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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-48180)

ON A
LOAN
IN THE AMOUNT OF US\$216 MILLION
TO THE
REPUBLIC OF INDIA
FOR THE
KARNATAKA MUNICIPAL REFORM PROJECT

September 22, 2015

Social, Urban, Rural and Resilience Global Practice
South Asia Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective March 31, 2015)

Currency Unit = Indian Rupees (INR)
INR 1.00 = US\$ 0.015

FISCAL YEAR
April 1- March 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank	LCS	Low Cost Sanitation
BBMP	Bruhat Bengaluru Mahanagara Palike	MDF	Municipal Development Fund
BWSSB	Bangalore Water Supply Sewerage Board	M&E	Monitoring and Evaluation
CAS	Country Assistance Strategy	MRC	Municipal Reform Cell
CPS	Country Program Strategy	MTR	Midterm Review
CBA	Cost-benefit Analysis	NGO	Nongovernmental Organization
CEA	Cost-effectiveness Analysis	NRW	Nonrevenue Water
DMA	Department of Municipal Administration	ODF	Open Defecation Free
DTP	Department of Town and Country Planning	O&M	Operations and Maintenance
EC	Empowered Committee	PDAF	Project Development Advisory Facility
EMP	Environmental Management Plan	PDO	Project Development Objective
ERR	Economic Rate of Return	PGR	Public Grievance Redressal
ESA	Environment and Social Assessment	PIU	Project Implementation Unit
ESI	Economics of Sanitation Initiative	QALP	Quality Assessment of the Lending Portfolio
FGD	Focus Group Discussion	RWH	Rain Water Harvesting
GIS	Geographic Information System	SEAMF	Social and Environment Assessment and Management Framework
GOI	Government of India	SIUD	State Institute of Urban Development
GOK	Government of Karnataka	STP	Sewerage Treatment Plant
HPEC	High Powered Expert Committee	SWD	Storm Water Drains
IEG	Independent Evaluation Group	TA	Technical Assistance
ICR	Implementation Completion and Results Report	UGD	Underground Drainage
ISR	Implementation Status and Results Report	UMC	Urban Mapping Cell
JICA	Japan International Cooperation Agency	ULB	Urban Local Body
JNNURM	Jawaharlal Nehru National Urban Renewal Mission	WSP	Water and Sanitation Program
KMRP	Karnataka Municipal Reform Project	WSS	Water Supply and Sanitation
KUIDFC	Karnataka Urban Infrastructure Development Finance Corporation	WTP	Willingness to Pay
KUWSIP	Karnataka Urban Water Sector Improvement Project		

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INDIA
Karnataka Municipal Reform Project

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A. Basic Information			
Country:	India	Project Name:	Karnataka Municipal Reform Project
Project ID:	P079675	L/C/TF Number(s):	IBRD-48180
ICR Date:	02/25/2015	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	Government of Karnataka
Original Total Commitment:	US\$216 million	Disbursed Amount:	US\$185.66 million
Revised Amount:	US\$216 million		
Environmental Category: A			
Implementing Agencies: Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC); Bangalore Water Supply and Sewerage Board (BWSSB); <i>Bruhat Bengaluru Mahanagara Palike</i> (BBMP); Karnataka Urban Development Departments of Municipal Administration and Town and Country Planning.			
Co-financiers and Other External Partners:			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	03/31/2003	Effectiveness:	06/30/2006	06/30/2006
Appraisal:	02/01/2005	Restructuring(s):		03/15/2011 01/13/2012 02/19/2014
Approval:	03/14/2006	Midterm Review:	02/23/2009	04/15/2009
		Closing:	04/30/2012	03/31/2015

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Unsatisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Moderately Satisfactory
Overall Bank Performance:	Moderately Satisfactory	Overall Borrower Performance:	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry:	Moderately Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision:	Moderately Satisfactory
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Central government administration	5	5
General water, sanitation and flood protection sector	54	54
Sub-national government administration	11	11
Urban Transport	30	30
Theme Code (as % of total Bank financing)		
City-wide Infrastructure and Service Delivery	24	24
Land administration and management	13	13
Municipal finance	13	13
Municipal governance and institution building	25	25
Urban services and housing for the poor	25	25

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Annette Dixon	Praful Patel
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F. Results Framework Analysis

Project Development Objectives (PDOs) (from Project Appraisal Document)

The project objective is to help improve the delivery of urban services through enhancing the quality of urban infrastructure and strengthening the institutional and financial frameworks for urban services at the urban local body (ULB) and state levels.

Revised PDOs (as approved by original approving authority)

The PDO was not revised.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (From Approval Documents)	Formally Revised Target Values	Actual Value Achieved at Completion
Indicator 1:	Number of participating ULBs reporting improved municipal services, e.g., water supply and sewerage, accessibility, solid waste management and other municipal services			
Value quantitative	0	50	32	29 The number of participating ULBs was reduced from 50 to 32 due to the fact that all funds were committed to 32 ULBs. Projects were only implemented in 29 out of 32 ULBs.
Indicator 2:	Number of ULBs participating in institutional development technical assistance (TA) and municipal investment support components, reporting improved municipal services			
Value quantitative	0	50	50	164 This refers to the number of ULBs that adopted computerized municipal functions. This was aimed at reaching all ULBs (164) not covered by the Asian Development Bank (ADB) project.
Indicator 3:	Number of new, working sewerage connections provided in Greater Bangalore			
Value quantitative	0	120,000	120,000	152,167 The additional number of connections resulted from underground drainage (UGD) investments in Greater Bangalore and in the poor peri-urban areas.

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (From Approval Documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 4:	Number of ULBs with computerized basic municipal functions			
Value quantitative	0	169	169	164 The target was always 164 and not 169, but this was never revised.
Indicator 5:	Number of ULBs having geo-referenced, large-scale mapping which are used in basic land management and planning functions			
Value quantitative	0	202	49	12 The target was reduced from 202 to 49, to focus on the larger towns. Out of 49 maps, 12 have been completed and 16 are expected to be completed by November 2015. The remaining 21 maps are being financed by the ADB.
Indicator 6:	Number of ULBs with new budgeting and accounting systems in place, which are being used for financial management purposes			
Value quantitative	0	169	169	158 The target was always 164 and not 169, but this was never revised. The remaining 6 (difference between 158 and 164) ULBs were supported by the ADB program
Indicator 7:	Number of urban sector staff trained in the state on various modules			
Value quantitative	0	8,700	8,700	25,538 The additional number of staff trained resulted from the combined counting of the ULB and state-level staff
Indicator 8:	New State Urban Finance Framework/Business model for KUIDFC established			
Value qualitative	None	Done	Done	Done
Indicator 9:	Number of ULBs receiving loans/grants and quantum of funds accessed			
Value quantitative	0	50	32	29 The number of ULBs receiving loans/grants was reduced from 50 to 32 due to the fact that all funds were committed to 32 ULBs. Only 29 out of the 32 ULBs received loans/grants.

Indicator 10:	Number of people provided with improved water supply			
Value quantitative	0	100,000	100,000	120,000 The difference is explained by the decision taken during implementation to move to 24x7 water schemes.
Indicator 11:	All funded projects meet appraisal and sector rules of engagement, as determined by technical audits.			
Value quantitative	0	100%	100%	100%
Indicator 12:	Length of roads in good conditions as a result of the project			
Value Quantitative	0	140	140	125 Out of 40 roads originally planned, a 15 km length road was dropped as it was deemed unnecessary due to construction of the Bangalore metro rail.
Indicator 13:	Improved BWSSB cost recovery, with 90% operating ratio (each financial year)			
Value Quantitative	0	90%	90%	100%
Indicator 14:	New household sewerage connections constructed under the project			
Value Quantitative	0	120,000	120,000	152,167 The additional number of connections resulted from UGD investments in Greater Bangalore and the poor peri-urban areas.
Indicator 15:	Project development facility operational and capacity-building support being accessed by ULBs for investments			
Value Qualitative	None	Project Development Advisory Facility (PDAF) fully operational and ULBs commence accessing this facility	PDAF facility fully operational and ULBs commence accessing this facility	PDAF facility fully operational and ULBs commence accessing this facility

G. Ratings of Project Performance in Implementation Status and Results Reports (ISRs)

No.	Date ISR Archived	DO	IP	Actual Disbursements (US\$, millions)
1	06/29/2006	Satisfactory	Satisfactory	0.00
2	12/28/2006	Satisfactory	Satisfactory	11.00
3	06/29/2007	Satisfactory	Satisfactory	20.96
4	12/17/2007	Satisfactory	Satisfactory	24.31
5	06/27/2008	Moderately Satisfactory	Moderately Satisfactory	28.95
6	12/29/2008	Moderately Satisfactory	Moderately Unsatisfactory	35.85
7	05/27/2009	Moderately Satisfactory	Moderately Unsatisfactory	39.53
8	11/29/2009	Moderately Satisfactory	Moderately Unsatisfactory	45.66
9	05/25/2010	Moderately Satisfactory	Moderately Unsatisfactory	47.95
10	06/24/2010	Moderately Satisfactory	Moderately Satisfactory	49.23
11	12/17/2010	Satisfactory	Moderately Satisfactory	55.01
12	07/09/2011	Satisfactory	Moderately Satisfactory	75.29
13	12/17/2011	Satisfactory	Moderately Satisfactory	89.88
14	06/04/2012	Satisfactory	Moderately Satisfactory	99.19
15	12/22/2012	Satisfactory	Moderately Satisfactory	115.38
16	06/05/2013	Moderately Satisfactory	Moderately Satisfactory	131.30
17	09/18/2013	Moderately Satisfactory	Moderately Satisfactory	140.80
18	04/22/2014	Satisfactory	Moderately Satisfactory	156.66
19	12/05/2014	Satisfactory	Moderately Satisfactory	175.70
20	03/27/2015	Satisfactory	Moderately Satisfactory	182.35

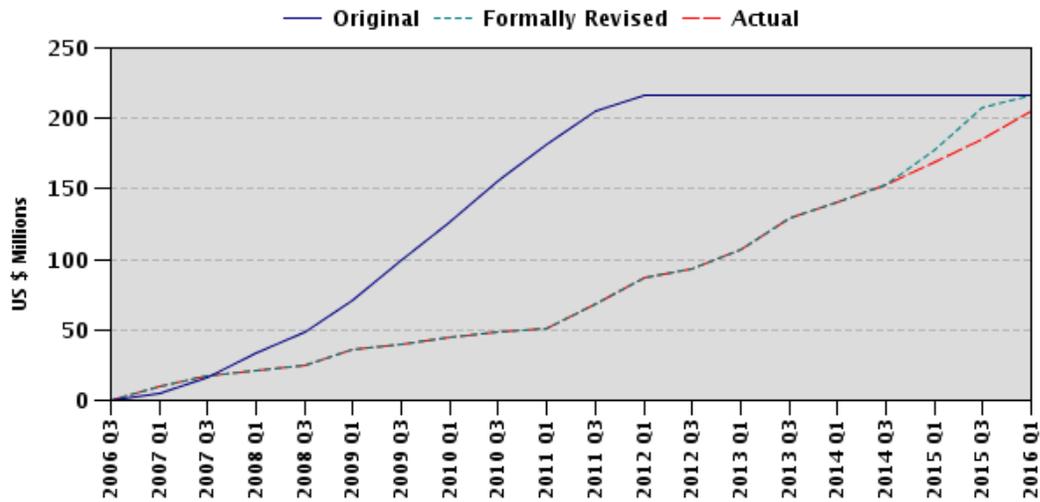
H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring (US\$, millions)	Reason for Restructuring & Key Changes Made
		DO	IP		
03/15/2011	n.a.	S	MS	75.29	(a) A reduction in the scope of activities under Components A.2 and B, including modification to three of the related indicators within the results framework (b) Redefinition of the scope of activities related to Greater Bangalore sewerage in terms of interventions under the Bangalore Development component (Component C)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring (US\$, millions)	Reason for Restructuring & Key Changes Made
		DO	IP		
					(c) Minor reallocation of loan savings on the amount of US\$ 3.97 million (d) Changes to disbursement percentages and broadened definitions across some of the disbursement categories (e) Revised disbursement projections
01/13/2012	n.a.	S	MS	99.19	Extension of closing date
02/19/2014	n.a.	S	MS	156.66	Extension of closing date

Note: S = Satisfactory; MS = Moderately Satisfactory

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **Background.** At appraisal in 2005, with nearly 300 million urban residents, India's cities contributed over 60 percent of the gross domestic product and accounted for more than 90 percent of government revenues. Their efficiency had a significant and direct bearing on the country's overall economy. While economic opportunity in cities had grown rapidly, the gap in the provision of urban services had increased. The Tenth Five-Year Plan (2002–07) recognized that India's cities could contribute more effectively to the country's economic growth and poverty reduction if they did not suffer from severe infrastructure bottlenecks, service deficiencies, weak finances, and poor local governance. The plan estimated that about US\$7 billion was needed for urban development between 2002 and 2007 and underscored the centrality of reforms to achieving sustainable investments.

2. Karnataka was, and still is, one of the most rapidly urbanizing states in India. A business-friendly environment has contributed to rising incomes and a strong demand for quality services from a growing urban population. The primacy of the capital city Bangalore in the State of Karnataka, referred to as the Silicon Valley of India, had made infrastructure investments an urgent priority for the state. Like other states in India, Karnataka's urban landscape was characterized by a mismatch between responsibilities for operations and maintenance (O&M) and the financing of infrastructure and services, lack of accountability, weak local capacity, and excessive central controls, all of which had impeded service delivery, discouraged investments, and stifled productivity of the urban economy. Improving cities' access to finance was considered essential but not sufficient to overcome these challenges.

3. A systematic approach for the medium to long term was needed to ensure sustainable delivery of quality services at local levels. Several measures undertaken by Karnataka demonstrated its commitment to reforms to create an enabling environment for enhancing urban productivity and provided the backdrop for the World Bank's urban engagement: it repealed the Urban Land Ceiling Act, initiated accrual based accounting systems in urban local bodies (ULBs), established a policy framework for enhancing cost recovery in water supply, and introduced a capital value system for property taxation, among other reforms. The state also established the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC) in 1993 for the implementation of urban infrastructure development projects with support from external financial institutions. To date, the KUIDFC has executed five Asian Development Bank (ADB) projects and three Bank-supported projects, as well as several government of India (GOI) sponsored programs (notably the Jawaharlal Nehru National Urban Renewal Mission [JNNURM]) and pioneered the development of state government policies for urban development.

4. **Rationale for Bank involvement.** The Bank has supported the establishment of municipal development funds (MDFs) in around 60 countries with over US\$2 billion over 30 years in 128 projects, with the objective of shifting from government-led urban development to market-oriented infrastructure financing operations. Municipalities that participated in Bank-supported municipal development projects outperformed nonparticipants in municipal financial autonomy, direct and indirect cost recovery, and balancing their budgets. They came to rely more on their own revenues, mainly property taxes, and succeeded in mobilizing additional revenues. The enhancement of this financial capacity takes a long time, as the design and implementation of the reforms to unlock the revenue potential is a long-term agenda.

5. In India, the Bank was engaged on the urban reforms outlined in the Tenth Five-Year Plan and the Karnataka Municipal Reform Project (KMRP) came in as a catalyzer of the overall urban reform process by supporting their implementation in Karnataka. In addition, the KMRP was fully consistent with the Bank's 2004 Country Assistance Strategy (CAS) that aimed at improving the quality of life of the poorest citizens and at helping India to achieve the

Millennium Development Goals, particularly through increased coverage in basic urban services such as water and sewerage. It also contributed to the CAS priority of improving government effectiveness through fostering the decentralization process and supporting effective governance by strengthening the financial and administrative capacity of ULBs to plan and deliver services in a fiscally sustainable manner.

6. The Bank had also been an active partner in urban development in other states like Tamil Nadu through the four Tamil Nadu Urban Development projects, which highlighted the need for an enabling state framework and a decentralized framework for enacting urban reforms and identifying investment priorities. In addition, the Bank has also been engaged in a dialogue with Karnataka on its water policy and urban sector reform initiatives, mainly through the Karnataka Water Supply Management Municipal Strengthening Project. With these experiences, the Bank was well positioned to support the government of Karnataka (GOK) in further implementing the necessary urban reforms. The KMRP also came to complement and build upon experiences of parallel initiatives by other development partners in the urban sector in the state, including the ADB's Urban Infrastructure Development Project, the funding of the Bangalore Water Supply project by the United States Agency for International Development, and funding of Bangalore's water and sewerage systems from Japan International Cooperation Agency (JICA).

1.2 Original Project Development Objectives (PDOs) and Key Indicators

7. The project objective is to help improve the delivery of urban services through enhancing the quality of urban infrastructure and strengthening the institutional and financial frameworks for urban services at the ULB and state levels. At appraisal, only a single PDO indicator was included: number of participating ULBs reporting improved municipal services, e.g. water supply and sewerage, accessibility (roads), solid waste management, and other municipal services. In addition, eleven component indicators were set up at appraisal.

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and Reasons/Justification

8. The PDO was not revised. During implementation the following two PDO indicators were introduced with the sole purpose of better capturing the development objective of the project:

- An indicator on the number of ULBs participating in institutional development technical assistance (TA) and municipal investment support components reporting improved municipal services was introduced at the first project restructuring in March 2011.
- The indicator on the number of household sewerage connections that was included as a component indicator at appraisal was also included as a PDO indicator.

9. At the component level, the targets of two indicators were revised during the first project restructuring (level 2) in March 2011, as follows:

- The number of ULBs with geo-referenced large-scale mappings (Subcomponent A.2) was reduced from 202 to 49, to adjust the initial ambitions of the project and accommodate delays in implementation. The reduction affected the smaller ULBs (less than 50,000) for which maps were considered of secondary importance. Despite the reduction in ULBs the total area covered by the maps was reduced by 35 percent only (from 6,811 to 4,478 km²).
- The number of ULBs receiving loans/grants (Component B) was reduced from 50 to 32 as all project funds were committed to 89 subprojects in 32 ULBs. No substantive changes in the number of expected beneficiaries took place since the larger subprojects would benefit more residents within the 32 ULBs.

1.4 Main Beneficiaries

10. The main beneficiaries were the ULBs that implemented the reforms and the residents of the targeted areas where the investments took place:

- 164 (out of 202) ULBs that undertook a package of reforms, corresponding to 77 percent of the total number of ULBs. Benefits in the form of better municipal processes like issue of birth/death certificates and access to a grievance redressal system, among others, were extended to a population of over 18 million people.
- 25,000 ULB and state-level staff who participated in training activities.
- Over 2.5 million residents in the ULBs who benefitted from subprojects in roads, drains, water, sewerage, and slum upgrading, among others.
- Residents in Bangalore benefiting from reduced travel time and safer traffic measures.
- Over 600,000 residents in Greater Bangalore benefiting from underground drainage (UGD).
- Around 88,000 poor slum residents in Greater Bangalore benefiting from toilets and improved sanitation

1.5 Original Components (as approved, abbreviated from the PAD)

- **Component A - Institutional Development** (US\$28.4 million), which supported institutional capacity-building activities aimed toward better transparency and accountability at the ULB and state levels in key areas, including computerization of basic municipal functions, urban land management and planning, financial management (FM) reforms, and training to ULB and state-level staff.
- **Component B - Municipal Investment Support** (US\$90 million), which provided performance-based loans and grants to ULBs outside of Bangalore for investments in urban services, covering water supply, urban roads, street lighting, slum upgrading, and other municipal functions such as solid waste disposal, sewerage, and storm water drains (SWDs).
- **Component C - Bangalore Development** (US\$179.8 million), which provided financing support for the rehabilitation of Bangalore City road network (US\$35.4 million); the construction of a sanitary sewerage system in the eight ULBs around Bangalore City (US\$137.6 million), including institutional capacity building of Bangalore Water Supply Sewerage Board (BWSSB) and the construction of pro-poor sanitation facilities at the community and individual levels in the eight ULBs around Bangalore City (US\$6.8 million).
- **Component D - Project Management** (US\$11.3 million), which supported project implementation, including incremental operating costs of relevant implementing units and a project development advisory facility to support preparation and implementation of subprojects by the ULBs.

1.6 Revised Components

11. During the first project restructuring (March 2011) two subcomponents from the Bangalore Development component were revised. First, the scope of Subcomponent C.2—Greater Bangalore Underground Drainage Program—was revised to exclude the financing of sewerage treatment plants (STPs) and one pumping station to be financed by other non-Bank sources of finance. Second, the scope of Subcomponent C.3—Greater Bangalore Pro-poor Sanitation Program—was broadened from the original provision of latrines alone to include other sanitation/sewerage options, primarily household connections. This was done to correct for the overestimated demand for toilets, done at appraisal, and to ensure the connection of toilets to the sewerage network.

1.7 Other Significant Changes

12. The project underwent three level 2 restructurings, none of which had any impact on the PDOs nor on its institutional and fiduciary arrangements.

