ADB

Completion Report

Project Number: 30303
Loan Number: 1704
November 2012

India: Karnataka Urban Development and Coastal Environmental Management Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – Indian rupee or rupees (Re or Rs)

		At Appraisal	At Project Completion
		22 September 1999	25 November 2009
Rs1.00	=	$0.023	$0.02154
$1.00	=	Rs43.40	Rs46.40

ABBREVIATIONS

ADB	–	Asian Development Bank
CAPP	–	community awareness and participation program
CBO	–	community-based organization
DSC	–	design and construction supervision consultants
EIRR	–	economic internal rate of return
EMMP	–	environmental management and monitoring plan
FIRR	–	financial internal rate of return
GIS	–	geographical information system
GoK	–	Government of Karnataka
GSP	–	gross state product
IEC	–	information education and communication
IEE	–	initial environmental examination
INRM	–	India Resident Mission
JNNURM	–	Jawaharlal Nehru National Urban Renewal Mission
KUIDFC	–	Karnataka Urban Infrastructure Development and Finance Corporation
KUDCEMP	–	Karnataka Urban Development and Coastal Environmental Management Project
KUIDP	–	Karnataka Urban Infrastructure Development Project
KUWSDB	–	Karnataka Urban Water Supply and Drainage Board
KMRC	–	Karnataka Municipal Reform Cell
MCC	–	Mangalore City Corporation
M&E	–	monitoring and evaluation
MFF	–	multi-tranche financing facility
NGO	–	nongovernment organization
NRW	–	nonrevenue water
O&M	–	operation and maintenance
PAT	–	project advisory team
PCR	–	project completion report
PIU	–	project implementation unit
PMC	–	project management consultant
PMU	–	project management unit
PPER	–	project performance evaluation report
PWD	–	Public Works Department
RRP	–	report and recommendation of the President
SEZ	–	special economic zone
SFC	–	State Finance Commission
SHG	–	self-help group
SRP	–	short resettlement plan
SWM	–	solid waste management

TA	–	technical assistance
UDD	–	Urban Development Department
UGD	–	underground drainage
ULB	–	urban local body

WEIGHTS AND MEASURES

ha	–	hectares
kl	–	kilo liter
km	–	kilometer
m	–	meter
mld	–	million liters per day
mm	–	millimeter
m^2	–	square meter
MT	–	metric ton
t	–	ton

NOTES

(i) The fiscal year (FY) of the Government of India ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2009 ends on 31 March 2009.

(ii) In this report, "$" refers to US dollars.

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CONTENTS

BASIC DATA

A. Loan Identification

1.	Country	India
2.	Loan Number	1704-IND
3.	Project Title	Karnataka Urban Development and Coastal Environmental Management Project
4.	Borrower	India
5.	Executing Agency	Karnataka Urban Infrastructure Development and Finance Corporation, Government of Karnataka
6.	Amount of Loan	
	– Original Loan Amount	$175 million
	– Revised Loan Amount	$145 million
7.	Project Completion Report Number	PCR:IND 1362

B. Loan Data

1.	Appraisal	
	– Date Started	19 February 1999
	– Date Completed	3 March 1999
2.	Loan Negotiations	
	– Date Started	2 August 1999
	– Date Completed	5 August 1999
3.	Date of Board Approval	26 October 1999
4.	Date of Loan Agreement	19 May 2000
5.	Date of Loan Effectiveness	
	– In Loan Agreement	17 August 2000
	– Actual	21 September 2000
	– Number of Extensions	1
6.	Date of Amended and Restated Loan Agreement	24 July 2002
7.	Closing Date	
	– In Loan Agreement	30 June 2005
	– Actual	25 November 2009
	– Number of Extensions	4
8.	Terms of Loan	
	– Interest Rate	London inter bank offer rate (LIBOR)-based (floating)
	– Maturity (number of years)	25
	– Grace Period (number of years)	5

9. Disbursements

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
1 January 2001	25 November 2009	107 months
Effective Date	Original Closing Date	Time Interval
21 September 2000	30 June 2005	58 months

b. Amount ($ million)

Category	Original Allocation	Partial Cancellations	Last Revised Allocation [a]	Amount Disbursed	Undisbursed Balance
01 Civil Works	100.50	0.63	99.87	107.50	(7.63)
01A Civil Works (55%)		(17.47)	17.47	7.89	9.58
02 Equipment and Materials	8.00	6.89	1.11	3.25	(2.14)
03 Consulting Services	7.00	(9.28)	16.28	16.09	0.20
03A Consulting Services (55%)		(0.28)	0.28	0.00	0.28
04 Implementation Assistance	0.50	(5.81)	6.31	6.59	(0.29)
05 Interest and Commitment Charge	24.00	20.32	3.68	3.68	0.00
06 Unallocated	35.00	35.00	0.00	0.00	0.00
Total	175.00	30.00	145.0	145.00	0.00

[a] Last revised allocation takes into account the reallocations carried out in August 2002, April 2005 and January 2007.

10. Local Costs (Financed)

- Amount ($) 40,794,152.00
- Percent of Local Costs 50.30
- Percent of Total Cost 28.13

C. Project Data

1. Project Cost ($ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	93.90	104.21
Local Currency Cost	157.50	136.66
Total	251.40	240.87

2. Financing Plan ($ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	57.90	74.82
ADB Financed	151.10	141.32
Other External Financing	-	-
Total	209.00	216.14
IDC Costs and Commitment Charges		
Borrower Financed	18.50	21.05
ADB Financed	23.90	3.68
Other External Financing	-	-
Total	42.40	24.73

ADB = Asian Development Bank, IDC = interest during construction.

3. Cost Breakdown by Project Component ($ million)

Component		Appraisal Estimate	Actual
Part A	Capacity Building, Community Participation and Poverty Reduction	8.50	7.27
Part B	Water Supply Rehabilitation and Expansion	69.00	64.02
Part C	Urban Environmental Improvements	41.40	75.58
Part D	Street and Bridge Improvements	14.90	23.23
Part E	Coastal Environmental Management	4.30	5.24
Part F	Implementation Assistance	8.80	27.19
Land Acquisition		7.10	13.61
Contingencies			
	Physical	15.90	-
	Price	39.10	-
Interest During Construction		42.40	24.73
	Total	251.40	240.87

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
Design and Supervision Consultants I	3 January 2000	15 December 2000
Design and Supervision Consultants II	3 January 2000	19 December 2000
Project Management Consultant	3 January 2000	19 December 2000
Non Governmental Organization Services for Community Development Activities	1 March 2000	1 June 2002
Benefit, Monitoring and Evaluation Consultant (Baseline study)		1 June 2002
Project Management Consultant (from February 2008)		23 February 2008
Completion of Engineering Designs	30 June 2002	31 December 2006
Civil Works Contract		
Date of Award	2 April 2001	29 November 2002
Completion of Work	31 December 2004	30 June 2012#
Equipment and Supplies		
First Procurement	3 April 2000	23 August 2002
Last Procurement	1 September 2000	6 June 2009
Completion of Equipment Installation	31 March 2001	30 September 2009
Start of Operations		
Completion of Tests and Commissioning	31 December 2004	31 May 2010##
Beginning of Start-Up	31 December 2004	30 June 2010#

About 7km of sewer lines in Mangalore are likely to be laid by December 2012

All works are commissioned except two sewage treatment plants at Mangalore, which are likely to be commissioned by June 2013

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 26 October to 31 December 1999	Satisfactory	Satisfactory
From 1 January to 31 December 2000	Satisfactory	Satisfactory
From 1 January to 31 December 2001	Satisfactory	Satisfactory
From 1 January to 30 June 2002	Satisfactory	Satisfactory
From 1 July to 31 December 2002	Partially Satisfactory	Satisfactory
From 1 January to 30 September 2003	Partially Satisfactory	Satisfactory
From 1 October to 30 November 2003	Satisfactory	Satisfactory
From 1 December to 31 December 2003	Partially Satisfactory	Satisfactory
From 1 January to 31 December 2004	Satisfactory	Satisfactory
From 1 January to 31 December 2005	Satisfactory	Satisfactory
From 1 January to 31 December 2006	Satisfactory	Satisfactory
From 1 January to 31 December 2007	Satisfactory	Satisfactory
From 1 January to 30 June 2008	Satisfactory	Satisfactory
From 1 July to 31 December 2008	Satisfactory	Partially Satisfactory
From 1 January to 31 December 2009	Satisfactory	Partially Satisfactory

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan Fact Finding 1	31 Jan–3 Feb 1997	1	4	a
Loan Contact/Consultation	6–11 December 1998	1	6	b
Loan Fact Finding 2	30 Nov–16 Dec 1998	6	102	c, d, e, f, g, h
Loan Appraisal	16 Feb–3 March 1999	5	80	e, h i, j, k
Loan Inception	28 March–4 April 2000	2	16	h, i
Loan review 1	4–8 September 2000	2	10	d, h
Loan review 2	18–23 December 2000	2	12	d, k
Loan disbursement 1	16–20 July 2001	2	8	l,m
Loan review 3	1–4 September 2001	3	12	d, k, m
Loan review 4	17–23 September 2001	2	12	d, k
Loan review 5	18–22 February 2002	2	10	d, k
Loan review 6	1–5 April 2002	1	5	d
Loan review 7	20–24 May 2002	2	10	d, k
Loan review 8	15–16 August 2002	1	2	d
Loan review 9	24–31 October 2002	2	16	b, d
Loan review 10	4–7 February 2003	2	8	b, k
Loan review 11	25–30 May 2003	3	15	d,m, o
Loan disbursement 2	25–29 August 2003	1	5	l
Loan review 12	22–26 March 2004	2	5	b, i

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan review 13	13–23 September 2004	4	40	b, c , m, o
Loan disbursement 3	25–30 October 2004	2	6	l, m
Mid term review	6–10 December 2004	5	30	b, 2c, 2m
Loan review 14	19–24 June 2005	3	18	b, 2m
Special project administration 1	8–9 September 2005	3	6	2m, n
Loan disbursement 4	26–30 September 2005	2	10	m, n
Loan review 15	2–6 April 2006	3	15	b, c, m
Loan review 16	3–8 December 2006	4	20	b, f, 2c
Special project administration 2	12–16 March 2007	1	5	d
Special project administration 3	3–10 October 2007	2	16	d, e
Loan review 17	12–22 October 2008	2	20	d, m
Loan review 18	4–11 December 2009	2	20	d, m
Project completion review 1	20–27 August 2012	5	40	3c, d, k
Project completion review 2	6–13 September 2012	5	40	3c, d, k

a = senior project specialist (environment); b = head, urban development or urban unit; c = staff consultant; d = project implementation officer; e = social safeguard specialist or expert; f = urban development specialist, India Resident Mission (INRM); g = financial analyst; h= counsel; i = senior project specialist; j = financial management expert, k = senior project implementation officer; l = senior control officer; no. = number; m = assistant project analyst or assistant analyst, INRM; n = head, project administration unit; o = public relation officer

I. PROJECT DESCRIPTION

1. The coastal region of Karnataka consists of three districts: South Canara, Udupi, and North Canara. Separated from the rest of the state by the high ridge of the Western Ghats, the region has the densely forested, steep slopes of the Western Ghats to the east and a narrow coastal belt in the west along the Arabian Sea. Because of these physical characteristics, urban growth in the region is concentrated along the 300 kilometer (km) narrow coastal strip from Mangalore in the south to Karwar in the north. The rich natural resource base of the region and its strategic location provides significant opportunity for economic development.

2. The Karnataka Urban Development and Coastal Environmental Management Project (KUDCEMP), ADB's second urban project in Karnataka, aimed to improve the living conditions of about 1.2 million people in the 10 coastal towns of Ankola, Bhatkal, Dandeli, Karwar, Kundapura, Mangalore, Puttur, Sirsi, Udupi, and Ullal, and protect the environment and valuable natural resources.[1] The primary objective of the project was to optimize social and economic development in the urban areas of coastal Karnataka by supporting investment to improve urban infrastructure and related services, and to facilitate policy reforms to strengthen urban management and service delivery. Project goals included (i) achieving sustainability in the delivery of urban services by providing the necessary infrastructure, and strengthening the urban management and operation and maintenance (O&M) capacities of local governments, with a particular emphasis on resource generation and cost recovery; and (ii) establishing appropriate environmental management mechanisms to address potential environmental impacts associated with urban and industrial growth in the region. The project was implemented by the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC).

3. The ten project towns, which constitute 80 percent of the urban population of the coastal region, are centers of commerce, trade, industry, and manufacturing, and have the greatest potential for economic growth in the region. In the late 1990s, the population of these towns far exceeded the capacity of their existing infrastructure and services, and this resulted in negative impacts on human welfare, economic growth, and the natural environment. Recognizing the need to address these infrastructure deficiencies and tap the economic potential of the region, the Government of India sought the support of the Asian Development Bank (ADB). An investment need of $251.4 million was identified through an ADB-funded technical assistance (TA) project.[2] ADB approved a loan of $175 million for the project in October 1999. The remaining $76.4 million was to be borne by the Government of Karnataka (GoK) as the counterpart contribution. The loan agreement was signed on 19 May 2000. The loan closed on 25 November 2009 and the loan account closed on 31 December 2009.

4. The project comprised the following six parts:

(i) **Part A: Capacity Building, Community Participation, and Poverty Reduction.** This component aimed to provide support for the capacity building of local government administrations through institutional reform; and promote the participation of local communities and the urban poor through community-based organizations (CBOs) for group savings and credit activities, skills training, and programs for entrepreneurship development.

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1 ADB. 1999. *Report and Recommendation of the President (RRP) to the Board of Directors on a Proposed Loan to India for the Karnataka Urban Development and Coastal Environmental Management Project*. Manila.

2 ADB. 1998. *Technical Assistance to India for the Karnataka Urban Development and Coastal Environment Management Project (TA 2806-IND).* Manila.

(ii) **Part B: Water Supply Rehabilitation and Expansion.** The rehabilitation was intended to reduce saline intrusion as well as exposure of existing consumers to pathogens caused by sewage infiltration into the water system as a result of low pressure and intermittent flow. The water production and supply system was also to be expanded to benefit areas and households experiencing the most severe shortages. These households had to buy expensive water from private vendors, fetch water over long distances, and even use polluted groundwater as a last resort. It also aimed to promote cost recovery and metering.

(iii) **Part C: Urban Environmental Improvements.** This component aimed to improve wastewater management including rehabilitation or replacement of sewers and increase capacities for wastewater treatment; storm water drainage; solid waste management (SWM); traffic management; and municipal services and facilities such as public markets and municipal offices. The scope of wastewater management was later extended to cover new areas.

(iv) **Part D: Street and Bridge Improvements.** The component was designed to improve transportation, traffic flow, and road safety, and reduce vehicular emissions through the rehabilitation of roads and bridges, and the widening of streets, junctions, and footpaths. The project also included the associated roadside drainage and culvert works.

(v) **Part E: Coastal Environmental Management.** This component included preparation of a coastal resource management and conservation plan for the three coastal districts; support for an environmental monitoring program including establishment of air and water quality monitoring stations in the three coastal districts; and promotion of coastal erosion protection through mangrove afforestation.

(vi) **Part F: Implementation Assistance.** This included incremental administration support, equipment and vehicles for implementation, design and construction supervision services, and project management services.

5. Water supply improvements were expected to directly and indirectly benefit over 1 million people, or 85 percent of the projected total population of 1.2 million in these towns by 2006. Sewerage improvements and improved drainage would benefit 550,000 and 380,000 persons, respectively. More than 30 percent of all beneficiaries were considered to be below the poverty line. Slum improvement subprojects targeted slum areas not officially recognized by the Karnataka Slum Clearance Board, and were estimated to benefit more than 30,000 people constituting the poorest of the poor, with no access to government programs. Improved access to services for the poor was expected to translate into public health improvements, increased privacy and security for women and girls, a reduction in the household work burden, and increased availability of productive time. Other benefits to the poor from the community participation component and to the general population including the poor were expected accrue from better urban transport services, municipal services and facilities, and coastal environmental management. Direct health benefits through a reduction of waterborne and water-related diseases would provide additional economic benefits by increasing the capacity for income generation and education. Community participation in O&M of facilities under slum improvement programs and local involvement in solid waste and sanitation programs were expected to complement the above public health benefits. The project framework and actual project achievements are summarized in Appendix 1.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

6. The project was *relevant* to the government's and ADB's sector strategies at appraisal and remains so on completion.[3] It continues to be relevant to ADB's Strategy 2020 because of its emphasis on inclusive and sustainable economic growth, poverty reduction, environment protection, and institutional strengthening.[4] It was consistent with the government's policy objectives related to devolution of functions and strengthening of the institutional capacity of local bodies.[5] The project was well aligned with the government's Ninth Five Year Plan (1997–2002), which focused on poverty reduction and provision of basic infrastructure as the primary goals. It also remained in line with the tenth (2002–2007) and eleventh five-year plans (2007–2012) on completion, with its focus on infrastructure and improved governance.[6] Although the project design was challenging,[7] it responded to the government's needs and ADB's policy emphasis on integrated urban development through expansion and rehabilitation of key urban infrastructure, capacity development of local governments for improving service delivery, environmental sustainability, and empowerment of the urban poor.[8,9] The project was designed in accordance with Karnataka's Ninth Five Year Plan, which focused on planned urbanization and balanced regional development. The project also sought to reduce poverty and bridge economic disparities in line with state policy.

7. At the time of project preparation, only two lending modalities were available, namely the project loan and the program loan. Given the limited capacity of the state agencies and the huge infrastructure gap, a project loan as direct intervention was more appropriate than budgetary support through a program loan. The multi-tranche financing facility (MFF) was introduced by ADB around the time of project completion. It would have suited the project better and helped to enhance the sequencing of the components based on the priorities, experience, and preparedness of project urban local bodies (ULB), had it been available during project preparation. GoK has followed the MFF modality for subsequent loans.[10]

8. The project preparatory TA ($800,000) was approved on 15 August 1996 (footnote 2), and the final report was submitted in November 1998. The project design carried out under the TA was brief, and prepared on the basis of available secondary data and limited public consultations. Certain adjustments were therefore required to be made during detailed design and implementation. The adjustments, which were within the preview of the overall project scope, were based on the outcome of extensive stakeholder consultations and designed to strengthen ownership of the project among beneficiaries and policy-makers.

