. The NGO inputs the findings into a constructed database for analysis. Possible data queries include:

- Household composition
- House size, type, living conditions
- Access to infrastructure and services (including cost and quality questions)
- Household income and various job types
- Proximity to jobs and hours spent in/out of house
- Transportation modes
- Education levels
- Health information
- Perception of crime and safety
- Perception of local government
- Aspirations

6. Gap analysis and activities list. At the same time the NGO is conducting household surveys, the technical experts examine the current and proposed activities in relationship to slum upgrading. What are the constraints and what would be needed to extend services into poor areas? Sector analysis includes water, sanitation, solid waste management, transport, electricity, banking, hospital, government (e-gov) community offices, etc. This would be an opportunity to ask private sector partners what level of development or government commitment would be needed for them to feel comfortable engaging (e.g., real estate developers, construction companies, utilities, banks, etc.). The private sector also has a good sense of the economic needs of the city and employment trends. What employee skills or secondary services do the growth industries in the city require? How is government facilitating economic development? What resources or institutions are available for training the workforce? Inputs to be collected are:

- Property data
- Infrastructure and service networks
- Local economic development & business diagnostic
- Education institutions
- Health institutions
- City markets
- Transportation networks
- Natural and environmental resources

(Is there any demand/consumption/market research data available for this city? What kind of data to market research firms in India conduct?) Data results from the household surveys will be compared to data collected from public and private stakeholders. The objective of the gap analysis is to understand the characteristics of city slums, and determine the assets and constraints to their upgrading.

7. Stakeholder workshop #2. The results of the gap analysis get presented to stakeholders through a workshop and to slum communities through community planning. Feedback on the gap analysis is vital as this is the basis for establishing development alternatives. The stakeholder workshop reviews the overall process, present the survey results, and discusses how the information will be used. This is also an opportunity to revisit the goals and aspirations of residents and stakeholders. The workshop and community planning meetings should culminate in soliciting development ideas from the participants. The team will discuss these ideas with the engineers and architects, who should also be present at the workshop and some of the community meetings.

8. Development alternatives. Based on the community assets, constraints, and specific goals of the city-wide slum upgrading initiative, the planning team will create a series of development alternatives that range from intensive redevelopment to limited intervention. Is it better to retrofit the existing slum buildings or redevelop some of them? This stage highlights ideas that would fit within the gap analysis context. As a result, urban designers, engineers and architects are engaged to conceptualize the alternatives.

9. Cost analysis and phasing. There may be 3-5 development alternatives of ranging in scope that could be implemented city-wide. But these all have varying costs and timelines associated with them. The planning team should have an understanding of these issues before presenting them to the stakeholders and communities. At this level, the team will not need to structure the finances but should be able to communicate the costing implications of each alternative. The options and costing should be vetted to the key stakeholders for comment including local government, potential development partners, banks, and donor agencies.

10. Stakeholder workshop #3. The planning team, including the architects will present the development alternatives to the stakeholders and community residents. The community discusses the pros and cons of each and provides feedback. The options may be narrowed down at this point, or a combination of features emerges as the most attractive.

11. Slum-upgrading strategy and financial structuring. The team incorporates the feedback from the community to modify the development alternatives— perhaps there is general consensus on the best alternative, or a couple of options remain the most salient. At this point, the team should explore, in detail, the costing and financial structuring of these selected options.

Layered finance will include city contributions, JNNNURM and other government programs, private sector participation, donor agencies, NGOs, user contributions, and capital markets. The stakeholders who specialize in specific aspects of the overall plan need to commit resources to this effort. These resources should be spelled out in the final plan.

12. Stakeholder Workshop #4. The planning team presents the revised options with the financial component and timeline phasing articulated. The stakeholders and communities discuss what the best option is and why. Both local government and slum residents have to endorse the plan. The planning team will develop a roadmap/policy document that outlines the steps and division of responsibility for implementation. Who will be the coordinating body to implement the strategy? Does local government have the capacity and staff to lead the effort? Perhaps a cell can be formed to carry out this coordinating role. The cell can begin the implementing process by translating the detailed plan into a DPR for submission.

3.4.2 Key Activities

Dewas MC Support: Water Supply Project for Slums

FIRE (D), in collaboration with DFID's Madhya Pradesh Urban Services for the Poor (MPUSP) project, supported the Dewas Municipal Corporation (DMC) to demonstrate how a city can build on enhanced citywide water supply from Government of India's UIDSSMT to provide improved access to about 16,000 poor residents of 9 priority MPUSP slums. FIRE III initially carried out a reconnaissance survey and feasibility study, which prioritized nine of the most underserviced slums in the city. The study placed the slums on a citywide map, and then assessed the closest, most efficient water source for each slum. After getting the go-ahead from all concerned parties, FIRE III carried out topographical surveys of the nine slums, prepared detailed engineering designs, and costed the corresponding water and sewerage networks. FIRE III partnered with Hydropneum Systems of Pune for the topo surveys and Acute Consulting Services for the design of the infrastructure networks.

On request from the project partners, FIRE III expanded its engineering work to another 4 slums, and incorporated additional infrastructure that would be necessary in a more comprehensive slum upgradation program, such as household/community toilets, roads, street lighting, and drains. By the end of FIRE III, the DMC has almost finished construction in the first 4 slums, with the capital costs being paid by DFID MPUSP. At the same time, FIRE (D) conducted a "household toilet survey" in those initial four slums so that the DMC can access funding from GoMP to construct household toilets and link the households with the new sewerage system currently being laid.

Water, Sanitation and Health Initiative in Bhubaneswar (Orissa)

FIRE (D), with its local partners BISWA, PHEO and the Bhubaneswar Municipal Corporation, is implementing a slum upgrading pilot, which focuses on improving water, sanitation and health

services for slum dwellers through the provision of legal, piped infrastructure connections and toilets and baths construction at the household level in 7 slums. This effort is accomplished through participatory planning with the communities, engineering designs of infrastructure extensions, grant funding for site infrastructure construction from the Michael and Susan Dell Foundation (MSDF), and microfinance for household improvements like toilet construction and fees for legal service connections (water & sewer). To complement this initiative, the team conducts livelihood enhancement training, forms community savings groups, and provides affordable family health insurance.

The team finished the construction of infrastructure and household toilets in the first slum, Gyananagar: 35 household toilets connected to the sewers and 56 households received legal water connections. This covers over 100% of the population with water and 80% with sanitation (some houses share the services). PHEO sanctioned the water and sewer connections for all households participating in the project. A formal "connection" ceremony took place, with participation of the Chief Minister of the State. Meanwhile, construction is underway in the second slum Kapileswar, and the third slum, Baragada, will commence later in the fiscal year.

At the beginning of 2010, with the success of this pilot, PHEO decided to replicate the approach on its own, first in the Bharatpur slum cluster (2 settlements). Bharatpur had access to underground water infrastructure, but no household was connected to the service. PHEO offered "on-the-spot" connections to all those households who were willing to pay (no microfinance in this case). Between July and September, PHEO repeated the practice in 46 locations (not necessarily slums), and 260 below poverty line (BPL) households received water connections. These new PHEO customers are counted below (4^{th} Quarter) toward achieving FIRE (D)'s target for FY2010 for increased access to water by the urban poor. PHEO also started connecting informal markets to the water system as a result of FIRE (D)'s policy support for simplifying the connection rules. As a pilot, informal market vendors, who do not have tenure rights, have been permitted to connect to the network: 798 vendors immediately applied for water connections, and these beneficiaries are also counted as 4^{th} Quarter results. This marks a major milestone, and FIRE (D) hopes it will be extended to residential properties soon. Another aspect of the reform was decreasing the water connection fees from Rs. 3,060 to Rs. 500 for households with BPL cards. In the end, sewer connection fees were not reduced from Rs. 1,500, although this is anticipated to be approved shortly by the State Cabinet.