Table 1. Project Restructurings

No.	Date/ Disbursements	Restructuring
1	03/15/2011 Disbursed 35%	<ul style="list-style-type: none"> • <i>Institutional Development component:</i> The number of ULBs with geo-referenced large-scale mappings (Subcomponent A.2) was reduced from 202 to 49, to adjust the initial ambitions of the project and accommodate delays in implementation. • <i>Municipal Investment Support component:</i> The number of ULBs receiving loans/grants (Component B) was reduced from 50 to 32 as all project funds were committed in 32 ULBs. • <i>Bangalore Development component:</i> The scope of Subcomponent C.2—Greater Bangalore Underground Drainage Program—was revised. Financing of STPs and one pumping station was dropped as these were to be financed by other non-Bank sources of finance. Subcomponent C.3—Greater Bangalore Pro-poor Sanitation Program—was also revised to broaden its scope from the original provision of latrines alone, to include other sanitation/sewerage options, primarily household connections. This was done to correct for the overestimated demand for toilets, done at appraisal, and to ensure the connection of toilets to the sewerage network. • <i>Reallocation of loan savings:</i> A financial reallocation of US\$3.97 million (1.8 percent of the loan amount) from the Institutional Development and Project Management components to the Municipal Investment Support component, to channel costs savings from the former two components to meet additional financing requirements and cost overruns in the latter component. • <i>Changes in disbursement percentages:</i> Minor changes in the disbursement percentages and categories to reflect the ineligibility of some state-owned agencies to undertake mapping and other capacity-building activities. The scope of the pro-poor disbursement category was also broadened to include sub grants to facilitate beneficiary-led construction, and all disbursement categories were broadened to include training and incremental operating costs.
2	01/13/2012 Disbursed 45%	Extension of the project closing date from April 30, 2012, to March 31, 2014, to complete over 50% of ongoing activities and reach project objectives.
3	02/19/2014 Disbursed 72%	Extension of the project closing date from March 31, 2014, to March 31, 2015, to complete outstanding investments under signed contracts, mostly related to municipal investments and Bangalore’s UGD.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

13. **Soundness of background analysis and project design.** The KMRP was a complex project that combined an ambitious reform program, with numerous municipal investments scattered through the state and some big investments in Greater Bangalore. The KMRP was originally envisioned as a reform program to support implementation of the democratic decentralization under India’s 74th Constitutional Amendment in accordance with the GOI’s Tenth Five-Year Plan. Work on policy reform began before the KMRP through an ADB-financed operation in 49 ULBs. With the KMRP, the reforms were scaled up to the entire state by adding 164 ULBs. Despite the preparedness and readiness for the reforms, there was clearly a risk in taking the ambitious decision to roll out the full set of reforms to all ULBs. However,

although it took time and enormous effort, the project did succeed in completing the reforms and delivering a substantive impact.

14. The reforms were accompanied with a series of municipal investments. This allowed leveraging on the investments to push policy reform and accommodated the government's need to provide key urban infrastructure in the state. An Operations Evaluation Development review of the Bank's assistance in the urban sector in India, conducted in 2000, found that the performance of most urban operations was less than satisfactory due to the complex nature of projects in relation to local client capacity. As such, the project design linked the reforms and capacity-building initiatives to the investments to be undertaken by the ULBs.

15. In addition, two important lessons from other similar operations were included: aligning responsibilities for investment and O&M and aligning investments with absorptive capacity. Regarding the former, the fragmentation of responsibilities between state agencies and ULBs in India often results in lack of sustainable investments and poor incentives for ULBs' performance. The project took into account this lesson by recognizing the ULBs' central role in the planning, development, and implementation of their priority investments while accessing advisory support from the project to ensure the financial, technical, and fiduciary viability of projects. Regarding the latter, while investment needs at the ULB levels are enormous, their technical and financial capacity, including for O&M, is limited. The project internalized this lesson by ensuring that the size of investments in the ULBs is based on an in-depth analysis of the financing and investment capacity to cover debt and O&M costs arising from the proposed investment.

16. Aside from the reforms and municipal investment components, the project undertook a series of large drainage/sanitation investments in Greater Bangalore that were supposed to be processed independently but at the time of appraisal were combined into a single operation. More specifically, during appraisal the client requested the inclusion of the Greater Bangalore UGD investment into KMRP as was considered a key priority investment and one which at that time had no other viable source of financing. The decision taken at appraisal to be responsive to the client's needs came at a cost, as the UGD investment, that represented 45 percent of the total project proceeds, was not fully prepared. Thus the preparation, tendering, and implementation of 25 packages of the UGD works took place during the early stages of implementation, which contributed to the works starting in 2010, four years after effectiveness.

17. Similarly, the Greater Bangalore Pro-poor Sanitation Program did not have complete background studies by effectiveness, resulting in mid-term corrections to adjust the demand for toilets in slums. Because no investment of such scale in UGD was ever undertaken in India and because of the limited experience in pro-poor sanitation, many lessons were only learned along the way and adjustments done only during implementation. Overall, the client was very appreciative of the project design because it accommodated its needs for urban reforms and investments and because it took up risky and innovative approaches.

18. **Adequacy of government commitment.** Despite the complexity of the KMRP, the government remained at the driving seat throughout implementation. Both the GOI and GOK have shown strong commitment to urban sector reforms as demonstrated by their goal to roll out all the reforms to all ULBs—despite numerous complexities. Strong commitment was also given to the investments as demonstrated by the Proceeding of the 31st Meeting of the Empowered Committee (EC) on March 11, 2015, that approved financing to complete all KMRP investments that spill over beyond project closure in March 2015. Also, the various state agencies involved in project implementation (Department of Municipal Administration [DMA], Department of Town and Country Planning [DTP], KUIDFC, *Bruhat Bengaluru Mahanagara Palike* [BBMP], BWSSB) together with the beneficiary ULBs took on a very proactive stand in the development of their respective activities. The KUIDFC, as the nodal implementing agency, proactively engaged with the other implementing agencies for course correction and support for implementation.

19. **Assessment of risk.** Three of the nine risks identified at appraisal could not be fully mitigated and resulted in delays in project implementation but did not compromise any of the project's objectives. These three risks are discussed below.

20. *Complex implementation arrangement:* Urban projects are typically characterized by a confluence of agencies that operate in the urban space, and KMRP was not the exception. KMRP had five implementing agencies in addition to the ULBs. Despite the coordinating role of the KUIDFC, the consolidation of reports was constantly delayed during implementation. This risk could have been mitigated by separating the urban development from the Bangalore Development component but, as already discussed, this was not really an option, due to the strong preference of the client to include the later component. Another option, could have been limiting the role of the ULBs in the Municipal Investment component, but this may have weakened the ULBs institutional capacities, which the same project sought to strengthen. Finally, complexity could have been reduced by limiting the number of reforms to be promoted or the number of ULBs to be covered. However, due to the "big bang" approach that the State took to implement its reform agenda, any limitation on the areas of reform and/or coverage of ULBs could have compromised the success of the reforms, without offering much benefit.

21. *ULB's weak institutional and financial capacity to manage subprojects:* Despite the support of the project advisory facility to prepare timely, viable, and technically sound projects, the implementation of subprojects encountered continuous delays during tendering and implementation. Despite the training, capacity-building, and management support offered by the project, the ULBs' weak technical and fiduciary capacities were present during implementation and caused several delays. This risk could have been partially addressed by providing more targeted trainings in works management, by providing basic capacity-building activities during project preparation, and by increasing the scrutiny and scope of the ULBs capacity and fiduciary assessments during project design.

22. *Delays in land acquisition:* Despite the fact that the project gave priority to land acquisition early on, the complex intricacies of land acquisition still resulted in delays beyond the government's full control. During implementation, one municipal investment had to be dropped altogether for the inability to complete the land acquisition process and another had to separate the construction of the network and the treatment plant because of delays in land acquisition. Acquiring rights-of-way also contributed to delays in the UGD project. In the context of India, the risk rating for delays in land acquisition should have been rated High rather than Moderate as stated in the PAD and endorsed by the QALP.

2.2 Implementation

23. The project objective and associated components and indicators set at appraisal were clear and remained relevant throughout the project. However, the scope of the project was ambitious and this resulted in a 9-year implementation period rather than the original 5.6 years planned. Project extensions were granted to cope with delays on several municipal investments and on the Greater Bangalore Drainage and Sanitation subcomponents, which were not fully prepared by the time of appraisal.

24. Despite its ambition to roll out a set of policy reforms throughout the whole State, the Institutional Development component was successfully implemented with four out of five subcomponents reaching their targets in due time. The component aimed at creating a municipal e-governance platform to improve the delivery of public services in the state through the following four applications: (a) Property Taxation with geographic information system (GIS); (b) Fund-based Double Entry Accrual Accounting ; (c) Public Grievance Redressal (PGR); and (d) Birth and Death Registration. By the time of project closure, the municipal e-governance and capacity-building activities were successfully implemented in 164 ULBs. These activities have been considered good practice in the country as a whole and also won numerous awards.

25. With regard to the Municipal Investment Support component, the project decision to involve the ULBs through the project cycle to build ownership resulted in a cumbersome system of approvals and clearances between the ULBs and the KUIDFC, which extended the project schedules. Weak ULB capacity to tender and manage contracts also contributed to delays. Despite the delays, however, the decision taken during preparation to follow a learning-by-doing, rather than a centralizing, approach was defended as the preferred way to build the much-needed local capacity and ownership.

26. The Bangalore Road Rehabilitation subcomponent was successfully implemented within the project original closing date, reaching its targets in due time. This was due to the implementation capacity of the Bangalore Municipal Corporation, the BBMP, and the fact that this activity was processed as retroactive financing.

27. The Greater Bangalore UGD subcomponent faced several implementation challenges, which may not be surprising considering it is one of the most ambitious investments of its kind in India. More than 2,300 km of pipes were laid in the Greater Bangalore area. With 80 percent of the project area being 'unplanned', tremendous technical difficulties were faced in laying the pipes. Delays were also due to complex procedures for authorizations and clearances from various state and central government agencies to acquire rights-of-way; very difficult underground conditions resulting from the lack of maps of underground assets (gas and water pipes, telephone, and fiber optics, and so on.); and hard soil conditions. Because no previous task of this scope had been undertaken, several procurement issues were also encountered during the tendering process (see section 2.4). Despite the complexities, the BWSSB made numerous course corrections during implementation, resulting in completion of 90 percent of the works (corresponding to over 130,000 working connections) by project closure and the remaining 10 percent expected to be completed by the end of 2015.

28. The Greater Bangalore Pro-poor Sanitation component, a pilot intervention of US\$6 million, included as a good opportunity to serve the poor, also encountered several implementation challenges that resulted from initial lack of attention by the BWSSB, whose attention was concentrated in the big UGD works. Subsequently the lack of in-house expertise in the implementing agency had to be overcome. The implementation of this subcomponent started late due to the complexities associated with the initial phases of the main UGD investments. However, proactive decisions were taken to ensure success such as the setting up of an economic and social cell in the BWSSB to run the activities; the engagement of nongovernmental organizations (NGOs) to facilitate the community and awareness work; and the broadening of the scope of the subcomponent from the original provision of latrines alone, to include household connections. This latter decision was taken in the first restructuring of the project to adjust for the original overestimation of the demand for toilets and to ensure the connection of the toilets to the sewerage network.

2.3 Monitoring and Evaluation (M&E) Design, Implementation, and Utilization

29. **M&E design.** The M&E design was overall adequate. The three PDO outcome indicators allowed for appropriately measuring the key development impacts of the project, namely strengthening of institutional/financial capacities by measuring the number of ULBs participating in the institutional development TA; and enhancing urban services and infrastructure by measuring the number of ULBs that reported improved municipal services and the number of sewerage connections. Similarly, most component indicators (10 out of 12) established clear and objective quantitative targets which simplified the monitoring of the project implementation. Various indicators, however, focused on outputs which complicated the measurement of improvements in service delivery as stated by the PDO. This could have been adjusted at the design stage, by either limiting the PDO to service coverage or by coming up with a few outcome indicators. Also, some of the indicators, especially those related to service coverage, did not establish real baselines. Instead of a baseline value of zero that aimed at measuring the impact of the intervention over and beyond the original coverage, a real

baseline reflecting the existing level of coverage prior to the intervention could have been established.

30. The Municipal Investment component followed a ‘framework’ approach in which the subprojects were not identified up front; thus, the M&E that was set up at appraisal only formally reported on the number of ULBs receiving loans/grants and not on the results/impacts of the subprojects. To curb this limitation, the M&E system set up by the KUIDFC collected information on all subprojects, including the type of subproject, their outputs, and an estimated number of beneficiaries.

31. **M&E implementation and utilization.** The KUIDFC was responsible for the overall project monitoring, supervision, and consolidation of the progress in the activities of all the implementing agencies. The KUIDFC was also responsible for the Municipal Investment Support component, while the monitoring for the Bangalore Development component was the responsibility of the BBMP and BWSSB, who were charged to submit progress reports (including physical and financial progress) to the KUIDFC on a semiannual basis. Despite this design, at the initial stages of the project the M&E system was weak because of the lack of discipline of some of the implementing agencies to submit quality data on time and because of the KUIDFC’s own weaknesses in setting up a management information system to monitor progress.

32. The M&E system only took shape by the MTR when an M&E consultant was brought in, reports were started to be prepared in a timely manner, and the computerization (as opposed to manual systems) of indicators and data began to be implemented. Since then and until project closure, the M&E system functioned satisfactorily. The KUIDFC collated monthly progress reports from the various implementing agencies/ULBs. In addition, each agency undertook periodic review meetings besides progress reviews by the EC. The Bank received quarterly progress reports on a regular basis according to formats agreed at appraisal. In addition to this formal M&E mechanism, throughout the project, the teams used a simple monitoring system of Agreed Actions at the end of each supervision mission that helped the teams keep good track of the key program activities.

33. The M&E framework designed at appraisal went through a few adjustments during implementation, increasing the total number of indicators from 12 to 15, as follows:

- (a) The number of household sewerage connections that was included at appraisal as a component indicator was also reported as a PDO indicator.
- (b) A new PDO indicator on the number of ULBs participating in institutional development TA and municipal investment support components reporting improved municipal services was introduced at the first project restructuring in March 2011.
- (c) The reporting of the number of trainings at the ULB and state levels was done in conjunction and not separated, as envisioned at appraisal. This explains the outlier value of the indicator of staff trained which is three times higher than the value established at appraisal.
- (d) An indicator to measure the establishment of a new state urban framework/business model for the KUIDFC was introduced at the first project restructuring in March 2011.
- (e) A new component indicator on the number of people provided with improved water supply was introduced to comply with the corporate decision to include sector core indicators.

34. In addition, at the Midterm Review (MTR), the targets of two component indicators were revised to reduce the number of ULBs with geo-referenced maps from 202 to 49 and the number of ULBs to undertake subprojects from 50 to 32. During that revision, the team could have included two additional adjustments to the M&E system. First, the end-of-project target for the indicator on the number of ULBs with computerized municipal functions should have been reduced from 169 to 164, by virtue that the project always intended to roll out these systems to 164 and not 169 ULBs. Second, while the number of ULBs with geo-referenced maps to be

produced was reduced to 49, the end target included in the results framework used after the MTR recorded a value of 28 and not 49. This is because it was later agreed that 21 out of the 49 ULBs were going to receive support from the ADB, but this target was never revised in the M&E framework.

2.4 Safeguard and Fiduciary Compliance

35. **Environmental and Social Safeguards.** The project was rated as ‘Category A’ according to the Bank’s safeguard policies and was expected to have moderate to significant safeguard impacts. A Social and Environmental Assessment and Management Framework (SEAMF) was developed and appropriate measures were in place at appraisal to mitigate safeguards risks. These measures were implemented throughout the project. Overall, safeguard compliance was successful with only one Moderately Unsatisfactory Implementation Status and Results Report (ISR) during the early stages of implementation, out of the 20 ISRs filed by the project.

36. **Component B: Municipal Investment Support.** Environment and Social Assessments (ESAs) were not always prepared in a timely manner during the initial phases of the project, resulting in delays. During the MTR, an action plan was put in place to ensure preparation and proper implementation of ESAs to all subprojects. Although it took about nine months to implement the plan, it yielded good results and was praised by the QALP as a good and proactive tool to address noncompliance with safeguard instruments. At MTR, the KUIDFC’s safeguard responsibilities and coordination role, in terms of the ULBs, were enhanced by increasing its team size and composition and adding training programs in relevant safeguards areas, resulting in satisfactory implementation of the safeguard instruments (SEAMF, ESAs, and so on) during the remaining period of the project.

37. **Component C: Bangalore Development.** The implementation of the Bangalore Urban Road Rehabilitation subcomponent that laid over 125 km of roads had no land acquisition or displacement issues, so its implementation did not encounter any adverse safeguard considerations. For the Greater Bangalore UGD subcomponent, social safeguards were limited to community consultations and information on safety and awareness on temporary disturbances during the execution of works. This was so because the laying of sewerage lines did not require any land but only temporary dislocations and movement restrictions of the affected local population. With regard to environmental safeguards, at the initial phase of implementation, the project suffered from poor health and safety measures. To address this, a health and safety review of all investments and associated training was conducted, which subsequently contributed to improved practices by the contractors. At the initial phase, the implementing agency, the BWSSB, did not manage to deploy an environmental specialist, which resulted in inadequate monitoring and supervision of the Environmental Management Plans (EMPs). However, once this initial hurdle was overcome, no major safeguard issues were encountered as the bidding documents properly incorporated the EMPs and regular monitoring was carried out by the specialist. Similarly, the social team at the BWSSB facilitated bringing in community awareness on disturbances and measures to minimize discomfort through placing public information boards and community campaigns.

38. On the Greater Bangalore Pro-poor Sanitation Program, no major safeguard issues were encountered due to the mobilization of a team of specialists to facilitate project implementation. As a result of the project’s substantive efforts to deal with social issues (communication with community support organizations, community consultation, and so on), the capacity of the BWSSB and ULBs in this area was enhanced. Although only one safeguard audit was conducted during the project (instead of the several planned), it did not show any major concerns regarding the mitigation of safeguard risks.

39. **Fiduciary.** The fiduciary functions were handled by agencies with some prior experience in Bank projects and in cases where prior Bank experience was limited, capacity was supplemented by training programs in procurement and FM. By and large, the project complied with fiduciary covenants and adequate FM and procurement systems were in place. In the initial

phases, the project did not fully comply with the Bank's fiduciary standards, but after the MTR, the procurement and FM ISR ratings were Moderately Satisfactory throughout implementation.

40. **FM.** The different implementing agencies maintained appropriate accounting and financial records throughout the project but there were a series of problems at the initial phases of implementation, mostly due to ineffective coordination among the agencies. Some of the initial problems include irregular submission of financial reports unreconciled book records, weak FM staff, and large unspent budgets. These problems were detected early on and continuously monitored by the Bank team. The BBMP was the only agency that did not comply with the FM standards set by the project, resulting in ineligible expenditures and in the refund of claims made for this subcomponent.

41. The project provided budget and counterpart contributions in a timely manner throughout implementation. No fund flow issues were encountered and payments to vendors and suppliers were made in a timely manner. Only in a few cases, BWSSB payments were delayed due to contract variations. In terms of accounting, the KUIDFC maintained a robust accounting system on all project accounts and project accounting was a part of the overall entity accounting system. Accounting at the BBMP was weak which led to several reconciliation issues. The BWSSB has its own accounting system and reports were submitted to the KUIDFC for consolidation and reporting. Delays in the submission of interim financial and audit reports from the BWSSB occurred throughout the project. The project accounts were also brought into the purview of the internal audit and were reviewed on a timely basis. FM staffing in the case of the KUIDFC was adequate. The BBMP and BWSSB used their own staff for project accounting, which caused the project accounting to be compromised during times of competing demands.

42. **Procurement.** Overall, the project was compliant with the project's procurement procedures. There were some shortcomings that were addressed primarily through training programs. Most procurement challenges were encountered in the Municipal Investment Support component as many of the participating ULBs were less familiar with the Bank's procurement guidelines. The KUIDFC issued more than 15 procurement notices in the local language to familiarize the ULBs with project procurement rules and procedures. Also, in the initial phases of the Municipal Investment Support component there was limited response from the bidders. The Bank team worked closely with the counterpart agencies and ULBs to resolve this and a variety of measures were undertaken. These include the organization of a number of workshops to share and incorporate lessons learned from the bidding of the initial packages/lots; better dissemination of bidding opportunities; and introduction of modifications in the technical specifications, scope, packaging of bids, and so on. This built substantive capacity, and now the KUIDFC is preparing and managing complex contracts with its own resources.

43. Other challenges resulted from not aligning the procurement planning with detailed engineering and land acquisition that led to serious time overruns, cost escalations, and rebidding of works. This could have been prevented by (a) bringing analysis of market prices of items and data on recent contract prices while estimations were finalized and (b) making more accurate provisions for additional costs (related to project management, environmental and social aspects, and so on) and factoring them in the prices to be considered by the bidders.

44. Overall, fiduciary compliance was Moderately Satisfactory.

2.5 Post-completion Operation/Next Phase

45. **Transition arrangement to post-completion operation.** While most project targets have been met, at the time of project closure several activities remain in implementation, including the completion of 15 aerial maps (out of 28 maps to be financed by the Bank), 18 subprojects (out of 89), 506 toilets (out of 2,235), and 5–10 percent of the UGD works. The level of progress of all these activities is quite advanced and all of them are expected to be completed before the end of 2015. To ensure this, the project implementation arrangement will remain in place and

full support will be given for the financing of all pending activities, as formally recorded on the Proceeding of the 31st Meeting of the EC on March 11, 2015. The EC approved financing to complete all the KMRP investments that spill over beyond project closure in March 2015.