9. A shift in emphasis from roads to sewerage and the provision of house service connections to property boundaries were the two main adjustments made to ensure optimum utilization of services. The municipal reform program Nirmal Nagara, was introduced later, to make the project relevant to the prevailing policy paradigm. These changes in scope greatly

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[3] ADB. 1998. *Indian Urban Sector Strategy*, Manila
[4] ADB. 2008. *Strategy 2020. The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.
[5] The Constitution (74th Amendment) Act,1992. New Delhi. http://urbanindia.nic.in/programme/lsg/74th CAA.pdf
[6] Government of India Planning Commission. http://planningcommission.nic.in/plans/planrel/fiveyr/welcome.html
[7] The project design was multi-sectoral, consisting of 6 components, and 14 major outputs
[8] ADB. 2009. *India Country Partnership Strategy 2009–2012 (Abridged Version)*. Manila.
[9] ADB. 2010. *Country Operations Business Plan India 2011–2013*. Manila
[10] ADB. 2006. *Report and Recommendation of the President (RRP) to the Board of Directors on a Proposed Multitranche Financing Facility to India for the North Karnataka Urban Sector Investment Program.* Manila

enhanced the project's relevance by ensuring optimum utilization of project outputs; enhancing environmental sustainability; improving responsiveness and transparency in operations; and enhancing the revenue base and institutional capacity of project ULBs.

10. At the time of project appraisal, ADB's presence in the urban sector in India was limited. The only previously approved ADB-funded urban sector project, the Karnataka Urban Infrastructure Development Project (KUIDP), was at an early stage of implementation. Lessons were therefore drawn from the urban projects funded by the government, GoK and other funding agencies.[11] These lessons included the importance of strong project management to avoid delays and building local government ownership and project management capacities.

11. Feasibility studies carried out during design found that the project would bring widespread environmental and social benefits and a base economic internal rate of return (EIRR) of 12%–27% for the water supply component, 12%–25% for storm water drainage, and 12%–31% for urban transport. Assessment during appraisal confirmed that the financial situation of the selected ULBs was not strong and willingness to pay was limited. However, the assessment concluded that, through the project, ULBs would be able to generate an operating surplus.

B. Project Outputs

12. The project benefited about 1 million people (212,770 households) with improved water supply, as targeted during appraisal. The drainage component exceeded its target of 0.38 million direct beneficiaries and 0.07 million indirect beneficiaries, and expanded coverage to 0.79 million people (about 168,100 households). The municipal SWM system benefited 170,200 households, while the low cost sanitation component covered about 56,900 slum dwellers. Current achievement of the waste water component has been slow, with about 0.44 million people (about 94,000 households) have been benefited to date against the target of 0.55 million. The main reason for this is the non-completion of about 7 km of sewer laying works in Mangalore town, which is crucial for the commissioning of two sewage treatment plants. Once KUIDFC completes the pending sewer laying works and ULBs provide house connections in the remaining areas, the number of beneficiaries for both the water supply and sewerage components could immediately increase by about 200,000 and 250,000, respectively. The urban transport component benefited all of the targeted population of 1.2 million people (Appendix 1).

13. The project had several major successes in meeting its physical targets: it achieved source augmentation of 305.5 million liters per day (mld) (144% of the target) for water supply, against an appraisal target of 212 mld. About 2,000 km of water pipelines have been laid. Project changes led to significantly higher achievements in wastewater management than originally planned. Sewage treatment capacity was increased by 130.5 mld (183% of the target), compared with the appraisal target of 71 mld. Construction of 427 km (138% of the target) of sewer lines was achieved against a targeted 310 km of sewer lines at appraisal, as network coverage expansion, which was not envisaged earlier, was added to the wastewater component. Around 10,200 low cost sanitation units were constructed for the economically weaker section people. KUIDFC under the project established landfill sites of 186.9 MT capacity, that were fully compliant with India's Municipal Solid Waste (Management and Handling) Rules 2000. A total of 172.5 km of municipal roads were upgraded and rehabilitated against the targeted 180 km. The

[11] ADB. 1995. *Report and Recommendation of the President (RRP) to the Board of Directors on a Proposed Loan to India for the Karnataka Urban Infrastructure Development Project.* Manila

storm water drainage component improved a catchment area of 50 ha through rehabilitation of 59.1 km of drainage versus the appraisal target of 76 km.[12,13]

14. The municipal reform program implemented under the project has helped bring about 0.8 million un-assessed properties (54% of total properties in participating ULBs) under the tax net, and increased property tax mobilization in most of the participating towns by about 100%. The program also supported the creation and introduction of (i) a geographical information system (GIS) based property tax information system; (ii) a fund-based double entry accrual accounting system; (iii) a public grievance redress cell;[14] and (iv) computerization of basic municipal functions and online birth and death registration[15] in 49 major ULBs, including the 10 project towns, catering to 75% of the total urban population of Karnataka. The program established a standardized set of systems and processes and a data center with centralized database architecture. This reduced implementation effort, time, and cost, and helped attain acceptable quality, irrespective of the ULB's capacity and location, and in the subsequent roll-out of the program in other ULBs in Karnataka.

15. The Community Awareness and Participation Program (CAPP) institutionalized a participatory approach in all aspects of the project, and ensured inclusiveness. It promoted thrift and credit activities through the formation of self-help groups (SHGs). Nearly 2500 SHGs, involving about 30,000 low-income families, have been formed. About 90% of the members are women from low-income families. Over the project period, the SHGs have mobilized more than Rs50 million through their own savings and disbursed internal loans of Rs120 million. The activity has provided direct benefit to over 150,000 people, about one-sixth of the population of the project towns. The project also provided an innovative livelihoods component to address the livelihood needs of underprivileged youth. About 1,800 students from low-income families, mainly girls, were provided with skills training in information technology and the hospitality industry. Appendixes 1 and 2 provide details of the outcome and outputs anticipated at appraisal and those achieved.

C. Project Cost

16. The project cost at appraisal was $251.4 million, including an unallocated amount of $55 million, comprising physical and price contingencies. The original ADB loan of $175 million was reduced by $30 million to $145 million at the borrower's request. Since this adjustment was through a reduction in the unallocated amount and interest during construction, there was no impact on project outcome or economic and financial rates of return. There were some changes in the scope of underground drainage (UGD) works to meet local requirements and foster local ownership, leading to improved project design and an increase in component cost from $41.4

[12] Out of the 10 project ULBs, 4 towns (Bhatkal, Kundapura, Mangalore and Udupi) are among the top 10 towns in the state in terms of 51 parameters of service delivery and overall financial performance. Government of Karnataka. Karnataka Municipal Reforms Project. *Karnataka Urban Service Level Benchmarking: Ranking Report for the State, 2009–10*. www.karbenchmarking.gov.in

[13] Mangalore was ranked the eighth best city in India in terms of sanitation according to the National Rating Exercise 2009–10, by Government of India, Ministry of Urban Development. Kundapura, Mangalore and Udupi ULBs received national awards (Best ULB Award in the respective categories given by MOUD); Karwar and Kundapura ULBs received Green Leaf Awards in 2009 and Jadavpur University's Award for Excellence in Solid Waste Management was received by Kundapura in 2011; Karwar received the Government of Karnataka's Best Practices Award for Solid Waste Management, and Puttur received the Bangalore World Water Award in 2012.

[14] Average time for complaint redressal has been reduced from 30 days in 2005 to 3 days in 2012.

[15] Since inception of the program, about 10 million birth and death records have been generated in electronic form. Manual records available in the ULBs since 1990 have also been digitized.

million to $75.58 million.[16] The cost allocated for implementation assistance was increased because the project closing date was extended.

17. Actual project cost on completion was $240.87 million. The foreign currency component of the loan was increased from $93.9 million during appraisal to $104.21 million. GoK's contribution was $95.87 million, about 40% of the total project cost. Appendix 3 compares project costs at appraisal with actual costs. Appendix 4 provides details of the original allocation, reallocation and actual disbursement of the loan amount.

D. Disbursements

18. Loan disbursements were slow initially because of the long lead time taken to prepare for implementation. The disbursement schedule could not, therefore, be adhered to in the initial few years. Appendix 5 provides a breakdown of disbursements. Three types of disbursement mechanisms were used, including statement of expenditure, reimbursement and direct payment. KUIDFC did not make use of the imprest facility.

E. Project Schedule

19. The original loan closing date of 30 June 2005 was extended to 25 November 2009 for several reasons: (i) the borrower delayed loan effectiveness by 12 months, pending selection of project consultants; (ii) subsequently, it took KUIDFC 18 months to renegotiate on-lending agreements to secure ownership by the 10 participating municipalities and to adjust the project scope to address local needs; and (iii) upon finalization of the scope, the project consultants took another 18 months for re-appraisal, primary data collection, detailed design and bid document preparation.[17] Execution commenced only in September 2003, with the award of major civil works contracts.

20. The project also faced difficulties during contract execution, largely because of delays in land acquisition and in obtaining right-of-way clearances from the National Highways Authority of India and the railway authorities. An increase in the scope of sewer laying works, which was the most time consuming and challenging of the project components, also affected the completion schedule. KUIDFC resolved most of the land acquisition and right-of way clearance issues through the intervention of the Chief Secretary of Karnataka and coordination by the district level project advisory team (PAT). Despite the delays, all the project components, except for a few sections of the sewer laying works, were completed within 6 years from the commencement of construction. About 7 km of sewerage pipelines in Mangalore are still not complete because of land acquisition delays. This critical stretch of pipeline is delaying commissioning of two sewage treatment plants in Mangalore. KUIDFC is at an advanced stage of acquiring the land required and is planning to complete pipe-laying and commissioning of the two sewage treatment plants by June 2013.

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[16] Government of India. Department of Economic Affairs (DEA). Letter dated 12 July 2002 requesting cancellation of loan savings; and. letter dated 17 Dec 2004 requesting reallocation of interest and commitment charges to civil works. The total allocation under contingency and interest during construction (IDC) was initially $59 million, of which $30 million was cancelled. A major portion of the remaining $29 million was used for additional sewerage works.

[17] The loan closing date was extended four times, (i) on 17 December 2004 by 18 months, from 30 June 2005 to 31 December 2006; (ii) on 16 January 2007, from 31 December 2006 to 31 March 2008; (iii) on 5 December 2007, from 31 March 2008 to 31 March 2009; and (iv) on 10 February 2009, from 31 March 2009 to 30 September 2009.

F. Implementation Arrangements

21. The project's implementation arrangements were *satisfactory.* The executing agency for the project was KUIDFC. At the state level, an Empowered Committee, chaired by the Additional Chief Secretary of GoK, provided strategic guidance and facilitated resolution of critical issues in implementation and inter-departmental coordination. At the district level, the District Level Project Advisory Team (PAT) comprised the Deputy Commissioner as chair and elected representatives and officials of the relevant ULBs, other line departments, and NGOs/CBOs as members. The PAT endorsed the subproject scope, reviewed progress, and provided timely guidance and co-ordination assistance to project implementation units (PIUs) in obtaining site clearance and statutory clearances, as well as in redressing grievances. At the town level, the municipal councils were responsible for approving the scope, feasibility, and preliminary design of subprojects.

22. Two regional PIUs were established at Karwar and Mangalore, each with responsibility for five towns in north-west and south-west Karnataka, respectively. The regional PIUs were headed by a deputy project director and their key responsibilities were facilitation of detailed engineering design, obtaining right-of-way clearances, and supporting town-level PIUs in contract management, monitoring, and implementation. Town-level PIUs were established for construction supervision of civil works contracts and field coordination.

23. Two design and supervision consultants (DSCs) and the project management consultants (PMC) were engaged to provide the necessary technical and project management support to KUIDFC. Two regional NGOs were recruited for implementation of CAPP in the northern and southern coastal districts. KUIDFC also engaged third party quality assurance consultants to monitor and report on the quality of construction.

G. Conditions and Covenants

24. The majority of the loan covenants have been fully complied with. The loan covenants related to (i) the reduction of nonrevenue water (NRW) to 25% in all project towns, and (ii) the inclusion of a drainage surcharge in water tariffs, are considered partially complied with. NRW assessment by KUIDFC showed that 8 out of the 10 towns have achieved the agreed target. To recover the O&M cost of sewerage systems, the state government has recently issued an order for mandatory imposition of the sewerage surcharge, which is under consideration by the respective local bodies. The covenants related to water tariffs and improved municipal management were complied with, albeit late. The delay was owing to GoK's strategy of (i) initiating state-wide urban reform, and (ii) increasing the water tariff only after improvement in services. While the same approach for revision of the water tariff was recognized in the RRP, it was not reflected in the covenant. Though delayed, the municipal reform program ensured better municipal service delivery through resource mobilization, participatory local planning, and improved transparency and accountability in the functioning of 49 ULBs, including the 10 under the project. Appendix 8 provides the status of compliance with the loan covenants. No waivers, modifications or additions to the loan covenants were required.

H. Consultant Recruitment and Procurement

25. Consultants were engaged in accordance with ADB's *Guidelines on the Use of Consultants*. For recruitment of the two DSCs and the PMC, KUIDFC followed the quality-based selection method. However, the process took more than 12 months and contributed to the initial delays. KUIDFC engaged field level consultants to implement the institutional reform component

and two NGOs to oversee the CAPP. At the behest of the borrower, ADB raised the threshold limit for local competitive bidding from $3 million to $5 million.[18] ADB's local competitive bidding procedure was largely followed for the procurement of civil works contracts. Contract packaging, tendering, development of standard bid documents and contract numbering systems, and evaluation of bids were executed smoothly. However, some bid failures, particularly for sewerage works contracts, occurred because of the high bid prices. This led to a detailed review, which revealed that the high bid prices had been caused by use of an out-of-date government schedule of rates and under-estimation of the contract implementation period. KUIDFC took corrective actions by using market rates for the engineer's estimate and adopting a more realistic contract implementation period during the subsequent bidding.

I. Performance of Consultants, Contractors, and Suppliers

26. At an overall level, consultant performance was *partly satisfactory,* even though the performance of different consultants varied. The structuring of input-based rather than deliverable-based design contracts resulted in some difficulties in consultant management for KUIDFC for detailed engineering and preparation of bid documents. The high turnover of personnel in consulting firms and the low quality of some experts, coupled with inadequate pre-design investigations, led to delays in the finalization of designs and bid documents, and the issuance of technical drawings. The international experts of the PMC were unable to provide the expected support because they lacked familiarity with local conditions, and were subsequently released. However, domestic consultants of the PMC provided strong technical support to the PMU, and their performance improved over time. The DSC in Mangalore also provided good technical support. However, the DSC in Karwar, responsible for design and supervision in the 5 ULBs in Uttar Kannada district, was weak. This led to design issues in a few subprojects. The third party quality consultants regularly carried out independent inspections and testing of works, and submitted test and inspection reports to KUIDFC, thereby contributing to improvements in the quality of work. CAPP's success is attributable to the support provided by the two regional NGOs to KUIDFC.

27. Overall, the performance of contractors was *partly satisfactory*. Majority of sewer laying contractors failed to deliver on time due to lack of prior experience with similar works and difficult site conditions. The original agreements for the sewer laying contracts included an unrealistic execution schedule; this resulted in cost and 100% time overruns. The contractors' lack of familiarity with quality control requirements and contractual provisions of externally aided projects led, in some cases, to delays in the settlement of variations and claims. However, the handholding support provided by KUIDFC helped to improve the capacity of the contractors towards the end of the project. No issues were reported with the performance of suppliers.

J. Performance of the Borrower and the Executing Agency

28. The performance of both the borrower and KUIDFC was *satisfactory*. The borrower, represented by the government's Department of Economic Affairs, chaired regular tripartite review meetings with ADB and KUIDFC, which helped resolve issues and monitor project progress. The borrower also facilitated clearances from the National Highways Authority of India and Indian Railways. The borrower's support of KUIDFC's requests for minor changes in scope helped enhance project effectiveness.

29. KUDCEMP was the second ADB project to be implemented by KUIDFC. Since KUIDP had preceded KUDCEMP by less than four years, the scope of learning from KUIDP was limited.

[18] Approved by ADB's Vice President (Operations 1) on 24 January 2002.

KUIDFC exhibited strong leadership throughout the project period. Initially, there were some complaints from the ULBs and an NGO task force, a local advocacy group, about lack of consultation by KUIDFC. Subsequently, KUIDFC established effective consultation, project implementation and progress reporting procedures, monitoring mechanisms, and a grievance redress mechanism. It also conducted awareness campaigns and improved transparency by regularly publishing all reports, including project progress reports. KUIDFC was slow in identifying land acquisition and right-of-way clearance requirements, most of which were identified during project implementation, and this affected project progress. Based on this experience, KUIDFC made a decision in the third ADB-assisted urban project that subprojects would be tendered only when a substantial portion of the land had been acquired and right-of-way clearance obtained (footnote 10). As an organization, KUIDFC has built its capacity and grown in strength over the years. It has become the primary agency for externally aided urban projects such as the World Bank-funded Karnataka Municipal Reforms Project and the centrally funded Jawaharlal Nehru National Urban Renewal Mission (JNNURM), in Karnataka.

K. Performance of the Asian Development Bank

30. The performance of ADB was *satisfactory*. The project was delegated to the India Resident Mission (INRM) in January 2001, after completion of the consultant selection process. KUIDFC found ADB's support and expert advice useful, particularly in negotiations with consultants. In the case of sensitive decisions, ADB's monitoring and transparent procedures helped avert local interference and ensure smooth project implementation. ADB's commitment to the project was evident in its regular review missions, close monitoring of project progress, and discussions with KUIDFC to expedite completion. GoK also appreciated ADB's involvement in policy dialogue, guidance to ensure sustainability of project outputs, and responsiveness during project preparation and implementation. However, KUIDFC considered that, during the initial stages, the time taken by ADB for approval of some bids and procurement decisions was longer than warranted.

III. EVALUATION OF PERFORMANCE

A. Relevance

31. The project was *relevant* to the government's and ADB's country and sector strategies both at the time of appraisal and upon completion. The project was in line with government policy as stated in the 74th Constitutional Amendment Act, as well as the objectives stated in India's ninth, tenth, and eleventh five-year plans (footnotes 5 and 6). It underscored ADB's policy emphasis on integrated urban development through expansion and rehabilitation of key urban infrastructure, capacity development of local governments for improving service delivery, environmental sustainability, and empowering of the urban poor. The minor adjustments in the project design during implementation helped address local needs, thereby securing greater ownership by the 10 participating municipalities.