The first draft of the citywide slum upgrading strategy is complete, and as part of it, FIRE (D) identified two additional studies that would significantly benefit the work. FIRE (D) finished these studies, which included a tenability assessment (whether the environmental conditions of a slum are significantly life threatening), and a tenure assessment (who actually owns the property where all the slums are located). The BMC expressed strong interest in these studies as well as the draft citywide strategy (which the city is currently reviewing). From this work, FIRE (D) is

helping BMC start implementing the strategy in 4 slums; the support includes necessary planning steps, such as household surveys, community mobilization, and situational analysis for site improvements.

Pro-poor strategy and policy in the State of Karnataka

The Government of Karnataka (GoK) implemented several initiatives to provide better facilities to the urban poor in the state, including public stand posts for water supply and community toilets for sanitation. Initially, FIRE III began to dialog with the GoK on how this initiative could be supported and ultimately expanded. FIRE III began drafting a new policy that focused on improving urban services for the poor. This directly linked to Bangalore Water Supply and Sewerage Board's (BWSSB) efforts to increase the poor's access to water and sanitation using more innovative strategies to reach disadvantages communities. FIRE III helped design several aspects, such as lifeline tariffs, delinking land tenure from connections, encouraging shared household connections, and allowing weekly small payments instead of lump payments each month. This initiative will eventually bring 100,000 water connections to households in 362 recognized slum settlements throughout Bangalore (in conjunction with FIRE (D)'s GBWASP activity).

In 2005, FIRE III assisted the BWSSB in writing a proposal to Cities Alliance for technical assistance for this project including support to NGOs, workshops, surveys, documentation and dissemination. Cities Alliance agreed to almost US$500,000 for technical assistance, while JBIC agreed to lend US$12 million to develop the infrastructure of a resulting project that would be viable and focused on the poor. The City Managers' Association of Karnataka was the nodal agency contracting with Cities Alliance and initiated several activities under the agreement, such as organizing a study tour to Mumbai and Ahmedabad—two leading cities in slum upgrading. In addition, a pilot within the city center resulted in 7,500 beneficiaries gaining access to community toilets.

Shortly after FIRE (D) submitted the draft pro-poor policy, the state government was suspended. New elections occurred in May 2008, but the new Government has not prioritized moving the pro-poor policy forward by project close.

Community-led toilet project in Sangli Mivaj Kupwad Municipal Corporation (SMKMC)

FIRE III supported the *Citywide Community-Led Sanitation Program* in Sangli, Maharashtra in partnership with Sangli-Miraj-Kupwad Municipal Corporation (SMKMC), Shelter Associates (SA), an NGO and Bandhani, a local Community Based Organisation (CBO). The initiative assisted 3,500 urban households in twelve slums gain access to sanitation services. Significant improvements in personal and environmental health benefited Sangli's most disadvantaged and marginalized communities.

The Sangli model emphasizes individual toilets where feasible, and also demonstrates sustainable management structures for community toilets which can potentially be replicated elsewhere. The financial structuring utilizes donor and public funding to ensure affordability for households who are investing their own resources. Access to improved sanitation facilities provides immediate and powerful results and serves as an effective entry point for further slum up-gradation.

FIRE III conducted physical surveys of the selected slums, worked with slum communities to prioritize their needs and desired interventions, coordinated with the local NGO to design the most appropriate intervention project, designed blueprints for both community block toilets and individual toilets, and assessed the feasibility for incorporating environmentally technologies that would transform waste into cooking gas.

Crosscutting Agra Project (Uttar Pradesh)

The Crosscutting Agra Project (CAP)—an initiative of the Agra Municipal Corporation in partnership with USAID FIRE (D), private sector, NGOs and CBOs—aimed improve the urban poor's access to sustainable livelihoods and adequate sanitation services. CAP was strategically set around a heritage trail of four lesser-known monuments in the city with several low-income communities in its neighborhood. The CAP experience has highlighted the need for multi-stakeholder partnerships led by local government for achieving success in pro-poor service delivery. The process also highlights the importance of community participation at every stage of program development. The program has demonstrated that access to basic services and livelihoods for urban poor can be sustained by integrating low-income settlements with city-level infrastructure and economy.

The FIRE III team and consultants worked on the three main components, including community mobilization, solid waste management and sanitation, and the development of a heritage trail. The strategy was to mobilize slum communities by first working forming women groups on small neighborhood improvements and through livelihood training. Five women groups formed with more than 100 women participants. The groups have worked toward making decisions on community-based self-help initiatives for sanitation as well as microenterprises (such as sewing businesses). Building upon this, the FIRE III team launched a solid waste management activity to promote specific zero-waste zones, house-to-house waste collection (another microenterprise), and community composting sites. Third, the project is helping with the development of a heritage trail to encourage socially-minded tourism. Activities specifically related to the trail include area improvement with signage, street furniture, training tour animators, coordinating with the local tourism guild and others to promote the walks, and the development of walk leaflets for self guided tours. The effort had initial success and has the potential for becoming self sustaining over the long term.

Nagpur Slum Upgrading (Maharashtra)

As a part of FIRE III's efforts to support implementation of JNNURM, FIRE (D) helped the Nagpur Municipal Corporation (NMC) obtain technical assistance from the Cooperative Housing Foundation and the Self-Employed Women of Ahmedabad (CHF-SEWA) in November 2006. Together the NMC and CHF-SEWA prepared a detailed project report for slum upgrading under JNNURM. During the initial months of 2007, CHF-SEWA assisted NMC to: 1) develop a strategy for Nagpur's 124 slums to access funds from JNNURM; and 2) based on the strategy the team developed a detailed project report for 15 selected slums. The project was approved by HUDCO and the GoI for funding under JNNURM and is still under construction as of 2011.

Related Training Activities

FIRE III training support for India's urban sector has been provided to various institutions and entities at national, state and local levels. Many of these trainings have been in coordination with USAID and the National Institute of Urban Affairs (NIUA), which is responsible for this function on behalf of the Government of India. FIRE III Training activities related to this High Level Objective have included:

- *Operationalizing Rajiv Awas Yojana (RAY) Workshop*
  Attendees: 50 (Women 15/Men 35)
  Funded by CEPT, Ahmedabad
  Discussed updates in the RAY scheme for slum upgrading (Ministry HUPA). Expert panel discussed the best ways to implement RAY, based on current experience. FIRE (D) presented the experience from Bhubaneswar.
- *Citywide Strategies for Slum Upgradation Workshop*
  Attendees: 40 (Women 15/Men 25)
  Funded by NIUA, Cooperative Housing Foundation
  FIRE (D) presented key elements from its experience in Bhubaneswar, Orissa, on successful startup of citywide slum upgradation under GoI's Rajiv Awas Yojana.
- *International workshop on scaling up slum upgrading and affordable housing interventions*
  Attendees: 50 (Women 20/Men 30)
  Funded by the World Bank
  Examine important themes that are relevant to the GoI proposed Rajiv Awas Yojana (RAY) mission for improving the lives of the urban poor and envisioning a slum-free India. Discuss how slum upgrading efforts can be scaled-up for citywide interventions and a countrywide framework.
- *Roundtable on Agra's City Development Strategy II, implemented by CURE*
  Attendees: 15 (Women 2/Men 13)
  Funded by Cities Alliance
  Discuss roles of each stakeholder in Agra's City Development Strategy II, which focuses on improving the lives of the urban poor in the city.