46. Sustaining reforms and institutional capacity. The government is aware of the importance of consolidating all the institutional building initiatives supported by the project and to that end has set up the Karnataka Municipal Data Society for continuing all the reforms undertaken by the Municipal Reform Cell (MRC). The Karnataka Municipal Data Society will continue to support e-governance initiatives across all ULBs; host and maintain all online applications; engage in capacity-building activities related to the reforms; and develop further online applications such as trade licenses, water tariff, asset management, and building plan approvals. The ADB, through its ongoing urban operation (NKUSIP), will support these initiatives until 2017.

47. Adequate staffing and management. The program trained 25,500 ULB and state-level staff and it is expected that this will help sustain the reforms and contribute to the institutional strengthening of the ULBs. The training module of the program also developed curricula for 17 competence areas and the associated training materials will be available for future training programs. Since training is a continuous process, 132 trainers were also trained during the project and another 100 resource persons identified to continue with the training programs. In addition, as a result of all the training activities of the program, the State Institute of Urban Development (SIUD), which is in charge of the training activities, has now instituted an urban cell to expand its training programs in the urban areas.

48. Out of all the institutional training activities, the utilization of the aerial maps is the only one that will require major efforts to ensure its sustainability. The ULBs are not yet fully aware of the significance of aerial plans as critical tools for the planning and management of their activities, so specific work plans, training, and capacity-building activities must be put in place to ensure that these maps are used to their full potential. The ADB, through its ongoing NKUSIP operation, will be supporting this area for the next two years.

49. The KUIDFC was substantially strengthened by implementing the KMRP and after project completion it will continue with its institutional role of facilitating the implementation of investments in the ULBs. Funding will come from other bilateral and multilateral institutions (mostly the ADB and the Bank) and through central schemes.

50. O&M arrangements

- **BWSSB.** In 2013/14, the total income of the BWSSB (including water and other-than-water revenue) was INR 710 crore against INR 689 crore for all its current expenditures, indicating that the BWSSB generates sufficient revenues to cover its full O&M expenses. Sewerage fees amount to 25 percent of the water fees, which will bring additional revenues once the billing of all the new connections are regularized. In addition, the project acquired several vehicles for the routine maintenance of the new pipes and the BWSSB is in the final process of recruiting 400 additional staff (mostly finance staff and engineers) to support its operations. As for the pro-poor investments, interviews with beneficiaries carried out as part of an implementation assessment revealed a very strong sense of ownership, which commonly contributes to the proper maintenance of the private toilets. The BWSSB intends to retain the Social and Economic Cell established under the project to help implement activities to be supported by a JICA water project and by central government schemes like the Swachh Bharat Sanitation Mission.
- **ULBs.** In terms of the maintenance of the ULBs subprojects, even though the ratio of their operating revenue/expenditure was used to determine the size of the investments, in various cases the O&M is still financed by the state. This is the case of the ULBs that embarked on complex 24x7 water and UGD projects in which the state has agreed to partially subsidize the O&M costs for up to two years after construction. In the meantime, the ULBs must

strive to increase their own revenues, especially through increases in property taxes by implementing the reforms introduced by the project.

51. Next phase/follow-up operation. The KUIDFC focus is mostly on completing all project activities, implementation of two ADB-supported water projects, and finalizing the preparation of a Bank 24x7 water project (Karnataka Urban Water Sector Improvement Project, KUWSIP II). At the time of project closing, no specific request for a follow-up urban operation has been received. However, the government is aware that very valuable infrastructure has been built, significant knowledge has been generated, and substantial capacity has been built in the ULBs and the implementing agencies. The first phase of reforms has created a strong base for a follow-up engagement. The government realizes that sustained engagement is essential to fully realize the benefits of the reforms supported by this project. Preliminary discussions with the government indicate that an eventual partnership with the Bank in the urban sector may include support in the implementation of aerial and master plans and in the expansion of infrastructure in 24x7 water supply systems, water reuse, UGD, and solid waste management.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design, and Implementation

52. The development objectives of KMRP are considered highly relevant to both the urban sector in the state and country and to the Bank's priorities for India. Cities in India are growing at a rapid rate, including in Karnataka, which has 39 percent of its population living in urban areas. India's 12th Five-Year Plan (2012–17) envisions increasing investment in urban infrastructure; strengthening urban governance and institutional capacity; and enhancing the financial sustainability of ULBs, all of which were supported by the KMRP. The high relevance of the project is evidenced by the government's attention to the urban sector, as illustrated by the recent approval in June 2015 of three national urban schemes: Smart Cities, Atal Mission for Rejuvenation and Urban Transformation; and Housing for All. The objectives of the KMRP are also highly relevant to the Bank's 2013–2017 Country Partnership Strategy (CPS) for India that recognizes urbanization as one of the three key strategic areas (spatial transformation) to accomplish the Bank's twin goals.

53. The relevance of design and implementation is considered to be Substantial. KMRP's complex design resulted from the implementation of a variety of institutional development and service delivery activities in Greater Bangalore and in over 30 other urban centers in the State. Despite the complexity of this multi-sector and multi-agency design, which is common in urban operations, KMRP M&E system allowed for the timely and accurate monitoring of project implementation and achievement of development objective. KMRP was successfully implemented, contributing to: (a) the sustainability and capacity building of ULBs by promoting policy reforms that will have long-term impacts; (b) the sustainability of municipal infrastructure by the direct involvement of ULBs and state-level institutions in the drive for reforms and in the management of investments; and (c) the expansion of services at a massive scale to unplanned and slum areas through large investments in Greater Bangalore, the third largest city in India. In hindsight, an improvement in the original design and implementation could have resulted from either a longer implementation period, or from an early preparation of the Greater Bangalore UGD investment.

3.2 Achievement of PDOs

54. The project achieved its development objective of improving the delivery of urban services in a substantial manner, as illustrated by the fact that two out of the three PDO indicators outperformed their end targets by a wide margin, with only one PDO indicator being 10 percent short of its end target.

- *PDO 1 - Improved municipal services:* Throughout the state, 89 subprojects (71 completed by project closure) in road rehabilitation, SWDs, water supply, drainage,

sanitation, and rainwater harvesting (RWH) were commissioned in 29 ULBs (target 32 ULBs), benefiting an estimated 2 million citizens. The cost of subprojects ranged between US\$150,000 and US\$6 million. By the time of completion at the end of 2015, there will be an additional 500,000 beneficiaries through 18 subprojects that are still under implementation.

- *PDO 2 - ULBs participating in institutional and TA activities:* Improvements in service delivery also resulted from all 213 ULBs in Karnataka adhering to a series of institutional and financial reforms to better plan, manage, and finance urban services and infrastructure. The KMRP enabled an expansion and scale-up of a smaller ADB-supported reform program, from 49 (23 percent) ULBs to an additional 164 ULBs (77 percent). This massive scale-up was highly ambitious and it was clearly a risk taking this approach. However, although it has taken time and enormous effort, the project did succeed in delivering transformative impact. The municipal e-governance subcomponent covers 18 million potential beneficiaries and has been recognized by eight different excellence awards (Information and Communication Technologies excellence award, e-India, e-Governance award, Best Urban Local Body award, and e-World award, among others).
- *PDO 3 - New sewerage connections:* Services notably improved in Greater Bangalore through the project's engagement in one of the largest and most complex urban sewerage activities in India, expanding urban services to more than 150,000 households (target 120,000 connections) and providing direct benefits to an estimated 610,000 residents.

55. Achievement of outcomes associated with the strengthening of the institutional and financial frameworks for urban services at the ULB and state levels was Substantial, with only one out of five component indicators not meeting its end of program target, as indicated below:

- Karnataka is the second state in India to undertake a very ambitious set of reforms, in terms of sectors and coverage of ULBs. In terms of sectors, a computerized e-governance platform was completed for the following municipal functions: (a) Birth and Death Registration system that has issued over 14 million digitalized birth and death certificates; (b) PGR system that has processed over 1.7 million complaints; (c) Double Entry Accrual-based Accounting system linked to the budget process (including annual publication of accounts); and (d) the introduction of a GIS-based Property Tax system that has surveyed and assessed over 1.5 million properties in the KMRP ULBs alone.
- Regarding the number of ULBs covered by the reforms, the e-governance platform was fully rolled out to 213 ULBs. Of that coverage, 77 percent is attributable to the KMRP (164 ULBs) while the other 49 ULBs were financed by the ADB. The KMRP coverage corresponds to 18.2 million urban residents that could benefit from the reforms. The KMRP always intended to roll out the e-governance platform to 164 and not 169 ULBs as stated in the PAD, but this end-of-project target was never revised.
- Full roll-out of accounting reforms, in the areas of budget, balance sheets, and annual performance reporting, to 158 ULBs—the remaining 6 ULBs were supported by the ADB *Nirmala Nagara* Program.
- Adoption of a new Urban Finance Framework for the state.
- Training of over 25,000 staff (target of 8,700 staff) at the state and ULB levels in 21 different areas of expertise for which curricula and materials were developed.
- Twelve completed geo-referenced, large-scale maps for land management purposes, covering over 1,000 km², and another 16 maps being developed to cover an additional 2,106 km². This is the only institutional development activity that was not fully completed (202 maps were targeted at appraisal and 49 at MTR), but the contracts for the remaining maps are already commissioned under signed contracts and expected to be completed by September–October 2015. Reasons for the constant delay of this activity include the poor quality of local providers, a last minute pull out from Survey

of India to engage in the activity, and the significant time needed to obtain clearances from the Ministry of Defence, the latter two factors being outside the control of the implementing agency.

56. All these reform activities, with their associated positive outputs, contributed to the intermediate outcome of strengthening the state and ULB institutional capacities, which in turn has resulted in better delivery of urban services. Improvements in service delivery directly attributed to the reforms include, among others, increased own source revenues (doubled from 2010 to 2015) to improve the financing (mostly operational expenses) of local services; less financial leakages resulting from better bank reconciliations by using double entry accounting at the ULB levels; opportunity costs savings in the individual costs for processing birth and death certificates for the population in ULBs; and better human resources capacity at the ULB and state level resulting from the KMRP's training program. While the counterfactual indicates that not much would have happened in the area of training in the absence of the KMRP, this Implementation Completion and Results Report (ICR) recommends that more rigorous analysis on the impact of trainings be done to gauge the effect of the training program on the improvement of services.

57. Achievement of outcomes associated with enhancing the quality of urban infrastructure was Substantial, with six out of seven relevant component indicators meeting their end-of-program targets as follows:

- A total of 89 subprojects (71 completed by project closure) that brought benefits in a variety of urban services to over 2 million beneficiaries were implemented by 29 ULBs (target 32). The project's approach to improvements in infrastructure was to empower the ULBs to procure, manage, and oversee urban investments. This learning-by-doing approach encountered several challenges (that is, problems in land acquisition, contract management, insufficient number of bidders, and so on), which explains the slight shortfall of this target by less than 10 percent.
- Urban road services improved through the construction of 125 km of roads in Greater Bangalore. Instead of 39 roads, 40 roads corresponding to 125 km (instead of 140 km) were built. The construction of the metro railway in Bangalore made the rehabilitation of one road section unnecessary, so the 15 km reduction had no material impact on performance of the network. The road work included rehabilitation of pavements, footpaths, drainage, street lighting, and signage. This work was completed on time.
- The project saw the successful implementation of one of the largest and most complex urban sewerage projects in India. This activity supported the very ambitious task of construction of the UGD of 308 km of main and trunk sewers, about 2,000 km of branch sewers and laterals, along with the restoration of about 2,000 km of roads affected by the sewerage construction program. Despite very difficult working conditions (that is, investments in high-density slums and valleys where sewers have to be laid under drain beds, and so on) the project managed to provide 152,167 new house service connections (target 120,000) and the number of connections is expected to reach a final figure of 175,580 connections once all the works are completed. At the time of project closure, 132,761 connections were fully operational, providing direct benefits to 610,000 people.
- Despite the complexities of working in slums and the late start of the pro-poor sanitation activities, the project outperformed its original target of 10,000 households by serving close to 30,000 households (equivalent to 138,000 individual beneficiaries) with either toilets and/or sewerage connections. Most of the beneficiaries were low-income people, especially women. In addition, as a result of this intervention, 32 slums were declared open defecation free (ODF) with 100 percent of residents having access to toilets, UGD, and disposal.

58. All these physical outputs significantly contributed to the intermediate outcome of improved urban infrastructure. They also contributed to the final outcome of improved service delivery by increasing the coverage and access to urban services. The Municipal Investments

Support component brought in important infrastructure investments to numerous ULBs that would not have materialized without the KMRP due to the ULBs' lack of access to capital financing. Similarly, the counterfactual indicates (as was explored at appraisal) that the big UGD would have not been financed by other sources of revenue. Thus, the KMRP investments directly benefited over 2.5 million residents, who would have been left underserved otherwise. In addition to the direct benefits of the investments, the KMRP's technical innovations in the water supply and sanitation (WSS) sector will provide indirect benefits in future investments in Karnataka. Following the innovations of the KMRP in the WSS sector, Karnataka is planning to implement a series of 24x7 water projects to be financed by the ADB and expanding the UGD network of Greater Bangalore to 110 additional villages.

3.3 Efficiency

59. **The efficiency of KMRP investments is considered to be Substantial.** At appraisal, the roads, the underground drainage and the pro-poor sanitation sub-projects of the Bangalore Development component were assessed using cost-benefit analysis, cost-effectiveness analysis and benefit analysis respectively. Meanwhile, standard economic methodologies were prescribed to appraise sub-projects to be identified under the municipal investment support component. These included cost-benefit analysis for water supply projects and cost-effectiveness analysis for projects with non-quantifiable benefits.

60. During the ICR, each of the three subprojects under the Bangalore Development component was assessed individually. Investments in a sample of three ULBs from the Municipal Investment Support component were also assessed. These ULBs (Chintamani, Chikkaballapur and Nanjangud) together represent two of the largest investments in water and sanitation (sewerage), as well as a mix of investments representative of the larger group of investments undertaken under the component. In total projects accounting for 63% of the costs of KMRP were assessed.

61. Cost-benefit analysis was used to assess the Bangalore pro-poor sanitation sub-component, and the water supply sub-projects in Chintamani and Nanjangud. Benefit cost ratio was assessed for the Chintamani urban roads sub-project. In the absence of data from the time of completion of the Bangalore Road Rehabilitation sub-component in 2009, a cost-effectiveness analysis was used in place of a cost-benefit analysis for the roads sub-component. Cost effectiveness analysis was also used to assess the under-ground drainage sub-component and other sub-projects under the municipal investment component. The results are summarized in the subsequent paragraphs and are presented in greater detail in Annex 3.

62. **Municipal Investment Support Component.** The 24x7 water supply sub-project in Nanjangud and the Chintamani water supply augmentation sub-project had ERRs of 20% (subproject appraisal estimate: 13.4%) and 34% (no subproject appraisal estimate available) respectively. The unit costs of the new underground drainage network in Chikkaballapur and augmentation of the existing underground drainage network in Chintamani had significantly lower costs (a) per household connected and (b) per million liters per day of investment costs for sewerage treatment costs compared to the estimates of the 2011 HPEC Report and the Economics of Sanitation Initiative. The unit costs of rainwater harvesting in Chintamani was lower than the unit costs of a similar project in Maharashtra. Investments in slum upgrading (involving minor road rehabilitation and storm water drainage) yielded a benefit of INR1.9 for every rupee of investment cost.

63. **Bangalore Development Component.** In the absence of data on ex post traffic/beneficiary or accident surveys conducted on completion of the road rehabilitation sub-projects, the unit costs of the Bangalore Road Rehabilitation sub-component were compared with unit costs under the Bank-financed Second Karnataka State Highways Improvement Project. Unit costs under KMRP are comparable, despite KMRP roads in Bangalore being urban roads, which are typically designed to higher standards. The Greater Bangalore Underground Drainage Sub-component resulted in high property value increases as estimated at appraisal and provided

significant savings to beneficiary households, in particular to poor households, on their monthly sanitation expenditures. Costs incurred per household and unit costs of sewerage contracts (per KM) were found to be comparable respectively with the estimates of the High Powered Committee Expert Committee for comparable Class IC towns and unit costs of sewerage contracts awarded in 2015 under the Bank-supported National Ganga River Basin Project. Based on increased property values, savings in monthly household sanitation expenditures, and time saving, the Greater Bangalore Pro-poor Sanitation sub-component is estimated to have generated an ERR of 78%.

64. Financial Analysis. The financial performance of BBMP, BWSSB, and the three ULBs (Chikkaballapur, Chintamani, and Nanjangud) were assessed at completion to determine their ability to operate and maintain project created assets and service KMRP sub-project loans. BBMP's revenues and operating surpluses during 2009-10 to 2011-12 exceeded appraisal estimates and BBMP is assessed to be capable of sustaining investments. BWSSB has been in deficit since 2005-6 and financial forecasts for 2015-20 indicate that it will continue to need GoK support, especially for its capital investment program. BWSSB will need to improve its operational efficiency by decreasing non-revenue water, implementing energy efficiency programs, and implement cost recovery tariffs. Chikkaballapur, Chintamani, and Chintamani will continue to rely heavily on grant revenues to augment their limited own source revenues.

65. Administrative Efficiency. KMRP was designed as a five year project. As discussed in Section 2.1 Project Preparation, Design and Quality at Entry, the Bangalore Development Component was not ready for implementation on project approval and the Municipal Investment Support Component involved a large number of ULBs. As a result, despite strong efforts by the implementing agencies and the Bank, the project required an extension of three years, with some planned activities to be completed after the closing date. In addition, some innovations were added to the project during implementation (e.g., 24x7 water supply) which delayed implementation and increased costs; however, these are offset by the improved service coverage and cost-effective solutions. The commingling of central government funds (JNNURM) reduced Bank contribution to UGD. On balance, administrative efficiency is considered substantial.

3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

66. The project's development objectives remain highly relevant as evidenced by the emphasis on the urban sector in the 12th Five-Year Plan (2012–17) and the launch of three Urban Schemes by GOI in 2015; the continuous engagement of Karnataka in the urban sector through other ADB (urban) and Bank (water) projects; the importance placed by the Bank's 2013–17 CPS on spatial transformation; and by the recent requests for Bank financing of similar operations in other states. The relevance of the project's design was substantial. Further, the project substantially achieved its original intended development outcomes with targets of 12 out of 15 indicators met or exceeded with regard to both institutional reforms and physical investments. While the institutional reforms benefited a potential number of 18 million people, over 2.5 million people benefited from municipal investments in urban centers through the state, and over 600,000 people in the Greater Bangalore area, (of which 88,000 are poor) benefited from underground sewerage. Finally, despite the loan extensions, the economic benefits outweighed the costs and delays of the project, resulting in substantial positive returns on investment.

3.5 Overarching Themes, Other Outcomes, and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

67. **Poverty impacts.** By design, the scope to assess issues relating to poverty and gender in this project were limited to the Great Bangalore Pro-poor Sanitation Program. Despite huge technical challenges in laying sewerage lines in difficult terrain on hilly and marginal lands

where a number of slums are located, the program outperformed its original targets (10,000 households) by providing 2,202 toilets (1,696 toilets constructed and 506 under construction) and 29,745 sewerage connections (12,457 of which are still to be regularized) in 101 declared slums in Bangalore. These investments directly benefited 138,000 people, many of them poor. In addition, as a result of the pro-poor activities, 32 slums acquired an ODF status, with expected positive health and economic benefits to the poor. Slum dwellers also benefited from the promotion of hygiene and health education campaigns that reached 15,778 households in 52 slums.

68. Gender and inclusion aspects. The project design did not include any direct gender-related interventions but women benefitted in a number of ways. First, the benefits of a number of the subprojects had particularly positive impacts on women; for example, the expansion of water supply to about 120,000 people alleviated the hardships of women in fetching water from distant places. Second, the pro-poor activities also had direct impacts on women. Focus group discussions (FGDs) with the communities and case studies that were conducted during implementation revealed that the pro-poor sanitation activities significantly benefited women, adolescent girls, and girl children living in program slums (Ghosh and Chature 2014). As stated by the women beneficiaries, their safety, dignity, and self-respect were significantly and positively enhanced as a direct result of the program. Third, other benefits included comfort, privacy, and convenience of use, at any time of the day, of individual toilets. Women, and men to a lesser extent, also benefited from time savings in access to latrines/place for defecation (on average, 1.5 hours per day per person), resulting in freeing up of productive time.

69. The pro-poor sanitation activities also had positive impacts on the elderly and disabled. Elderly people and those with visual, speech, and hearing disabilities benefited in terms of comfort, convenience, and ease of access to toilets, as well as independence from the need for support to access toilets. The program also provided for additional support to the elderly and disabled people who did not have the means to construct the toilets themselves. Finally, time savings of caregivers (to the disabled and elderly) in the order of one hour per day were also reached.

(b) Institutional Change/Strengthening

70. The KMRP helped expand and scale up a nascent institutional reform program that had started with ADB support in 49 ULBs to all 213 ULBs in the state. As a ‘municipal reform program’, with an ambitious US\$23 million Institutional Development component, the project brought substantive results in the areas of policy reform and institutional capacity building across various areas in 77 percent of all the ULBs in the state. In addition to these overarching impacts (see section 3.2 and annex 2), the KMRP introduced some innovative institutional changes (see paragraphs 73 to 76).