B. Effectiveness in Achieving Outcome

32. Overall, the project was *effective* in achieving the targeted outcomes. The components for urban transport, community participation and poverty reduction, drainage, and SWM were very successful owing to the quality of service delivery.[19] Door-to-door collection systems for

[19] Field visits and consultations during the PCR Mission showed that beneficiary satisfaction with urban transport, water supply, and drainage is high in all 10 project towns, and roads have withstood the heavy rains in coastal Karnataka well.

solid waste are now available to a majority of urban residents in the project towns. Water supply interventions were also successful; consumer satisfaction with water supply is high, particularly in Ankola, Kundapura, and Udupi, and among households in the other project towns that are connected to the new systems. Feedback regarding quantity, pressure, and duration of water supply was positive. The outcome of water supply interventions can be further improved, if last mile connectivity issues are addressed and systems are operated and maintained efficiently.[20] Infrastructure provided for water supply in most towns is adequate to support 24x7 schemes. However, sewerage has been only partially effective because of the partial commissioning of the Mangalore sewerage system. Once KUIDFC completes the remaining sewer works and the ULB provides house connections in the newly serviced areas, the number of beneficiaries for the sewerage component could increase by about 250,000. The low cost sanitation units have been highly successful in improving the quality of life of economically weaker section households, particularly women. In addition, the rehabilitation of markets and other municipal infrastructure has been successful in most towns.[21]

33. The capacity building, community participation, and poverty reduction component was highly successful because of the commitment of the NGOs involved, resulting in beneficial social and economic outcomes for participants, over 90 percent of whom were women.[22] The institutional reforms implemented under the project helped Karnataka achieve the distinction of being among the first Indian states to have a municipal reform cell with a centralized reform monitoring tool. This also provided a strong base for scaling up the reforms across the state, and beyond the 49 pilot ULBs where implementation was funded under the project. The financial, technical, and asset management capabilities of these ULBs have improved after implementation of the reform program.

C. Efficiency in Achieving Outcome and Outputs

34. Overall, the project is rated efficient. The EIRR at completion was analyzed for the water supply, sewerage, drainage, SWM, and streets and bridges components. The EIRR for the water supply component in the 10 cities, ranges from 15.85% in Kundapura to 41.61% in Dandeli, while that of the drainage component varies from 12.39% in Udupi to 73.73% in Ullal, which are higher than the appraisal estimates. The EIRR for streets and bridges, which varies from 21.09% in Bhatkal to 68.92% in Udupi, are also greater than the appraisal estimates. The EIRR for the sewerage and SWM components, which were not assessed during appraisal, also exceeds the economic opportunity cost of capital of 12%, indicating the project's economic viability. The EIRR has not been estimated for components such as coastal environmental management and municipal facilities, as these benefits are difficult to quantify. Nonetheless, these subprojects have clearly improved the quality of life in project cities by providing people with better access to municipal services.

35. The financial internal rate of return (FIRR) for the water supply component of Mangalore is 4.4%, higher than the weighted average cost of capital of 3.27%, but lower than the appraisal estimate of 16.4%. For all cost recovery subprojects other than Udupi water supply (0.76%), the

[20] Provision of house service connections has not taken place in certain areas of Ankola, Dandeli, Karwar, Kundapura, Puttur, Sirsi and Ullal, And, house service connections from old pipelines continue in certain areas of Bhatkal, Dandeli, Mangalore, Puttur, and Sirsi, despite new pipelines having been provided.

[21] Lack of parking space is reported to have led to low demand for one of the market complexes in Puttur.

[22] Discussions with members of self-help groups formed with project support revealed that the project has helped women carve out their own identity, and provided them access to finance for small enterprises, improvements to housing, children's education, weddings, and medical expenses. The project has also led to an overall improvement in their quality of life. These women also reported improved status within the family and society and were found to be articulate and empowered.

FIRR is negative. However, devolution of funds from GoK ensures that all municipalities are able to meet their regular operating expenses and invest in municipal infrastructure. When the FIRR analysis considers devolution as part of the financial benefits to the water component, the analysis shows positive results. In addition, if the increase in property tax income is also considered as part of the financial benefits, then the results improve. A summary analysis and calculations are in Appendix 11**.**

D. Preliminary Assessment of Sustainability

36. Overall, the project is rated *likely* to be sustainable. The capacity building, community participation, and poverty reduction component is most likely to be sustainable in the five southern project cities because of the strong base provided by the project, coupled with the continued support and inputs of the project NGOs. Through reforms, the revenue base of the municipalities has increased by 100% in nominal terms since 2000. In addition, as per State Finance Commission recommendations, GoK is sharing 8% of the state's revenue receipts with the ULBs. This has significantly improved the financial condition of all ULBs. Under the reform program, the government has provided additional technical staff in each ULB. The Government Order of February 2011 provides guidelines for water supply tariff enhancement and the imposition of sewerage surcharges by ULBs. Once the councils of the participating 10 ULBs adopt the recommended tariffs, their financial position is likely to improve further, and have a positive impact on sustainability.

37. Metered house service connections and the adoption of volumetric water tariffs by 7 project ULBs have reduced NRW. Where a new water supply network has been laid, a phased approach for decommissioning of the old networks is being adopted. This approach, together with the proposed campaign by the project ULBs to increase awareness of the benefits of water supply connections, is expected to lead to sustainable outcomes in water supply for all project towns. In case of sewerage, the lack of capacity in smaller ULBs like Karwar and Bhatkal due to shortage of capable O&M staff is a concern. Udupi is managing its sewerage system well, while Mangalore City Corporation (MCC) has signed an agreement with the Mangalore special economic zone (SEZ) for O&M of pumping stations and sewage treatment plants in return for the use of effluents. However, provision of house service connections by MCC is a prerequisite for success. MCC is in the process of addressing the issue of connections, as well as contractual issues, with the SEZ.

38. The municipal SWM component is also sustainable. For SWM, the ULBs have engaged SHGs, which were trained and oriented under the project, for door-to-door collection of waste, while transport and dumping sites are managed by the ULBs themselves. The towns of Ankola Karwar, Kundapura and Puttur, are adhering to appropriate norms in their management of the landfill sites, and so sustainability is highly likely. However, O&M of the SWM landfill site at Mangalore needs improvement. Sustainability of the urban transport component is also likely. Recommendations for follow-up actions are in Appendix 14.

E. Impact

39. Project impacts, classified into economic and social, institutional, and resettlement and environmental impacts, are listed below:

40. **Economic and Social Impacts**

(i) The Economic Survey of Karnataka for 2011–12 reports a substantial reduction (23.5%) in the incidence of poverty in the urban areas of coastal Karnataka between

2004–05 and 2009–10.[23] The report states that inequality in the region has declined by 11.6% in the same period and the median monthly per capita consumption level has increased by 100%. Achievements in poverty and inequality reduction in the region were higher than that of the Karnataka average (by over 10%). Although poverty and inequality reduction in the region cannot be completely or directly attributed to the project, it is widely recognized that the project led to greater regional prosperity and had significant positive impacts on the poor.

(ii) The number of trade licenses issued by ULBs increased by 54% from 2000 to 2011.[24]

(iii) The members (both men and women) of project-assisted SHGs and those who underwent skills upgrading training were economically and socially empowered.

(iv) The provision of low cost sanitation units has enabled beneficiaries from poor households, particularly women, to live with dignity and respect, and has improved the overall environment, health, and hygiene.

(v) Metered connections and volumetric tariffs with telescopic ranges in seven project towns have reduced water wastage and addressed affordability issues of the poor.

41. **Institutional Impacts**

(i) The institutional capability and resource base of ULBs has improved as a result of the reform program under the project.[25] The program also influenced government policy for sustainable urban development in regard to human resources, financial reforms, participatory planning, roll-out of service guarantee schemes, and service level benchmarking.

(ii) The institutional capacity of KUIDFC increased, and it has grown in strength to become the primary state agency for all externally-aided urban projects and centrally-funded urban sector projects like JNNURM. KUIDFC plans, designs, finances, and implements such projects and provides technical assistance to municipalities for the operating facilities created. In 2008, GoK appointed KUIDFC as fund manager for the municipal bonds issued by the Bangalore Water Supply and Sewerage Board.

(iii) ADB's initial investment in institutional reforms in 49 towns triggered investment by the World Bank and led to a state-wide thrust to scale up the reforms to cover all the towns of Karnataka. This was a precursor to the government's JNNURM, which has a similar reform component. The program has become a model municipal reform program for the country.

42. **Resettlement and Environmental Impacts**

(i) Overall, resettlement management followed ADB's social safeguards requirements for the project. Affected persons and other stakeholders observed improved economic activities, better living conditions, and enhanced quality of life in the project area. Twenty-two short resettlement plans (SRPs) were approved by ADB during implementation, with the objective of minimizing land acquisition and resettlement impact; no significant impact was noted. Affected people were compensated in accordance with

[23] The ten coastal towns constitute 80% of the urban population of coastal Karnataka
[24] Trade licence data was provided by the project ULBs.
[25] Property tax mobilization in most participating towns has increased by more than 100% in nominal terms between 2000 and 2011.

the entitlement matrices of the approved SRPs. A private land acquisition requirement of 81.23 ha was identified; all of this land was acquired, except for about 1.08 ha for UGD works in Mangalore, which is in the process of being acquired. Implementation of the SRPs complied with the loan agreement and ADB's *Involuntary Resettlement Policy, 1995*.

(ii) Environment covenants under the project have generally been complied with. Requisite "Consents to Establish" and "Consents to Operate" are being regularly sought and obtained from the Karnataka State Pollution Control Board.

(iii) The overall institutional arrangement for the management of safeguards is assessed as inadequate. However, in spite of operational and performance-related concerns and constraints, the project has the potential to contribute further to improved environmental conditions over time, if facilities are maintained and operated properly.

(iv) The project has improved the overall environmental conditions of the ten coastal towns. The improvement stems from the addition of 2,000 ha of mangrove plantations, the provision of low cost sanitation units, and the creation of core water supply and sanitation infrastructure. The project also helped in (i) strengthening of the environmental monitoring capacity at the regional level, and (ii) planning and conservation of coastal resources through preparation of Coastal Regulation Zone maps. Mangalore was ranked as the eighth best city in India in terms of sanitation according to the government's National Rating Exercise 2009–2010. A number of project ULBs have received national level awards for SWM facilities. Kundapura ULB has received a national award for reduction of NRW (footnote 15). MCC's initiative to re-use treated wastewater for industrial purposes will not only reduce its O&M liability but also help conserve water. A detailed note on performance on environmental and social safeguards is provided in Appendix 10.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

43. Overall, the project is rated *successful* on the basis of its assessed relevance, effectiveness, efficiency, and sustainability. It was relevant to the government's and ADB's policies at appraisal and continues to be so, on completion. The project is assessed as *effective* in achieving its envisaged outcomes. It has made a significant contribution to achieving the Millennium Development Goals in the project cities, particularly Goal 7, Target 10 related to halving the proportion of the population without access to safe drinking water and sanitation.

44. Despite the implementation delays, the project has made a strong and positive development impact, contributed to poverty reduction, and increased economic activity in urban areas of coastal Karnataka. The overall project cost was within the estimates. The cost of the sewerage component increased because of design changes to expand the coverage and extend the benefits. Economic re-evaluation of project components confirmed the project's economic viability. Project investments are likely to be sustainable, as property tax reform and the adoption of increased water tariffs have substantially improved the revenue base of the project towns. Karnataka's policy of sharing 8% of revenue receipts with ULBs and strengthening the human resource capacity of ULBs has made a significant impact on project sustainability.

45. This overall success can be attributed to the robust institutional arrangements and sound processes. KUIDFC has guided the project successfully with the continuous support of the state, the government, and ADB. KUIDFC's success is attributed to leadership, focus, delegation of adequate authority by the state, and the availability of dedicated project teams to lead and implement the project. Project outcomes were as anticipated, with only minor changes in scope.

B. Lessons

46. The project yields the following important lessons:

(i) Fully staffed PMU and PIUs and the complete involvement of the project authorities from project preparation is necessary to create ownership and commitment.

(ii) Adequate consultations with all stakeholders during project formulation and appraisal of the project, based on the primary data or validated secondary data, will ensure more locally rooted and systematic planning, help build local ownership, and lead to better project implementation and sustainability of project outputs.

(iii) Advance actions for consultant selection, procurement, land acquisition, and statutory clearances can help in timely completion of projects.

(iv) The project and contract schedule should be realistic, taking into account the technical complexities of the project components, the capacity of executing agencies, consultants and contractors, and the available working season in project towns.

(v) Adherence to sound engineering design principles based on required primary surveys and validated secondary data can lead to more efficient outcomes and avoid delays. Adequate time needs to be allocated for surveys and engineering design.

(vi) House service connections for urban water and sewerage should be part of the project scope to ensure optimum utilization of outputs and timely delivery of benefits.

(vii) Small investments in areas like micro-finance, SHG formation, low cost sanitation facilities, and skills upgrading training can have large social and economic impacts and help build local support for a project.

(viii) For institutional reform, use of a standardized set of systems and processes and a centralized control system at the state level helps to reduce implementation effort, time, and cost, and attain acceptable quality, irrespective of ULB capacity and location.

(ix) Targeted awareness campaigns aimed at changing the behavior of urban residents are necessary to achieve design results.

(x) Involvement of committed local NGOs and their continued involvement at least for a year after project completion can enhance project effectiveness and sustainability.

C. Recommendations

1. Project Related

47. **Follow-up actions and monitoring.** These include acquiring the remaining land parcel, completion of the sewerage network in Mangalore, and provision of the remaining house service connections for water supply and sewerage, as listed in Appendix 14, along with the required frequency of monitoring.

48. **Covenants.** Before drafting covenants related to tariff increases, results of willingness-to-pay surveys conducted during appraisal should be given due consideration. The RRP clearly mentions low willingness to pay among households in the project towns. Despite this, the covenant stipulates a 50% increase in tariffs in 2001, before delivering any corresponding additional benefits.

49. **Sustainability.** Appropriate O&M arrangements should be designed and put in place during project implementation to ensure the smooth handover of assets on completion and provide sufficient time to O&M staff to familiarize themselves with the system. House connections should be included in the project scope to ensure optimum delivery of project benefits.

50. **Additional assistance:** Water supply system developed in Ankola, Bhatkal, Karwar, Kundapura, Mangalore, Puttur and Udupi can easily be scaled up to provide 24x7 water supply. ADB may consider providing TA to GoK to help structure appropriate private–public partnership models for 24x7 water supply schemes.

51. **Timing of the project performance evaluation report (PPER).** The PPER should be prepared towards the end of 2015 by which time all the components should have been completed and operational for at least two years.

2. General

52. The PCR makes the following general recommendations to ADB:

(i) Adequate consultations should be undertaken at the planning stage, and the project feasibility assessment should be based on primary data or validated secondary data.

(ii) Advance action for the selection of consultants, acquiring land, and obtaining right-of-way clearances, prior to loan approval, will help to ensure timely completion.

(iii) House service connections should be part of all future water supply and sewerage projects to ensure timely achievement of project outcomes.

53. **Consultancy contracts.** Consultants' payments for preparation of designs, reports, and documents should be structured on the basis of outputs or deliverables, while those for supervision should be based on inputs. This hybrid payment procedure is likely to ensure timely delivery of consultants' outputs, efficient use of experts' inputs, and help improve accountability.

54. **Expanded technical assistance inputs.** Executing agencies need to be encouraged to use ADB's new project design facility for advance preparation of detailed engineering design, and other preparatory activities like contract and procurement packaging. This will improve project preparedness and ensure implementation without time and cost overruns.

55. **Institutional learning.** In order to ensure the quality and timely delivery of project benefits, it is essential to build the technical capacity of executing agencies through the creation of a core technical team, with a mix of permanent employees and long-term consultants. At present, staff in executing agencies are usually drawn from line departments; the learning process begins anew with every project and they are unable to take forceful charge of technical and project management issues. Agencies like KUIDFC that have evolved as the State's primary urban development agency, do not have dedicated cadres, resulting in limited accumulation of institutional knowledge and learning across projects.

PROJECT FRAMEWORK

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
1. Goal				
1.1 Improve quality of life in the urban areas	• Increase economic activities and revenue base of municipalities	• The median monthly per capita consumption level in the urban areas of coastal Karnataka has recorded a 100% increase between 2004–05 and 2010–11. • On average, the revenue from property tax of participating municipalities has increased by 14% per annum between 2000 and 2010.	• Statistical abstracts published by the Bureau of Economics and Statistics • Reports by Chamber of Commerce • Economic Survey Report, Government of Karnataka • Hospital and medical center records	• Natural disasters • Public health and environment departments and nongovernment organizations (NGOs) support public education and environmental health awareness
	• Time savings by improved services and reduction in morbidity due to improved public health conditions	• Average time taken for water collection was reduced from 30 minutes per day in the pre-project scenario to no separate time spent on water collection in the post-project scenario, as per the information provided by each municipality. On average, water is supplied for more than 4 hrs per day.		
1.2 Improve gross state product (GSP)	• GSP to increase at a faster rate	• GSP growth rate changed from 7.1% in the pre-project scenario (1990–1999) to 7.8% during 2000–2010.[a]	• Published documents of the state government	• Policies reformed for enhancing investments
1.3 Improve guided planning of urban areas	• Land optimization within an appropriate planning and regulatory framework • Reduction in non-conforming uses	• City development master plans have been prepared for 9 project towns to regulate the planned growth of land use and development. These plans have provided a physical framework for land use for a projected city population over a period of 10–20 year.	• Monthly progress reports • Review missions • Project completion report (PCR)	• Laxity in enforcement of development control • Lack of coordination with line departments for provision of sector services

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
		• GoK has also launched a new project to create an urban property ownership records database, which accurately records both the spatial details of the property as well as the non-spatial record of rights.		
	• Optimization of infrastructure network	• The existing infrastructure network has been integrated with the newly constructed facilities to achieve optimization in all towns across different sectors.		
2. Purpose				
2.1 Improve urban infrastructure, management, and resource mobilization in Project cities	• Provide basic urban infrastructure and essential municipal services in ten Project towns with a projected total population of more than 1.2 million by 2006	• 1.0 million people (around 212, 770 households) have been provided with an improved potable water supply, 0.44 million people (about 94,000 households) with wastewater management services and sanitation, 0.8 million (about 172,200 households) with a municipal solid waste management system, and 1.2 million with urban transport facilities.	• Monthly progress reports • Review missions • PCR	• The state cabinet approves the proposed increase in tariffs to a level that more closely reflects the real cost of supply, and approves other policy measures regarding cost recovery and devolution of powers to ULBs
	• Cost recovery, devolution of powers to urban local bodies (ULBs), improve financial and technical capability of ULBs, enhance asset management capability of ULBs	• The state has devolved all the powers as per the 74th constitutional amendment of India. The financial and technical capability of ULBs has improved after implementation of the municipal reform program under the project. The state has also appointed		