- *U.S. Ambassador Timothy Roemer Visit to FIRE (D) Pilot Project*
  Attendees: 300 (Women 160/Men 140)
  Funded by USAID (partial)
  Following a brief orientation by FIRE (D), Ambassador Roemer toured FIRE (D)'s WSS pilot upgrading project in the slum settlement of Gyananagar, where he interacted with the community while testing individual water connections and inspecting HH toilets both of which have been connected to Bhubaneswar's citywide water and sewerage networks.
- *Presentation of FIRE (D) Bhubaneswar Citywide Slum Upgradation Strategy*
  Attendees: 22 (Women 7/Men 15)
  Funded by USAID
  FIRE (D) presented the salient features of its Bhubaneswar Citywide Slum Upgradation Strategy to a select group of BMC officials and corporators, which was followed by a spirited Q&A session.
- *Workshop on GoI Rajiv Awas Yojana (RAY) Scheme*
  Attendees: 48 (Women 15/Men 33)
  Funded by USAID (partial)
  As a demonstration of its linkages to GoI's recently launched RAY scheme, FIRE (D) presented its comprehensive citywide approach to slum upgradation in Orissa, including its City Slum Profile of all Bhubaneswar's 377 slums; pilot WSS upgrading project, in partnership with Dell Foundation, local NGO BISWA and USAID; phased Citywide Slum Upgradation Strategy for all the city's 377 slums; and tenability assessment of all slums.

3.4.3 Lessons Learned

Guiding factors for framing a strategy. Slum upgrading is extremely complex, and therefore benefits from a conducive enabling environment. It is worthwhile to highlight some guiding factors or considerations for framing a feasible slum upgradation strategy to increase the poor's access to urban services. Given that city-wide slum upgrading is expansive in scope and long term in nature, it is important to carefully consider local commitment and capacity—in particular, a 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. Depending on how prevalent these underlying considerations are, the choice of invention varies. See the below table, taken from analysis in Bhubaneswar, to illustrate this point.

Comparing Intervention Types: Summary of Current Models Considered in Bhubaneswar

	Intervention	Example	Pros	Cons
1.	**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
2.	**Incremental upgrading *in-situ***	FIRE (D) project pilot	Brings regular services into slum; encourages self-investment	Takes time; neighborhood design uneven and not ideal
3.	**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
4.	**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

3.4.4 Constraints and Solutions

Inadequate Information Base. *Few cities know how many slums exist, where they are located, or what their characteristics are. The 2008 USAID FIRE (D) assisted a survey that, for the first time, geo-mapped and profiled all 377 slums in Bhubaneswar. Such a listing entitles a slum to basic municipal services, even if they are essentially illegal/encroaching on public lands.*

Lack of Tenure or Legal Right over Land. *Land tenure, of all the constraints to slum development and upgrading, has been the most critical. Slums, barring those having with rights of residence certificates, are encroachments on public or private lands. These lands are not necessarily residential in nature or owned by one entity. This can make on-site development very challenging, particularly if departments such as forests, railways, airports, etc. own the land because each has very specific rules with regard to use and disposition.*

Tenability of Slums. *Tenability of land is the safety or environmental risk of the land where slums exist. Local agencies are only able to deliver services on sites that are considered tenable, i.e., where residents can live for some foreseeable future without any danger to their lives. Slums on lands that pose risks to the lives or health of people are considered untenable and difficult to develop on site. FIRE III established objective criteria for measuring tenability, from which strategies for mitigating the risks can be created.*

Fragmented Approach to Slum Development. *Few city agencies have enough capacity for service delivery in slums because the diverse, yet requisite skills are spread out to many offices and institutions. This fragmentation, as well as limited strategic planning, is problem across all types of municipal services. The decentralization initiatives of GoI and FIRE (D) have had the goal of strengthening local government authority and accountability to lead this.*

Lack of Community Participation and Bottom-Up Planning. *Community participation is recognized as critical to sustainable slum development and has been practiced in the delivery of livelihood programs more often than slum upgrading. There is very little understanding on how to accomplish community participation at scale for planning, implementation and management of citywide upgrading activities.*

Resource Constraints. *Cities lack sufficient resources for sustainable upgrading of all slum settlements in the City. As slums continue to grow, projecting and accessing resources for their development becomes challenging. Slum upgrading has to become a higher priority for municipal budgets, even as increased grant funding flows from the GoI. Since there is limited examples of PPP arrangements in slum upgrading, FIRE III has worked with private sector partners and other donors to increase investment into this sector.*

Organizational Capacity. *Slum upgrading at the city scale requires an understanding of and a broad range of skills sets for ground level implementation. Besides the ability to work with communities, local governments require technical skills in the sectors of water and sanitation, urban planning, financial planning and management, information technology, etc. Presently most cities have small slum upgrading department with limited community mobilization capability.*

SECTION FOUR
ACHEIVEMENT OF FIRE III OBJECTIVES

4.1 End of Award Achievements

FIRE III Achievements based on Life of Project Targets

The table below summarizes the "Life of Project Targets" and "End of Award Cumulative Achievements" of FIRE III High-Level Objectives. Note that for High-Level Objective "1.a" there was not an overall target for the life of the project. Other notes on targets are indicated below. For definitions, see Annex B. For yearly FIRE III targets and achievements, see Annex C.

High Level Objective	Life of Project Target	End of Award Cumulative Achievement
1.a. Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments.	N/A[16]	80.86% Average yearly Increase
1.b. Own source resources raised. *(Billion Rupees)*	22.5[17]	140.714
2. Increased municipal investment in urban environmental infrastructure in selected municipalities. *(Billion Rupees)*	5.35[18]	25.552
3. Number of men and women that benefit from increased access to water and sanitation in targeted municipalities. *(Number of men and women)*	1,222,882	1,711,962
4. Increased Access to Water and Sanitation Services by Urban Poor.	2,706	8,026

Analysis of Significant Variance (+/- 10%)

High Level Objective 1.a. Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments.

Analysis: *This objective only had a target for year 2006, so no analysis of variance can be made over the life of project.*

High Level Objective 1.b. Own source resources raised. (Billion Rupees)

Analysis: *This objective only had a target for year 2010, which was Rs. 22.5 billion. As a result, an overall analysis of variance cannot be made for the life of project. However, if Rs. 22.5*

[16] *No life of project target*
[17] *Target only for 2010*
[18] *Target only for 2005, 2006, and 2010*

billion was projected as a targeted for each year of the project, then the overall increase in own source revenues would be anticipated at Rs. 135 billion (22.5x6 years). This would be less than a 10% variance from actual results of Rs. 140.7 billion.

High Level Objective 2. Increased municipal investment in urban environmental infrastructure in selected municipalities. (Billion Rupees)

Analysis: *This objective did not have a target for years 2007, 2008, or 2009, so no analysis of variance is made over the life of project. Still, the amount of investment is very high, predominately due to central government funding under JNNURM. This program has increased grant funding over significant levels prior to 2005. The other major factor is the escalation in cost and scope of several projects, particularly Bangalore GBWASP. Many FIRE-assisted cities have now identified the fast-paced growth in populations and high demand for services. As a result, they are investing more in their ongoing (as well as new) projects.*

High Level Objective 3. Number of men and women that benefit from increased access to water and sanitation in targeted municipalities. (Number of men and women)

Analysis: *This objective achieved results 140% over target and therefore represented a significant variance. The magnitude of variance for this objective is largely due to institutional reform initiatives, such as Orissa's water sector reform. Since this was not a new infrastructure development project, it was very hard to anticipate the number of new beneficiaries that would result from better management and governance (e.g., better customer service and more professional work environment). Secondly, the regional landfill in West Bengal generated beneficiaries faster than anticipated. The cities were able to extend solid waste management services to the majority of the populations within a few years. In general, this service is easier to mobilize. At the same time, the comprehensive approach that FIRE III took to improving solid waste management showed to be very efficient.*

Until recently, the Bangalore GWASP activity has far exceeded the projected results because the city continues to grow rapidly and government officials have responded with increased levels of investment in water. The city has also received much attention from other donors, like JBIC, the World Bank, and ADB, which has generated additional investment into service delivery. The policy to encourage household connections has been received very favorable by the city's residents, as demonstrated with the willingness to contribute connection fees before construction even took place (first time in India).