71. *Capacity building at a large and sustainable scale:* The implementation of the project’s training program through state institutions consolidated the SIUD as a nodal institution for capacity building in urban areas in Karnataka and beyond. The SIUD has not only already developed 17 core urban-related courses but also trained over 100 trainers to continue building capacity on these areas. Also, as needs evolve and urban issues become more complex, the SIUD now has the foundation to develop additional courses, for example, in urban mobility. Because of the work done through the KMRP, the SIUD is now advising other states on how to run urban courses.

72. *Safeguards capacity:* As a result of the continuous supervisions and safeguard reviews of various project activities, which resulted in several trainings and capacity enhancement initiatives, the safeguard management capacities of the KUIDFC and BWSSB were substantially strengthened. This additional capacity is now being put into action in several other activities undertaken in the urban sector through central government schemes and other projects.

73. *Technical innovations*: The innovative technical approaches that were tried in the ULB and the Greater Bangalore investments created a strong institutional capacity to implement similar projects in the future. This is evident in the case of the three 24x7 water projects that the KUIDFC is now trying to implement in 20 other towns with support from the ADB. Similarly, working on very challenging physical and institutional conditions taught the BWSSB how to handle big sewerage projects that it is now looking to expand to 110 additional villages in Greater Bangalore, covering an area of 225 km², benefiting over half a million people. On the pro-poor component, substantial capacity was built through the creation of the Social and Economic cell that for the first time allowed the BWSSB to enter the slums. Despite various challenges, the BWSSB has now basic knowledge and experience in pro-poor sanitation that will prove very valuable in the implementation of several central government schemes that are coming up in the area of sanitation. Innovation in the area of reforms is also commendable, with the introduction of better and more efficient policies in the areas of property taxation, demand-side governance, accrual accounting, e-services, and others. Similar efforts are now being undertaken in other states like Madhya Pradesh, for example.

74. *Spatial planning*: Despite the challenges to complete the aerial maps and to train ULBs to use them as the basis of their urban development, in the places where they have become available, aerial maps are having a very positive impact on the way in which infrastructure and urban development is being planned. The KUIDFC envisions that in the future most planning will be done on the basis of aerial maps.

(c) Other Unintended Outcomes and Impacts (positive or negative): Not applicable.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

75. The project did not conduct a final beneficiary assessment. However, as part of project implementation, a study was commissioned to look into the pro-poor sanitation component, which included focus group interviews with several beneficiaries (Ghosh and Chature 2014). Overall, several positive impacts and outcomes were observed, including (a) increased access to toilets by the poorest households; (b) improved overall environment in program slums; (c) improved quality of life of the poor in terms of safety, convenience, and dignity; and (d) sanitation and hygiene behavior change among beneficiaries (see annex 5).

76. As part of the final assessment of the program, the SIUD conducted a third-party evaluation of its training program. Out of 17 courses, 12 were evaluated in two phases: concurrent evaluation and impact assessment. The concurrent evaluation looked into (a) the process involved in organizing the training programs; (b) the availability and quality of the infrastructure and the quality of the faculty or trainers; and (c) the contents and delivery of the curriculum. The impact assessment looked at (a) the impact of the training programs conducted by the SIUD on the knowledge, skill, and attitudes of the participants; (b) the impact of the training programs on improvements in achieving the outcomes of the SIUD; and (c) modifications for making the future training programs more useful. Overall, the evaluation highlighted a positive impact in terms of the participants' knowledge, skill, and attitudes. Some limited impact in these areas was associated with the lack of adequate personnel to be trained at the local level and with the fact that some areas for training could have been more closely linked to the type of investments or activities financed by specific projects or programs. A related issue that came up is that as the role of private contractors becomes more salient in the provision of services and the role of government moves from service provider to monitor or regulator, trainings and expertise in contract management (as opposed to traditional training in municipal services) become more critical.

77. Finally, at project closure, the KUIDFC administered a simple questionnaire to all ULBs that were engaged with urban infrastructure and reforms initiatives to get their views on the impact of the KMRP. Of the ULBs consulted, 50 percent (15) completed the questionnaire that assessed 10 different areas of support according to their level of usefulness—from 'Not Useful' to 'Very Useful'. The consolidated results from the questionnaire show that, in general,

between 75 percent and 80 percent of the beneficiary ULBs who responded to the survey found the KMRP useful or very useful.

4. Assessment of Risk to Development Outcome

Rating: Moderate

78. The risk that internal and external changes may result in the development outcomes not being maintained is considered to be moderate. The government has put several actions in place to minimize risks (see section 2.5): (a) the state EC's formal commitment to fund all ongoing activities under the KMRP until their completion; (b) the institutionalization of the reforms in the Karnataka Municipal Data Society; (c) capacity building through the training of 25,500 staff and 132 trainers; (d) increases in property taxes that will contribute to the maintenance of the investments through higher O&M budgets; and (e) the positive net operating balance of the BWSSB that will become stronger as all the sewerage connections are regularized. In addition, the recent recommendation from the 14th Finance Commission to triple the amount of transfers going to the ULBs will also be a contributing factor towards the sustainability of the investments.

79. Although these measures will help maintain both the institutional and physical outcomes, some challenges remain and warrant a risk rating of Moderate. These include: (a) permanent efforts to recruit and train municipal staff on a permanent basis; (b) continued efforts, despite increases in the ULBs revenues to cover O&M completely; (c) ensure adequate training for the full utilization of the aerial plans for urban planning; and (d) despite the migration of the reforms to the Karnataka Municipal Data Society and its future two years of financing by the ADB, it is yet to be seen whether the society will manage to provide the support needed to keep all the systems up and running throughout the whole state.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Unsatisfactory

80. During project preparation and appraisal, the Bank considered alternative approaches and lessons learned in similar operations, and ensured that they were incorporated into the project design. The Bank team was adequately staffed and took into account all major aspects of project design, including technical, financial, economic, institutional, and fiduciary analyses. Project preparation took over three years, giving the Bank enough time to properly design the institutional development and municipal investment support components. However, the late incorporation of the Greater Bangalore UGD Program increased the complexity of project design and rendered the original project duration unrealistic. The Greater Bangalore UGD Program, which represented 45% of the loan amount, was not fully prepared at the time of appraisal, resulting in the contracts for UGD investments being signed four years after effectiveness, i.e., 1.5 years before the original closing date. QAG's assessment of the project under Quality Assessment of the Lending Portfolio (QALP) underscored the additional complexity resulting from the late addition of UGD investments to KMRP, which resulted in KMRP becoming both a municipal development project and an infrastructure project.

81. Other shortcomings that compromised the quality at entry include: (a) an underestimation of the complexities involved in coordinating complementary investments financed by different sources (i.e., separating the financing of a sewerage network from that of sewerage treatment plants); (b) an overestimation of the capacity of government agencies to acquire land in a timely manner, as discussed in section 2.1; and (c) the pro-poor sanitation sub-component not being fully designed at appraisal, resulting in an overestimation of demand for toilets and the lack of

articulation of toilet construction and sewerage connections—which was corrected during the project’s first restructuring.

82. An earlier request by government to incorporate the Greater Bangalore UGD Program into KMRP could have greatly helped to ensure implementation readiness of the project. However, the Bank’s decision to be responsive to the government’s need came at a cost, as some preparatory activities took place during implementation, thus adding time for project completion. The Bank’s performance in ensuring quality at entry is therefore considered Moderately Unsatisfactory.

(b) Quality of Supervision

Rating: Satisfactory

83. The project was adequately supervised throughout its almost nine years of implementation. An average of two supervision missions were conducted each year and 20 ISRs were filed. In addition, staff from the country office provided continuous support throughout implementation, which was highly valued by the client. Overall, the project ratings in the ISRs were realistic and issues for management attention were highlighted in a clear and timely manner. However, ISR ratings could have been more candid around the first extension of the project in January 2012; achievement of the PDO was rated Satisfactory and implementation progress was rated Moderately Satisfactory, just three months short of the original closing date, when only 42% of the loan had been disbursed.

84. Because of the challenges on project design discussed in the quality at entry section, supervision was resource intensive and focused heavily on helping to resolve implementation difficulties. The complex project design required both municipal development and infrastructure expertise. A multi-sector team consisting of institutional, social, and financial experts, as well as water, sanitation and road engineers, diligently supervised project activities. The Bank made enormous efforts to supervise complex institutional reforms as well as over 30 urban works scattered throughout the State, and particularly the complex UGD and pro-poor sanitation works, which required a different skills compared to a typical municipal development project.

85. The supervision of fiduciary and safeguard aspects was sound, especially during the initial phases of implementation when a series of difficulties emerged, including lack of compliance with safeguards and fiduciary procedures. The Bank devoted sufficient resources, including management attention and hands-on implementation support, to ensure compliance with the Bank’s fiduciary requirements. The QALP considered various aspects of environmental supervision as best practice.

86. Supervision reporting was candid and realistic and problems were detected in due time and prompt corrective action taken. For example, two years into implementation, the project went through a series of difficulties (e.g., slow implementation and disbursements, breach of legal covenants, and misuse of funds in the Bangalore Roads sub-component) and the Bank took a series of key decisions, including downgrading of project ratings (IP, PDO, fiduciary, and components) and adopting an action plan to address the issues. As a result, by the MTR, the project was back on track.

87. Supervision inputs were well planned and maintained throughout the almost nine years of implementation. Despite the length of the project, the task team leader changed only once and most of the team members remained in place for the duration of the project. This, together with the ready availability of most fiduciary and technical specialists from the country office, facilitated dialogue with the client and helped resolve issues in a timely manner. The government was highly appreciative of this availability, and considered it the most important value added by the Bank. Despite persistent delays and quality at entry issues, the Bank’s strong

supervision efforts enabled project activities to be completed with very substantial development impact. In view of this, Bank supervision is rated Satisfactory.

(c) Justification of Rating for Overall Bank Performance

Rating: Moderately Satisfactory

88. With a Moderately Unsatisfactory rating for quality at entry and a Satisfactory rating for supervision, as well as the Outcome rating of Satisfactory, overall Bank performance is rated as Moderately Satisfactory in accordance with the harmonized rating criteria of the Independent Evaluation Group (IEG).

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory

89. The GOK remained committed to the objectives of the project during project preparation and implementation: (a) it remained engaged with the policy reforms; (b) reviews and approvals were done in a timely manner; (c) expenditures were authorized on time; (d) no counterpart funding problems were ever present; and (e) government officials worked closely with the Bank's project team, for example, during the processing of the project restructurings.

(b) Implementing Agency or Agencies Performance

Rating: Moderately Satisfactory

90. The project was implemented by five agencies: DMA, DTP, KUIDFC, BBMP, and BWSSB and the ULBs themselves. The overall rating of their combined performance is considered to be Moderately Satisfactory. Some of these entities had no previous Bank experience, so substantial capacity and trainings were needed to get them up to speed. The KUIDFC, which carried out all aspects of project management, showed good ability to learn and with appropriate staffing, training, and TA, its performance was rated as Satisfactory. The BWSSB and BBMP, which were, respectively, in charge of the Greater Bangalore sewerage and roads investments, encountered various hurdles that called for close Bank supervision. The BWSSB very aptly dealt with very complex procurement and technical issues in the sewerage component, including organizing vendor conferences to simplify and clarify the bid documents, and made several technical adjustments to lay down over 2,000 km of sewerage pipes under very challenging circumstances, also showing a Satisfactory performance. On the other hand, the performance of the BBMP, which was in charge of the roads subproject, was Unsatisfactory, primarily due to their continued failure to submit financial reports on time and the fact that repayments of ineligible expenditures had to be processed.

91. The DMA and DTP, which supported the implementation of the Institutional Development component, showed a Satisfactory and Moderately Satisfactory performance, respectively. Both managed to produce timely reports and accounts for the use of funds and project results. In addition, the DMA led a very ambitious reform program, in close coordination with the ADB as well as with the ULBs and various other government departments. The DTP, on the other hand, was slow in getting the procurement of the maps under way. Although delays were also due to factors beyond the DTP (for example, very lengthy clearances from the Ministry of Defense), the whole production of maps could have been more strategically handed at the initial stages of implementation, preventing the completion of some of the maps going beyond project closure.

92. Lastly, the performance of the ULBs varied widely. By design, the ULBs were intended to fully own the investments, so they played an active role in their planning, procurement,

supervision, and maintenance. Based on the assessment of the KUIDFC and the interviews and site visits with the ULBs during implementation and at the time of project closing, their performance is considered to be Moderately Satisfactory, with some of the ULBs proactively dealing with their problems and seeking KUIDFC support but with many others not being proactive and showing lack of ownership, leading to implementation delays and, eventually, lack of sustainability.

(c) Justification of Rating for Overall Borrower Performance

Rating: Moderately Satisfactory

93. With a Satisfactory rating for government performance and a Moderately Satisfactory rating for implementing agencies' performance, overall borrower performance is rated as Moderately Satisfactory, in accordance with IEG's harmonized rating criteria.

6. Lessons Learned

94. **Reforms and infrastructure investments take time to implement.** The KMRP was a complex project, covering various sectors and geographical areas, and was implemented by five different state-level agencies and 29 ULBs. KMRP's original implementation period of 5.6 years was an underestimate for such a complex project in India, where the average project implementation period is 7–8 years. Project duration should be determined realistically at appraisal, based on complexity, instead of being overly influenced by the norm of 4–6 years. In addition, the Bank and the client must candidly assess the pros and cons of adding large components at a late stage that add to project complexity.

95. **Arriving at the right mix of project activities is difficult and requires trade-offs to be made.** The KMRP demonstrated the difficulty of balancing the financing of big investments (and disbursements) in a mega UGD component versus the low-tech and small investments in toilets and sewerage connections in slums. The KMRP experience also showed that getting WSS utilities and Bank projects to focus on service delivery, especially for the poor, is not easy. The pro-poor subcomponent represented only three percent of project financing, but added significant complexity to the project. However, it improved services to the poor, which is the core mandate of the Bank.

96. **Financing and implementation of municipal projects through state-level institutions calls for a delicate balance between state-level support and local ownership.** The KMRP successfully completed work on reforms and investments by having a very strong technical presence from the KUIDFC in the form of dedicated staff in each of the ULBs. In some cases, municipal project implementation units looked after program activities. The KUIDFC presence at the regional/district levels was also instrumental in overseeing and providing back up support at the ULB level. To foster local ownership, ULBs were given the flexibility to determine their own project priorities, inviting tenders, selecting contractors, and ensuring quality during implementation. ULBs were also empowered through the creation and strengthening of local systems of accounting, e-governance, taxation, etc., and through continuous training courses. Despite these efforts, local ownership was not fully achieved, among other things, because the inability of some ULBs to cover their O&M costs. These shortcomings arose both because creating capacity is a long-term process, and because some 'structural weaknesses' of ULBs in India, which are beyond the project's influence, e.g., autonomy over human resource policies and tax regimes.

97. **The size of investments is of critical importance when working through a municipal fund.** The KMRP showed that, ideally, selected projects must strike a balance between substantial impact on beneficiaries and the ULB's capacity to generate resources to service debt and finance O&M. However, there is often a trade-off between the size or impact of the projects and the local capacity to manage the investments. The KMRP brought to light issues at both ends of the spectrum. While 'setting the bar low' (by specifying minimum size investments)

allowed small ULBs to access KMRP funds, these small projects resulted in high transaction costs and had low impact. At the other end, the KUIDFC continues to be involved in O&M of some of the bigger projects due to a lack of financial and technical capacity at ULBs. Going forward, as both small and large projects may be needed, Bank projects could consider adopting different procedures under a ‘small’ versus ‘large’ window.

98. Successful introduction of new ideas or standards takes time and continuous adjustment during implementation. However, because they can be transformative, it is crucial to create adequate space, time, and tolerance for such innovations rather than sacrifice them for easier operations and faster disbursement. The KMRP offers the experience of 24x7 water projects, which the KUIDFC is now rolling out to other cities under a Bank water project (KUWSIP II) and through an ADB operation. Based on the 24x7 water pilots in KUWSIP I, the KMRP scaled up the approach and financed full-fledged 24x7 water projects in some of the smaller cities. While this added complexity to the project and resulted in a longer implementation period, the KUIDFC is particularly appreciative of the Bank’s support for this innovative approach and for the capacity it helped create in managing these types of investments.

99. Stimulating the supply for goods and services may help expedite project implementation. The KMRP has shown that where there are no responsive bids from the market, it is essential to reach out to potential bidders to explain the scope of work and clarify issues. BWSSB organized training, meetings, and vendor conferences to simplify and clarify bid documents. This increased competition and resulted in high-quality proposals at competitive prices. Similarly, in the case of municipal sub-projects, the Bank worked closely with counterpart agencies and ULBs to share and incorporate lessons learned from the bidding of the initial packages/lots, including: better dissemination of bidding opportunities, introduction of modifications to technical specifications, scope, and packaging of bids, etc. This resulted in increased competition and better quality and prices. In general, procurement of goods and services under Bank rules was recognized by the government as a major value added by the Bank.

100. Service utilities often lack appropriate skills to work in slums. The pro-poor component of the project showed that although BWSSB is well-equipped to handle technical complexities, it had to set up an economic and social unit to address issues of a social nature. However, the motivation levels of field personnel was often low because they were mostly on contracts (as opposed to full-time staff). This could have been avoided, at least partially, by directly involving NGOs with experience working in slums and dealing with social and community issues. Alternatively, full-time staff could have been assigned, with better incentives and recognition for their contributions.

101. Setting up beneficiary contributions correctly is a critical success factor in pro-poor sanitation. The KMRP required 50 percent beneficiary (excluding the poorest households) contribution for toilet construction, which proved to be too much for some households. Future interventions can address this either through a willingness to pay (WTP) assessment as part of project preparation or through a more flexible approach on beneficiary contributions during implementation.

102. Targeting the poor is difficult and requires extensive preparatory work. KMRP’s initial estimation of a demand for 10,000 toilets was an overestimate by a factor of three. The program was designed for notified slums, whereas the highest demand for toilets was in the undeclared slums, which were left out of the program. Although the project might have missed the poorest of the poor by excluding the undeclared slums, it managed to serve the slum population which is often not provided services. Future pro-poor operations may consider covering undeclared slums where many of the poorest live.

103. Not only toilets but connections. The project adjusted its approach to achieving the goal of improved sanitation by moving beyond the provision of toilets and allocating time and

money to the task of connecting both new and existing toilets to the sewerage network. Experience under the project shows that toilet construction should usually be accompanied by a program to connect the toilets to the sewerage system and that this cannot be left to the beneficiaries alone.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies: See annex 7.

(b) Cofinanciers: Not applicable

(c) Other partners and stakeholders: Not applicable

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in US\$, Million equivalent)

Components	Appraisal Estimate (US\$, millions)	Actual/Latest Estimate (US\$, millions)	Percentage of Appraisal
Component A	28.40	16.20	57
Component B	90.00	74.90	83
Component C	179.80	171.10	95
Component D	11.30	14.40	127
Total Baseline Cost	309.46	276.60	89
Physical Contingencies	0.00	0.00	0
Price Contingencies	0.00	0.00	0
Total Project Costs	309.46	276.60	89
Front-end Fee PPF	0.00	0.00	0
Front-end Fee IBRD	0.54	0.54	100
Total Financing Required	310.00	277.14	89

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (US\$, millions)	Actual/Latest Estimate (US\$, millions)	Percentage of Appraisal
Borrower		85.00	0.00	0.00
International Bank for Reconstruction and Development		216.00	185.70	85.90
Local Sources of Borrowing Country		9.00	0.00	0.00
Total		310.00		

Annex 2. Outputs by Component

A. Institutional Development Component

Computerization of Municipal Functions

1. The objective of this initiative was to create a municipal e-governance platform to improve the delivery of public services in the state. In the first phase, the platform supported the development of the following four specific applications: (a) Property Taxation with GIS; (b) Fund-based Double Entry Accrual Accounting; (c) PGR; and (d) Birth and Death Registration. In the last few years more applications have been taken up, including service-level benchmarking; asset management; and water tariff online applications. The ADB supported the development and implementation of the applications in 49 ULBs, and the Bank rolled them out to an additional 164, to cover all the ULBs in the state. Today, nearly a decade since this initiative was started, the following outputs have been accomplished:

e-Governance Platform

- All 213 ULBs in Karnataka are part of a municipal e-governance platform/network, centrally housed and managed by the MRC at the DMA. All ULBs have websites that act as gateways to access all other applications and also as a one-point source of information pertaining to ULBs.
- The MRC (comprising about 55 staff) functions as a completely self-sufficient information technology unit. In addition to hosting and maintaining all the ULBs databases and web-based applications, the MRC also develops new applications and modules, provides trouble-shooting services to the ULBs, and provides training for ULB staff in this area.
- Each ULB has an information technology/e-governance staff member who manages a team of 3–5 staff who provide support to all online services.
- The e-governance platform provides useful information on public grievances and the financial health of the ULBs which was not easily available earlier.
- The ULB revenues have gone up steadily as a result of (a) assessing 34 percent of unassessed properties that were already part of the tax net; (b) reduction of tax revenue leakages due to the use of the birth and death registration system; and (c) greater efficiency in the managing of deliverables due to accrual-based accounting.
- Citizen/ULB communication and interface has increased.