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
		technical staff in each ULB and gives regular training to their staff to improve asset management capability.		
	• Introduction of public–private partnerships	• Mangalore city signed an agreement with a Special Economic Zone (SEZ) authority for O&M of the city's waste water system. Under the agreement, the SEZ will operate and maintain pumping stations and treatment plants in return for using effluent. • Kundapura, Mangalore, Puttur and Udupi are developing public-private partnership schemes for providing 24x7 water supply. • Public–private partnerships, in the form of service contracts for O&M of treatment plants, pumping stations, and waste management, have also been introduced • ULBs have engaged Self-Help Groups (SHGs) for primary collection of municipal solid waste. These SHGs have been trained and oriented under the project.		
3. Outputs				
3.1 Improved water supply	• Source augmentation of 212 million liters per day (mld) with creation of additional treatment facilities by creating conventional water	• Potable water supply in project towns increased by 305.5 mld through the construction of 10 new water treatment plants	• Feedback from NGOs implementing the community participation component	• Funding is made available in accordance with the loan disbursement schedule and financing plan

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
	treatment plants of 121 mld	(WTPs) with raw water intake and the rehabilitation of 6 existing WTPs.	• Project monthly reports prepared by Project management unit and consultants • Review missions	• Karnataka Urban Water Supply and Drainage Board (KUWSDB) and concerned ULBs have adequate skilled human resources to effectively manage and operate the increased asset base created under the Project
	• Rehabilitation and extension of distribution systems in all Project towns to supply water to more than one million beneficiaries by 2006	• 2,000 km of new water pipes were laid or existing pipes rehabilitated, benefiting about 1.0 million people in the project towns.	• PCR	• Cost recovery through increased tariffs
3.2 Improved wastewater management facilities	• Construction of interceptors/branch sewer lines (310 km), sewage treatment facilities (capacity 71 mld) to benefit about 0.55 million people by 2006	• 427 km of sewer lines were laid, and facilities for treating a total of130.5 mld (130,500 m^3/day) of sewage constructed in Bhatkal, Karwar, Mangalore and Udupi, benefiting about 0.44 million people. Another 0.25 million people will benefit once KUIDFC completes the remaining 7 km sewer laying works in Mangalore and ULBs provide house connections.	• Feedback from NGOs implementing the community participation component • Monthly progress reports • Review missions • PCR	• Funding is made available in accordance with the loan disbursement schedule and financing plan • KUWSDB and concerned ULBs have adequate skilled human resources to effectively manage and operate the increased asset base created under the Project
	• Conduct public awareness programs, including providing incentives for promoting house connections	• Most of the ULBs engaged SHGs to carry out door-to-door awareness campaigns to encourage individual households to apply for a house connection. ULBs are also rewarding SHGs based on the number of applications they collect.		• Cost recovery through increased tariffs

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
3.3 Improved storm water drainage	• Rehabilitation of 76 km of storm water drains, and providing adequate outfall to benefit about 0.38 million people indirectly and about 0.07 million people indirectly	• 59km of storm water drains were rehabilitated or constructed, which benefited about 0.79 million people.	• Monthly progress reports • Review missions • PCR	• Improper maintenance will lead to choking of drains
3.4 Improved solid waste management	• Improved collection system by introducing door-to-door collection services • Public awareness program for effective collection • Cost effective transport and environmentally safe disposal of waste by encouraging public-private partnerships	• All the project ULBs have introduced a door-to-door collection system, by engaging either private operators or NGOs or community based organizations. • Regular public awareness campaigns have been conducted with the help of local NGOs, elected representatives, and other stakeholders. • 5 new sanitary landfill facilities were constructed and one upgraded. The cumulative capacity of these landfill sites are 187 MT/day. • New and effective collection and transportation equipment and vehicles were provided to ULBs. In many ULBs, private operators are engaged for transportation as well as maintenance of the landfill sites.	• Feedback from NGOs implementing the community participation component • Monthly progress reports • Review missions • PCR	• Municipalities have adequate skilled human resources to effectively manage and operate the increased asset base created under the Project • The community development program is planned to be undertaken effectively
3.5 Improved municipal services and facilities: • public markets • public conveniences	• Rehabilitation of seven markets (total floor area 9,800 m^2) and construction of 28 new markets (total floor area 22,260 m^2) • Construction of public conveniences in all Project towns (48 units)	• 15 new markets constructed • Of the 650 shops/ kiosks constructed under the project, about 300 are provided to women. • 20 public conveniences constructed	• Monthly progress reports • Review missions • PCR	• Timely introduction of revised fees

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
3.6 Improved community amenities	• Construction of two community halls (Bhatkal and Kundapura towns)	• 5 community halls constructed	• Monthly progress reports • Review missions • PCR	• Inadequate maintenance of improved facilities
3.7 Improvement of urban transport	• Reconstruction of 52 km of single-lane streets, 20 km of two-lane streets, and 13 km of four-lane streets • Rehabilitation and widening of 35 km of existing single-lane streets and 59 km of two-lane streets • Construction of 1 km of new street	• 128 km of single-lane streets, 40 km of two-lane roads, and 4 km of four-lane roads reconstructed and widened • 1 km of new road constructed	• Monthly progress reports • Review missions • PCR	• Delays in land acquisition in the Project towns
3.8 Improvement of slums	• Improvement of infrastructure facilities in about ten slums (water supply, drainage, sanitation, solid waste management, streets and footpaths, and street lighting)	• Infrastructure facilities have been improved in 44 slums of 10 project towns.	• Feedback from NGOs/community-based organizations (CBOs) implement-ing this component • Monthly progress reports • Review missions • PCR	• Undertake effective community development program • Delay in establishment of community societies, and neighborhood societies and groups • Beneficiaries contribute to effective maintenance
3.9 Improved low-cost sanitation	• Construction of around 20,000 twin pit pour flush latrines in economically weaker section residential areas	• 10,231 twin pit pour flush latrines constructed for economically weaker section people in the project towns (target reduced)	• Feedback from NGOs and CBOs implementing this component • Monthly progress reports • Review missions • PCR	• Undertake effective community development program • Delay in establishment of community societies, and neighborhood societies and groups • Beneficiaries contribute to effective maintenance

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
3.10 Improvement of municipal offices	• Construction of five new municipal offices (2nd floor public markets), improving working conditions for around 180 staff	• 6 new municipal offices constructed with the necessary facilities	• Monthly progress reports • Review missions • PCR	
3.11 Coastal Resource Management and Conservation Plan	• Enhanced participation in planning for coastal development • Improve spatial allocation of coastal resources utilization • Effective protection of critical habitats/ sites • Develop midterm strategic plan for coastal and marine management • Develop coastal spatial plan for Karnataka • Strengthen regional planning bodies	• To help with the planning and conservation of coastal resources, Coastal Regulation Zone maps were prepared. • Strategic and spatial planning for the coastal regulation zone was carried out.	• Sectoral development policies/plans • Clear midterm vision and goals for coastal development • Maps, reports and government instructions for regional (coastal) planning • Monthly progress reports • Review missions • PCR	• Successful adoption of Urban and Regional Planning and Development Act, or amendments to Town and Country Planning Act with regard to regional planning • Full participation of districts, towns, and villages • Successful adoption concept of regional structure plan • Successful identification and participation of NGO movement
3.12 Industrial Pollution Control and Environmental Monitoring Program	• Installation of water and air quality monitoring system • Prediction/modeling of environmental pollution • Strengthening of Environmental Training Institute for coastal management • Database development on cleaner technologies • Self-supporting operation of Center for Cleaner Technologies	• To strengthen environmental monitoring, offices cum laboratory buildings were constructed for the State Pollution Control Board in 3 project towns.	• Monthly progress reports • Review missions • PCR • Monitoring reports of improved water quality in harbors • State environmental audit reports	• Allocation of staff and accommodation in three districts by Karnataka State Pollution Control Board • Sufficient professional level of key staff involved in monitoring • Effective maintenance of equipment • Inability of Center for Cleaner Technologies to become self-supporting
3.13 Coastal Erosion Protection through Afforestation	• Successful afforestation of 645 hectares (ha) of seashore plantations, and 210 ha mangroves	• Mangrove and other species were planted to prevent erosion in 2,298 ha along the coast.	• Monthly progress reports • Review missions • PCR	• Availability of sufficient and quality seed • All land afforested is state property

Design Summary	Performance Indicators or Targets	Project Achievements	Monitoring Mechanisms	Assumptions and Risks
	rehabilitated • Improved safety for communities and property • Less erosion of coastal land		• Department of Forestry yearly reports • Field visits/checks on successful establishment	• Careful site selection for mangrove rehabilitation in naturally inundated sites only • Effective protection of sites once planted
3.14 Mangalore Urban Waterfront Rehabilitation Plan	• Comprehensive land use plan to guide future growth and development of Mangalore waterfront	• A city development master plan has been prepared for Mangalore town to regulate the planned growth of land use and development including its waterfront.	• Monthly progress reports • Review missions • PCR	• Appropriate regulations are enacted to enforce land use guidelines and restrictions of the plan
4. Input ($ Million) ADB 145.0 Government 95.8 Total 240.8		Civil works – $166.9 million Goods and equipment – $4.2 million Consulting services – $19.6 million Incremental Assistance – $11.8 million Land acquisition and Resettlement – $13.6 million IDC and Commitment Charges – $24.7 million		

DSC = design and supervision consultants; GSP = gross state product; km = kilometer; t = ton; mld = million litres per day; MT= metric ton; NGO = nongovernment organization; – = not available; PCR = project completion report; SEZ= special economic zone; STP = sewage treatment plant; ULB = urban local body.

[a] Government of India. Central Statistical Organization. Ministry of Statistics and Program Implementation. www.mospi.nic.in.

Sources: Urban Development Department, Government of Karnataka

SUMMARY OF KEY PROJECT OUTPUTS

Outputs	Appraisal Targets	Towns										Total
		Mangalore	Kundapura	Udupi	Puttur	Ullal	Bhatkal	Sirsi	Dandeli	Karwar	Ankola	
A. Water Supply												
Pipelines laid or rehabilitated (in km)	…	812.7	66.0	425.0	198.0	104.0	33.7	116.0	45.0	150.9	49.7	2,001
Potable water production capacity augmented (in mld)	289	185.2	7.6	36.3	10.0	-	11.7	21.0	16.5	13.2	4.0	305
B. Waste Water Management												
Sewer lines laid (in km)	…	350.0	-	42.2	-	-	20.0	-	-	14.8	-	427
Sewage treatment capacity increased (in mld)	…	113.8	-	12.0	-	-	3.2	-	-	1.5	-	130
C. Solid Waste Management												
Landfill sites constructed (in MT)	…	120.0	-	37.0	4.4	-	-	-	-	20.0	5.5	187
D. Drainage												
Drainage pipelines or conduits laid (in km)	72.6	10.2	7.4	8.1	2.9	1.9	6.4	8.5	6.8	2.8	4.1	59
E. Road												
Roads upgraded and rehabilitated (in km)	181.7	4.4	4.0	21.7	23.8	12.9	12.1	30.4	26.2	26.0	11.0	172
F. Slum Improvement and Low Cost Sanitation												
Basic infrastructure improved in slums (in number)	34	15.0	-	1.0	2.0	2.0	6.0	4.0	4.0	8.0	2.0	44
Individual sanitation units constructed (in number)	20,891	3,736	424	1,693	1,071	656	106	556	840	753	396	10,231
G. Municipal Services and Facilities												
Municipal markets constructed (in number)	27	-	-	-	3.0	1.0	2.0	3.0	1.0	3.0	2.0	15
Municipal office buildings constructed (in number)	2	-	1.0	-	1.0	1.0	1.0	-	1.0	-	1.0	6

km=kilometer, mld=million liters per day, MT= metric ton, …= not available

PROJECT COST BY COMPONENT

($ million)

Item	Appraisal Estimate			Actual
	Foreign	Local	Total	Total
A. Base Cost				
Capacity Building, Community Participation, and Poverty Reduction	0.30	8.20	8.50	7.27
Water supply rehabilitation and expansion	31.10	37.90	69.00	64.02
Urban environmental improvements	17.60	23.80	41.40	75.58
Street and Bridge Improvements	3.70	11.20	14.90	23.23
Coastal Environmental Management	1.40	2.90	4.30	5.24
Implementation Assistance	0.90	7.90	8.80	27.19
Land Acquisition	-	7.10	7.10	13.61
Subtotal (A)	**55.00**	**99.00**	**154.00**	**216.14**
B. Contingencies[#]				
Physical	6.00	9.90	15.90	0.00
Price	9.00	30.10	39.10	0.00
Subtotal (B)	**15.00**	**40.00**	**55.00**	**0.00**
C. Interest During Construction	**23.90**	**18.50**	**42.40**	**24.73**
Total	**93.90**	**157.50**	**251.40**	**240.87**

Contingencies were fully utilized towards contract variations and price escalation during implementation as well as to cover the additional sewerage works

Source: Asian Development Bank

ALLOCATION, REALLOCATION, AND ACTUAL DISBURSEMENT

($ million)

Cat Code	Category	ADB Financing	Original Allocation	Revised Allocation (Aug 2002)	Revised Allocation (Apr 2005)	Last Allocation (Jan 2007)	Net Amount Available	Amount Disbursed	Undisbursed Balance
01	Civil works	80 % (40% foreign and 40% local expenditure)	100.50	100.50	112.04	99.87	99.87	107.50	(7.63)
01A	Civil works	55% (27.5% foreign and 27.5% local expenditure)				17.47	17.47	7.89	9.58
02	Equipment and materials	100% of foreign and 75% of local expenditure	8.00	8.00	4.92	1.11	1.11	3.25	(2.14)
03	Consulting services	100% of foreign and 80% of local expenditure	7.00	7.00	16.86	16.28	16.28	16.09	0.19
03A	Consulting services	55% of expenditure				0.28	0.28	0.00	0.28
04	Implementation assistance	100% of amount due	0.50	2.50	5.50	6.31	6.31	6.59	(0.29)
05	Interest and commitment charge		24.00	16.00	3.68	3.68	3.68	3.68	0.00
06	Unallocated		35.00	11.00	2.00	0.00	0.00	0.00	0.00
	Total		**175.00**	**145.00**	**145.00**	**145.00**	**145.00**	**145.00**	**0.00**

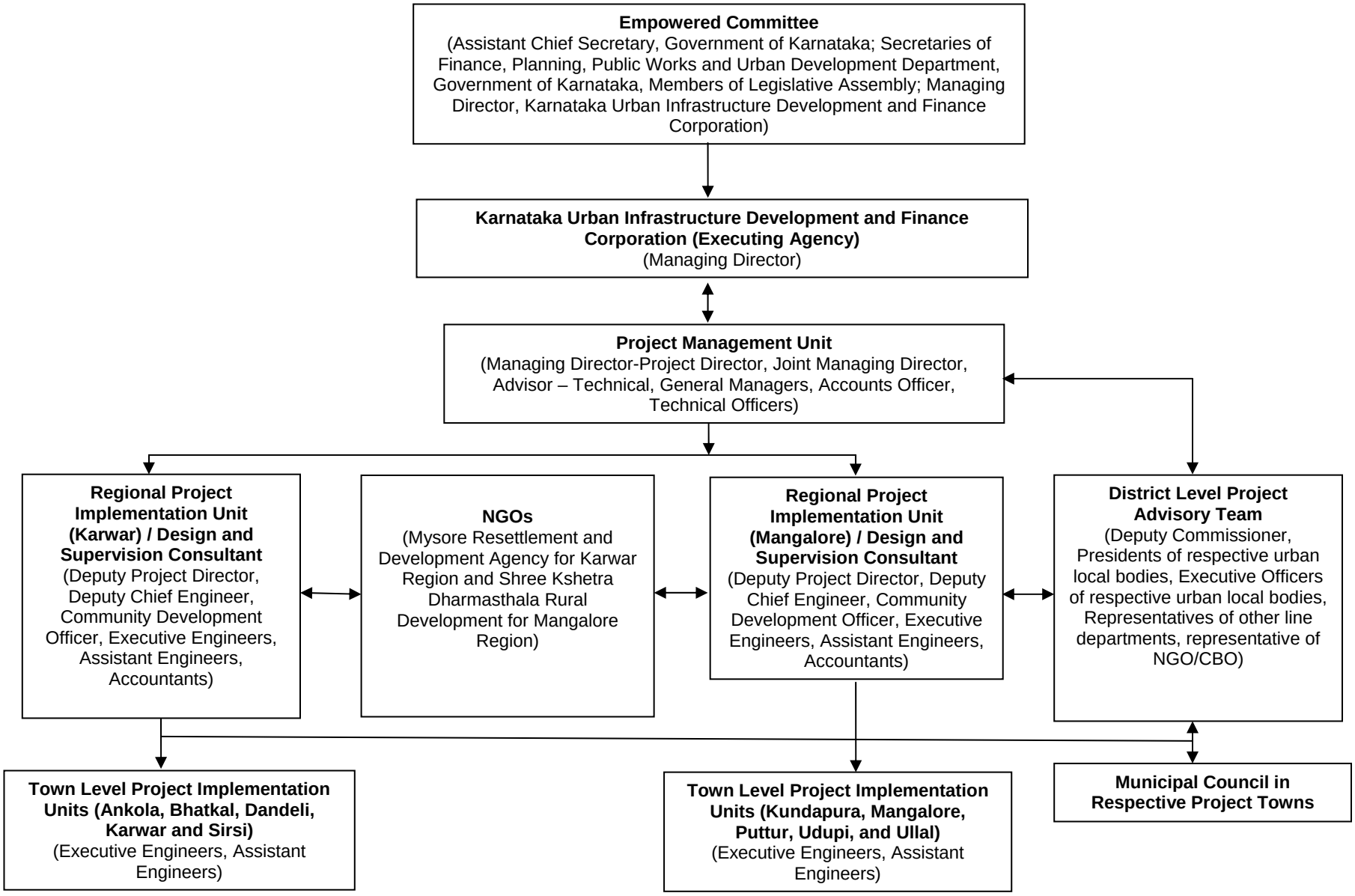
Source: Asian Development Bank, Loan Financial Information System.