High Level Objective 4. Increased Access to Water and Sanitation Services by Urban Poor.

Analysis: *This objective was only measured for 2 years. In 2009, the target of 706 was not reached due to the fact that FIRE (D) was still developing its plan for implementation in 2010. The time spent following the methodology and developing an appropriate pilot resulted in access to 8,026 urban poor or 297% over the target of 2,706 (2009 and 2010). This shows that there is considerable willingness and ability to pay for water and sanitation services among the urban poor in India and that with more time, and additional scaling up and refinement, this approach could prove to have strong development impact.*

4.2 Results of FIRE III High Level Objectives

4.2.1 High-Level Objective 1: Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments.

The FIRE III Project made considerable progress against the USAID/India Strategic Objective (SO) 13, "Increased transparency and efficiency in the allocation and mobilization of resources in selected states". The findings for Intermediate Result 3.1 "Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments" are discussed below.

As shown in Table 3 below, FIRE III was instrumental in increasing own source revenues in 12 ULBs in the states of Karnataka, Orissa, Maharashtra, and West Bengal. The cumulative **increase in own source revenues during FIRE III was over Rs 140 billion or more than US$2.8 billion as a result of the collection of revenues** from water, property tax, and other sources. Over the life of FIRE II, the compound annual growth rate achieved was 13%.

The need for resource mobilization was pinpointed during the CDP process, where FIRE (D) III supported the cities of Nagpur, Pune, and Bhubaneswar. In 2010, the cities increased their own source revenues by Rs 5.6 billion, Rs 14.6 billion and Rs 390 million, respectively. This also influenced their dependency ration (own source revenue to intergovernmental transfers ratio), which improved to 93.36%, 78.91% and 96.41%, respectively, compared to 91.67%, 90.08% and 27.97% in 2009.

More detailed resource mobilization work, including assisting with implementation, in Bhubaneswar, Asansol and Durgapur helped to increase revenues in all those ULBs. All three cities have had a significant growth trend in own source revenue during the past 5 years, although Asansol has tapered off in 2010 with Rs 139 million, down from Rs 152 million last year. Durgapur, however, continued its upward growth of 11%, generating Rs 240 million own

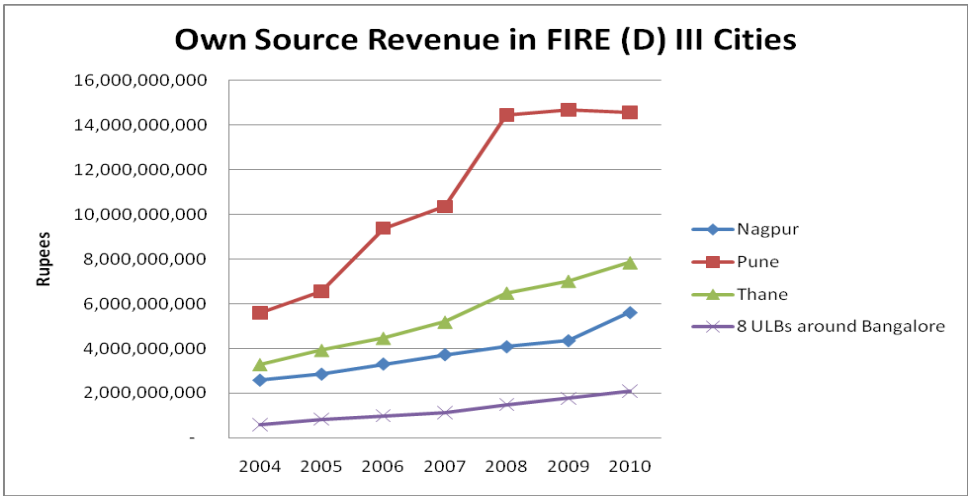
source revenues in 2010. The FIRE (D) support, which began in 2006, included improving financial sustainability through resource mobilization, financial assessments, coaching and monitoring. In Bhubaneswar, FIRE (D) worked closely with municipal officials to introduce a number of measures that increased own source revenues, especially property taxes.

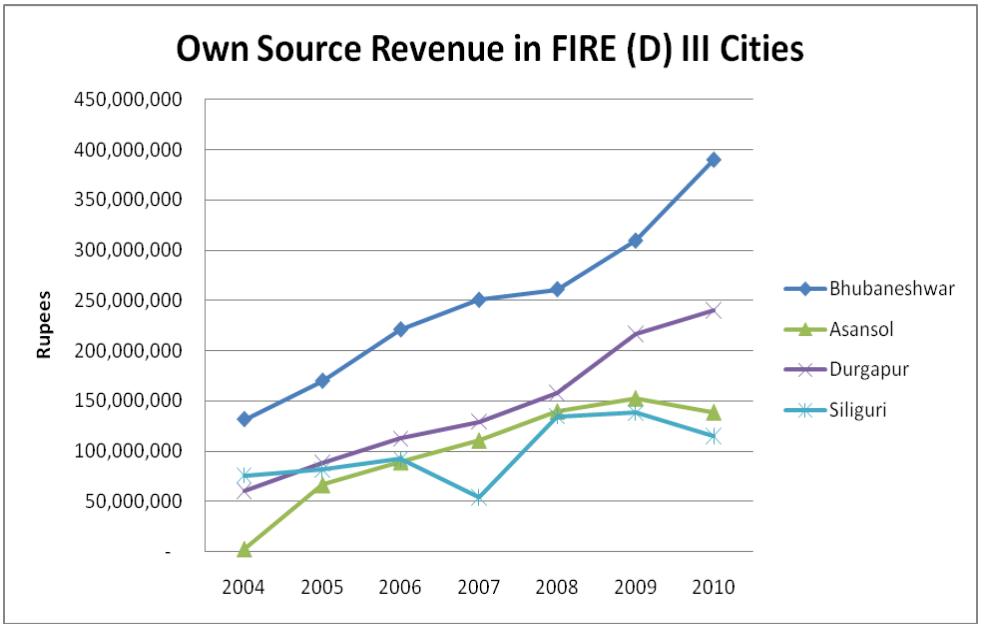
In Thane, FIRE (D) has helped to raise revenues of Rs 7.8 billion for 2010 (up from Rs. 7 billion last year) through improved financial management interventions that were recommended in previous years. With FIRE (D) support, Thane is implementing improved budgeting and costing measures, an accrual based accounting system, as well as better management information systems. Due to all this support by FIRE (D), Thane's good dependency ratio has continued to stay strong at 94%. Note that Thane and other Maharashtra cities still levy octroi which contributes to their strong own source revenue positions.