GIS-based Property Tax Assessment and Payment

- The property tax valuation was changed from annual rental value assessment to a capital value method, and a ‘self-assessment system’ was put in place.
- The revenue departments of all the ULBs were computerized and a GIS-based Property Tax Information System was put in place.
- Field surveys using digitized ward maps with individual properties and with a unique property ID number were conducted in a total of over 1.5 million properties.
- A comprehensive database of all the properties with automatic calculation of the property tax obligations and a software to handle different modalities of payment, including the ability to integrate with credit card and ATM systems, was completed.
- Cadastral-level GIS maps were generated for over 200,000 km², covering over 3.8 million properties in the state (1.5 million under the Bank and 2.3 million under the ADB). This is the largest and most comprehensive GIS initiative in India, to date.
- Around 400,998 unassessed properties were brought into the tax net.

Online Birth and Death Registration and Certification

- Online registration at the ULB or through a hospital with an automated computer-generated registration ID was operationalized for birth and death certificates.

- Computerized birth and death certificates were issued to the citizens, covering a backlog from the past 10 years.
- Since 1990, around 14 million birth and death certificates have been digitalized.
- Since 2011, 1.2 million certificates have been issued, generating US\$200,000 in revenues.

PGR Module

- The PGR enables citizens to easily register their complaints or suggestions with the ULBs and track them. It provides multiple access channels—Internet (online), phone, and paper form—for registration of complaints. It shows the trends and patterns on the type and location of problems across the city.
- The PGR allows for faster and systematic redressal of complaints, escalation of complaints to higher authorities, and state-level monitoring of complaints.
- The PGR has been implemented across all the ULBs in the state. Since 2011, the PGR has received 1.7 million complaints and processed over 95 percent of those.

Fund-based Double Entry Accounting Accrual System (FBDEAAS)

- The FBDEAAS has been implemented in all the ULBs.
- With the FBDEAAS, accounts of assets, liabilities, incomes, and expenses of the ULBs in a double entry system have been generated.
- Financial reports for disclosing financial performance and the status of ULBs have been generated in over 190 ULBs.
- Accounts of ULBs have been published annually, increasing transparency.
- The following legal/statutory provisions were completed as part of the KMRP: Accounting and Budget Rules; Municipal Accounting Manual; Opening Balance Sheets Preparation Guidelines; Asset Management and Valuation Methodology Manual; and Municipal Accounts Audit Manual.
- The budget, opening balance sheets, and annual performance reports are completed in all the ULBs (the remaining six ULBs have also been completed but under the ADB *Nirmala Nagara* program).

Land Management and Planning

- An Urban Mapping Cell (UMC) under the Department of Plan and Country Planning was set up to prepare scientific base maps for all urban areas.
- The UMC is supported by 38 technical positions, 28 of which were filled under the project. The recruitment of 10 additional individual consultants is under way with ADB funding.
- Three packages containing 28 urban areas were procured under the KMRP and the status is as follows:
 - Package 1, completed: It comprises 12 urban areas with satellite imagery and 1 area (Hassan) with the Total Station technique, covering 1,143 km² of surveyed land and 10,634 maps.
 - Package 2, under implementation: It comprises 5 urban areas with satellite imagery, covering 1,007 km² of surveyed land and 641 maps. A contract was signed in August 2013. Digital data has been submitted for 4 areas and the preparation of maps is under way. Work is to be completed by October 2015.
 - Package 3, under implementation: It comprises 11 urban areas with satellite imagery, covering 1,099 km² of surveyed land and 642 maps. Geo-referencing and orthorectification completed for the 11 areas and the preparation of maps is under way. Work is to be completed by September 2015.

Capacity Building

2. Based on a Capacity Enhancement Needs Assessment study undertaken by PwC, 21 areas of training were identified. The development of the curricula and the training of municipal

functionaries in 17 of these areas were undertaken by the SIUD and the other 4 areas by the MRC.

Training through SIUD

- Developed and approved 17 curricula in the areas of human resources, governance, legal, FM, technology, and social issues
- Trained 132 trainers and identified 100 resource people
- Trained 12,318 urban functionaries, including officials of the ULBs and elected representatives of the ULBs over a period of two years
- Completed third-party evaluation of 12 programs assessing the knowledge, attitude, and skills of the training activities
- Developed and recorded e-lectures by experts for various topics
- Developed e-learning modules for 4 topics
- Published 7 handbooks on various topics (FM, e-governance, and so on)
- Produced 7 films on municipal governance issues

Training through MRC

- Developed and approved 4 curricula in the areas of computerization, budgeting, and accounting
- Trained 13,220 officials in the areas of computerization, double entry and accrual accounting, asset management, and standard-level benchmarking

B. Municipal Investment Support Component

3. This component financed subprojects in urban basic services in 29 ULBs outside Bangalore. The subprojects were grouped into 4 packages, consisting of 89 subprojects, amounting to a total cost of US\$72.2 million. The subprojects covered the following sectors: Roads, SWD, UGD, RWH, Water Supply, and Low Cost Sanitation (LCS). At the time of project closure, 71 subprojects (80 percent) have been completed and 18 are under advanced progress of implementation. In terms of geographic composition, the top three ULBs, Kollegala, Nanjangud, and Hassan, amounted to 25 percent of the total investments. As of sectoral composition, investments took place primarily in drainage (44 percent), water supply (28 percent), and road rehabilitation (26 percent). The total number of beneficiaries of the municipal investments is about 2.5 million, out of which benefits for 2 million have already materialized and the remaining half a million will benefit once all projects are complete, especially the 24x7 water projects. The physical outputs and estimated benefits for the subprojects are as follows:

Roads

- Number of subprojects: 16
- Physical output: 230 km of roads and drains
- Estimated beneficiaries: 1,389,245

UGD

- Number of subprojects: 8 (4 completed and 4 under implementation)
- Physical output: 53,843 connections (27,383 completed and 26,460 in progress); 431 km of network and 13,150 manholes
- Estimated beneficiaries: 242,000 (123,000 actual plus 119,000 after completion)

SWDs

- Number of subprojects: 13
- Physical output: 32 km of SWDs

RWH

- Number of subprojects: 9
- Physical output: 83 public buildings with RWH installations

Water Supply

- Number of subprojects: 31 (17 completed and 14 under implementation)
- Physical output: 450 km of pipes and 4 water treatment plants.
- Estimated beneficiaries: 841,965 (534,000 actual plus 307,965 after completion)

LCS

- Number of subprojects: 12
- Physical output: 3,125 toilets/connections
- Estimated beneficiaries: 14,063

C. Bangalore Development Component

Urban Road Rehabilitation: Rehabilitation of 126.10 km of priority road network, including pavement, footpath, drainage, street lighting, and signage.

Greater Bangalore UGD

- Procurement of 25 packages (15 international competitive bidding and 10 national competitive bidding) of works
- By project closure, 90 percent of the total works were completed with the following results:
 - Laid 2,183 km of trunk, branch, and lateral sewerages (285 km of trunk pipes and 1,898 km of branch and lateral pipes).
 - Completed 70,870 manholes.
 - Restored 1,573,468 m² of damaged roads.
 - Completed 152,416 sewerage connections, of which 132,761 are fully operational. The remaining connections are already completed but will only be connected to the network once the trunk sewerages are completed.
 - Treated 58 MLD of sewerage. Once all STPs are completed in 2016 the volume of treated sewerage will increase to 199 MLD.

Greater Bangalore Pro-poor Sanitation Program: The Greater Bangalore Pro-poor Sanitation subcomponent produced the following outcomes:

- Targeted 31,038 households in 101 slums through either toilet construction or sewerage connections.
- Improved overall environment in program slums following provision of toilets and house service connections to UGD lines, with provision for safe disposal of wastewater.
 - Constructed 1,696 toilets out of 2,202 work orders issued
 - Completed 29,745 household connections of toilets to UGD, out of which 12,457 connections are still to be regularized
 - Achieved ODF status in 32 slums (100 percent toilets + 100 percent UGD + disposal completed)
- Numerous awareness campaigns to improve hygiene practices and sanitation and wastewater disposal were conducted as follows:
 - Covered 15,778 households under house-to-house awareness campaign
 - Covered 52 slums under the awareness campaign
 - Covered 42 slums with interpersonal communications campaigns
 - Covered 20 slums with street plays
 - Covered 10 slums with hygiene programs for school children
 - Conducted case studies in 12 slums
 - Distributed books and brochures in 20 slums

Annex 3. Economic and Financial Analysis

Economic Analysis

1. During the ICR, economic assessments were carried out to evaluate the efficiency of KMRP investments. Investments for which benefits could be quantified were assessed using cost benefit analysis (CBA), while cost effective analysis (CEA) was undertaken in other cases. Each of the three sub-projects under the Bangalore Development component was assessed individually. Sub-projects under the Municipal Investment Support component were analyzed in a sample of three ULBs one each representing two of the largest investments in water and sanitation (sewerage), and one with a mix of investments representative of the larger group of investments undertaken under the component. Table 3.1 shows the costs of projects and sub-projects assessed; approximately 63 percent of KMRP investments were covered by the economic analysis.

Table 3.1. Costs and Appraisal Methodologies of KMRP Components

Component and Subprojects	Project Cost (INR million)	Economic Analysis Methodology	
		Appraisal	ICR
Bangalore Development Component	7,910		
a. Bangalore Road Rehabilitation	1,560	CBA using HDM-IV	Cost-effectiveness ¹
b. Greater Bangalore UGD	6,050	Cost-effectiveness	Cost-effectiveness
c. Pro-poor Sanitation	300	Identification of potential benefits	CBA
Municipal Investment Support Component	658		
a. UGD System: • Chikkaballapur (UGD and STP) • Chintamani (missing links)	244	Cost-effectiveness, qualitative analysis (suggested) ³	Cost-effectiveness against per unit cost benchmarks of similar systems
b. Water Supply: • Nanjangud (24x7) • Chintamani (augmentation)	292	CBA (suggested) but information available only for Nanjangud ²	CBA
a. RWH • Chintamani	2.5	Cost-effectiveness (suggested) ³	Cost-effectiveness against per unit cost benchmarks of a similar projects
b. Urban Roads, Slum Upgrading, and SWDs • Chintamani	119	Slum upgrading: Benefits quantified on the basis of increase in property values; cost-effectiveness for small urban projects (suggested) ³	Assessment of benefit-cost ratio
Total	8,568		
% of KMRP costs assessed under economic analysis	63		

Sources: Project costs from the KUIDFC; KMRP status as of March 2015.

Note: HDM-IV - Highway Design and Maintenance-IV.

1/ It was not possible to use the appraisal stage methodology, due to the absence of updated traffic surveys of roads under KMRP and other comparable roads within Bangalore; and lack of information on non-project interventions undertaken by the city in the time elapsed since project completion (e.g. traffic management, signalization).

2/ The appraisal document shared by the implementing agency did not provide details of assumptions. The EIRR was re-estimated at the ICRR stage using available information.

3/ Information unavailable on whether suggested methodologies were adopted during project life.

2. Key assumptions used are presented in Table 3.2.

Table 3.2. Key Assumptions

Assumption	Value	Source
Number of persons per household	4.6	2011 census results for Karnataka
Value of time lost for adults as % of daily wage	30%	Water and Sanitation Project (WSP), Economic Impacts of Inadequate Sanitation in India, 2011
Value of time lost for children as % of adults' value of time	50%	WSP, Economic Impacts of Inadequate Sanitation in India, 2011
Attribution rate for increase in property values:		Based on attribution factor assumptions from the ICRR of the Third Tamil Nadu Urban Development Project, 2014
• UGD	20%	
• Roads	10%	
Average plot area per household in sq. ft.		Based on information available from http://ksdb.kar.nic.in/slums.asp 63rd round survey of the National Sample Survey Organization
• Slums	191	
• Non-slum urban areas	504	

3. **Bangalore Road Rehabilitation.** At appraisal, economic analysis was conducted for the Bangalore Roads Rehabilitation sub-component using a customized version of the Bank's Highway Design and Maintenance (HDM-IV) model, taking into account expected reduction in vehicle operating costs, travel time savings, and a reduction in the number of accidents. The overall ERR for the roads component was estimated to be 33.1 percent. A sensitivity analysis conducted confirmed the economic robustness of the component.

4. Implementation of the component concluded in 2009, i.e., six years before the ICRR. At the ICRR stage, data on ex post traffic/beneficiary or accident surveys conducted on completion of the sub-projects could not be obtained. In view of this, per kilometer costs of roads rehabilitated under KMRP were compared with unit costs under the Bank-funded Second Karnataka State Highways Improvement Project. As shown in Table 3.3., unit costs under KMRP are comparable to costs under the state highways project, despite KMRP roads in Bangalore being urban roads, which are typically designed to higher standards.

Table 3.3. Unit Cost Comparison (INR million per km)

	Length (km)	Estimated Cost (INR, million)	Unit Cost (INR, million per km)
KMRP nominal costs (2005–2009)	126.10	1,934	15.3
KMRP in 2014 prices	126.10	2,681	21.2
Second Karnataka State Highways Improvement Project (2014 prices)			
Haskote-Chintamani package	52.5	983.6	18.7
Haveri-Hangal package	31.8	902.5	28.3
Hangal-Tadas package	43.5	948.5	21.8
Dharwad-Saundatti package	36	763.9	21.2
Thinthini-Kalamala package	73.8	1,575	21.3
Chowdapur-Gulbarga package	28.6	584.6	20.4

5. **Greater Bangalore UGD project.** The project implemented the cost-effective technical and design solutions identified at appraisal: (a) selection of STP locations to ensure least cost by using gravity conveyance of sewage; (b) use of storm water and PVC pipes; and (c) selection of a 30-year design period.

6. The eight ULBs covered by KMRP were added to Bangalore city limits in 2007 to create the BBMP. These ULBs had a population characteristic of Class IC towns (between 0.5 and 1 million persons) as reclassified by the 2011 High Powered Expert Committee (HPEC). Despite cost escalations due to site challenges, delays in right-of-way clearances, and labor issues encountered during implementation, the cost of providing sewerage network connections

under the Greater Bangalore UGD component (designed to accommodate population growth over the next 30 years) at a little over INR12,200 per household are comparable to the HPEC estimates for Class IC towns at INR11,700 per household. Per kilometer costs of the KMRP were also found to be lower than the unit cost estimates of sewerage contracts awarded in 2015 under the Bank-supported National Ganga River Basin Project in Allahabad.

7. Some of the benefits of the UGD system include:

- *Increase in property values.* Based on field interviews, it was found that property values have increased on average by INR800 per sq. ft. or approximately 35% since implementation of the project. This is in line with the expected increase of 7 to 60 percent estimated in the PAD. The increase in the value of properties (per household) that is attributable to the UGD network is estimated at INR80,640, i.e., a property value increase of INR1.40 for an investment of INR1. This is a conservative measure as the network is designed to accommodate populations up to 2040, and only 20% of potential beneficiaries have been connected.
- *Savings in monthly sanitation expenditures.* BWSSB's average monthly domestic UGD network user charge of INR 57 per month is about INR13 per household lower than the average cost to a household for the collection, treatment, and disposal without a UGD connection. Therefore beneficiaries enjoy better services at lower costs.
- **Greater Bangalore Pro-poor Sanitation project.** Benefits of UGD in slum areas were identified based on case studies and focus group discussions with beneficiaries in the eight ULBs:¹
- *Increase in property values.* Property values in slum areas connected to UGD increased from INR250 to 500 per sq. ft.
- *Savings in monthly sanitation expenditures for households newly connected to UGD.* Assuming that households pay the minimum INR14 monthly UGD user charge, they would save about INR54 per month compared to the monthly cost² for sanitary collection, treatment, and disposal without UGD.
- *Time savings.* Convenience, safety, dignity, and self-respect of most residents, especially women, adolescent girls, and girl children living in program slums have been significantly enhanced. At the reported average saving of 1.5 hours per day, the estimated average value of time saved ranges from INR2,318 to INR4,635 per year per person.

CBA undertaken using estimated time savings (for households with new toilets), monthly savings in sanitary expenditures (for households newly connected to the UGD), and increase in property values attributed to improvements in sanitary conditions, indicates an ERR of 78 percent, which is substantially higher than the 12 percent social discount rate even without taking into account the health benefits of improved sanitation.

8. **Municipal investments in water supply.** CBA was conducted for the 24x7 water supply project in Nanjangud and the water supply augmentation project in Chintamani. The results are summarized in Table 3.4 below.

¹ Basic data from Belliappa, Saswati Ghosh and Chature, Praveen, "Greater Bangalore Underground Drainage: Pro Poor Sanitation Sub-component," August 2014

² Source: Non-network system: A cost-effective approach for improved service delivery? (undated)

Table 3.4. Nanjangud and Chintamani Water Projects

	Nanjangud	Chintamani
Project	24x7 Water Supply	Water Supply Augmentation
Duration	2014–up to present (completion expected by end 2015)	2011–2013
Benefits considered	<i>Appraisal:</i> Savings from use of piped water, health benefits including decrease in expenditure through reduction in the incidence of disease. <i>ICR:</i> Time savings, additional water consumption.	<i>Appraisal:</i> n.a. <i>ICR:</i> Time savings
ERR	<i>Appraisal:</i> 13.4% <i>ICR:</i> 20%	<i>Appraisal:</i> n.a. <i>ICR:</i> 34%
NPV	<i>Appraisal:</i> INR 6.87 million <i>ICR:</i> INR 125 million	<i>Appraisal:</i> n.a. <i>ICR:</i> INR 19.89 million

Note: In this table, ‘Appraisal’ refers to the appraisal of the sub-project, not Appraisal of KMRP.

9. **Municipal investments in the UGD.** The unit costs of (a) the new UGD network and STP in Chikkaballapur and (b) augmentation of the existing network in Chintamani were compared with the estimates of Class IV+ towns and were found to be significantly lower, in terms of both per household costs for providing sewerage connections (by the 2011 HPEC Report) and per million liters per day investment costs for sewerage treatment costs (estimated in the Economics of Sanitation Initiative). Admittedly, these comparisons are not precise, but they do provide an indication of the project’s cost effectiveness.

10. **Rainwater harvesting (RWH).** Rooftops of three public buildings in Chintamani were fitted with an RWH system, which was estimated to harvest a total of 3 million liters per year for each building per year (about 750 kiloliters per month per building), which translates to an additional 245 persons served per day based at 100 lpcd. The unit cost per liter of rainwater harvested in Chintamani, at INR0.13 per liter, compares favorably with the unit cost of INR0.18 per liter in a similar project in Maharashtra.

11. **Slum upgrading, storm water drainage, and road-related projects.** These small projects rehabilitated roads in two slums that lead to the main and arterial roads and provided for the rehabilitation of culverts and roadside drains, including covering of side drains with concrete slabs. Chintamani also undertook the rehabilitation of four open unpaved primary storm water drains (SWDs) and the shifting of electrical poles along the side of the road. A total of 14.28 km of roads, including 1.03 km of SWDs, were constructed. These projects improved access, mobility, and roadside management in the city. Households along the slum roads have improved their respective houses or properties. The average real property value increase in slum areas reported in the UGD pro-poor component is estimated to be around INR16.8 million per km. The investments yield a benefit of INR1.9 for every rupee invested.

Financial Analysis

12. The results of the analysis of the financial performance of BBMP, BWSSB, and the three ULBs visited at the ICR stage are summarized in the following paragraphs.

13. **BBMP.** As shown in Table 3.5, BBMP’s revenues and surpluses between 2009 and 2012 exceeded appraisal stage projections. BBMP is assessed to be capable of sustaining investments as well as expanding investments in new projects.

Table 3.5. BBMP Revenue Receipts and Expenditures (INR millions)

	2009–10 Projected at Appraisal	2009–10 (Actual)	2010–11 (Actual)	2011–12 (Actual) ^{/1}
Tax revenues		11,120	17,160	15,240
Revenue grants		5,180	5,950	5,080
Total revenue receipts	7,652	16,300	23,110	20,320
Revenue expenditures	5,229	9,830	12,430	14,020
Revenue surplus	2,423	6,470	10,680	6,300

Source: KMRP PAD and the BBMP as cited in the Infrastructure Needs Assessment for Bengaluru City 2015–2020, Memorandum to the 14th Finance Commission.

Note: /1 = Latest available provided.

14. **BWSSB.** A review of BWSSB finances between 2005–06 and 2013–14 (see Table 3.6 below) indicates that BWSSB had adequate resources to cover operating expenses. However, from 2009-10 water expenditures exceeded water revenues, with the difference being by revenue from other sources.

15. BWSSB had a growing overall financial deficit over the period assessed, which was covered by GOK, which provided relief by deferring interest and principal collection. KMRP water supply and sewerage investments in the Bengaluru Metropolitan area will expand BWSSB's consumer base and support growth in revenues. However, BWSSB will need to improve efficiency by decreasing its nonrevenue water (around 42 percent in 2012), implementing energy efficiency programs, and implementing cost recovery tariffs. Financial forecasts for BWSSB, undertaken as part of KUIDFC's Memorandum to the 14th Finance Commission, show that BWSSB will need government support during 2015–2020, especially for its capital investment program.