CONTRACT AWARDS AND DISBURSEMENTS
($ million)

		Contract Awards					Disbursements				
Year		**Q1**	**Q2**	**Q3**	**Q4**	**Total**	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
2000	Projection	0.00	0.00	7.00	0.00	**7.00**	0.00	0.00	0.70	0.10	**0.80**
	Actual	0.00	0.02	0.00	13.87	**13.89**	0.00	0.00	0.00	0.00	**0.00**
2001	Projection	0.00	0.00	0.00	8.00	**8.00**	0.60	0.80	0.80	1.30	**3.50**
	Actual	0.00	5.15	0.00	0.00	**5.15**	0.09	0.68	0.14	0.18	**1.09**
2002	Projection	0.40	3.30	5.50	4.50	**13.70**	0.00	0.00	4.40	2.60	**7.00**
	Actual	0.08	0.00	1.21	2.40	**3.69**	0.39	0.00	0.70	1.04	**2.13**
2003	Projection	5.00	10.00	12.00	17.00	**44.00**	2.00	4.00	4.00	3.00	**13.00**
	Actual	9.41	7.67	4.57	33.72	**55.37**	0.70	0.39	0.90	10.15	**12.14**
2004	Projection	15.00	20.00	10.00	0.00	**45.00**	7.00	10.00	6.00	7.00	**30.00**
	Actual	2.73	5.98	0.57	2.84	**12.11**	4.59	5.27	6.19	12.37	**28.42**
2005	Projection	15.00	15.00	10.00	0.00	**40.00**	7.00	8.00	6.00	8.00	**29.00**
	Actual	2.10	8.27	0.54	10.52	**21.43**	3.29	5.50	5.78	15.64	**30.21**
2006	Projection	0.30	4.00	3.60	2.00	**9.90**	4.00	6.00	5.00	10.00	**25.00**
	Actual	1.56	1.32	0.00	0.00	**2.88**	2.91	4.80	4.17	11.07	**22.95**
2007	Projection	6.00	12.80	0.00	0.00	**18.88**	9.40	10.40	3.00	7.10	**29.90**
	Actual	0.00	0.00	4.93	4.35	**9.28**	0.71	4.54	2.04	12.19	**19.48**
2008	Projection	0.00	0.00	0.00	0.00	**0.00**	5.10	7.10	2.70	5.10	**20.00**
	Actual	0.00	0.00	0.00	14.00	**14.00**	0.35	1.77	2.66	8.95	**13.73**
2009	Projection	0.00	0.00	0.00	0.00	**0.00**	4.00	3.80	0.00	0.00	**7.80**
	Actual	0.00	0.00	3.57	0.00	**3.57**	2.12	3.43	7.49	1.81	**14.85**

Q = quarter
Source: Asian Development Bank.

PROJECT IMPLEMENTATION ARRANGEMENTS



SUMMARY OF CONTRACT DETAILS

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
Capacity Building, Community Participation, and Poverty Reduction								
0006	NGO-SKDRDP	NGO Service-Community Development Programs	Shri Kshethra Dharmasthala Rural Development	01 Jun 02	889,220	711,376	711,376	30 Sep 02
0022	1301	Slum Improvement works at Puttur	Techno Constructions	03 Dec 02	46,326	37,061	37,061	03 Dec 03
0025	2303	Construction of public convenience and silicon vessel, Bhatkal and Karwar	Sweet Home Constructions	06 Jan 03	109,692	86,460	86,460	30 Sep 04
0028	2306(A)	Construction of public convenience & silicon vessel at Dandeli	Karnataka Land Army Corporation	16 Jan 03	54,331	43,199	43,199	30 Sep 04
0030	2204(A)	Slum improvement works at Ankola	Karnataka Land Army Corporation	16 Jan 03	109,563	86,130	86,130	31 Jul 04
0031	2204(B)	Slum improvement works at Bhatkal	Karnataka Land Army Corporation	16 Jan 03	17,722	14,109	14,109	28 Feb 05
0032	2204(E)	Slum improvement works at Sirsi	Karnataka Land Army Corporation	16 Jan 03	67,201	48751	48751	30 Nov 05
0033	2204(F)	Slum improvement works at Karwar (Roads and Streetlights)	Karnataka Land Army Corporation	16 Jan 03	16,678	12,789	12,789	31 Jul 04
0038	2204(C)	Slum improvement works at Dandeli	Arjun Rao	21 Jan 03	60,891	48,713	48,713	31 Jan 05

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0039	1308	Slum improvement works at Ullal	Adarsh Builders	18 Jan 03	48,676	38,745	38,745	31 Aug 04
0041	1310	Slum improvement works in Udupi and Kundapura	Adarsh Builders, Karnataka	27 Jan 03	11,740	9,392	9,392	31 Oct 05
0048	2204(D)	Slum improvement works at Karwar (Community Hall, Public Toilet & Mini WSS)	Sweet Home Construction	28 Jan 03	0	0	0	-
0066	NGO-MYRADA	NGO Services for Community Development Activities	Myrada	01 Jun 02	344,518	275,614	275,614	18 Jun 05
0084	1211	Slum improvement works in Mangalore	Mysore Construction	23 Aug 03	411,549	328,388	328,388	31 Jan 07
0112		Providing toilets and underground drainage facilities to low income groups	Master Plannery Nirmithi Kendra	23 Feb 04	52,438	41,950	41,950	26 May 06
0115	GIS MAPS	Preparation of large scale base maps using aerial photography	National Remote Sensing Agency	19 Dec 03	247,949	187,332	187,332	02 Apr 06
0118	LCS	Construction of site and services for low income groups	Various	08 Dec 04	1,660,471	1,328,377	1,328,377	23 Jul 07
0138		Permanent ground control monuments	H.S. Palaksha Murthy	08 Jul 05	44,916	35,933	35,933	20 Nov 05
0156		Training program under CAPP program	Livelihood Advancement Business School(C/O Dr Reddy's Lab)	02 Apr 05	67,493	53,994	53,994	17 Nov 05
0159	2204(D)RT	Slum improvement at Karwar (construction of community hall, community toilet mini water supply scheme)	Karnataka Land Army Corporation	28 Apr 05	74,766	59,813	59,813	31 Jan 07

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0160	2303RT	Construction of public convenience at Karwar & Ankola and Women's Resource Center at Karwar	Karnataka Land Army Corporation	28 Apr 05	51,513	33,282	33,282	30 Nov 07
0161		Preparation of large scale maps for 16 towns in Karnataka and establishment of ground control points	Survey of India	18 Nov 05	61,429	49,143	49,143	31 Mar 09
0167		Implementation planning, design, capacity building and monitoring for Nirmal Nagar works	KUIDFC	05 Dec 05	2,305,575	1,447,664	1,447,664	14 Apr 08
0182		Supply of 5 GPS receivers of Trimble 5700	Trimble Europe B.V.And Paras Equipments	04 Mar 06	39,222	38,912	38,912	27 Nov 07
0220	FLC1	Field level consultants	P.S & Company	13 Feb 07	40,193	28,617	28,617	26 Nov 08
0221	FLC2	Field level consultants	Ramesha My & Company	19 May 00	55,507	39,521	39,521	26 Nov 08
0222	FLC3	Field level consultants	P.S & Company	13 Feb 07	54,507	38,809	38,809	26 Nov 08
0223	FLC4	Field level consultants	Udaya Shetty & Company	14 Feb 07	45,297	32,251	32,251	26 Nov 08
0224	FLC5	Field level consultants	Basavaraja & Dileep	15 Feb 07	55,893	39,796	39,796	26 Nov 08
0225	FLC6	Field level consultants	Shekhar Patel	14 Feb 07	62,415	44,439	44,439	26 Nov 08
0226	FLC7	Field level consultants	Modi Dhavalagi	14 Feb 07	34,219	24,364	24,364	26 Nov 08
0227	FLC8	Field level consultants	K K Attal	15 Feb 07	48,888	34,808	34,808	26 Nov 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0228	FLC9	Field level consultants	Modi Dhavalagi & Chartered Accountants	14 Feb 07	47,766	34,009	34,009	26 Nov 08
0229	FLC10	Field level consultants	Udaya Shetty	14 Feb 07	34,452	24,530	24,530	26 Nov 08
Water Supply Rehabilitation and Expansion								
0018	2106A	Distribution system and reservoirs – Bhatkal	Shriram Engg. Construction	05 Dec 02	402,694	322,155	322,155	30 Apr 07
0019	2206A	Water distribution system and rehabilitation of existing service reservoirs	Maloo Constructions	05 Dec 02	424,884	339,343	339,343	28 Feb 07
0024	2105B	Intake and raw water transmission main – Bhatkal	Voltas	19 Dec 02	574,487	455,452	455,452	30 Sep 06
0035	2105A	WTP at Bhatkal	V N Makne	07 Jan 03	279,986	223,523	223,523	31 Mar 06
0045	1201	Distribution system – Puttur	Larsen & Toubro	20 Jan 03	1,732,286	1,378,011	1,378,011	31 Mar 07
0049	1001	Clear water transmission main	Sheth & Sura Engineers	11 Mar 03	1,371,788	1,082,471	1,082,471	30 Jun 05
0050	2109	Distribution system and service reservoirs	Coramandel Prestcrete	13 Mar 03	1,116,624	889273	889273	31 May 08
0052	1004B	Clear water transmission main Part 2	Petron Civil Engineering	24 Mar 03	2,297,171	1,825,128	1,825,128	31 Aug 06
0054	1101A	Intake and raw water transmission main – Puttur	Mysore Construction	19 Mar 03	433,790	341,874	341,874	31 Jan 08
0057	1007A	Rehabilitation work WTP pump	Larsen & Toubro	07 Mar 03	1,299,611	1,038,814	1,038,814	31 Oct 06
0058	1005A	Water supply distribution system – Udupi	V N Makne	19 Apr 03	1,067,015	836,659	836,659	31 May 07
0060	1002B	Distribution System	D.Rajashekar	14 May 03	1,091,995	871,913	871,913	31 Jul 07

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0061	1002A	Clear water transmission mains	V N Makne	19 May 03	878,471	700,522	700,522	31 Dec 06
0062	1005C	Water supply distribution system – Udupi	K Ramakrishna	19 May 03	2,103,416	1,677,655	1,677,655	31 Jul 07
0063	1008A	New WTP 6.8 mld/Rehabilitation of exist WTP – Puttur	V N Makne	04 Jun 03	370,403	295,713	295,713	30 Apr 06
0064	1005B	Water supply distribution system – Udupi	K Ramakrishna	19 May 03	2,250,189	1,782,159	1,782,159	31 Mar 08
0065	2206B	Construction of vegetable market cum municipal office	Krishne Gowda	06 Jun 03	181,236	144,989	144,989	15 Mar 07
0068	1007D	Distribution system	V N Makne	01 Aug 03	1,005,164	794,089	794,089	31 Jul 09
0069	2206C	Construction of community sports complex	Suprada Constructions	06 Aug 03	68,535	50,866	50,866	28 Feb 07
0070	1004A	Clear water transmission main Part 1	Petron Civil Engineering	25 Jul 03	2,279,272	1,820,072	1,820,072	31 Aug 06
0071	1007C	Clear water transmission main	Larsen & Toubro	18 Aug 03	1,480,499	1,162,960	1,162,960	31 Jul 09
0072	2105C	Rehabilitation of Kaduvinakatte Dam – Bhatkal	Coramandel Prescrete	05 Sep 03	388,573	310,858	310,858	30 Jun 05
0073	1102A	Intake & WTP – Udupi	V N Makne	06 Sep 03	1,478,285	1,160,795	1,160,795	30 Sep 06
0076	1012A	Distribution System 1 – Mangalore	Larsen & Toubro	18 Aug 03	1,712,175	1,314,666	1,314,666	31 Dec 09
0077	1012B	Distribution System 2 – Mangalore	Gammon India	04 Sep 03	2,226,587	1,693,078	1,693,078	06 Apr 2010
0078	1012D	Distribution System 4 – Mangalore	Gammon India	04 Sep 03	1,645,503	1,235,682	1,235,682	18 Jun 10

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0079	1009	Clear water transmission main - Reach 1 – Mangalore	Larsen & Toubro	18 Aug 03	2,554,895	2,033,547	2,033,547	30 Jun 09
0080	1010	Clear water transmission main - Reach 2 – Mangalore	Kirloskar Brothers	27 Aug 03	2,298,372	1,824,086	1,824,086	30 Jun 09
0081	1012C	Distribution system 3 – Mangalore	Gammon India	04 Sep 03	1,472,071	1,121,566	1,121,566	08 Apr 10
0082	1011B	Clear water tran. main - 3.B – Mangalore	Electro Steel Castings	25 Aug 03	1,562,113	1,228,972	1,228,972	30 Sep 09
0083	1007B	OHT / Pump / Pump House	Rao Constructions	18 Sep 03	3,018,196	2,370,051	2,370,051	30 Jun 09
0085	1011A	Clear water transmission main - 3.A – Mangalore	Electro Steel Castings	25 Aug 03	2,170,156	1,715,479	1,715,479	30 Sep 09
0087	1102B	Intake and WTP	Kirloskar Brothers	22 Oct 03	892,818	697,609	697,609	31 Aug 08
0089	1103A	Construction of barrage	Rao Constructions	31 Oct 03	878,957	700,741	700,741	31 Mar 07
0090	1101B	Intake and raw water transmission main – Mangalore	Kirloskar Brothers	27 Oct 03	1,298,091	1,013,085	1,013,085	31 May 09
0091	1008B	Water treatment plant - Mangalore	Petron Civil Engineering	27 Oct 03	2,493,753	1,945,143	1,945,143	31 May 09
0092	1103C	Source development-new dam – Puttur	Ramky Infrastructures	31 Oct 03	1,807,269	1,353,358	1,353,358	20 May 10
0097	2108	Raw water transmission main	Maloo Constructions	30 Oct 03	1,475,475	1,180,380	1,180,380	30 Jun 06
0102	2107A	Intake and booster station	Srinivasa Constructions	06 Jan 04	1,243,209	913,651	913,651	30 Aug 07
0109	2101	Combined water supply scheme for Ankola and Karwar	M. B. Mulani	20 Jan 04	137,112	89,578	89,578	16 Aug 05

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0110	2103	Rehabilitation and upgrading of existing distribution system	Rao Constructions	20 Mar 04	1,905,712	1,518,586	1,518,586	24 Jun 05
0111	2104	Rehabilitation of existing distribution system for Ankola	Coramandel Prestcrete	19 Mar 04	618,274	490,255	490,255	23 Jun 05
0114	2107B	Water treatment plant, Sirsi	SMS Paryavaran	04 Jun 04	452,076	361661	361661	30 Jun 06
0120	1212A	Express feeder main	R R Service	16 Dec 04	106,626	78,239	78,239	30 Jun 06
0121	1212B2	Express feeder main	Powertech	17 Dec 04	101,234	71,952	71,952	30 Jun 07
0122	1212B1	Express feeder main	Powertech	17 Dec 04	97,984	72,691	72,691	31 May 07
0124	2207B	Express feeder main	Om Sai Electricals	23 Dec 04	242,885	148402	148402	31 Oct 07
0139	1212C1	Express feeder main to Padil, Panambur and lady hill water supply	S.V.S Electricals	21 Jun 05	51,846	37,702	37,702	20 Feb 06
0140	1212C2	Express feeder main to Ramalkatte WTP	Powertech	22 Aug 05	159,952	106,973	106,973	30 Apr 09
0148	2207A	Express feeder main	Puneet Electricals	09 Dec 04	41,607	22,562	22,562	08 Sep 05
0195	1007 C 1	Pipeline under water across Netravathi river for Ullal	Parixit Industries	05 Oct 07	559,095	447,276	447,276	31 May 09
0230	3406	Procurement of mild steel pipes for Karwar water supply	Welspun Gujarat Stahl Rohren	06 Jun 09	2,232,534	1,658,344	1,658,344	30 Sep 09
0213 & 0185	2101(C)	Balance works of pumping machinery for CWSS to Ankola and Karwar	Allied Electro Mechanical	12 Oct 06	337,627	240,655	240,655	16 Jul 07
0214 & 0186	2101A	Pipe pushing by horizontal boring, Karwar	Ghai Constructions	16 Sep 06	194,143	155,314	155,314	27 Mar 07

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0209 & 0192	2102 A	Strengthening of existing PSC gravity main for CWSS to Karwar	Sheth & Sura Engineers	27 Jun 07	2,097,165	1,654,055	1,654,055	11 Jan 09
0215 & 0187	2101B	Balance works of CWSS to Ankola and Karwar	Goel Projects	18 Sep 06	1,360,541	1,062,340	1,062,340	29 Dec 07
Urban Environmental Improvements								
0008	1304	Construction of taxi stand, commercial complex, flower market and public toilet in Puttur	Rao Constructions	23 Aug 02	220,880	174,689	174,689	30 Jun 04
0009	1305	Construction of town Panchayat Office, commercial complex and town bus stand in Ullal	Krishnegowda	22 Aug 02	214,462	168,599	168,599	30 Jun 04
0010	1309	Construction and maintenance of public toilet complexes at 14 locations in Ankola, Kundapura, Puttur, and Udupi	Sulabh International	20 Aug 02	51,521	41,210	41,210	31 Oct 05
0011	3405 (A)	Collection and transport equipment	Telco Construction Equipment	23 Aug 02	117,036	78,402	78,402	31 Jan 04
0012	VARIOUS	Collection and transport equipment	Telco Construction Equipment	23 Aug 02	36,718	27,627	27,627	31 Jan 04
0013	3402	Procurement of onsite sanitation and sewer cleaning equipment	Industrial Plant and Waste	30 Aug 02	261,908	230,109	230,109	31 Oct 05

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0014	3404(A)	Procurement of onsite sanitation and sewer cleaning equipment	Industrial Plant and Waste	26 Sep 02	480,316	448,210	448,210	31 Mar 06
0015	2305	Construction of vegetable market cum municipal office at Dandeli	Krishne Gowda	22 Aug 02	238,623	187,279	187,279	28 Feb 05
0016	2307	Construction of general market at existing fire station at Sirsi	V.N. Hegde	22 Aug 02	96,734	75,383	75,383	31 Jul 04
0017	2308	Construction of general market behind old Municipal Office at Sirsi	V.N. Hegde	22 Aug 02	140,977	110,303	110,303	31 Dec 04
0020	1203	Improvements to storm water drainage in Puttur	Rama Kamat	29 Nov 02	399,605	319,684	319,684	31 May 04
0021	1306	Construction of Thokkotu commercial complex and bus stop at Ullal	Mysore Construction	25 Nov 02	321,324	251,643	251,643	30 Nov 05
0023	1209(A)	Construction of TMC office cum commercial complex in Kundapura	Mysore Construction	25 Nov 02	392,276	306,763	306,763	31 Oct 05
0026	2304	Construction of vegetable market, fish market, fruit & flower market in Karwar	Sweet Home Constructions	06 Jan 03	126,892	100,356	100,356	06 Nov 04
0027	1202	Improvements to storm water drains at Udupi and Kundapura	Bridge & Roof	13 Jan 03	557,705	444,403	444,403	31 Oct 05
0029	2306(B)	Construction of fish market at Sirsi	Karnataka Land Army	16 Jan 03	80,616	64,189	64,189	31 Dec 04
0034	2208(A)	Construction of sewerage system for Karwar	Richardson & Cruddas	13 Jan 03	40,673	31,722	31,722	30 Jun 04