Table 3: Increased Own Source Revenues (Million Rupees)

ULB	2005	2006	2007	2008	2009	2010	Cumulative	CAGR
Nagpur	2,846.1	3,299.7	3,722.2	4,076.3	4,351.1	5,612.6	23,908	12%
Pune	6,559.1	9,384.0	10,350.0	14,447.5	14,673.7	14,553.9	69,968.2	14%
Bhubaneswar	169.8	220.9	250.4	260.9	309.3	389.9	1,601.2	15%
Siliguri	81.6	92.3	53.8	N/A	N/A	115.0	342.7	6%
Asansol	66.8	89.4	110.9	139.7	152.8	138.9	698.5	13%
Durgapur	88.2	112.6	129.4	157.7	216.9	239.9	944.7	18%
Thane	3,929.4	4,468.2	5,190.2	6,491.3	7,019.2	7,846.3	34,944.6	12%
Bangalore*	837.3	985.6	1,133.2	1,486.5	1,769.3	2,095.6	8,307.5	17%
Total	**14,578.4**	**18,652.8**	**20,940.2**	**27,059.9**	**28,492.3**	**30,992.1**	**140,716**	**13%**

**Consisting of the 5 merged ULB zones around Bangalore*





Own Source Revenues to Government Transfers

The final year of FIRE (D) III saw a slight improvement of the "Own Source Revenues to Government Transfers" (OSR to GT) ratio, previously called "Government Dependency Ratio" after several years of decline, due to JNNURM grants. This indicator is measured by calculating the OSR to GT ratio, which is determined by using the following equation:

$$\frac{\text{own source revenues + market borrowings}}{\text{own source revenues + market borrowings + government transfers}}$$

An increasing ratio demonstrates the ULBs self sufficiency from government resources and a result of 100% means the ULB is completely self sufficient. Overall, **the average OSR to GT ratio for the FIRE (D)-supported ULBs for 2010 was 81%, and the yearly average was 84.10% over the life of FIRE III (table 4 below).** After JNNURM is completed, we would expect these percentages to begin to increase more rapidly, demonstrating the ULB's improving self sufficiency.

Table 4: Ratio of Own Source Revenues to Government Transfers

ULB	2004	2005	2006	2007	2008	2009	2010	Yearly Average
Nagpur	89.56%	87.48%	84.54%	76.62%	87.28%	91.67%	93.36%	87.22%
Pune	93.36%	93.00%	93.52%	90.95%	82.23%	90.08%	78.91%	88.86%
Bhubaneswar	89.47%	93.13%	77.51%	67.72%	20.39%	27.97%	96.41%	67.51%
Siliguri	32.52%	29.38%	35.13%	39.41%	N/A	N/A	22.30%	31.75%
Asansol	48.41%	48.95%	35.74%	57.15%	56.43%	31.77%	29.21%	43.95%
Durgapur	48.10%	54.38%	65.20%	31.51%	29.07%	37.76%	40.32%	43.76%
Thane	96.20%	96.06%	95.76%	98.67%	97.09%	98.92%	93.85%	96.65%
Kengeri*	100%	100%	100%	63.11%	62.79%	51.42%	59.15%	81.60%
Rajarajeshwari*	100%	90.63%	88.90%					
Puram*	85.40%	92.86%	75.08%	80.90%	48.96%	46.59%	78.24%	78.14%
Mahadevapura*	91.84%	95.50%	86.05%					
Byataranpura*	81.24%	90.72%	100%	72.16%	45.07%	44.19%	67.10%	75.55%
Yelalanka*	71.18%	100%	83.87%					
Dasarhali*	71.76%	88.33%	82.03%	100%	27.09%	33.69%	42.40%	63.61%
Bamanahalli*	84.75%	96.01%	94.32%	66.72%	50.48%	45.24%	49.33%	69.55%
All ULBs	**94.83%**	**95.20%**	**90.00%**	**86.74%**	**79.28%**	**83.08%**	**81.39%**	**84.10%**

** Note- these ULBs merged to make 5 zones in 2008.*

4.2.2 High-Level Objective 2: Increased municipal investment in urban environmental infrastructure in selected municipalities.

Under FIRE III, achievement of the Strategic Objective 13 "Increased transparency and efficiency in the allocation an mobilization of resources in selected states" is measured by Indicator Three "Increased municipal investment in urban environmental infrastructure in selected municipalities." As shown in Table 5 below, total investment in infrastructure as a result of FIRE III initiatives was almost Rs. 20 billion **or more than US$403 million** at a compound annual growth rate of 49%. Of the total, 66% was invested in water systems, 27% in sewerage and 7% in solid waste.

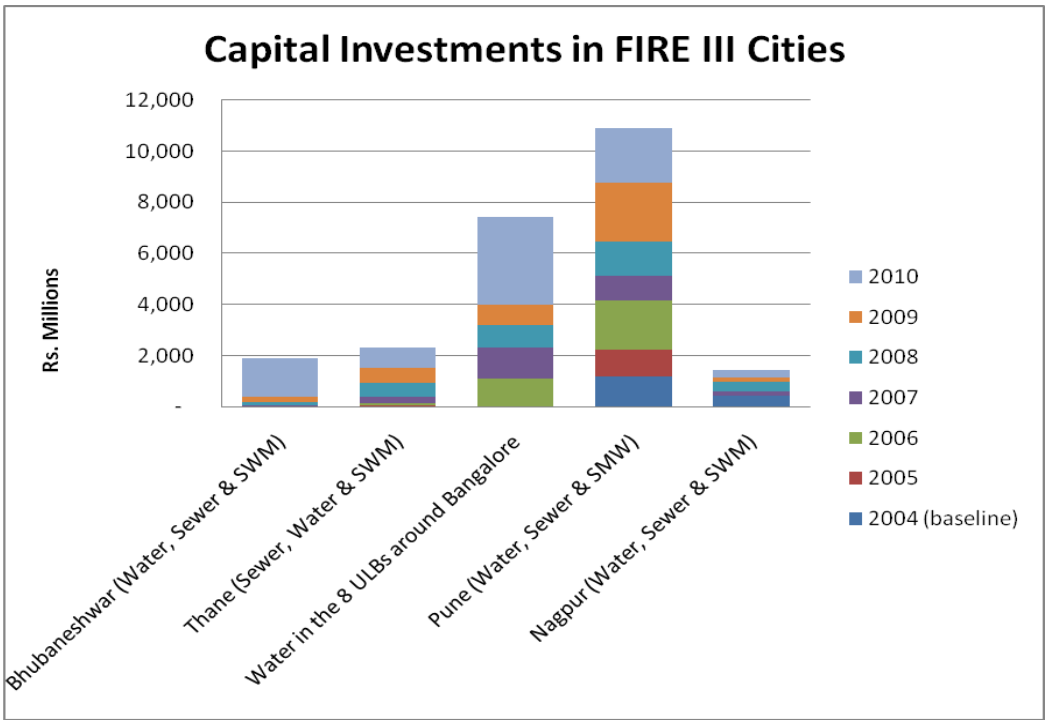
In the five recently merged ULB zones surrounding Bangalore, FIRE III improved and expanded water services by encouraging infrastructure investment. The project development and financing support that FIRE III provided for the Greater Bangalore Water and Sanitation Project (GBWASP) has brought tangible results- water reservoirs, pipes, and lines are built. Currently, 3,215 km of distribution pipelines have been completed, over a thousand kilometers more than originally envisaged. Ninety per cent of the feeder lines have also been constructed. The utility has also tendered the further distribution expansion required in 153 villages, which have been merged into the Bangalore metropolitan area. For 2010, GBWASP invested Rs. 3.439 billion in the water infrastructure, up from Rs. 797 million in 2009 and Rs. 635 million in 2008.