Table 3.6. BWSSB Income and Expenditure (INR crores)

	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14
Income									
Water Revenue	3,800	4,149	4,327	4,529	4,761	4,840	4,893	5,123	5,920
Other than Water Revenue	573	723	542	818	806	561	1,221	713	1,181
Total Income	4,373	4,872	4,869	5,347	5,567	5,401	6,114	5,836	7,101
Expenditure									
Establishment Expenses	527	530	603	743	777	1,142	1,236	1,296	1,528
Power Charges	2,218	2,279	2,281	2,441	2,948	3,069	3,247	3,247	3,565
Repairs and Maintenance	255	288	396	601	761	676	697	775	957
General Administration	181	294	315	390	346	291	405	511	868
Total Operating Expenses	3,181	3,391	3,595	4,175	4,832	5,178	5,585	5,829	6,918
Operating Surpluses	1,192	1,481	1,274	1,173	735	223	529	7	182
Operating Expenditure as % of Total Income	73	70	74	78	87	96	91	100	97
Operating Expenditure as % of Water Revenues	84	82	83	92	101	107	114	114	117
Depreciation	231	627	641	619	699	769	1,081	882	1,631
Interest Payments	1,069	1,045	1,040	1,123	1,170	1,202	1,094	1,081	3,006
Provisions	15	14	13	11	49	25	8	8	8
Total Expenditure	4,510	5,093	5,292	5,940	6,597	7,052	7,589	7,799	11,562
Surplus/Deficit	-137	-221	-423	-593	-1,030	-1,652	-1,475	-1,964	-4,461

Source: BWSSB

16. **ULBs.** Chikkaballapur, Nanjangud and Chintamani rely heavily on grant revenues to cover total yearly expenditures. While tax revenues have gradually increased in all the ULBs, they contribute less than 15 percent of the total receipts. The bulk of the expenditure in all three ULBs is for human resource management and O&M.

17. *Chikkaballapur* was able to cover O&M expenditures from own source revenues (except for year 2011–12). The KMRP-supported UGD sub-project required a contribution of about INR27 million from the ULB, which Chikkaballapur was able to handle.

18. *Chintamani* was able to meet expenses only with the support of grant receipts in three of the past five years. Chintamani contributed around INR14.49 million between 2010 and 2014 for KMRP sub-projects, resulting in deficits in 2012–13 and 2013–14. However, it regained a net surplus position (INR51 million surplus) in 2014–15. The KMRP water sub-project carries an estimated yearly amortization of INR0.37 million starting in 2016³, which can be accommodated as long as Chintamani maintains its surplus.

19. *Nanjangud* has relied significantly on grants to meet O&M expenses in three of the past five years; however, tax revenues and user fees and charges have increased in recent years. A minimum monthly domestic tariff of INR125 for 0–25 liters and INR6 for every additional liter is expected to cover the estimated O&M cost of about INR109 per connection. Nanjangud expects increases in power charges (which will likely comprise a large chunk of O&M costs) to be covered through the regular State Finance Commission grants. It also plans to pursue improvements in NRW,⁴ collection (currently at 75 percent), and operational efficiency. Nanjangud will need to rely on government grants to service the estimated annual loan amortization of INR7 million per year plus interest⁵ for its capital investments in the KMRP water supply sub-project.

³ Interest of 8.5 percent, 5-year grace period and 15-year amortization. *Source:* KUIDFC.

⁴ No estimate on NRW is available but this could be around 40 percent or higher. Based on water treatment plant operations (10.9 MLD capacity with current intake of about 6.5 MLD), output is about 5 to 5.4 MLD, while overall consumption by the end consumer is 4 MLD. Total loss in the system is at 35 to 40 percent.

⁵ Principal of INR 106.36 million (40 percent of project cost), 8.5 percent interest, 5-year grace period, and 20-year amortization.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team Members

Names	Title	Unit
Uri Raich	Task Team Leader ICR Stage	GSURR
Sita Ramakrishna Addepalli	Senior Environmental Specialist	GENDR
Harinath S. Appalarajugari	Senior Environmental Specialist	GENDR
Arnab Bandyopadhyay	Lead Transport Specialist Engr.	GTIDR
Venkata Rao Bayana	Consultant	GSURR
Ashish Bhateja	Senior Procurement Specialist	OPSOR
Francois Boulanger	Sr. Urban Economist	MNSSU
Parthapriya Ghosh	Senior Social Development Specialist	GSURR
Savinay Grover	Financial Management Specialist	GGODR
Yash Gupta	Senior Procurement Specialist	GGODR
Mohammed Hasan	Consultant	GSURR
Manoj Jain	Lead Financial Management Specialist	GGODR
Raghu Kesavan	Senior Infrastructure Specialist	GSURR
Raghava Neti	Senior Infrastructure Specialist	GWADR
Srinivasa Rao Podipireddy	Sr Water & Sanitation Spec.	GWADR
Robin Michael Rajack	Sr Land Administration Specialist	GSURR
Sanjay Srivastava	Lead Environmental Specialist	GENDR
Michelle Lisa Chen	Program Assistant	GSURR
Sunita Singh	Program Assistant	SACIN

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	US\$, thousands (including travel and consultant costs)
Lending		
FY03		79.92
FY04		275.96
FY05		220.51
FY06		96.91
FY07		0.27
FY08		0.00
Total:		673.03
Supervision/ICR		
FY03		0.00
FY04		0.01
FY05		0.00
FY06		63.10
FY07		127.75
FY08		152.79
Total:		343.65

Annex 5. Beneficiary Survey Results

The project did not conduct a final beneficiary assessment. However, project impacts were captured through the following three assessments.

1. Pro-poor Sanitation

Methodology: As part of project implementation, a study was commissioned to look into the pro-poor sanitation component (Ghosh and Chature 2014). Case studies of individual beneficiaries and FGDs in selected slums were used to understand impacts. The four slums selected for case studies included a pilot slum, an ODF slum, a slum where the payment mode was changed from two-stage to one-stage, and a slum that went through many hurdles during implementation.

Case studies and FGDs were conducted using the following criteria: before and after project status, hurdles faced in implementation, perception of project, process adopted, and suggestions for similar projects in future. Intensive discussions with two of the community organizers and two site engineers (concerned with project implementation in the slums selected for the case study) of the BWSSB were held. FGDs were conducted with a total of 67 adults (42 female and 25 male) and 15 adolescents (11 girls and 4 boys). The study included 10 case studies with individuals/beneficiaries.

Results: According to this assessment the Greater Bangalore Pro-poor Sanitation subcomponent and the larger UGD component of the KMRP had the following positive impacts and outcomes:

- Increased access to toilets by the poorest households through provision of subsidy / removal of affordability constraints;
- Improved overall environment in program slums, following provision of toilets and house service connections to UGD lines with provision for safe disposal of wastewater;
- Improved quality of life of the poor in program slums, in terms of safety, convenience, and dignity; visual improvement in living conditions in the localities; and reduced smells, flies, and mosquito menace;
- Pro-poor unit (Social and Environmental Cell) in the BWSSB established and functional, with well-defined processes for sanitation service delivery to poor;
- Policies of the BWSSB related to inclusion of the poor in water and sanitation service delivery defined;
- Enhancement of capacities, skills, and experience of the Social and Economic Cell staff and other BWSSB staff related to service delivery, progress monitoring, and reporting on sanitation services to the poor;
- Rise in property prices in poor settlements as a result of improved living conditions;
- Likely positive health impacts resulting from improved hygiene practices and awareness;
- Sanitation and hygiene behavior change among beneficiaries;
- Achievement of financial inclusion in the formal banking system by some poor households;
- Positive impacts on benefited women, adolescent girls, and girl children living in program slums in the form of increased comfort, convenience, privacy, safety, dignity, and self-respect;
- Benefits from time savings in access to latrines as opposed to open defecation (on average, 1.5 hours per day per person), resulting in freeing up of productive time; and
- Positive impacts on the disabled and elderly in terms of comfort, convenience, and ease of access to toilets as well as independence from need for support to access toilets.

2. Third-party Evaluation of Training Activities

Methodology: A third-party validation was commissioned to assess the impact of the training on job performance. The third-party evaluation was performed by nine independently hired external evaluators on the following 12 (out of 17) training programs: Gender and Equity Concern to City Managers, Management Development Program for Engineers in Urban Local

Bodies, Conduct of Statutory Meeting, Public Private Management, Resource Mobilization, Urban Poverty Alleviation, Urban Zoning Regulations and Building Bye Laws, Quality Management and Preparation of Citizen Charter, People Management and Office Management, House Keeping and Communication Skills, Urban Disaster Management, and Water and Energy Audit and Water Conservation Practices. Each of the third-party evaluators was briefed on the method and objectives with which the training evaluations were to be conducted. The following were the specified objectives of the evaluation:

- To evaluate the process involved in organizing training programs and find out the effectiveness of this process;
- To evaluate the quality of the infrastructure and the quality of the faculty/trainers;
- To evaluate the contents and delivery of the curriculum and its effectiveness on the training;
- To assess the impact of the training programs on the participant's knowledge, skill, attitude, and performance levels;
- To assess the impact of the training programs on improvements in achieving the outcomes; and
- To suggest modifications required for making future training programs more useful.

The evaluation was done by conducting concurrent evaluations of two courses and by assessing their impact. For conducting the concurrent evaluation of the programs, courses were observed, noting down the following details: the implementation of the training schedule by the resource persons, the methods used, the contents delivered, the response of the trainees, and the physical arrangements of the classrooms. Under each topic, two of the courses were concurrently evaluated, a course conducted at Mysore (on the campus) and a course in another town/city (off campus). After the completion of the first concurrent evaluation and the submission of the report, the training institute ensured that the feedback was given to the course coordinators who were requested to write a compliance report. In cases where the compliance report was given by the course coordinators, the evaluators' job of observing the second program included observing whether the suggestions assured to be complied with were followed.

After allowing for a gap of six months from the completion of the training program, the impact of the program was assessed. For this, 20 trainees of each program were randomly selected from the list of trainees who attended the respective course, ensuring geographical spread and gender inclusiveness. The 20 trainees were interviewed either (a) by surface mail, (b) by email, (c) by telephone, and/or (d) face-to-face. The evaluation work also included collection of secondary data from the training institute and interaction with the primary stakeholders.

Results: Although it varied from course to course, the third-party evaluation found that, in general, (a) the training programs were well-designed, coordinated, and managed; (b) a majority of trainees found the courses useful and their performance improved as a result of the training activities; (c) in terms of knowledge, skills, and attitude, the programs had a positive effect on the trainees; and (d) a high proportion of training objectives were fully or partially covered during the courses.

Despite the positive assessment of the training program, the following issues were considered to be critical in the evaluation: (a) availability of good resource persons; (b) more focus on practical exercises than on theoretical lessons; (c) reliance on hands on exercises with examples and field visits; (d) group work should be stimulated and given more time to develop the exercises; (e) be more inclusive in the trainings of the private sector, local representatives, and other relevant stakeholders. Other shortcomings of the training programs were due to the lack of adequate personnel to be trained at the local level and the fact that some areas for training could have been more closely linked to the type of investments/activities financed by specific projects/programs.

3. ULB Assessments of Institutional Reforms and Municipal Investments

Methodology: Since the ULBs were the beneficiaries of the reforms and municipal investments supported by the KMRP, the KUIDFC compiled a questionnaire to capture some of the impacts of the reforms and the municipal investments on the participating ULBs. The questionnaire was administered to all the ULBs (29) that were engaged with both urban infrastructure and reforms initiatives to get their views on the impact of the KMRP. Fifty percent of the ULBs (15) completed the questionnaire that assessed 10 different areas supported according to their level of usefulness—from ‘not useful’ to ‘very useful’.

Results:

	Very Useful	Useful	Moderately Useful	Not Useful
Accounting Reforms	7%	80%	13%	–
Property Tax Information System	7%	80%	13%	–
Birth and Death Registration	7%	80%	13%	–
Public Grievance Redressal	27%	73%	–	–
Capacity Building	7%	86%	7%	–
Municipal Investments	7%	86%	7%	–
Procurement Guidelines	20%	80%	–	–
Project Implementation Arrangement	7%	93%	–	–
	Excellent	Very good	Good	Poor
Overall Rating	7%	20%	73%	–

Annex 6. Stakeholder Workshop Report and Results

(Not applicable)

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

Client's Perspective

on

World Bank

Funded

Karnataka Municipal Reforms Project (KMRP)

Prepared by

**KARNATAKA URBAN INFRASTRUCTURE DEVELOPMENT AND FINANCE
CORPORATION**

August 2015



1. Justification for the Project.

1.1 Karnataka is the fifth-most urbanized State in the country, with 23.6 million urban residents spread across 213 municipalities or Urban Local Bodies (ULBs).

1.2 With an ever-growing urban population in the State, urbanization contributes significantly not only to the growth of the GDP, but also increases pressure on land, infrastructure and urban services. Further, the government organizations are plagued by mismatch between responsibilities and financial resources, weak capacity, insufficient accountability and excessive controls, which have impede service delivery, thereby leading to deteriorated quality of life in the cities. These factors have also discouraged investments and stifled economic growth, both at the State and National levels.

1.3 With the intention of addressing these issues, the Government of Karnataka (GoK) introduced extensive Municipal Reforms in 2004. Further, the Karnataka Municipal Reforms Project (KMRP) was taken up with the assistance of World Bank to ensure that the reforms initiated are scaled up and replicated in all the ULBs of the State. Although the major focus of the KMRP was on reforms like institutional development and capacity building of ULBs, essential urban infrastructure works under the Project were meant as incentives for the ULBs to take up these reforms.

1.4 The major focus of KMRP was to achieve effective governance by improving the financial and administrative capacity of ULBs and also through decentralization.

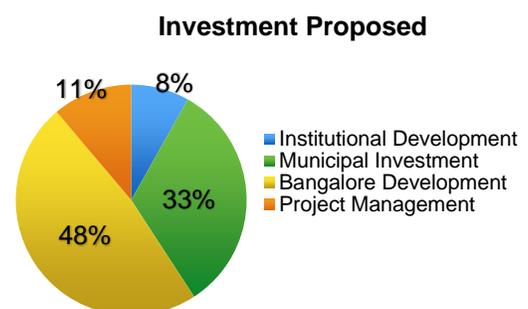
2. Objective:

2.1 The key objective of the Project, namely, improving delivery of urban services, was achieved by:

- Strengthening the institutional and financial frameworks in urban service delivery at both the ULB and State levels.
- Improving the quality of urban infrastructure by mobilizing the financial resources of the participating ULBs.
- Improving the roads system in Bangalore.
- Improving the sanitary conditions in the eight erstwhile ULBs around Bangalore.

3. Original Components

3.1 Component A – Institutional Development, supported institutional capacity building activities aimed towards better transparency and accountability at the ULB and State levels in key areas, including, computerization of basic municipal functions, urban land management and planning, financial management reforms, and training of ULB and State level staff. In addition to the same, technical assistance was provided to the Urban Development Department (UDD) and its line agencies also.



3.2 Component B — Municipal Investment Support, provided performance-based loans and grants to ULBs outside Bangalore, for investments in urban infrastructure services like water supply, roads, streets, slum upgradation, solid waste disposal, sewerage, and storm water drains.

3.3 Component C — Bangalore Development, provided financing support for the rehabilitation of the Bangalore City Road Network and the underground pipes of the Sewerage System in the eight erstwhile ULBs around Bangalore City, including the construction of pro-poor sanitation facilities at the community and individual levels.

3.4 Component D — Project Management, supported project implementation, including incremental operating costs of the Municipal Reform Cell (MRC) and KUIDFC and a Project Development Advisory Facility to support the preparation and implementation of sub-projects.

4. Implementation Arrangements:

4.1 The Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC) was appointed as the Nodal Agency and was responsible for the overall project monitoring, supervision, and consolidation of the progress achieved by all the implementing agencies.

4.2 In addition to the above, KUIDFC played a major role in hand holding the ULBs under the Municipal Investment Component for implementing the sub-projects.

4.3 The implementing agencies for Component C, i.e. Bangalore Development were: Bruhath Bengaluru Mahanagara Palike (BBMP) for road rehabilitation, and Bangalore Water Supply and Sewerage Board (BWSSB) for the Greater Bangalore - UGD & pro-poor components.

4.4 The Directorate of Municipal Administration (DMA) was primarily responsible for the implementation of the computerisation and accounting reforms. A dedicated Municipal Reform Cell (MRC) was created under the control of DMA for implementation of the said reforms.

4.5 The Directorate of Town and Country Planning (DTCP) was responsible for the reforms in the area of urban mapping. A dedicated Urban Mapping Cell (UMC) was created under the supervision of DTCP for the implementation of the said reforms.

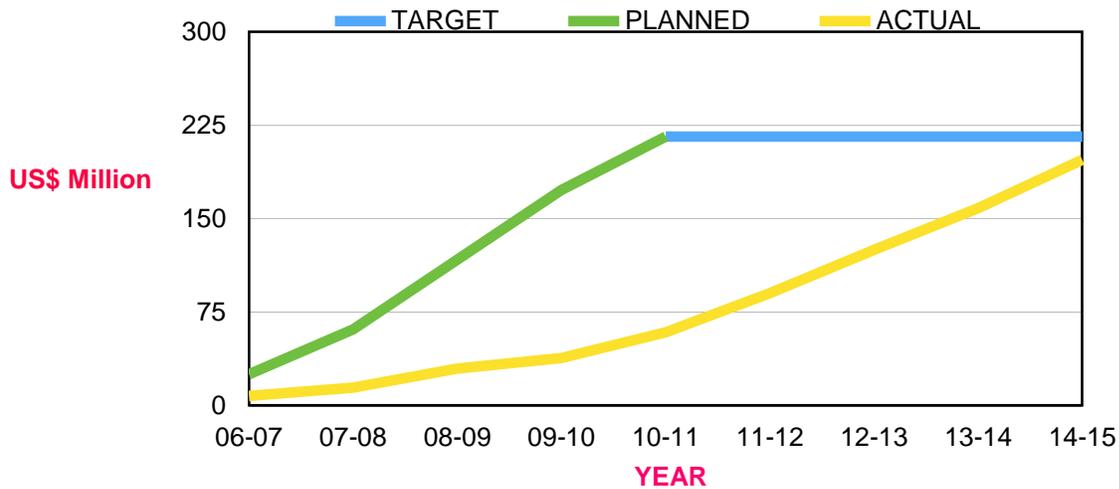
4.6 The State Institute of Urban Development (SIUD), Mysore was in charge of the training and capacity building activities,

5. Utilization of Bank Funding:

Components	WB Share (US\$ in Million)	Utilized (US\$ in Million)	%
Institutional Development	19.01	16.13	85%
Municipal Investment	75.97	42.53	56%
Greater Bangalore Development	111.72	135.92	122%
Project Management	8.76	9.2	105%
Front End Fee	0.54	0.54	100%
Total	216	204.32	95%

Note: The utilized details provided above are as on end of August 2015 and subject to change

Year Wise Reimbursement Claims



6. States experience in implementing the project

6.1 Institutional Development Component:

6.1.1 Computerization of Basic Municipal Functions and Accounting Reforms:

6.1.1.1 Background:

Work on policy reform in Karnataka had begun prior to KMRP, through the ADB - financed Nirmala Nagara Project (meaning Clean City Project) in 49 ULBs of the State. Based on the success of the Nirmala Nagara Project, the State decided to replicate the reforms in the remaining 164 ULBs under the said component of KMRP. This initiative is the first of its kind the country, wherein a State-wide model of reforms has been implemented. Traditionally, municipal e-governance reforms were driven at the local level, making replication difficult. Karnataka departed from this practice through the KMRP and created a standardized set of systems and processes across the State.

6.1.1.2 Challenges faced:

(a) ULBs varied in sizes and in spread. Each of the municipalities followed their own procedures. Standardizing systems and procedures required large-scale restructuring of functions, breaking away from traditional ways of functioning.

(b) The man power needed to implement and maintain such large-scale computerization was significant. At the grass-root level, where most of the interactions between citizens and officials take place, the existing staff lacked the requisite information technology (IT) skills, and hence, provision for people with specialised skills such as IT engineers and accountants had to be made. Also, since the State Training Institutions lacked the wherewithal, work force with specialized skills needed to be sourced from the private sector, which in turn required appropriate enabling policies.

(c) An extensive IT infrastructure such as data centres and fibre optic cables were needed to provide high-speed internet connections to all the municipalities in order to enable them to share a common online platform.

(d) These reforms necessitated amendments in the prevailing Municipal Act.

6.1.1.3 Steps taken to overcome the said challenges:

(a) In 2005, a Municipal Reform Cell (MRC) was created exclusively for the computerization and implementation of other reforms in the ULBs. The MRC was managed by professionals who were hired directly from the market and were made responsible for software development, implementation, verification and maintenance.



(b) A centralized IT platform was set up to facilitate state-wide deployment, reduce development costs and ensure that the municipalities need not maintain any server locally. The MRC worked with the e-Governments Foundation (a trust created by Infosys's former Chairman Sri. Nandan Nilekani and Sri. Srikanth Nadhamuni) to develop this common IT platform, with a standardized set of systems and procedures for all ULBs. Further, all ULBs were equipped with the necessary hardware and internet connection.

(c) Appropriately skilled human resources were positioned at various levels in the system. Cadres and staffing guidelines were revised, 57 redundant cadres were abolished, and 92 cadres were reduced to 40, creating space for new skills and positions such as environment/civil Engineers, accountants, surveyors, data entry operators, and IT engineers. Policies that allowed the private sector to fill the skills gap were enacted so that contract staff could be brought in where skills were needed for short periods of time, both locally and at the State level.