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0036	2112(A)	Construction of storm water drainage works at Dandeli	Shetty's Construction	13 Jan 03	73,979	59,139	59,139	15 Jun 04
0037	2113(A)	Construction of storm water drainage works at Sirsi	Shetty's Construction	13 Jan 03	66,706	53,365	53,365	31 Jul 04
0042	1307	Construction, operation, and maintenance of public toilets at nine locations in Mangalore	Civic International Social Service	24 Jan 03	21,455	16,830	16,830	23 Aug 04
0043	2302	Construction of fish market, public convenience, and silicon vessel at Ankola	Nagaraj Ballal	22 Jan 03	144,172	112,670	112,670	15 Jan 05
0044	2301	Construction of vegetable market cum municipal office at Ankola	Nagaraj Ballal	22 Jan 03	145,902	115,390	115,390	25 Jul 04
0046	2110 (A) & (B)	Construction of storm water drainage works at Ankola and Karwar	P.B. Ibrahim	05 Feb 03	84,400	67,520	67,520	30 Jun 04
0047	2106(B)	Construction of sewerage system for zone 2 & 3 of Bhatkal town	Shriram Engg Construction	03 Feb 03	541,954	417,480	417,480	30 Nov 08
0051	2202(A)&(B)	Construction of vegetable market and commercial complex at Bhatkal town	P.Dasaratharama Reddy	13 Mar 03	420,617	333,281	333,281	31 Aug 05
0053	1209-B	Construction of commercial complex, market complex, crematoria in Udupi	Ramky Engineers	19 Mar 03	421,812	333,966	333,966	31 May 06
0055	1210	Construction of private bus stand and TMC office and market complex at Puttur	Rao Constructions	19 Mar 03	499,019	395,347	395,347	31 Jan 05
0056	2201 A	Construction of storm water drains at Bhatkal	Shetty's Construction	24 Mar 03	193,987	155,190	155,190	15 Feb 07

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0059	1108B	Improvements to storm water drain at Ullal	Adarsh Builders	24 Apr 03	101,568	81,254	81,254	31 May 05
0067	1303	Civil works for solid waste management in Puttur	Rao Constructions	25 Jul 03	396,317	316,348	316,348	31 Jan 05
0074	1105A	Site grading and construction of allied civil works for 43.5 mld sewage treatment plant at Kavoor	D. Raja Sekhar Engineers	25 Aug 03	356,665	285,332	285,332	31 Oct 05
0075	1108-A	Improvement of storm water drainage at Mangalore	Reddy Veeranna Constructions	26 Jul 03	626,892	501,261	501,261	31 Mar 06
0086	1107	Construction of 12 mld-capacity STPs for Udupi; staff quarters; and a disposal pipeline	Coramandal Infrastructure	17 Oct 03	1,152,156	905,858	905,858	31 Mar 08
0088	1016	Construction of new underground drainage (UGD) system & rehabilitation of existing UGD including15-month trial run of pumping machinery	K. Ramakrishna	10 Nov 03	195,909	129,516	129,516	09 Dec 06
0093	1017B	Construction of new UGD system for the extended areas of Udupi town	K. Ramakrishna	22 Nov 03	1,649,521	865,631	865,631	05 Apr 10
0094	1017-A	Rehabilitation of existing UGD and construction of new UGD for Udupi town	K. Ramakrishna	22 Nov 03	3,597,051	2,199,883	2,199,883	12 Apr 10
0095	1014-A	Rehabilitation of UGD system Including 15-month trial run of the pumping machinery for wet well at Mangalore	Ramky Infrastructure .	15 Nov 03	3,607,397	1,371,111	1,371,111	Ongoing
0096	2208 (C)	Design, construction, supply, erection, testing, commissioning, trial run &	Petron Civil Engineering	05 Nov 03	2,000,700	1,573,278	1,573,278	31 Jan 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
		maintenance for 12 months of sewage pumping machinery						
0098	1105-B	43.5 mld STP at Mangalore	Larsen & Toubro	17 Dec 03	3,395,002	2,657,788	2,657,788	31 Mar 10
0100	2208(B)	Design, construction, supply, erection, testing, commissioning, trial run and maintenance for 12 months of a pumping station with STP at Karwar	Shriram Engineering	30 Dec 03	251,506	205,255	205,255	15 Feb 10
0101	1106-B	Design, supply, construction, erection, testing & commissioning of 16.5 mld capacity sewage treatment plant at Mangalore	Coramandel Infrastructure	05 Mar 04	2,865,523	1,368,392	1,368,392	Ongoing
0103	1106 A	Design, supply, construction, erection, testing & commissioning of 20 mld capacity sewage treatment plant for Jeppinamogaru	Coramandel Infrastructure	16 Feb 04	2,737,444	1,485,959	1,485,959	Ongoing
0104	1015B	Construction of new UGD system including a15-month trial run of pumping machinery	Engineering Projects	25 Feb 04	128,488	88,053	88,053	25 Jun 06
0105	1104	Construction of new UGD system Including a 15-month trial run, training & commissioning of the pumping main	K. Rama Krishna	27 Feb 04	347,283	249,741	249,741	30 Sep 06
0106	1014B	Construction of new UGD system and rehabilitation of existing UGD including 15-month trial run of the pumping machinery	Engineering Projects	25 Feb 04	211,704	169,363	169,363	25 Jun 06

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0107	2203D	Solid waste management for Karwar town	IVRCL Infrastructure	24 Dec 03	406,351	324,744	324,744	31 Mar 05
0108	2209	Construction of community sports complex at Dandeli	Suprada Construction	19 Mar 04	863,398	645,827	645,827	30 Jun 09
0113	1013	Construction of new UGD system including commissioning and training - sewer catchment	Engineering Projects	16 Jun 04	215,974	164,961	164,961	30 Jun 06
0119	1206	Civil works for solid waste management in Mangalore	Rao Construction	07 Dec 04	2,122,607	1,687,356	1,687,356	31 Oct 07
0123	1212B3	Express feeder	Powertech	17 Dec 04	36,567	17,936	17,936	31 Jul 07
0126	1015A-3	Construction of new UGD system & pumping station at Bajal, Mangalore	Coramandel Infrastructure	21 Mar 05	2,476,141	1,167,100	1,167,100	Ongoing
0127	1015A-2	Construction of new UGD system & PS sewerage zone 9a & 9b, Mangalore	DRS Infratech	30 Mar 05	1,738,037	1,301,194	1,301,194	30 Jul 11
0128	1015A1	Construction of new UGD drainage system & PS sewerage zone 9c, Mangalore	DRS Infratech	17 Mar 05	2,432,071	1,008,684	1,008,684	31 Mar 12
0129	3405 C	Procurement of collection & transport equipment for SWM Pk-1 towns	JCB India	04 Mar 05	25,720	25,720	25,720	31 Jul 06
0132	1106C	Construction of 8.75 mld-capacity STP for sewerage zone No. 9 and other associated works	Larsen & Toubro	31 Mar 05	3,663,056	2,830,768	2,830,768	31 Jul 11
0135	2112(A) RT	Construction of storm water drainage (balance work), Dandeli	Suprada Construction	30 Mar 05	688,114	550,265	550,265	31 Dec 06

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0136	1309A	Construction of public toilets at Malpe Harbour and Malpe beach in Udupi	Nirmithi Kendra	05 Apr 05	50,063	38,289	38,289	31 Aug 07
0137	2113A(RT)	Construction of storm water drainage at Sirsi	Rao Construction	16 Apr 05	625,077	500062	500062	30 Jun 07
0141	1212C3	Providing 11 Kv overhead express feeder mains for STP Kavoor, wet well 1 & service mains for wet well	Powertech	20 Aug 05	106,771	49,223	49,223	Ongoing
0142	1212C5	Providing 11 Kv overhead express feeder mains for STP Surathkal, wet well 1 & service mains for wet well	Powertech	20 Aug 05	144,061	27,552	27,552	Ongoing
0143	1212C6	Providing 11 Kv overhead express feeder mains for STP Pachanady, wet well 9 & service mains for wet well	Powertech	20 Aug 05	71,508	18,715	18,715	Ongoing
0144	2208A-RT	Construction of sewerage system for Karwar town	Maloo Construction	29 Aug 05	1,426,430	1,091,328	1,091,328	17 Jun 06
0145	1212C4	Providing 11 Kv overhead express feeder mains from Kulashekhara Muss up to STP, Jappinamogaru, Panambur	S.V.S Electricals	26 Sep 05	160,113	38,713	38,713	Ongoing
0146	1208A	Compost plant for Mangalore	Rao Construction	26 Sep 05	1,424,123	1,134,671	1,134,671	31 Mar 08
0149	2203A	Solid waste management at Ankola	Karnataka Land Army	09 Feb 05	88,071	69,971	69,971	30 Jun 06
0165	3404C	Procurement of equipment and vehicles for solid waste management for Pk 1 towns (Lot 2)	Same Deutz-Fahr India	10 May 05	48,353	42,158	42,158	31 Oct 06

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0166	3404D	Procurement of equipment and vehicles for solid waste management for Pk 2 towns (Lot 2)	Same Deutz-Fahr India	10 May 05	101,733	89,263	89,263	31 Oct 06
0170	1306A	Construction of toilet block in commercial complex and bus stand at Thokkottu, Ullal	Dakshina Kannada Nirmithi Kendra	26 Jul 05	30,422	23,121	23,121	31 Mar 07
0175	2203(B)RE-BID	Solid waste management at Bhatkal	P.Dasaratharama Reddy	28 Jan 06	38,095	30,476	30,476	27 Jan 07
0176	1206(C)	Providing platforms for bins and containers under solid waste management for Mangalore and Ullal	Dakshina Kannada Nirmithi Kendra	17 Feb 06	14,517	11,033	11,033	15 Apr 08
0177	1207 A	Civil works for solid waste management in Kundapura	DRS Infratech	31 Mar 06	14,640	11,712	11,712	31 Mar 07
0178	1207 (B)	Civil works for solid waste management in Udupi	Rao Constructions	31 Mar 06	904,231	658,831	658,831	30 Jun 09
0179	1207 (A)	Civil works for solid waste management in Kundapura	D. Rajashekhar Engineers	31 Mar 06	0	0	0	31 Mar 07
0196	2110 A	Construction of storm water drainage works at Ankola (balance work rebid)	Jagadish V. Pai Engineers	03 Aug 06	168,380	134,704	134,704	02 Aug 07
0197	2110 B	Construction of storm water drainage works at Karwar (balance work rebid)	Jagdish V. Pai Engineers	24 Aug 06	338,862	270,776	270,776	30 Jun 08
0199	3404 C&D	Procurement of equipment and vehicles for solid waste management (re-bid)	Ashok Leyland	29 Aug 06	669,790	481,048	481,048	31 Oct 07
0200	3404 C	Procurement of equipment and vehicles for on-site sanitation and sewer cleaning equipment (Re-bid)	Kam-Avida Enviro Engineers	02 Sep 06	68,621	50,435	50,435	31 Oct 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0206 & 0183	1014 (B) 2	Construction of new UGD system and construction of wet wells	DRS Infratech	21 Mar 07	4,437,045	1,778,556	1,778,556	Ongoing
0207 & 0184	1015 (B) 2	Construction of UGD system, construction of wet wells, etc. for Mangalore	DRS Infratech	07 Mar 07	5,088,855	2,174,701	2,174,701	Ongoing
0210 & 0193	1016 (1)	Construction of new UGD system and wet wells, rehabilitation of existing UGD at Mangalore	Shriram Epc	12 Apr 07	4,919,600	2,069,856	2,069,856	Ongoing
0216 & 0188	1013(1)	Road restoration work in sewerage catchment numbers C5, C6, C7, C8 and C9	Powertech	05 May 06	142,238	113,790	113,790	31 Mar 07
0211 & 0194	1104 (1)	Construction of new UGD, construction of wet wells for sewerage catchment	Maloo Constructions	19 Apr 07	4,474,876	2,311,021	2,311,021	Ongoing
0217 & 0189	1014 B(1)	Road restoration work in sewerage zones, 1, 2, 2a and 2b of Mangalore	Mahabala Amin	16 May 06	105,849	76,968	76,968	31 Mar 07
0218 & 0190	1015 (B) 1	Road restoration work in sewerage zones 10 of Mangalore	M Prasad	20 May 06	39,605	30,470	30,470	31 Mar 07
0212 & 0198	1013 (2)	Construction of new UGD system including commissioning of UGD system	V N Makne	22 Nov 06	5,198,179	1,782,815	1,782,815	Ongoing
Street and Bridge Improvements								
0130	1205	Improvements to roads and junctions	Rama Kamath	22 Mar 05	601,039	450,023	450,023	28 Feb 07
0133	1018A	Urban transport	Rama Kamath	03 Mar 05	944,851	753,042	753,042	31 Jan 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
0147	2112B	Urban transport	B.Seenaiah	22 Aug 05	1,390,860	1,094,143	1,094,143	29 Feb 08
0157	2110C&E	Urban transport	P R Nayak	20 Oct 05	642,433	513,946	513,946	31 Jul 07
0158	2110D	Urban transport	Ramashree Construction	24 Sep 05	1,784,063	1,422,566	1,422,566	31 Dec 07
0162	2201B	Urban transport	P R Nayak	09 Nov 05	426,097	340,817	340,817	31 Jan 07
0163	2113B	Urban transport	H P Madhukar	09 Nov 05	994,439	792040	792040	31 Dec 07
0164	2112C	Urban transport	B.Seenaiah	23 Nov 05	1,199,440	959,552	959,552	31 Mar 08
0168	1204	Urban transport	Shekar Shetty	25 Nov 05	949,717	759,215	759,215	31 Mar 08
0169	1110RT	Urban transport	G. Balraj	29 Nov 05	726,298	579,751	579,751	31 Jan 07
0171	2113C	Urban transport	H P Madhukar	03 Dec 05	1,013,165	804973	804973	31 Jan 08
0201	3009	Approach road to the new terminal building for airport, Mangalore	Rama Kamath	23 Nov 06	1,600,065	1,278,492	1,278,492	30 Jun 09
0202	2111RT	Urban transport Phase II	Ramashree Construction	11 Mar 08	3,698,390	2,950,472	2,950,472	31 May 09
0205	1205A	Urban transport , Phase II	V N Makne	21 Aug 06	420,783	336,626	336,626	31 May 09
0231	1018B	Urban transport	T. K. Rajan	28 Nov 06	895,231	716,168	716,168	31 Dec 08
0232	2201C	Urban transport- Phase II	DRS Inftatech	07 May 08	1,577,325	1,195,327	1,195,327	15 Sep 09
0208 & 0191	1109	Urban transport	D. Rajashekar (JV)	27 Nov 06	4,364,507	2,787,072	2,787,072	31 Mar 09

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
Coastal Environmental Management								
0040		Demarcation of high tide and low tide levels and preparation of local level Coastal Regulation Zone (CRZ) maps of CRZ area in Dakshina Kannada district	National Hydrographic	21 Dec 02	350,741	280,593	280,593	31 May 03
0099		Mangrove rehabilitation and coastal plantation	KUIDFC	01 Oct 01	1,438,738	1,150,990	1,150,990	31 Dec 04
0116	3001	Improvement of roads at Pilikula Nisargadhama	CMA Khader and Delcon Engineering	18 Aug 04	266,471	212,432	212,432	31 Aug 06
0117		Improvement of national parks and wildlife sanctuaries	Department of Forest, Government of Karnataka	05 Feb 03	1,388,284	1,110,627	1,110,627	09 Dec 05
0125	7002	Improvement of approach road to Sahasralinga	B G Revankar Hubli	15 Dec 04	29,900	23920	23920	14 Sep 05
0131	3002	Construction of road from Malpe beach to Malpe Harbour	Iqbal Ahmed Surathkal.	24 Feb 05	126,255	101,004	101,004	31 Aug 07
0134	7004	Improvement of approach road to Unchalli Falls	Ganesh P Revankari	26 Feb 05	49,765	39812	39812	30 Nov 06
0150	7001	Improvement of approach road to Om Beach	Ramesh S Nayak	04 Mar 05	143,775	115,020	115,020	30 Jun 06
0151		Rehabilitation and renovation of historical monuments	Indian National Trust for Art and Cultural Heritage	27 Nov 03	12,265	9,812	9,812	31 Oct 08
0152		Rehabilitation and renovation of historical monuments	Indian National Trust for Art	27 Nov 03	12,265	9,812	9,812	31 Oct 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
			and Cultural Heritage					
0153		Rehabilitation and renovation of historical monuments	Indian National Trust for Art and Cultural Heritage	27 Nov 03	12,265	9,812	9,812	31 Oct 08
0154		Rehabilitation and renovation of historical monuments	Indian National Trust for Art and Cultural Heritage	27 Nov 03	15,674	12,539	12,539	31 Oct 08
0155		Rehabilitation and renovation of historical monuments	Indian National Trust for Art and Cultural Heritage	27 Nov 03	199,286	37,701	37,701	31 Oct 08
0172	7005	Restoration of Kotekere Lake at Sirsi	Karnataka Land Army	08 Dec 05	116,996	93460	93460	31 May 08
0173	3004	Office cum laboratory building for KSPCB at Mangalore	Krishne Gowda	16 Nov 05	157,958	124475	124,475	31 Mar 08
0174	7006	Office cum laboratory building for KSPCB at Karwar	Sweet Home Constructions	18 Nov 05	274,266	219,413	219,413	31 Oct 07
0180	3005	Office cum laboratory building for KSPCB at Udupi	Krishne Gowda	24 Feb 06	207,244	165,795	165,795	30 Nov 07
0181		Museum at Karnataka	G.N. Das	17 Apr 06	225,620	180,496	180,496	07 May 08
0204	7003	Improvement of approach road to Yana	P Dasaratharama Reddy	15 Apr 05	207,744	166,195	166,195	31 May 08

PCSS No.	Contract Package	Contract Description	Contractor	Contract Award	Contract Amount ($)	ADB Financing ($)	Disbursed ($)	Actual Completion
Implementation Assistance								
0001	PMC	Consultancy services for project management	Black & Veatch (International)	19 Dec 00	4,178,082	4,178,082	4,178,082	31 Dec 06
0002	DSC-Package 1	Design and supervision consultants (package 1)	Dalal Mottmacdonald	15 Dec 00	8,114,818	6,188,819	6,188,819	Ongoing
0003	DSC-Package 2	Design and supervision consultancy services (package 2)	Consulting Engineering Services	19 Dec 00	4,387,655	3,510,124	3,510,124	30 Sep 09
0004		For incremental expenditure of the PMU and PIUs	KUIDFC	30 Apr 01	9,552,559	5,144,911	5,144,911	30 Sep 09
0005		Purchase of computers	Frontier Business Systems	30 Nov 01	101,585	76,189	76,189	15 Feb 02
0007	BME study	Consultant for undertaking Benefit Monitoring & Evaluation study	Department of Sociology, Mangalore University	01 Jun 02	15,389	12,311	12,311	28 Feb 03
0219	PMC (Revised)	Project Management Consultancy services (revised)	Operations and Research Group	23 Feb 08	842,399	579,095	579,095	31 Dec 09