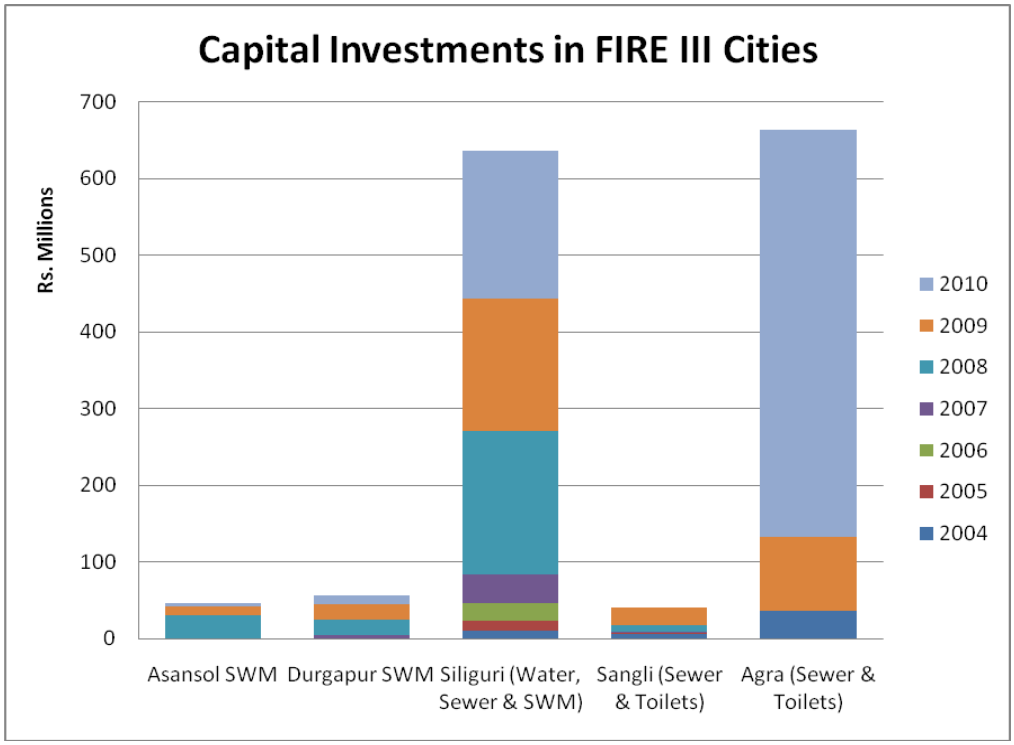
Asansol and Durgapur are implementing the FIRE III designed solid waste treatment system, including three 400 ton/day sorting and recycling facilities, a regional engineered sanitary landfill, and door to door household collection through community microenterprises and municipal workers. In 2010, Asansol and Durgapur together invested Rs. 16 million in solid waste management, on top of Rs. 31.3 million in 2009 and Rs 50.2 million in 2008. To date, total project investments are Rs. 97.5 million.

Table 5: Increased Municipal Investment in Water & Sanitation (Million Rupees)

ULB	2006	2007	2008	2009	2010	Cumulative	CAGR
Thane (Sewerage Water & Solid Waste)	93.4	255.3	528.7	616.8	759.4	**2,253.7**	**69%**
Bangalore* (Water)	1,121.3	1,178.7	634.9	797.0	3,439.1	**7,171.1**	**25%**
Asansol (Solid Waste)	.0194	0	30.7	11	5	**46.7**	**204%**
Durgapur (Solid Waste)	.612	4.5	19.5	20.3	11	**55.8**	**78%**
Siliguri (Solid Waste)	n/a	5.7	n/a	n/a	192.9	**198.6**	**102%**
Sangli (Sewerage)	n/a	1.5	7.75	23.6	0	**32.9**	**74%**
Agra (Sewerage)	n/a	.594	n/a	96	530.6	**627.2**	**289%**
Pune (Sewerage Water & Solid Waste)	1,919.7	986.8	1,326.8	2,315.1	2,150.1	**8,698.6**	**2%**
Nagpur (Sewerage Water & Solid Waste)	n/a	144.4	385.1	162.1	308.1	**999.8**	**16%**
Bhubaneswar (Sewerage Water & Solid Waste)	n/a	39.3	122.7	229.7	1,481.5	**1,873.4**	**107%**
Total	**1,215.3**	**2,616.8**	**2,773.3**	**4,271.8**	**8,877.8**	**19,755.2**	49%

**Consisting of the 5 merged ULB zones around Bangalore*



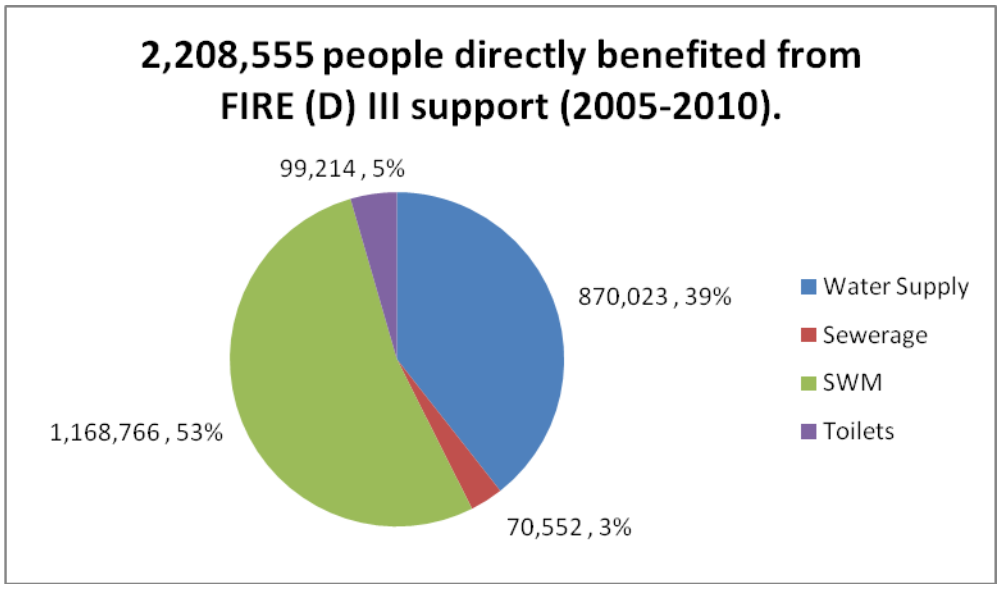


4.2.3 High-Level Objective 3: Number of men and women that benefit from increased access to water and sanitation in targeted municipalities.

In FIRE III, the USAID Strategic Objective (SO) 16 "Improved access to clean energy and water in selected states" is addressed through the Intermediate Result (IR) 3 "Improved urban water availability and sanitation in selected states." In order to measure the impact of the FIRE III project, information has been collected in regards to the number of men and women that benefit from improved access to water and sanitation in targeted municipalities.

Beneficiaries are still reported for FIRE's previous work in Pune and Bhubaneswar, as well as continued work in Bangalore on the GBWASP project. In Pune and Bhubaneswar, beneficiaries result from the City Development Plans (CDPs), investment planning, and resource mobilization work that FIRE III began in 2006. Specifically, in Bhubaneswar, there were 32,356 new people (19,090 men, 13,266 women) with access to water supply in 2010. In addition, the Bhubaneswar Municipal Commission is improving its sanitation services through a JICA project that FIRE III helped arrange. In 2010, 6,448 new people received access to sewerage. In Pune, there are 12,500 new beneficiaries with access to water and another 11,000 with access to sewerage. In the recently merged ULB zones around Bangalore, there are 195,430 new people (98,644 men and 96,786 women) with access to water supply due to the GBWASP project in 2010.