(d) Public and private sector expertise was combined. The government of Karnataka (GoK) forged a partnership with the e-Governments Foundation, whose software development experts worked under a PPP agreement with the staff of the MRC (which included a former Municipal Commissioner), who in turn were well versed with the needs of the municipalities. This interaction made it possible to address and overcome the challenges that emerged over time, in a way that would not have been possible if the State had simply outsourced the system design. Expertise and capacity was specifically built in-house in order to sustain and upgrade reform efforts. Further, to improve the quality of property records and increase tax compliance, the revenue sections of all ULBs were computerized. Field surveys were conducted to collect information on all properties and digitized maps were created in collaboration with the Survey of India.

6.1.1.4 Outcomes:

(a) As a result of Property Tax Information module, 1.2 million previously un-assessed properties (42% of the total) have been brought into the tax net, increasing revenues by 30-40% percent. Citizens' complaints of calculation errors have also declined dramatically owing to the online calculation system provided in the said module. Cadastral Mapping of the State was carried out, covering an area of about 2 lakh Sq.Km., including a population of 25 lakh people - amongst the largest in the country.



(b) Computerized birth and death registration is an ongoing process through municipal offices and at hospitals in all the 213 ULBs. National and State Registrar Offices can also extract real time population data. Since it went live, more than 2.2 million births and deaths have been registered and over 2.6 million computerized certificates have been issued so far, besides increasing revenues from fees.

(c) Public Grievance and Redressal cells have been set up in every municipality and are managed by NGOs on open 24/7 in all cities. Complaints are being submitted online in addition to those made by means of phone calls and paper forms, and are logged into a system that tracks them by type and location of the problem. They can be prioritized and assigned to the appropriate officer. A system to use SMSs to report back to complainants, alert officers, escalate where needed, and provide information on response times to higher-level officials is being tested. This system has not only helped in redressing citizens' complaints in a time-bound manner, but has also enabled municipalities to understand the nature of the problems that occur in specific cities and specific times of year, so that they can better plan the use of funds and the timing of works.

(d) Implementation of Fund Based Double Entry Accrual Accounting System including Computerization of Accounts has been initiated in all the ULBs of Karnataka. Municipal accounts are now maintained in the following three funds: a) General Fund, b) Water Supply and Sewerage Fund, and c) Enterprise Fund. Income and Expenditure Accounts and balance sheets are prepared for all the three funds. Accrual accounting has brought to light the actual financial potential of the ULBs, with the use of a Chart of Accounts, the accounting processes have been standardized and uniformity has been brought in. Public participation in the preparation of the budget has made the ULBs blend much more with the community. With fixed assets being taken account of, assets worth crores of rupees have been brought on record. Now, financial information related to all the municipalities are published so that anybody can access them easily. Thus, comparisons between municipalities can be made; city officials can take well-informed decisions, and the public is also better informed.

(e) Under the Right to Information Act, municipalities are expected to make available to the public information about services, tenders, accounts, elected and appointed officials. Accordingly, website templates were developed and IT technicians appointed to fill out and maintain the information. Now, each ULB has a comprehensive website where the citizens can not only find information, but also submit applications and grievances online.



(f) As desired by the State, the Service Level Benchmarking (SLB) application has been developed in-house for all the ULBs. The SLB application helps in monitoring the inputs and outputs associated with each service, evaluating their performance level and taking corrective actions to improve their performance and thus the service. It also helps the ULBs in identifying and improving their resources. The sectors covered are water supply, sewerage and sanitation, solid waste management, roads, road side drains, storm water drains, street lighting, and development of parks, gardens etc.

(g) The MRC is currently developing second generation reforms modules like trade license, building plan approval, asset management and the jalanidhi module. The asset management module aims to improve the asset visibility, tracking and controlling a government body's asset base. The jalanidhi module has been developed to capture the property and water tap connection details of citizens across the 190 ULBs of Karnataka, excluding ULBs, for which water supply is maintained by KUWS&DB. Its objective is to capture the relevant details of the applicants and provide a reliable database for an improved municipal administration.

6.1.1.5 Lessons Learned:

- (a) Reforms, to be effective, require a combination of multi-faceted, innovative initiatives. State-wide and sector-wide reforms can be effectively implemented only through proper policy, process, technology and HR initiatives.
- (b) In developing systems, a close interaction between developers and users is crucial to ensure that the systems are both technically strong and also serve the needs of users.
- (c) Improving e-governance is not just a matter of introducing IT systems, more importantly it is a reforming processes. Process re-engineering and standardization of operating procedures are the driving force behind the e-governance initiative.

6.1.2 Land Management and Urban Mapping:

6.1.2.1 Background:

(a) Planning in India for physical development and governance of urban areas is yet to match the practice that is being followed in developing countries, apart from those in the developed ones. This is because urban planning at the macro and micro levels is perceived and practiced as an isolated and exclusive activity, instead of being holistic in approach and inclusive in function. Therefore, mapping of urban areas has not received the attention it should have, either from the stake holders in general, or from the town planning community in particular.

(b) The Government of Karnataka (GoK) as part of its reforms initiatives, took up the preparation of scientific base maps for 16 towns, in the year 2001 -02, under the Asian Development Bank (ADB) funded Karnataka Urban Development and Coastal Environmental Management Project (KUDCEMP). KUIDFC was identified as the nodal agency for this purpose. The mapping project was implemented through the Department of Town & Country Planning (DTCP). Initially, the technology adopted for mapping was photogrammetry. Accordingly, aerial photography for 16 towns and cities was completed during the flying seasons in 2004 (13) and 2005 (3). However, the ariel photographs could not be converted into vector maps. Under the World Bank funded Karnataka Municipal Reforms Project (KMRP), which commenced in 2006, it was envisaged to prepare maps for all the remaining 202 ULBs in the State using the photogrammetry technique.

6.1.2.2 Challenges Faced:

(a) Earlier systems of preparing maps by the project authorities led to inaccurate maps as the in-house capacity was inadequate to take up such work.

(b) It was found that preparation of base maps using the photogrammetry method was time consuming as it required two rounds of prior clearances from the Ministry of Defence (MoD) and there was only limited knowhow in the market.

(c) Adopting the apt technology to prepare these maps in a time bound manner was a real challenge, as there were many technologies available for preparation of scientific base maps and no single technology could meet all the requirements.

(d) Lack of synergy between planning authorities was a big challenge as the maps needed to be put to proper use without there being any duplication.

(e) Since preparation of scientific base maps was being done on such a large scale for the first time, there was no specific terms of reference readily available for the appointment of consultants to carry out the said work.

(f) It was found that the senior functionaries and technical personnel of the consultant not only lacked the domain knowledge for surveying and mapping but were also ignorant about how contractual obligations had to be fulfilled. This lacuna was due to the consultant's ignorance of the scope and specifications of work that was in the Request for Proposal (RFP). The consultants also failed to deploy competent and experienced Quality Control (QC) and Quality Audit (QA) personnel for in-house examination of the check plots. Therefore, there were a number of iterations at each stage of the work, which delayed completion of work on mapping.

(g) No standard bidding documents were available to procure such kinds of services.

(h) Neither proper Schedule of Rates nor prior work experience were available to arrive at the realistic estimated costs and implementation timelines.

(i) Inadequate market capacity coupled with improper understanding of the scope of work resulted in poor response initially, besides causing delays.

6.1.2.3 Steps taken to overcome the said challenges:

(a) A dedicated Cell: An Urban Mapping Cell (UMC), was created within the DTCP for project preparation, procurement, monitoring and overseeing the implementation of the projects for mapping of all urban areas in a phased manner. The UMC comprised of a multi-disciplinary team

consisting of Survey Specialist (geodetic survey) & Surveyor, CADD Manager & Operators, GIS Manager & Operators, Photogrammetry Specialist & Operators and Cartographers. The UMC interacted with the consultants and other stake holders on a regular basis to ensure that all technical and operational issues were resolved at the earliest.

(b) Apt Technology: In order to overcome the delays in mapping by the photogrammetry method, it was decided to carry out a study on the apt technology to be adopted for mapping of urban areas by means of a pilot project wherein actual maps were prepared using remote sensing and photogrammetric methods. The pilot project of preparing maps was entrusted to the Karnataka State Remote Sensing Applications Centre (KSRSAC). Hassan City was selected for remote sensing and Karwar City for photogrammetry methods. The maps prepared using these technologies were analysed and the Report on Apt Technology (ATR) for mapping of urban areas was prepared. It was concluded in the ATR that no single technology (method for acquiring of survey data) would meet the requirements of all the agencies (stake holders) in planning, development and governance of urban areas. Based on the Apt Technology Report the following decisions were taken:

- To scale down the project from 202 to 49 ULBs owing to time constraint under KMRP.
- To prepare 3D maps at basic scale 1:2,000 by photogrammetry using available aerial photographs for 16 places that come under KUDCEMP.



Aerial Photograph

Current Status: The same was later dropped from KMRP and taken up in the ADB funded NKUSIP project owing to paucity of time. Works have been already awarded and mapping work is under progress in NKUSIP.



Base Maps

- To prepare 2D maps at basic scale 1:2,000 for 31 places using 0.61 m resolution Quick Bird Satellite Images (SIs) and to augment the 2D map with contours and spot heights using Total Station.

Current Status: The 31 places are grouped into 4 packages; however, only 3 packages consisting of 27 places have been taken up under KMRP and the remaining 4 places have been shifted to the ADB funded NKUSIP. Out of 3 packages, in package 1 (12 ULBs), Total Station survey was conducted for contours and spot heights in the mapping area and for details along all roads for maps at basic scale 1:500 useful to ULBs and utility providers Work on Package 1 has been completed and MoD clearance obtained. For packages 2 & 3, work is underway and is likely to be completed by December 2015.



Maps using Total Station Survey- Hassan

- To prepare scientific base maps at basic scale of 1:500 using Total Station survey in Hassan. Current Status: The said work has been completed.

(c) A Technical Advisory Committee under the Chairmanship of the Director of DTCP was constituted to advise the DTCP on technical matters, consisting of subject experts/specialists from outside the Department, in the fields of geodetic survey, photogrammetry and remote sensing.

(d) Procurement Related Issues: Specific efforts were made by the UMC to customise the bid document in consultation with World Bank, as there was no standard bidding document available. Similarly, with a view to bring in better participation, the mapping projects were given wide publicity through seminars and bidders conference.

(e) Competence and capacity of consultants: In order to overcome the limitation of the consultant's capacity, checking the quality of their work was done by the UMC staff in 3 stages:

Field survey was carried out for control and heights, feature extraction from SIs, and for editing point, line and polygons from the vector data in the maps. The interim submissions by the consultants were reviewed in time and returned by the UMC with or without corrections. This was made possible by the appointment of experts in survey, CAD and cartography in the UMC as individual consultants.

(f) Project Management Unit: The All India Institute of Local Self Government (AIILSG), Pune was appointed as the Project Monitoring Unit to assist the UMC in monitoring the work of consultants/contractors, in addition to the individual consultants appointed by UMC.

(g) Mapping Experience from other States: Karnataka had also deployed DTCP officials to different States to study the best practices carried out in the field of mapping, planning, development and governance of urban areas. The key learnings from these visits have been documented and the best practices of other States were replicated.

(h) Synergy in Mapping: In order to ensure that maps and digital data are used by the Planning Bodies and the Local Bodies, and to have proper synergy between DTCP, Department of Survey Settlement and Land Records (DSSLR) and DMA, GoK has constituted a State level Coordination Committee. Similarly, there is a proposition to integrate the municipal information system (MIS) database created by MRC in the DMA on property tax information into the maps prepared by UMC-DTCP.

(i) Manual on Survey and Mapping: In order to ensure that preparation, efficient usage and up-dating of maps was taken up on a regular basis, the State has initiated the preparation of a manual for mapping and other functions. Towards this end a Manual Drafting Committee and a Manual Review Committee were constituted. The manual contained chapters on definition of maps at different scales for different purposes by various stake holders, preparation and updating of maps, usage of maps, etc. The manual also covered the business processes to be adopted in the usage of maps, thereby bringing in the element of compulsion for the town planners and other officials of DTCP, Planning bodies, ULBs and utility providers to follow the due process and also to ensure dynamic updation of these maps.

(j) Policy on Mapping of Urban Areas: With a view of bringing in synergy and use of a single map for day to day planning, the DTCP had proposed a draft Policy on Mapping of Urban Areas, which is under the active consideration of GoK.

6.1.2.4 Outcomes:

(a) The scientific base maps, once created, would be complete in content, accurate on ground reality, large scaled, covering comprehensive area and can be used by all the stakeholders for planning physical development as well as development of infrastructure and governance. Other details such as the property tax information of DMA, water supply and UGD network, SWD, street lighting, etc., can all be easily integrated with the base map for reference by all stakeholders.

(b) The Manual on Survey and Mapping would establish systems and process in place, so that in the near future preparation of scientific base maps would be easy and proper updation of these maps can take places once these maps are created.

(c) Post completion of the said project there would be adequate in-house capacity for preparing such scientific base maps.

6.1.2.5 Lessons Learned:

(a) The challenge in preparation of any Master Plan is to fit all the elements of urban development in the given area and to make them work together. It is also essential to have scientifically prepared complete and accurate large scale topographical maps (base maps) covering comprehensive area. Further, based on experience, it can be concluded that there is no single technology (method for acquiring of survey data) which will meet the requirements of all the agencies (stake holders) in planning, development and governance of urban areas. After extensive studies it may be concluded that ariel photography is the most appropriate method for the preparation of scientific base maps in terms of cost and time.

(b) Total area for mapping in a package should be limited to 500 sq km with a margin of land governance of urban area km) should be in one or not more than 5 separate locations within a radius of 100 km.

(c) Dedicated multi-disciplinary technical personnel are necessary to plan, procure, execute and monitor the work on mapping; planning bodies and ULBs should be associated with DTCP in mapping work.

6.1.3 Training & Capacity Building:

6.1.3.1 Background:

(a) No significant investments were made by the ULBs in the training and continuing education of their staff (only about 3.8% ULB functionaries had undergone any type of training and continuing education). With a view to ensure that the reforms proposed are sustainable, it was essential that adequate capacity building was to be provided to the ULB functionaries. As such, for the first time, Capacity Building of ULB functionaries was made a part of the Urban Infrastructure Project.

6.1.3.2 Challenges Faced:

(a) No proper need assessment was conducted to decide the type of training to be provided to the urban functionaries; further, there was no proper curriculum present for formulating the training programs.

(b) Inadequate exposure of municipal functionaries to best practices and international experiences.

(c) Absence of training to grass root staff.

(d) No proper mechanisms were put in place for deputing the ULB functionaries for training.

(e) Poor attendance during the initial stages of training.

6.1.3.3 Steps taken to overcome the said challenges:

(a) A field study was conducted by Price Water Coopers and Samaj Vikas Development Support Organisation (appointed as consultants) to identify the essential training modules. Questionnaires were prepared and circulated to ULB functionaries. Based on the feedback received, the Capacity Enhancement Needs Assessment (CENA) Report, Urban Sector, was prepared and 21 training modules were identified.



SIUD

(b) The State Institute of Urban Development (SIUD), Mysore was then appointed as the nodal agency for carrying out the training.

(c) To ensure that proper training was imparted, the whole training was conceived and implemented in two phases. In the first phase, SIUD first identified the expert institution for conducting trainings, and then identified field level officers and SIUD faculty members who were deputed to undergo training along with the course coordinators as Master Trainers. These deputed staff collected all the training materials/modules, curriculum, and schedules which were available and these were used for preparing course contents and modules, which were customized based on CENA study, to suit the actual training needs.

(d) In the second phase, target groups were identified and based on the groups, theme topics and curriculum were prepared for the training.

(e) To ensure proper planning and implementation of the training programs, three different committees were constituted:

- Curriculum Preparation Committee (CPC): The CPC consisted of field level functionaries, course coordinators, academicians and subject experts chaired by the Director of SIUD. The task of the CPC was to prepare the curriculum and the training modules for each of the identified groups.
- Curriculum Approval Committee (CAC): The CAC consisted of subject experts and experienced field functionaries at the State level, chaired by DMA. The task of the CAC was to validate the content, prepare the implementation schedule, suggest the target group, identify the resource persons, prepare the budget, and help in developing the course material.
- Review Committee (RC): The Review Committee, periodically reviewed the various training programs and ensured that the training objectives were achieved.

(f) In order to measure the impact of the training conducted, third party evaluation of the training programs was conducted in 2 parts viz., concurrent evaluation and post training impact assessment which was done in the field. These reports were reviewed by KUIDFC on a regular basis and based on the findings, corrective measures were taken up by SIUD.

(g) To achieve highest dissemination of information a dedicated website for training was developed and hosted by the National Informatics Centre (NIC), Department of Information Technology.

(h) To monitor the progress of the training programmes, a Training Management Information System (TMIS) was developed in collaboration with the National Informatics Centre (NIC), Bangalore.

- (i) To improve participation/attendance, the District Administration of each district was roped in and penalties were imposed on absentees.
- (j) Karnataka State provided world class infrastructure at the SIUD for the training sessions.
- (k) MoU was signed with foreign universities and the trainees got international exposure through visiting these universities seeing firsthand the best practices followed there.

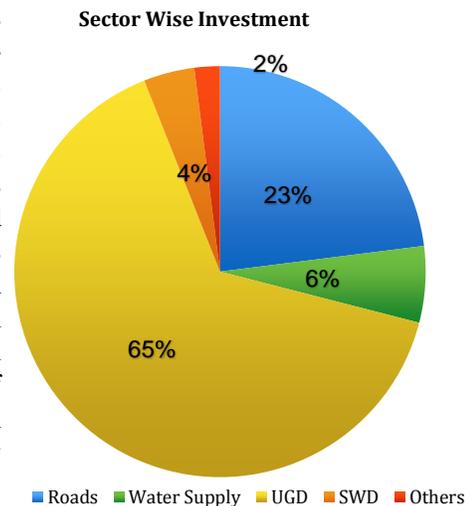
6.1.3.4 Outcomes:

- (a) Documented executive summary, course report, and consolidated report after the completion of each program.
- (b) 100 municipal officials were identified as resource persons/master trainers.
- (c) Ready reckoners were prepared for field level functionaries.
- (d) E-lectures and learning modules have been developed.
- (e) Separate modules for training on urban transport were created and training was imported to functionaries in the urban transport department.
- (f) The major outcome of this component is that KMRP has put in strong systems and processes in SIUD for carrying out the capacity building activities for all urban functionaries in the future. The State has given strong support in terms providing funding support post closure of the Project.

6.2 Component B

6.2.1 Background

(a) The Municipal Investment Component provides urban infrastructure support to 32 ULBs grouped into 4 packages. Package 1 consist of 9 ULBs with 19 works contract; Package - 2 consists of 5 ULBs with 29 works contract; Package - 3 consists of 10 ULBs with 26 works contract and Package - 4 consists of 8 ULBs with 17 works contract. This component provided performance-based loans to the sectors, and also provided grants to ULBs outside of Bangalore for investments in urban services, such as water supply, urban roads, street lighting, slum upgrading and other municipal functions such as solid waste disposal, sewerage, and storm water drains. Out of the total 91 works contract 75 works have already been completed. The balance works are likely to be completed by December 2015.



(b) The size of investment in the ULBs was based on an in-depth analysis of the ULB financials and sustenance to recover the O&M costs required for the assets created. With a view to encourage the ULBs to adopt policy reforms, incentives were proposed in the form of rebate in the interest rates chargeable to the ULBs on the loan amount.

6.2.2 Challenges Faced:

6.2.2.1 Funding & structure:

(a) The funding proposed for each of the ULBs was linked to its investment sustenance capacity and hence in some of the ULBs the proposed investments were not significant to take up comprehensive schemes. Project management cost increased as a minimum number of dedicated Project Implementation Units were to be put in place irrespective of the size of the investment proposed.

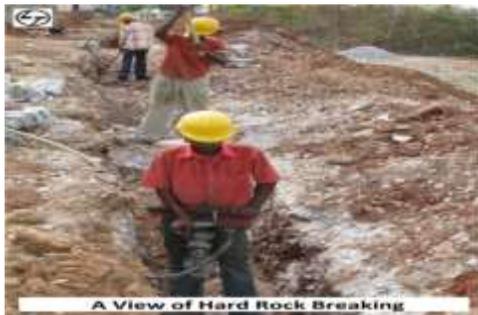
6.2.2.2 Complexity:

(a) UGD works are generally complex in nature. Non availability of work fronts, traffic diversion issues, encroachments, working in narrow lanes, rocky strata encountered during the earth work, marshy land etc., added to the delays in implementation.



Marshy Land

(b) Unrealistic timeline estimation for UGD projects.



A View of Hard Rock Breaking

(c) Inadequate market capacity to implement UGD & 24x7 water supply works.

(d) Inadequate Market capacity to supply the required quantity of materials e.g. Glazed Stoneware pipe etc.

(e) Establishing last mile connectivity to the end consumer was a huge challenge and was time consuming in the case of UGD and 24 x7 Water Supply projects.

6.2.2.3 Inadequate Capacity and Human resource at ULB:

(a) The ULBs were understaffed and did not have adequate key professionals to carry out the works.

6.2.2.4 Technical non-responsiveness of bids and high tender premiums:

(a) Delay in completing the procurement activities owing to high tender premium and technical non-responsiveness.

6.2.2.5 Land Acquisition and associated legal issues in respect of STP land:

(a) Owing to delay due to non-availability of STP land, works could not been taken up in respect of Athani and Sakleshpur towns.

(b) Withdrawal of consent for the construction of STP in Tiptur by KSPCB delayed the completion of the Project. Identification of alternate land took time.