BME= Benefit Monitoring Consultant, CAPP= community awareness and participation program, CRZ= coastal regulation zone, CWSS=clear water service storage, DSC= Design and Supervision Consultant, FLC- field level consultant, GPS= global positioning system, Kv=kilo volt, KSPCB= Karnataka State Pollution Control Board, KUIDFC=Karnataka Urban Infrastructure Development Finance Corporation, mld= million liters per day, NGO= nongovernment organization, OHT=overhead tank Pk= package, PMC= Project Management Consultant, PMU= project management unit, PIU= project implementation unit, PSC= pre-stress concrete, PS= pumping station, STP=sewage treatment plant, TMC= town municipal council , UGD=underground drainage UG=underground, WSS=water supply system., WTP=water treatment plant, WS= water supply

STATUS OF MAJOR LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
Project Execution and Co-ordination		
The Borrower's MUD shall cause a Steering Committee under the chairmanship of the Additional/Joint Secretary MUD and including representation from the State and KUIDFC, to review and coordinate all Bank projects undertaken by KUIDFC including this Project in the context of the national policy of the Borrower in the urban sector.	Loan agreement (LA), Schedule 6, para. 1	Complied with.
The State shall cause the Empowered Committee for KUIDP to be the Empowered Committee for the Project and be vested with appropriate authority for efficient and effective decision making on all matters in respect of the implementation of the Project, including the engagement of consultants referred to in Schedule 5 to this Loan Agreement and award of contracts for the Project. The Empowered Committee shall be under the chairmanship of the Additional Chief Secretary of the State. The Project Director shall be member-secretary of the Empowered Committee. Other members of the Empowered Committee shall include the State's Secretaries of Finance, PWD, UDD and Environment.	LA, Schedule 6, para. 2	Complied with.
The State shall be represented as the Project Executing Agency by KUIDFC.	LA, Schedule 6, para. 3.	Complied with.
A PMU shall be established within KUIDFC in Bangalore. The PMU shall be headed by a full time Project Director who shall be responsible for the co-ordination and management of the Project. The PMU shall have a Deputy Director who shall be responsible for daily project administration. The state shall ensure that an additional 14 PMU positions shall be created no later than 30 days after the effective Date and that these positions shall be for a Deputy Project Director, an Internal Auditor, an Accountant, three Superintendent Engineers, one Administration/ Liaison Officer, three Executive Engineers(Procurement), three Community Development Officers and one Public Relations Specialist. Qualified and experienced staff who shall be appointed as required throughout the period of Project implementation shall support the PMU. All PMU staffing shall be filled no later than 120 days after the Effective Date.	LA, Schedule 6, para. 4(a)	Complied with.
To support PMU, a PIU shall be established for each of three coastal districts of the state, namely South Canara, Udupi and North Canara. The PIUs shall be established at Mangalore, Udupi and Karwar. The PIUs shall work closely with each ULB in their respective coastal districts to finalize Project designs, determine financing arrangements and cost recovery measures, assist with implementation arrangements, and define operations and maintenance responsibilities. The Mangalore PIU shall work with the ULBs of Mangalore, Ullal and Puttur. The Udupi PIU shall work with the ULBs of Udupi and Kundapura. The Karwar PIU shall work with the ULBs of Karwar, Dandeli, Ankola,	LA, Schedule 6, para. 4(b)	Complied with. Two regional PIUs (instead of three) were established—in Mangalore and Karwar; in addition, sub-PIUs were established in each project town

Covenant	Reference in Loan Agreement	Status of Compliance
Sirsi and Bhatkal. The State shall ensure that an additional 23 PIU positions shall be created no later than 30 days after the Effective date and that these positions shall be three project managers/ executive engineers , three administrative managers three design and contract administration specialist, eight assistant engineers and three assistant accounts officers and three community development officers. Each of the three PIUs shall be headed by a Project Manager. The deputy commissioner of each district shall serve as project co-coordinator of each PIU and full time community development officers shall be appointed to the PMU and each of PIU to undertake communication with community residents during project implementation. All PIU staffing requirements shall be filled no later than 120 days after the effective date.		
The State shall ensure that prior to awarding the first municipal-level contract, a Local Steering Committee shall be established in each ULB to provide overall subproject guidance. The Local Steering Committee shall be chaired by the concerned district deputy commissioner and shall include two elected representatives of the concerned Project Town, the municipal commissioner, selected elected chairpersons of relevant development committees and representatives of participating NGOs and CBOs.	LA, Schedule 6, para. 5	Complied with.
The State shall ensure that NGOs and CBOs are promptly selected in order to encourage demand-driven approach to community-level components of the Project and a willingness to pay for improved urban infrastructure and municipal services under the Project. The State shall ensure NGOs and CBOs which are to be engaged in the implementation of the CAPP shall have (i) demonstrated experience in working on urban development and environmental needs; (ii) knowledge about the target community's needs and desires; (iii) technically or professionally trained individuals in fields related to the Project components; (iv) been active for at least three years and be financially solvent; (v) no legal restriction against the provision of such services; (vi) demonstrated skills in community-level communication and facilitating participation; (vii) capacity in women-in-development and gender issues; and (viii) a commitment to the Project for any assigned capacity for the full duration of the Project.	LA, Schedule 6, para. 6	Complied with.
For each of the three Project districts of the State, there shall be an establishment of NGO forums. The concerned deputy commissioner shall liaise with such NGO forums. The NGO forums shall liaise with PMUs, the PIUs and the Local Steering Committee to review and approve NGO proposals in accordance with agreed selection criteria and monitor the performance of NGOs involved in Subproject implementation so that costs are within budgeted amounts. NGO proposals shall include NGO implementation of selected Project components with technical expertise on detailed design, engineering, tendering and contract supervision being provided by the PMU and respective PIUs.	LA, Schedule 6, para. 7	Complied with. Two regional NGOs were engaged for implementation of CAPP and their area of operation was well defined. KUIDFC felt that it was no longer necessary to have an NGO forum. The PMU and PIUs had continuous interaction with the respective NGO and were involved in its activities.

Covenant	Reference in Loan Agreement	Status of Compliance
Midterm Review		
In addition to the reviews to be undertaken during Project implementation, the Borrower, the Bank and State shall carry out a comprehensive midterm review about two years after the Effective Date. The objectives of the midterm review will be to evaluate critically (a) actual Project progress, (b) implementation procedures, (c) procurement, (d) monitoring and Evaluation activities and (e) the performance of design and supervision consultants. Following such review, the Borrower and State shall ensure that appropriate corrective action is taken.	LA, Schedule 6, para. 8	Complied with.
Monitoring and Evaluation(ME)		
The State shall cause a ME program to be undertaken for the Project within the framework of the Bank's Project Performance Monitoring System. The PMU shall develop a ME program which will monitor the delivery of services anticipated and measure the benefits as they accrue. A sociologist, employed by the PMU, shall carry out periodic social surveys to determine changes in key social indicators, including health, welfare, economic and physical conditions. The PMU shall submit a detailed implementation plan for ME for the Bank's review and concurrence within six months after the Effective Date.	LA, Schedule 6, para. 9	Complied with.
Environmental and Social Measures		
The Borrower and the State shall carry out the following in each Project Town:	LA, Schedule 6, para. 10	Complied with.
(a) water supply sources work including selection of efficient filter plants and chlorinators, maintenance of residual chlorine at the consumer end and regular monitoring of raw and treated water quality, adequacy of chlorine dosage, performance of filter media in WTPs, functioning of pumps and meters and checking leaks on water supply pipes		
(b) the sewerage and sanitation work, including improvement of environmental conditions and reduction of risk of communicable diseases through sludge stabilization, regular monitoring of physical, chemical, biological and bacteriological parameters of treated effluent and safety measures to safeguard sewerage maintenance workers		Complied with.
(c) solid waste management including identification of disposal and treatment sites at locations away from the populate areas and avoiding ecological, historical, cultural and religious areas, fencing-in disposal sites, regular collection and transportation activities, covering of pathological wastes and incineration in dedicated facilities and close supervision and monitoring of solid waste management operation and maintenance (O&M) activities		Complied with.
(d) drainage works reducing flooding and mosquito breeding, including de-silting, regularizing sections, lining, removing constrictions from and regular cleaning of existing drains and seasonal watercourses, as well as competent maintenance and system monitoring.		Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
(e) road work, including planning and engineering to mitigate traffic congestion, obstruction of access to buildings, erosion, siltation, noise and vibration.		Complied with.
(f) management of environmental resources in the coastal areas of the State covered by the Project by supporting preparation of the CRMCP, establishment of industrial pollution and environmental monitoring program, preparation of an urban waterfront rehabilitation plan for Mangalore as well as execution of mangrove afforestation Subprojects		Complied with.
The State shall address poverty alleviation and child welfare measures by: (a) facilitating the formation of self-help groups among the target beneficiaries for saving and credit activities; (b) provision of employment for poor households through employment in construction activities; and (c) having each ULB reserve 30% of commercial space in new market for women vendors	LA, Schedule 6, para. 11	
The Borrower and the State shall ensure that (a) no significant relocation and resettlement is required or undertaken under the Project; and (b) if involuntary resettlement is required for the project, that such resettlement is carried out in accordance with the State's resettlement policy and Bank's policy on Involuntary Resettlement. Except as the Bank may otherwise agree, the state shall ensure that notwithstanding any resettlement requirements, all land required for the Project shall be acquired no later than18 months after the effective date, failing which that subproject will be eliminated from the Project.	LA, Schedule 6, para. 12	Complied with. As a result of certain resettlement impacts identified during implementation, some resettlement and land acquisition activities under the project were completed beyond the stated period.
Policy and Institutional Reform Agenda		
The State shall cause policy institutional and financial reform measures to be undertaken in accordance with a Policy and Institutional Reform Agenda and timetable agreed upon by the Bank, the State and the Project ULBs	LA, Schedule 6, para. 13	Complied with.
Local Resource Generation and Improved Municipal Management		
The State shall implement revenue improvement actions and devolution of intergovernmental resources including:	LA, Schedule 6, para. 14	
(a) adoption of financial management control systems by July 2001;		Complied late.
(b) Introduction of efficiency enhancement measures by January 2002;		Some delay has been observed from the targeted deadlines.
(c) Improvement of property tax collection efficiency to 85% and introduction of regular comprehensive property reassessments by July 2003; and		Of the 10 ULBs, 9 have reported a positive closing balance.
(d) ensuring that all Project ULBs have a positive closing balance by March 2010		

Covenant	Reference in Loan Agreement	Status of Compliance
The State and each ULB shall prepare a plan by no later than July 2000 for capacity building for capacity building for each of the ULBs for implementation in accordance with a timetable to be agreed upon by the Empowered Committee and the Bank.	LA, Schedule 6, para. 15	Complied with.
Improved Cost Recovery for Water Supply and Wastewater Management		
The state and each ULB shall reduce water supply subsidies and achieve financial sustainability of water supply system in the ULB by measures including: Reducing nonrevenue water (NRW) to no more than 25% by no later than July 2005, through NRW program measures including improvement of collection efficiency to 85% and implementation of a water supply disconnection	LA, Schedule 6, para. 16(a)	Partially complied with. KUIDFC carried out an NRW assessment of project towns. This showed that, except for Dandeli and Ullal, all project towns have achieved the target. Dandeli ULB will be able to achieve the target once it shifts all the old connections from the old to the new network and phase out the old pipelines.
Increasing water tariffs by 50% by no later than April 2001 and by 100% by no later than April 2005.	LA, Schedule 6, para. 16(b)	Complied late. All project towns, except Bhatkal, Dandeli and Sirsi, have adopted volumetric tariffs and revised the water tariff. Bhatkal, Dandeli and Sirsi have doubled the tariff in 2011.
The State shall cause KUWS&DB to assist each ULB to establish appropriate water tariffs, collect fees from consumers, reduce NRW and facilitate operations and maintenance.	LA, Schedule 6, para. 17	Complied with.
The State and each ULB shall ensure that the proposed water tariffs include a drainage surcharge to cover operations and maintenance costs of the sewerage systems in the ULB	LA, Schedule 6, para. 18	Partially complied with. GoK has issued orders to all ULBs with a centralized sewerage system, to impose sewerage charges. Karwar ULB has started levying sewerage charges, and the remaining three project ULBs are likely to impose an identical levy, after obtaining the consent of their elected councils.
Urban Environmental Planning		
The State and each ULB shall prepare urban development plans in accordance with MUD's guidelines and involving CBOs and NGOs in the planning and implementation stages. The State shall support the concerned District Planning Committee and the ULB in the preparation of such plans for each of the three project districts as defined in paragraph 4(b) of this Schedule and these plans shall be	LA, Schedule 6, para. 19	

Covenant	Reference in Loan Agreement	Status of Compliance
considered under the CRMCP to be prepared under the Project		
Community Participation		
The State and each ULB shall develop and promote a policy of community participation for urban development and this shall include: (a) the holding of consultative workshops in each Project Town to define the roles and functional mechanisms for participation; (b) a system of micro-credit financing for women in Project slums with the involvement of NGOs and CBOs; (c) CBO thrift and credit programs under the Project; and (d) NGO and CBO facilitation of a demand-driven approach and willingness to pay by Project beneficiaries, through NGO and CBO involvement in the CAPP and in the design and implementation of poverty reduction Subprojects.	LA, Schedule 6, para. 20	Complied with.
State Property Tax Law		
The State property Tax Law shall have been enacted by the State by July 2003	LA, Schedule 6, para. 21	Complied with.
Specific Major Covenants in Project Agreement		
The State shall cause the Project Executing Agency to (i) maintain separate accounts for the Project and for its overall operations; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to the Bank; and (iii) furnish to the Bank, promptly after their preparation but in any event not later than 12 months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including auditor's opinion on the use of the Loan proceeds and compliance with the covenants of the Loan Agreement as well as on the use of the procedures for imprest account and statement of expenditures), all in the English language. The State shall cause the Project Executing Agency to furnish to the Bank such further information concerning such accounts and financial statements and the audit thereof as the Bank shall from time to time reasonably request.	PA, Section 2.09 (a),	Complied with.

CAPP= community awareness and participation program, CBO = community based organization, CRMCP = coastal resource management and conservation plan, KUIDFC = Karnataka Urban Infrastructure Development and Finance Corporation, KUWS&DB= Karnataka Urban Water Supply and Sewerage and Drainage Board, LA = loan agreement, ME = monitoring and evaluation, MUD= Ministry of Urban Development, NRW = nonrevenue water, NGO = nongovernment organization, O&M = operation and maintenance, PA = project agreement, PIU = project implementation unit, PMU = project management unit, PWD = public works department, STP = sewage treatment plant, ULB = urban local body, UDD = urban development department, government of Karnataka, WTP = water treatment plant.

INSTITUTIONAL REFORM PROGRAM

1. The Government of Karnataka (GoK) launched "*Nirmala Nagara*", a state-wide municipal reform program, under the project in 2005. The program was implemented in 49 major urban local bodies (ULBs) catering to 75% of the total urban population of the State of Karnataka. The program aimed to ensure better municipal service delivery through resource mobilization, improved transparency and accountability in the functioning of ULBs, participatory local planning, and greater use of service level benchmarking. The broad reforms introduced under the program are:

- development of a property tax information system that is based on a geographical information system (GIS);
- introduction of a fund-based double entry accrual accounting system;
- establishment of public grievance cells with the involvement of nongovernment organizations (NGOs); and
- computerization of basic municipal functions.

2. To steer the program at the state level, the "Karnataka Municipal Reform Cell (KMRC)" was formed under the Directorate of Municipal Administration, with support from Karnataka Urban Infrastructure Development and Finance Corporation. GoK set up the organizational structure of KMRC such that professionals could be hired from the market and experienced government officials deputed as required. This mix of skill sets has helped KMRC in planning and implementing the program. GoK recruited dedicated accountants, environmental engineers, and IT professionals in each ULB. A separate urban cell has been created in every district to provide handholding support, field level troubleshooting, and regular monitoring. This two-tier structure, linking field level implementation cells and the centralized control system of KMRC, has helped overcome implementation and operational bottlenecks.

3. KMRC has established a standardized set of systems and processes for all 49 ULBs and a data center with a centralized database architecture. This has reduced implementation effort, time, and cost, and helped attain acceptable quality levels irrespective of the ULB's capacity and location, and the timely rollout of the reforms to the other ULBs in Karnataka. Comparability and transparency of key data has also helped GoK in implementing service level benchmarking.

4. The key outcomes of the *Nirmala Nagara* program are:

a) **GIS-based property tax information system.** Under this component, all properties have been mapped on the GIS-based application. Self-assessment schemes and an online property tax calculator were introduced. The property tax billing and collection system was computerized. This initiative has helped bring about 0.8 million un-assessed properties (54% of total properties in 49 ULBs) under the tax net, and increased property tax mobilization in most of the participating towns by about 100% in nominal terms.

b) **Fund-based double entry accrual accounting system.** The accounting system of the ULBs has been changed from a cash based system to a double entry accrual based system. All transactions have been computerized, and a unified codification of accounts is being introduced in all ULBs. Preparation of annual performance reports and public disclosure of the audited statement of accounts within 6 months of the closure of the financial year have become mandatory. The planning process of ULBs has become more participatory through the introduction of public consultations during annual budget preparation.

c) **Public grievance cell for citizens.** 24x7 grievance redressal cells have been set up with the involvement of NGOs in each ULB. Citizens can submit complaints over the phone, online, and over the counter. All complaints are registered in a computerized system that has provision for automatic escalation if the grievance is not redressed within the pre-defined time line. It is noted from the information shared by KMRC for the 10 project towns, that the average complaint redressal time has been reduced from 30 days in 2005 to 3 days in 2012. KMRC is currently upgrading the process to introduce internal voice recording systems. It is worth mentioning that under a separate program called "*Sakala*", a time-bound public service delivery scheme, GoK has introduced a penal provision for the ULB officer concerned if he/she fails to deliver the service within the stipulated time.

d) **Computerization of basic municipal functions.** Websites, with a uniform design developed for all ULBs, provide key information about the individual town, details of the staff and elected representatives of the ULB, service request forms and applications, the ULB's financial statements, the public disclosure schedule, ongoing projects, and details of petitions under the right-to-information act. KMRC has also introduced online birth and death registration and certification. Since the inception of the program, about 10 million birth and death records have been generated in electronic format. Manual records, available in the ULBs since 1990, have been digitized. It was learnt during consultations that the average time for issuing certificates from the application date has been reduced from 2 months to 2–3 days.