FIRE III has helped improve water, sanitation and solid waste management access to 2,208,555 people. Please see following chart for the breakdown by sector:



4.2.4 High-Level Objective 4: Increased Access to Water and Sanitation Services by the Urban Poor.

As noted above in Section 3, prior to the final two years of FIRE (D), this objective was effectively incorporated in High Level Objective #3. As such, many FIRE III results under High Level Objective #3 could be considered as achievements for High Level Objective #4 over the life of FIRE III. Because it would be very difficult to count those results retrospectively, the only activities that count towards High Level Objective #4 are in Bhubaneswar and Dewas.

For the years where this objective was independent from other objectives (2009 and 2010), the overall results achieved were 8,000 urban poor. The final two years of FIRE III exceeded the target of 2,760 by 276% due to strong stakeholder commitment in Bhubaneswar to scale up water connections for the poor. This highlights the potential impact to be achieved by successful demonstration projects that can be replicated across an entire city.

The community-based approach undertaken in Bhubaneswar yielded improved services to the slums, including the first slum in the city to receive household water connections. The effort also increased access 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 of the slums piloted dropped from 90% to 20% after 1.5 years of work.

SECTION FIVE
PROGRESS ON WORK PLAN

For FIRE III Progress on Work Plan, please refer to the Final Quarterly Report in Annex D.

ANNEX A
SUB-AWARD CLOSEOUT CERTIFICATION

Name of Organization	Service Delivery Area	Primary Locale	Total Value	Total Paid	Audit Complete, Closed, Paid in Full
Times Research Foundation	Delhi simplified building byelaws	Delhi UT	$ 67,905.00	Yes	Yes
Nishith Desai and Associates	DJB water meters	Delhi UT	$ 14,767.00	Yes	Yes
B&E Engineers	DJB Okhla water recycling - demand assess	Delhi UT	$ 16,467.00	Yes	Yes
Environmental Planning Collaborative	Local area plans for Delhi	Delhi UT	$ 49,600.00	Yes	Yes
CRISIL Infrastructure Advisory Services	Resource mobilization in 8 ULBs - Phase I	Karnataka	$ 67,788.00	Yes	Yes
KUIDFC	Bangalore City pro-poor; State Policy	Karnataka	$ 16,700.00	Yes	Yes
Janaagraha Centre for Citizenship and Democracy	JANAGRAH GBWASP & Urban Forum	Karnataka	$ 27,778.00	Yes	Yes
Times Research Foundation	Karanataka Municipal Act	Karnataka	$ 25,838.00	Yes	Yes
Opus Advisory Pvt. Ltd.	Madhya Pradesh Municipal Dev Fund	Madhya Pradesh	$ 25,756.00	Yes	Yes
Total Synergy Consulting Pvt. Ltd.	MP e-Governance	Madhya Pradesh	$ 22,007.00	Yes	Yes
Opus Advisory Pvt. Ltd.	MPUIF Ops. (Fin.)	Madhya Pradesh	$ 37,181.00	Yes	Yes
Mukherjee and Mukherjee	MPUIF Ops. (Legal)	Madhya Pradesh	$ 16,250.00	Yes	Yes
National Productivity Council	Gwalior sanitary land fill - Terminated	Madhya Pradesh	$ 13,953.00	Yes	Yes
Opus Advisory Pvt. Ltd.	Dewas WS Financial Support	Madhya Pradesh	$ 33,005.00	Yes	Yes
Hydropneum Systems	Dewas Slum Mapping	Madhya Pradesh	$ 34,796.00	Yes	Yes
Acute Consulting Services	Dewas WS Design	Madhya Pradesh	$ 18,080.00	Yes	Yes
Acute Consulting Services	Dewas Engrg. Design (5 slums)	Madhya Pradesh	$ 12,534.09	Yes	Yes
Acute Consulting Services	Dewas CSP Recon Survey	Madhya Pradesh	$ 14,449.30	Yes	Yes
ALCHEMY URBAN SYSTEMS PVT.LTD.	Dewas CSP	Madhya Pradesh	$ 45,454.55	Yes	Yes

Name of Organization	Service Delivery Area	Primary Locale	Total Value	Total Paid	Audit Complete, Closed, Paid in Full
Acute Consulting Services	Dewas HH Latrine Project Report	Madhya Pradesh	$ 3,750.00	Yes	Yes
Hydropneum Systems	Dewas Slum Mapping (add'tl 4 slums)	Madhya Pradesh	$ 30,801.00	Yes	Yes
Acute Consulting Services	Dewas WS Engg. Design (add'tl. 4 slums)	Madhya Pradesh	$ 12,927.00	Yes	Yes
Acute Consulting Services; Opus Advisory Pvt. Ltd.	Thane sewer network & treatment	Maharashtra	$ 36,535.00	Yes	Yes
Opus Advisory Pvt. Ltd.	Mah. Urban Infrastructure Fund	Maharashtra	$ 12,505.00	Yes	Yes
Intercontinental Consultants and Technocrats Pvt. Ltd.	STEM corporatization	Maharashtra	$ 41,628.00	Yes	Yes
Shelter Associates	Sangli pro-poor	Maharashtra	$ 34,116.00	Yes	Yes
CRISIL Infrastructure Advisory Services	Pune and Nagpur CDP	Maharashtra	$109,301.00	Yes	Yes
S.P. Agarwal Associates	Thane Financial Management	Maharashtra	$ 30,611.00	Yes	Yes
NCR Consultants, NCR Consultants, Pricewaterhouse Coopers Pvt. Ltd.	MOUD e-Gov Reform	Country-wide	$147,364.00	Yes	Yes
ICRA Management Consulting Services Ltd.	PFDF Toolkit	Country-wide	$ 30,900.00	Yes	Yes
Foundation of Change Management	FCM Media Workshop	Southern India	$ 11,368.00	Yes	Yes
Environmental Planning Collaborative	CDP Oversight, workshop & guidelines	Maharashtra & Orissa	$ 68,353.00	Yes	Yes
Dhiya Consulting Pvt. Ltd.	Orissa Water Sector Reform	Orissa	$ 35,800.00	Yes	Yes
Infrastructure Professionals Enterprise (P) Ltd.	Financial Mngt & Resource Mob. - Bhubaneswar	Orissa	$ 51,977.00	No	No[19]
Infrastructure Professionals Enterprise (P) Ltd.	Implementation - Bhubaneswar Res. Mob.	Orissa	$ 60,648.00	No	No[20]
Community Consulting India Pvt. Ltd.	Bhubaneswar CDP	Orissa	$ 99,268.00	Yes	Yes

[19] Final payment disputed.

[20] Final payment disputed.