(c) Non-availability of work fronts to lay UGD lines, storm water drain etc., also resulted in delays.

- (d) Work on Sira and Hassan storm water drains was delayed owing to a High Court stay.

6.2.3 Steps Taken to Overcome the Challenges:

Dedicated Project Implementation Arrangement and Monitoring Mechanism:

(a) Dedicated Project Implementation Units (PIUs) were set up for effective implementation of the project works taken up by the ULBs. In addition, Project Consultants (PC) were also appointed to assist the Urban Local Bodies (ULBs) in preparing the DPRs and day to day supervision of construction, quality assurance and quality certification.

(b) The overall project implementation monitoring was done by the District Level Implementation Committee (DLIC) at the district level, under the Chairmanship of the Deputy Commissioners and concerned elected representatives like panchayat President, MLAs, MLCs and MPs, and the KMRP Project Monitoring Unit (PMU) at the KUIDFC head office. The PMU at the head office had the responsibility of overall management of the project and the PIU for Pkgs 1, 2 & 3. Since monitoring all the project towns from the head office was difficult, the Pkg - 4 ULBs were monitored by the respective Deputy Project Directors (DPDs) of KUIDFC. A dedicated cell comprising technical and managerial staff was created in the divisional offices of Belgaum, Dharwad and Gulburga.

(c) Delegation of powers at the ULB and district levels to approve DPRs, invite tenders, award works, accord extension of time, approve variation etc., had aided in speedy implementation of the Project, besides creating ownership of the Project.

(d) In addition to the PIU and PC Third Party Quality Auditors were appointed for monitoring work quality.

(e) Developed a web based system for project management which facilitated real time monitoring of the progress of the Project (physical and financial), and online RA Bill entry/M-Book measurements in the project ULBs for tracking of bills and issues online.

(f) Review meetings at the level of Chief Secretary, Additional Chief Secretary - GoK, Additional Chief Secretary/ Principal Secretary - UDD and Managing Director, KUIDFC, were conducted separately for a stronger focus on timely execution of contracts, disbursements and obtaining necessary clearances from the line departments.

(g) With a view to avoid delays in payment, direct payment to contractors through Real Time Gross Settlement (RTGS) was made.

(h) Project Exit Policy was prepared to ensure proper handing over of the assets and the records to the ULBs.

Dedicated focus on selection of Sub-Projects:

(a) Improved criteria for selection of sub-projects, with a strong focus on local needs, ownership, sustainability and financial sustainability were introduced. The sub-projects to be funded were selected on the basis of well-defined consultative processes. All participating ULBs were involved while the sub-projects were appraised for funding; this resulted in fixation of beneficiary contribution and user charges through council resolutions. The implementation arrangement had not only facilitated empowerment but also developed a sense of greater ownership

in the participating ULBs, thus enabling them to leverage the technical expertise of the Nodal Agency.

Dedicated focus on delays by the contractors:

(a) For slow moving contracts, delay mitigation plans were prepared in consultation with the contractors. Sequencing of work based on the availability of work front was done.

Dedicated efforts to enhance bid competition:

(a) With a view to enhance bid competition, Bidders Conferences were organised with all the prospective bidders, especially for UGD and Water Supply works, to understand the ground reality. Subsequently, necessary amendments were incorporated in the bid documents.

(b) To ensure transparency in selection of contractors, an e-tendering system, with features like online payment of bid document fees and bid security was introduced.

(c) 80% to 50% of peak rate of construction was provided with respect to 24x7 water supply contracts.

(d) JV/sub-contracting experience was considered for 24x7 water supply contracts.

Efforts for sustainability of UGD and Water Supply scheme:

(a) NGO services were availed for creating awareness and improving coverage by conducting IEC activities, training of plumbers and other stakeholders, survey of domestic, non-domestic and commercial connections, and support to households for submission of applications.

Dedicated efforts to resolve interdepartmental clearances and LAQ issues:

(a) Inter-departmental coordination meetings were conducted under the chairmanship of the UD minister, to resolve inter-departmental issues.

(b) Regular review meetings were held at the district level under the Chairmanship of the Deputy Commissioners to resolve LAQ and other issues.

Steps taken for sustainability:

(a) Levy of user charges (Volumetric Tariff): With a view to ensure that all the 24 x7 water supply projects are made self-sustainable, user charges were levied to cover both the O&M expenditure and the debt servicing requirement. 40% of the capital cost was provided as loan to the ULB.

(b) Private operators were appointed through Performance Based Management contracts for the operation and maintenance of all 24/7 water supply and UGD towns.

Focus on environment and social sustainability:

(a) The State had put in place a comprehensive Environment and Social Assessment Framework for all projects assisted by KMRP to identify and implement measures to mitigate and address all environment and social impacts.

6.2.4 Outcomes :

(a) In order to have technical completeness and to ensure that at least the core area of all the UGD towns was taken up, additional areas were considered in the towns of Chikkaballpur, Doddaballpur, Harihara, Humnabad, Tiptur and Badravathi. Further, for speedy commissioning of the project, House Service Connections upto property boundary was included under the project, which was originally not envisaged. UGD work amounting to Rs. 21 cr has been completed in Chikkaballpur and the UGD missing link works at Hassan and Chintamani have been completed at a cost of Rs. 6.20 cr. Works amounting to Rs. 104.35 cr are under progress in Doddaballpur, Bhadravathi, Tiptur, Humnabad and Harihara. Sewer network length of 381 km has been laid and 54,950 houses are getting connected to the network.

(b) In order to ensure that the UGD assets are put to proper use and the service levels are significantly improved, outsourcing of O&M through a performance based management contract is being explored. Bid document for the same, in collaboration with World Bank, has been prepared. The said bid document will serve as a model bid document for the entire State for outsourcing of UGD services. The said initiative will not only bring in efficiency and external expertise but will also build ULB capacity.

(c) With an objective to bring water sector reforms in smaller urban areas by providing 24 x7 continuous pressurized water supply, the State had proposed to upgrade the existing intermittent water supply in the towns of Nanjungud, Magadi and Haliyal to 24 x7 Water Supply through performance based management contracts by appointing an operator. This contractual structure aimed at O&M of bulk and distribution through a private operator on a 24 x7 basis. The said initiative was not only to ensure continuous water supply to all the consumers of the ULB but also to bring in strong reform measures like reduction in Unaccounted for Water by 100% billing, reduction in physical losses, adoption of volumetric tariff, operation and maintenance of bulk and distribution of water supply for a period of 5 years. In addition, three 24/7 water supply augmentation works amounting to Rs. 9.50 cr. has also been taken up under KMRP. A distribution network of 249.629 km have been laid and 23,204 houses are being provided with continuous water supply.

(d) SWD length of 30 km, amounting to Rs. 33 cr has been completed in Sringeri, Hassan, Savanur, Kolar, Robertsonpet, Gurmitkal, Chitradurgaand Chintamani.

(e) Road length of 252 km amounting to Rs. 118 cr has been completed in Madikeri, Sringeri, Chittapur, Hassan, Kolar, Savanur, Robertsonpet, Chitradurga, Chintamani, Kanakapura, Nagamangala, Shimoga, Chikkamagalur and Hiriya.

(f) Construction of 3139 nos. LCS units at a cost of Rs. 5.5 cr has been completed.

(g) The work of developing a landfill site in Chitradurga at the cost of Rs. 1.56 cr has been completed. Bid documents for outsourcing O&M through performance based management contract was prepared with the assistance of WB.

6.2.5 Lessons Learned:

(a) There were two stages of studies viz., preparation of the Capital Investment Plan and subsequently the preparation of a Detailed Project Report. These were time consuming and resulted in delays in the implementation of the Project. With a view to overcome the same, it is now proposed to have one stage of comprehensive study and based on the study report we may have

turnkey contracts where the contractor shall design, build , operate and transfer. The said system will not only save time but will also ensure proper accountability.

(b) During the implementation of the Project, it was found that the performance of the PMC were not satisfactory resulting in delays in the issue of drawings, variations etc. However, there were no penalty clauses in consultancy contract to penalise the consultants

(c) Owing to high tender premium, a lot of tenders had to be re-bid resulting in delay, and financial burden on the State. With a view to avoid delays, price negotiation shall be allowed in exceptional circumstances.

(d) All UGD projects to have a time frame of minimum 24 - 20 months, depending upon the size of contract. Henceforth, providing HSC up to the property boundary to be part of contract.

(e) Land acquisition prior to commencement of tendering activities.

(f) All work fronts to be kept ready before award of contract and O&M of assets shall be part of all works contract for a minimum of 3-5 years.

(g) Entrustment of works to other government departments directly may also be allowed for timely completion of works.

(h) Adjudication & Arbitration may be substituted with court settlements.

(i) With a view to enhance bid competition, packaging of smaller contracts into a single high value contract may also be considered to attract big contractors.

(j) For contracts that extend beyond 12 months, price escalation clause shall be made mandatory.

(k) Bonus for early completion may also be made mandatory.

(l) LD shall be levied for the balance work amount only, instead of having a per day penalty.

6.3 Component C- Greater Bangalore Development Component:

6.3.1 Greater Bangalore -Road Development Component:

6.3.1.1 Back Ground:

(a) Under the said component 125 km of road was laid in Bangalore. This activity was processed as retroactive financing, hence the project was completed well within the Project closure period. The Project was implemented by Bruhat Bengaluru Mahangara Palike. For the first time plastic waste (granules) was mixed with the bitumen in asphaltting of roads.

6.3.2 Greater Bangalore –UGD & Pro-Poor Component:

6.3.2.1 Background:

(a) This sub-component supported construction of underground sewerage system for the erstwhile eight ULBs around Bangalore City covering 259 Sq. m, which benefited the residents through 240,000 sewer connections leading to safe disposal of sewage. This sub-component also

provided support to BWSSB in financing a Project Management Consultant (PMC) to design and implement the UGD program, technical assistance, studies, training and incremental operating costs to enhance BWSSB capacity. The entire work was divided into 24 civil works and one goods and equipment package.

6.3.2.2 Challenges Faced :

(a) Revision in Project Cost: The Greater Bangalore - UGD component was originally conceptualised in 2004-05. Based on the pre-feasibility report, the project cost was estimated and approved at Rs. 568 crores. DPRs were prepared in 2008. Owing to repeated revisions in the Schedule of Rates, changes in design and high tender premiums, the project cost increased substantially. In order to meet the additional cost, the Project was dovetailed with the GoI project 'Jawaharlal Nehru National Urban Renewal Mission' (JNNURM).

(b) Inadequate Market Capacity: In the first 2 rounds of bidding there was poor response from the bidders.

(c) Implementation issues: Unrealistic estimation of time line for implementation. UGD works are Complex in nature and there were work front related issues like rock, narrow stretches etc., which eventually resulted in huge delays. There were huge requirements of inter-departmental clearances and LAQ, owing to the sheer size of the work of laying 2400 Km of underground sewer pipelines.

6.3.2.3 Steps taken to overcome the said challenges :

Design and Estimates:

(a) The contracts/ packages were designed to cover a sewer zone that will have a number of catchment areas. Lateral sewers were provided in these catchments and they were in turn were connected to the sub-mains and main lines that carry sewage to STPs. As and when a catchment was completed, connection was provided to the STP.

(b) Owing to poor initial response to the bids and exorbitant tender premium, a Consultation work shop was organized jointly by BWSSB and the WB Mission for the contractors and material suppliers to understand the ground realities. Based on the inputs received from the workshop, bid documents were modified, thereby resulting in substantial improvement in the bid response.

(c) Keeping in view the quantum of work, the actual requirement of PMC staff was worked out and additional staff support was proposed.

(d) Pre-cast/ FRP for man holes, inspection chambers etc., were proposed depending upon the site condition.

(e) During the DPR preparation stage, a Social and Environmental Management Framework (SEMF) including a generic EMP and standard monitoring plan was developed for identifying key environmental risks, and for the preparation of a sub-project specific environmental management plan.

Steps taken for improving bid response:

(a) For speedy implementation, multiple packages were proposed based on the assessment of contractor of generic EMP and standard monitoring plan.

- (b) A Slice & Package system was introduced to enable the contractors to participate in the bid depending upon their capacity.
- (c) Joint venture/sub-contracting was allowed to enhance competition.
- (d) Tender documents were prepared to enable participation of national and international bidders by adopting both NCB (National Competitive Bidding) and ICB (International Competitive Bidding) methods of bidding.
- (e) Water supply work experience was also considered while fixing the qualification criteria.
- (f) Quantity of work required for eligibility was relaxed from 80% to 50% of peak rate of construction.
- (g) The qualification criteria of pipeline work of the GSW/RCC pipeline was modified as GSW/RCC/GRP/HDPE/PVC/DI/CI/MS.
- (h) Mobilization advance was increased from 5% to 10%.
- (i) Provision for material advance to the tune of 90% for the supply of pipes at site after third party inspection was made.

Interdepartmental Clearance and LAQ:

- (a) During the implementation there were several interdepartmental issues like clearance from National Highway Authority of India (NHAI), Railways crossing, Bengaluru Development Authority (BDA) Crossings etc., which were hampering the progress of the Project.
- (b) Review meetings at the level of Chief Secretary - GoK, Additional Chief Secretary - GoK, Additional Chief Secretary - UDD, and Chairman BWSSB were conducted for a stronger focus on timely execution of contracts, disbursements and obtaining necessary clearances from the line departments.
- (c) Regular monthly review meetings were conducted by the MD, KUIDFC to understand the impediments in the timely execution of the Project and to take corrective measures.
- (d) A Task Force was constituted for the purpose of resolving issues related to land and other clearances under BBMP and an LAQ specialist was appointed for the purpose of identifying land boundaries and expeditiously sorting out alignment issues in the Project.

Third Party Audit:

- (a) A third party independent agency was appointed to review and monitor the performance of the Project through its entire lifecycle of implementation, on the basis of a detailed on-site review, and examination of appropriate documents.

Project Monitoring Units:

- (a) A dedicated Project Monitoring Unit comprising of one Executive Engineer and two Assistant Engineers was established in the BWSSB head office for overall monitoring of the Project and to be a single point of contact for all the stake holders, line agencies, WB and KUIDFC. The

Project Monitoring Unit was also responsible for collating all technical and financial information of the Project.

Environmental and Social Management:

(a) A dedicated Environmental and Social cell was created for monitoring the environmental, health and safety aspects and for coordination during implementation of the Project. This cell has an urban poverty specialist, a communication specialist and three community organizers, under the headship of a social development officer.

6.3.2.4 Outcomes:

(a) The Greater Bangalore - Sanitation Project, and the Greater Bangalore elements emerged profoundly in maximizing the social, environmental and economic benefits and in promoting institutional stability. Some of the finance plus under the component are as follows:

(b) Enhanced coverage - The revised coverage under the Project was to support construction of 2314 km network as against the original 1750 km. Total number of house service connection increased from 1,20,000 to 240,000 . The target population increased from 16 to 24 lakhs.

(c) Improved public health by reducing the contamination of ground water resources due to onsite sewage disposal/open defecation.

(d) Minimized the pollution of storm water channels, tanks, scenic lakes and ground water aquifers.



Vengayana Kere (300 to500 Dia RCC Pipe-



Hebbala Lake (1000 Dia RCC Pipe- 1600 rmt)

(e) Reduced pollution in about 70 lakes.

(f) Comprehensive coverage of all the slum households (both notified and non-notified slums) through construction of toilets/ providing sewer connection. This would perhaps be the first time in India wherein such a comprehensive coverage is being tried out.

(g) Eliminated unsanitary overflows from septic tanks and other sanitation facilities and replaced the used septic tanks, which helped to generate substantial cost savings, beside other public health benefits.



Varathur Lake (600 Dia RCC Pipe- 2400 rmt)



Agara Lake (600 Dia RCC Pipe- 900 rmt)

6.3.2.5 Lesson Learned:

- (a) The qualification criteria in the document shall have the following addition aspects regarding of possession of modern equipment for execution of work such as Proper Shoring and strutting, Rock Cutting Machine, Dewatering pumps.
- (b) The entire alignment of trunk/main sewers location of wet wells etc., should be thoroughly assessed with reference to the maps by visiting the site once the designs are prepared.
- (c) Proper Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) to be used for preparing implementation plan of the project. Utilities to be shifted before commencement of work.
- (d) Laying pipes at deeper depths to be avoided. Usage of glazed stoneware pipes (GSW) shall be limited to less important roads and where the depth is less than 2 meters.
- (e) Testing laboratory to be identified before commencement of work for material testing and have a well-established Quality Assurance Plan for materials used for construction.

7. Compliance to loan covenants:



7.1 Most of the covenants in the agreement were complied with. WB was monitoring the compliance on a regular basis. The compliance report was being sent to the WB with every quarterly progress report. The covenants in respect of financial, technical and safeguard aspects were complied with in general.

8. Transition arrangements to sustain achievements post closure:

8.1 Institutional Development: All the reforms activities taken up under the Project are ongoing development activity. As such, it is now proposed to support the reforms component under the ADB funded NKUSIP project and at a later stage the same will be supported by the Karnataka Municipal Data Society.

8.2 Municipal Investment Component: The State has committed to providing funding assistance to complete the spill over works beyond the Project period. Further, a clear cut exit policy has been drafted and all projects where work has been completed have been handed over to the ULB. Further, with respect to the 24x7 water supply works, O&M of the assets created will be managed by a private operator for 2-5 years through a performance based management contract,

and then the same will be handed over to the ULB. Standard bid documents and contracts for O&M of sewerage systems through PMC have been developed by the State in association with WB.

8.3 Greater Bangalore - UGD & Pro-Poor Component: The State has committed to provide funding assistance to complete the spill over works beyond the Project period. BWSSB has matured into a relatively robust institutional framework and has successfully accessed funding from JBIC, apart from World Bank for construction of STPs. BWSSB also has sufficient institutional arrangements for implementation, monitoring, supervision and O&M. Further, current revenues in the form of water and sanitation user fee would be sufficient to meet the regular expenditure of O&M. Currently, the operational efficiency of BWSSB in terms of cost recovery is more than 90%

9. Overall Experience with the Funding Agency:

9.1 The World Bank extended its support in execution of works right from the design stage to completion stage:

9.1.1 Periodically reviewed DPRs prepared by the Consultants which resulted in betterment and optimization of designs & estimates

9.1.2 Aided the Implementing Agencies in preparation of bid documents, Bid Evaluation Report and resolved complex procurement issues.

9.1.3 The World Bank undertook a series of Implementation Support Review missions throughout term of the project to track progress and to undertake mid-course corrections & actions which contributed to its successful implementation. The Missions were followed by detailed documentation of the status of the projects and guidance / recommendations through the Aid-memoire, aimed at achieving the PDOs.

9.2 During the mid-phase of the Project, the WB assisted in Financial Restructuring of the Project to bring in better accountability. The financial restructuring of the Project holistically factored the specific constraints and opportunities which raised during the mid-term review of the project and it was ensured that the PDO remained relevant and achievable while strengthening the implementation.

9.3 The World Bank based on the recommendation of the DEA accorded 2 Project extensions.

9.4 WB extended support to the State by providing funding towards technical assistance to address the ever growing SWM issues of Bangalore, which was not part of the original PDO.

9.5 With the assistance of WB, model bid documents for 24x7 Water Supply project, outsourcing of O&M of UGD & SWM through a Performance Based Management Contract were prepared in house with a greater focus on O&M.

10. Key Observations:

10.1 Implementation of the Project involved multiple institutions and agencies and hence called for effective institutional arrangements to ensure seamless coordination.

10.2 Urban infrastructure projects being very complex in nature and requires a realistic time frame for implementation. Any urban infrastructure of this scale, requires 8-10 years for completion and the project implementation needs to be on a tranche based system (stage-wise implementation).

- 10.3 All the major works taken up shall have O&M as a part of the original scope of work.
- 10.4 Project Management Consultants to be appointed prior to signing of Loan Agreement.
- 10.5 Preparedness of the Implementing Agency to procure contracts worth of at least 30% of the project cost to be ensured prior signing of Loan Agreement to adhere to the timelines.
- 10.6 There should be more flexibility in project design to support mid-course corrections or modification of the Project Development Objectives.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not Applicable

Annex 9. List of Supporting Documents

Ganapathy, P.G. 2013. “KMRP—Knowledge Exchange on Municipal eGovernance.” World Bank Institute.

Ghosh S. and P. Chature. 2014. “KMRP—Greater Bangalore Underground Drainage: Pro Poor Sanitation Subcomponent.” World Bank.

KMRP Project Appraisal Document, February 14, 2006 (Report No. 31282-IN).

KMRP Loan and Project Agreement, May 2, 2006.

KMRP Restructuring Papers from March 15, 2011; January 13, 2012; and February 19, 2014.

KMRP Aide Memoires, Back to Office Reports, and Implementation Status Reports.

KUIDFC, “Training Initiatives under KMRP Project” (PPT presentation).

KMRP, Quality Assessment of Lending Portfolio (QALP- 2) April 29, 2010
Proceedings of the 31st Meeting of the Empowered Committee (EC) for KMRP, Vidhana Soudha, Bangalore, 11.03.2015.

Rudraiah, L. R., “Mapping of Urban Areas. Trials and Tribulations and Approached from January 2016”, Government of Karnataka (Department of Town and Country Planning), April 2015.

State Institute for Urban Development, “KMRP: Capacity Building and Training Final Report”, Mysore, May 2015.

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