Name of Organization	Service Delivery Area	Primary Locale	Total Value	Total Paid	Audit Complete, Closed, Paid in Full
Spatial Planning and Analysis Research Center	Validation & Survey of BMC Slums	Orissa	$ 16,526.29	Yes	Yes
Bhubaneswar Municipal Corporation (BMC)	Analysis & Docum. Of BMC Slum Survey	Orissa	$ 14,755.21	Yes	Yes
Spatial Planning and Analysis Research Center	BMC Slum Profile	Orissa	$ 29,413.00	Yes	Yes
Spatial Planning and Analysis Research Center	Bhubaneswar Slum Strategy Impl.	Orissa	$ 37,335.23	Yes	Yes
Deloitte Touche Tohmatsu India Pvt. Ltd.	PHEO Ring Fencing	Orissa	$136,660.00	Yes	Yes
Deloitte Touche Tohmatsu India Pvt. Ltd.	PHEO Ring Fencing Ph. III	Orissa	$ 49,025.64	No	No[21]
Deloitte Touche Tohmatsu India Pvt. Ltd.	PHEO Corporatization Ph. I	Orissa	$ 26,604.55	Yes	Yes
Deloitte Touche Tohmatsu India Pvt. Ltd.	PHEO Corporatization Ph. II	Orissa	$ 44,113.30	Yes	Yes
Prasanna Desai, Architecture, Interior and Urban Design Consultants	BBN Slum Strategy (PLANNING)	Orissa	$ 20,605.68	Yes	Yes
Opus Advisory Pvt. Ltd.	Rajisthan Municipal Dev Fund	Rajasthan	$ 14,646.00	Yes	Yes
Center for Urban and Regional Excellence	Agra Cross Cutting	Uttar Pradesh	$ 99,998.00	Yes	Yes
Opus Advisory Pvt. Ltd.	West Bengal Municipal Dev Fund	West Bengal	$ 25,410.00	Yes	Yes
Infrastructure Development Finance Company	WBSWMM SWM	West Bengal	$102,512.00	Yes	Yes
Infrastructure Professionals Enterprise (P) Ltd.	Resource mob - Siliguri, Asansol, Durgapur	West Bengal	$ 18,018.00	Yes	Yes
Infrastructure Professionals Enterprise (P) Ltd.	Implementation Res. Mob., Asansol & Durgapur	West Bengal	$ 64,650.00	No	No[22]
Opus Advisory Pvt. Ltd.	Financial Sustainability-Asansol Urban Area	West Bengal	$ 15,638.00	Yes	Yes

[21] Final payment disputed.

[22] Final payment disputed.

Name of Organization	Service Delivery Area	Primary Locale	Total Value	Total Paid	Audit Complete, Closed, Paid in Full
Foundation for Greentech Environmental Systems	Methane Capture, Asansol-Durgapur	West Bengal	$ 22,831.00	Yes	Yes
Innovative Waste Consulting Services, LLC	Bioreactor Tech.	West Bengal	$ 27,000.00	Yes	Yes

ANNEX B
DEFINITIONS

	Indicator	Formula	Unit
Increased Access to Water and Sanitation			
Key Indicator			
	Number of Persons With Increased Access to Water & Sanitation	Number of people served by standposts + number of men served by domestic formal water connections + number of women served by formal domestic water connections	number
Water			
	Number of Formal Domestic Water Connections	Total number of piped water connections provided to the population	number
	Average Hours of Water Supply	Total number of hours of supply/ 365 days	hours
	Liters per Capita per Day	Total supply to the city per day / Total population of the city	litres per capita per day (lpcd)
	Number of Stand Posts	Total number of public water connections provided within a community or a neighborhood	number
	Number of People Per Stand Post (Slum)	Slum population Total / Number of public stand posts	number
	Number of Men Served by Stand Posts (Slum)	Total male population in slums/number of stand posts	number
	Number of Women Served by Stand Posts (Slum)	Total women population in slums/number of stand posts	number
	Number of Men Served by Formal Domestic Water Connections	Total male population - Slum population male	number
	Number of Women Served by Formal Domestic Water Connections	Total female population - Slum population female	number
Solid Waste Management			
	Number of Men with Waste Segregation at Source	Total people with segregation at source X percentage male population	number
	Number of Women with Waste Segregation at Source	Total people with segregation at source X percentage female population	number
	Number of Men with Access to a Sanitary Landfill	Number of people with access to landfill X percentage male population	number
	Number of Women with Acess to a Sanitary Landfill	Number of people with access to landfill X percentage female population	number
	Number of Men with Door to Door collection	Number of people with door to door collection X percentage male population	number
	Number of Women with Door to Door collection	Number of people with door to door collection X percentage female population	number
Sewerage			
	Number of Men with Access to Water Borne Sewer Connection with Treatment	Total People with access to household water borne sewer connections with treatment X Percentage of male population	number
	Number of Women with Access to Water Borne Sewer Connection with Treatment	Total People with access to household water borne sewer connections with treatment X Percentage of female population	number
	Number of Men with Access to Community Toilets (Slum)	Number of people with access to community toilets X Percentage of Slum population male	number
	Number of Women with Access to Community Toilets (Slum)	Number of people with access to community toilets X Percentage of slum population female	number
	Number of Public Toilets (Slum)	Number of public toilets	number
	Number of Men per Public Toilet (Slum)	Number of community toilets / Total slum male population	number
	Number of Women per Public Toilet (Slum)	Number of community toilets / Total slum female population	number

	Indicator	Formula	Unit
Increased Municipal Investment in Infrastructure			
Key Indicator			
	Total Annual Investment in Infrastructure (Rupees)	Annual capital expenditure in water + Annual capital expenditure in sewerage + Annual capital expenditure in solid waste management	Rupees
Water			
	Annual capital expenditure in Water (Rupees)	Annual capital expenditure in water	Rupees
	Per capita	Annual capital expenditure in water / Total population	Rupees
Sewerage			
	Annual capital expenditure for Sewerage (Rupees)	Annual capital expenditure in sewerage	Rupees
	Per capita	Annual capital expenditure in sewerage / Total population	Rupees
Solid Waste Management			
	Annual capital expenditure in Solid Waste Management (Rupees)	Annual capital expenditure in solid waste management	Rupees
	Per capita	Annual capital expenditure in solid waste management / Total population	Rupees
Increased Own Source Revenues			
Key Indicators			
	Total Annual Own Source Revenues (Rupees)	Revenue from water + Revenue from property tax + Revenue from other sources except government transfers	Rupees
	Total Annual Market Based Borrowings (Rupees)	Annual market borrowings from any financial Institution or a bank	Rupees
Annual Revenues			
	From Water (Rupees)	Revenue from water	Rupees
	Per Capita	Revenue from water / Total population	Rupees
	From Property Tax (Rupees)	Revenue from property tax	Rupees
	Per capita	Revenue from property tax / Total population	Rupees
	From Other Sources (Rupees)	Revenue from other sources like advertisement tax, shared tax, octroi tax, etc.	Rupees
	Per capita	Revenue from other sources / Total population	Rupees
	Government Transfers (Rupees)	Annual government transfers [includes grants and funds]	Rupees
Dependency Ratio			
	Own Source Revenues to Government Transfers	(Total annual ownsource revenues+market borrowings) / (Own source revenues + market borrowings + government transfers)	%

ANNEX C FIRE III Yearly Targets and Actual Achievements												
Fiscal Year	**2005**		**2006**		**2007**		**2008**		**2009**		**2010**	
Indicator/High-Level Objective	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**
1.a. Increased percentage of resources raised by selected urban local bodies through market based mechanisms and their own sources as compared to resources received from central and state governments.	N/A	95.20%	96.20%	90%	N/A	86.74%	N/A	79.28%	N/A	83.08%	N/A	81.39%
1.b. Own source resources raised. *(Billion Rupees)*	N/A	14.578	N/A	18.652	N/A	20.94	N/A	27.06	N/A	28.492	22.5	30.992
2. Increased municipal investment in urban environmental infrastructure in selected municipalities. *(Billion Rupees)*	1.5	1.533	1.35	5.486	N/A	2.617	N/A	2.766	N/A	4.272	2.5	8.878
3. Number of men and women that benefit from increased access to water and sanitation in targeted municipalities. *(Number of men and women)*	N/A	0	229,000	532,618	30,000	34,110	493,882	534,866	270,000	327,135	200,000	283,233
4. Increased Access to Water and Sanitation Services by Urban Poor *(Recipients)*	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	706	0	2,000	8,026

ANNEX D
FIRE III QUARTERLY REPORT #9

This annex contains FIRE III Quarterly Report #9 which describes FIRE III's ongoing progress towards the annual work plan.