5. It is clear from the above that the *Nirmal Nagara* program has benefited citizens and helped ULBs to improve municipal service delivery. Given the success of the component, GoK scaled it up to cover the remaining towns of the state under a World Bank funded project. This reform program has become a model municipal reform program for the entire country.

6. Since 2009, KMRC has also introduced service level benchmarking for performance monitoring of all ULBs in Karnataka and incentivizing the best performing ULB. KMRC has received a number of national awards including one for excellence in government process re-engineering.

7. GoK is now planning to take up the next generation of reforms. These include the establishment of regional cells and a sinking fund for O&M of the water supply, sewerage, and solid waste management system.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS

A. Environmental Safeguards

1. The project was classified as environmental category "B" and processed under the project loan modality. During project processing in 1998–1999, an initial environmental examination (IEE) report was prepared in accordance with the then prevailing ADB guidelines on environmental assessment of infrastructure projects. Assistance under the project spread across 10 towns and included water supply systems; sewerage; storm water drainage; municipal solid waste management; urban roads and bridges; and coastal environmental management.[1] Works included construction of new facilities as well as rehabilitation of existing ones. The identified works were not expected to pass through or be in the vicinity of environmentally, ecologically or archaeologically sensitive areas. The IEE report did not envisage any irreversible, significant or adverse environmental impacts. To address the potential moderate environmental impacts identified during the environmental assessment, an environmental management and monitoring plan (EMMP) was formulated.

2. **Institutional arrangements for implementation of environmental safeguards.** It was envisaged that a project management unit (PMU) and three project implementation units (PIUs) would implement the project. During the initial years, no environmental expert was mobilized within the PMU or PIUs to oversee implementation of environmental safeguards. Subsequently, in the later part of project implementation, Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC) engaged an environmental expert for all works under KUIDFC, including ADB-financed projects, who provided part-time supervisory inputs. One of the PIUs engaged a full-time environmental expert in 2007. The project management consultant and two design and supervision consultants' firms were mobilized in 2000. However, the consultants' contracts did not indicate any requirement for inputs from environmental experts. Thus, no environmental supervision by the consultants took place during implementation. None of the contractors engaged environment and safety officers during construction. An environmental consulting firm was mobilized by KUIDFC to develop an initial environmental examination report for one of the new subprojects proposed under the project; however, its services were not used for supervision or monitoring during construction.[2] The environmental consultant engaged at the India Resident Mission (INRM) for another ongoing TA activity provided need-based inputs for review during implementation. As a response to the lack of requisite supervisory expertise in the PMU and PIUs, coupled with the absence of dedicated environmental staff or consultants, the existing site staff of the consultants and contractors were given additional responsibility as environmental coordinators, but this arrangement was not very effective. Engagement of environmental staff by the consultants, even on an intermittent basis during implementation, would have been immensely useful for overall management of environmental safeguards. Thus, the overall institutional arrangements to supervise and monitor environmental safeguards implementation are assessed as inadequate.

3. **Compliance with statutory environmental regulations.** KUIDFC confirmed that it had obtained all applicable statutory environmental approvals and permits that were required by the then prevailing environmental regulations at national, state, and local levels from the various agencies under the acts pertaining to forests, wildlife protection, coastal regulation zone, tree preservation, air and water pollution. KUIDFC also advised that consent from the State Pollution Control Board for the establishment and operation of water treatment plants was not required.

[1] The IEE report was a part of the RRP.
[2] The additional IEE report was prepared for the new airport link road subproject in Mangalore.

During a review by INRM in 2006, some shortcomings with respect to statutory compliances were noticed, and corrective actions recommended. KUIDFC also confirmed that all terms and conditions associated with the approvals were complied with, and the approvals were renewed periodically, as required. In the absence of data, compliance of civil works contractors with environmental regulatory requirements could not be ascertained. KUIDFC confirmed that none of the subprojects was located within or near any (i) protected or ecologically sensitive areas; and (ii) historical, archeologically important or protected monuments, except for (a) minor repair and restoration work carried out in the national park at Dandeli by the State Forest Department and (b) approach roads in areas identified for eco-tourism. Thus, the overall compliance with statutory environmental regulations is assessed to be adequate.

4. **Implementation of environmental management and monitoring plans (EMMPs).** Awarding of civil works contracts started in September 2002. Although the contracts did not include EMMPs, they included a general requirement on environmental and safety related precautions. During implementation, the scope of works was revised in many towns. The revised environmental assessment documentation was developed in some cases for ADB approval. Desk reviews of available documents on implementation of EMMPs demonstrated varying levels of compliance with agreed provisions, and in the absence of any supporting documentary evidence, implementation was assessed to be less than adequate. Assessment of available documentation also indicated that structured supervision and monitoring mechanisms were not in place for environmental safeguards. Based on the data available, monitoring of environmental parameters at sites has been assessed as very limited, despite reminders from INRM in this regard. Record keeping for environmental documentation was also assessed to be very limited. Although KUIDFC mobilized an environmental expert during the later stages of implementation, given the spread of subprojects over 10 towns and the merely part-time supervisory inputs of this expert, the situation did not improve much. The project received some complaints from the public regarding the environmental aspects of the activities undertaken.[3] KUIDFC responded to these complaints by providing requisite clarifications, and the complainants did not revert. It is also assessed that the loan covenants pertaining to environmental aspects have been generally complied with.

5. **Overall improvement in environmental conditions.** The nature of the targeted interventions was such that their implementation would certainly lead to (i) improved environmental conditions by giving more people access to better quality drinking water; (ii) reduced flooding in urban areas and slums because of storm water drainage and sewer rehabilitation; (iii) reduced breeding grounds for vectors; (iv) reduced garbage on streets and its scientific management; and (v) improved air quality and road safety in congested traffic areas. In the absence of data on the baseline situation, as well as during implementation and operation, assessment and quantification of actual benefits accrued in terms of environmental, health, and safety considerations appears unfeasible at present. In spite of operational- and performance-related concerns and constraints, the project has the potential to contribute to improved environmental conditions over time, if these facilities are maintained and operated properly.

6. **Effectiveness of implementation of environmental safeguards.** The project was approved prior to ADB's adoption of its Environment Policy.[4] A systematic approach to developing awareness and building capacity on ADB's safeguards requirements among project staff could have addressed some of the shortcomings. The overall institutional arrangements for management of environmental safeguards remained inadequate for a large part of the

[3] A report was received from the NGO Forum on ADB and Oxfam in 2006 citing certain issues.
[4] ADB. 2002. *Environmental Policy of Asian Development Bank*, Manila

implementation period. In the absence of sufficient environmental records, as well as monitored data and reporting mechanisms, the use of good environmental practices and the effectiveness of environmental mitigation measures cannot be ascertained. However, due to the nature of the works carried out under the project, the facilities constructed and commissioned are certainly expected to contribute to improved environmental conditions in the project towns.

7. **Lessons for other projects.** To improve the environmental performance of projects, the following measures are suggested: (i) a systematic and continuous approach in developing the awareness and capacity of project staff regarding ADB's environmental policy, procedures, and requirements; (ii) the timely mobilization of environmental experts by the executing agency, consultants, and contractors till closure of the project; (iii) systematic supervision, monitoring, data mapping, and reporting mechanisms on implementation of environmental safeguards, including EMMPs; and (iv) periodic reviews by environment experts associated with the project with a view to undertaking any corrective actions that may be required.

B. Social Safeguards and Resettlement

8. The assessment of social safeguards for the subprojects is based on a desk review of available resettlement planning documentation, monitoring reports, ADB missions' aide memoires, and the update provided by KUIDFC during preparation of the project completion report.

9. **Implementation arrangements.** In 2003, a special land acquisition office was established within the Mangalore Municipal Corporation for the land acquisition required for contract packages in Mangalore. On 15 June 2007, KUIDFC established an implementation committee within the PMU comprising the special land acquisition officer (SLAO), the community development head and field consultants. The committee was responsible for overall coordination, planning, implementation, and monitoring of resettlement and rehabilitation activities. The grievance redress committee, headed by the Deputy Project Director and including representatives of the affected persons, was also formed on 15 June 2007. No social safeguards specialist for resettlement management of the project was appointed at the PMU and no NGO was engaged to assist in implementation of the short resettlement plans (SRPs). PMU officials were assigned the responsibility of internal monitoring, and an expert was appointed for external monitoring and evaluation (M&E) of resettlement activities. Lack of a dedicated resettlement expert, weak capacity of the officials for monitoring SRP implementation, and low priority given to social safeguards are some of the concerns related to resettlement management of the project.

10. **Implementation of SRPs.** The original SRP for the project was given in Supplementary Appendix L of the RRP. The SRP reported the need to acquire 20.03 ha of private land owned by approximately 20 households. Because of changes since project preparation, the original SRP had to be updated to reflect the actual location of project components, their impacts, and the land acquisition requirements during implementation.[5] This resulted in the preparation of 22 SRPs in accordance with ADB's Involuntary Resettlement Policy, 1995. KUIDFC confirmed that all 22 SRPs were implemented. A total of 110.29 ha of land, including 29.06 ha of government land in 5 towns and 81.23 ha of private land from 4 towns, were acquired for various project components. Of the 81.23 ha of private land, 79.36 ha (97.70%) were acquired by the relevant District Collectors by December 2008. A further 0.79 ha have been acquired and the remaining

[5] For ease of SRP implementation and monitoring, KUIDFC while updating the SRP prepared contract wise SRPs except for two Water pipeline laying contracts in Mangalore

1.08 ha are still being acquired by Mangalore City Corporation (MCC) for pending UGD works. This will be completed using state funds, as ADB financing is not available because the loan was closed in November 2009. ADB expressed its concern and advised KUIDFC officials to (i) acquire the remaining land following the provisions of the agreed SRP and (ii) pay compensation and other assistance to affected families in accordance with the entitlement matrix. KUIDFC confirmed that it will (i) adhere to SRP provisions, while acquiring the balance 1.08 ha of land and (ii) ensure timely payment of compensation to affected families.

11. During implementation of the SRPs, KUIDFC informed ADB that the SRP Implementation Committee conducted consultations; disclosed project impacts and entitlements to affected persons; verified and validated affected persons; issued identity cards; organized meetings for grievance redressal; and assisted in providing compensation and assistance, including special assistance to vulnerable affected persons as per entitlement matrix provisions. The private land acquisition process was initiated in 2003 following national and state laws. Cash compensation for loss of land and other assets was disbursed by the SLAO to titled affected families mainly from June 2005 to March 2008. KUIDFC maintained transparency and records of cheques that were handed over to affected families.

12. **Disbursement of Compensation and Assistance.** In all, 1,878 affected families, 411 of which were vulnerable, were impacted under the project. KUIDFC reported that, out of a total of about Rs. 555.3 million in compensation for acquisition of land and assets, Rs. 511.8 million had been disbursed and about Rs. 43.5 million could not yet be disbursed to some affected families. This amount was not disbursed for reasons that included court cases for apportionment of land and family disputes, and migration. KUIDFC reported having deposited about Rs. 42.7 million[6] in an escrow account with the court of law in accordance with the Land Acquisition Act, 1894. KUIDFC committed to making every effort to complete compensation and assistance disbursement to the pending affected families by 15 September 2008. Such efforts included further information dissemination, consultations, legal assistance, holding of public courts by the District Collector for early and amicable resolution of disputes, and withdrawal of court cases to disburse compensation and assistance. However, KUIDFC has reported virtually no change in the escrow account so far. ADB has emphasized the need to immediately initiate actions for disbursement of compensation and assistance from the escrow account and so minimize the number of pending affected families. Out of the 411 vulnerable affected families, 390 were disbursed special assistance of Rs. 5,000 each, but payment to the remaining 21 is still pending.

13. The overall assessment is that resettlement management followed ADB's social safeguards requirements. Affected persons and other stakeholders observed improved economic activities, and better living conditions and quality of life in the project area. This was the conclusion based on consultations with affected persons during review missions and on KUIDFC's reporting on the implementation of SRPs. Measures suggested for KUIDFC to improve social safeguards performance are (i) engaging a dedicated resettlement expert for implementation of SRPs as scheduled; (ii) undertaking efficient M&E and reporting; and (iii) according due priority to social safeguards for improved resettlement management.

[6] KUIDFC.2008. *Monitoring and Evaluation of Implementation of Short Resettlement Plans*. Karnataka indicated that a sum of Rs. 43.5 million could not be disbursed to remaining affected families (Appendix 3). About Rs. 42.7 million (Para 5.9) was reported to have been deposited in the escrow account with the Court of law.

Action Plan for Safeguard Issues

S.No.	Action	Responsibility	Completion date
1.	Complete the remaining land acquisition as per the agreed SRP provisions	Mangalore Municipal Corporation	31 December 2012
2.	Initiate actions for disbursement of the remaining compensation and assistance from the escrow account and minimize the number of uncompensated affected families.	KUIDFC and Mangalore Municipal Corporation	Immediately

ECONOMIC AND FINANCIAL ANALYSIS

1. The economic internal rates of return (EIRR) and financial internal rates of return (FIRR) of several components were re-evaluated at completion using the data provided by the Government of Karnataka (GoK) and Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC), and compared with the appraisal estimates. The EIRR was calculated for the water supply, sewerage, drainage, solid waste management, and urban road components, and the FIRR for the water supply, sewerage, and solid waste management components.

2. The economic and financial analysis of the project has used broadly the framework provided in ADB's *Guidelines for the Economic Analysis of Water Projects (1998)* and *Financial Management and Analysis of Projects (2005)*.

3. The economic and financial analysis of projects focuses on the economic benefits generated by the project and its financial sustainability. The analysis also considers the financial and fiscal capacity of the urban local bodies to service project debts and ensure the sustainable provision of urban services. The reassessment of financial and economic rates of return as well as the financial and fiscal performances of project towns estimated during project appraisal provides insights into the financial and economic performance of the investments during the project completion period (2002 to 2012). Sensitivity tests of the financial and economic rates of return are undertaken to understand the institutional and service management reforms required to sustain these investments. The economic and financial viability of the project is evaluated over a period of 25 years with no salvage value assumed thereafter. A summary of the economic and financial analysis is provided below.

A. Economic Evaluation

I. Analysis at Appraisal

4. At appraisal, the economic analysis was undertaken only for the water supply, storm water management, and streets and bridges components. EIRRs were not calculated for the solid waste management and sewerage components.

5. The economic analysis at appraisal was conducted at border prices and a standard conversion factor of 0.9 was applied for all non-traded components. The calculations were carried out based on March 1999 prices. No market distortion was assumed for skilled workers, and annual rental values were used to assess opportunity cost for land. While deriving the economic cost, all duties and taxes were deducted from investment cost and the only recurrent costs considered were those that were to be incurred for the provision of additional services.

6. **Water supply.** The appraisal estimates took into account benefits from resource cost saving (both incremental and non-incremental, as beneficiaries with and without access to piped water were assumed to benefit) and reduced physical losses of water. Since data on the exact volume (and causes) of unaccounted for water was not available, estimates were based on "anecdotal" evidence. However, the appraisal estimates did not consider the benefit of health cost savings, even though dependence on non-piped water (because of inadequate supply and/or no access to the piped water) can expose users to waterborne diseases with resulting costs.

7. **Storm water drainage.** Avoidance of recurrent flooding was the key parameter considered. The resultant benefits were envisaged as avoidance of damage to properties and infrastructure, such as roads, and of income loss as a result of the workdays lost. However, as in the case of water supply, health benefits (avoidance of costs towards treating waterborne diseases) were not considered in the appraisal estimates.

8. **Streets and bridges.** While carrying out the economic analysis of this component, savings in vehicle operating costs and travel time and increased land values due to road improvements were the main benefits considered.

9. To arrive at the net present value of costs and benefits, estimated cash flows were discounted at 12%, assumed to be the economic opportunity cost of capital. The summary of the economic evaluation for selected project components at appraisal is available in the appraisal document.

II. Analysis at Completion

10. In general, the approach used during appraisal was applied for the recalculation of the EIRR. For calculating population growth, the compounded annual growth rate of the population between 1991 and 2001 was used for projecting the population till 2035. The average household size used for calculations is 4.6 persons per household.

11. **Water supply.** The benefits of the water supply component have been identified and calculated in accordance with ADB's *Guidelines for the Economic Analysis of Water Supply Projects*. After calculating the demand-supply gap in a without-project scenario, it is assumed that the project meets all or part of this gap. This translates into savings in resource costs from no longer having to obtain water from other sources (e.g., hand pumps, bore-wells, packaged water). The weighted average cost considered is Rs.0.18/liter. Further, a tariff of Rs.6.00/kiloliter has been assumed and the net savings in resources have been calculated. Additionally, following the ADB guidelines and considering the analyses of a few recent water supply projects, savings in health costs have been calculated. About 44% of the population is assumed to suffer from waterborne diseases and the cost of treating waterborne diseases is assumed to be Rs.209/month/household. Savings in resource and health costs have been considered the key benefits of the water supply component. Following standard procedures, 40% of the savings in health costs have been apportioned to the improvement in water supply.

12. **Sewerage and drainage.** The two main parameters considered for economic analysis are: (i) savings in health costs; and (ii) avoidance of income loss as a result of a reduction in flooding. Fifty percent of savings in health care costs has been apportioned to sewerage and drainage. For sewerage, cost savings are also estimated for the capital cost of septic tanks and cleaning costs. For the purpose of calculation, the average daily income of the households (at 2002 prices) has been assumed as Rs.121.00. The reduction in the frequency of flooding is assumed to be in the range of 6–10 days per year. The economic benefit of reduced damage to property has not been used for analysis, in the absence of reliable data.

13. **Solid waste management.** Cost savings have been estimated for health care costs. Following standard procedures, 10% of the savings in health care costs has been apportioned to better solid waste management practices.

14. **Streets and bridges.** Cost savings were estimated for savings in travel time and vehicle operating costs, with traffic data obtained from the Road Transport Statistics.[32] For both the parameters, costs per vehicle-km were obtained from the project preparatory TA and adjusted for inflation.

III. Re-evaluation findings

15. Taking into account the savings outlined in the above assumptions, economic indicators have been calculated for each project component, namely water supply, sewerage, drainage, solid waste, and roads and bridges. The analysis at completion also calculated the sensitivity indicators relevant at project completion and found that the subprojects are sensitive to future O&M costs. The summary comparison of EIRRs at appraisal and at re-evaluation for the project components is presented in Table A11.1.

Table A11.1: Comparative Summary of Economic Indicators at Appraisal and Completion

Components	Appraisal EIRR (%)	Completion EIRR (%)
A. Water Supply		
Ankola	19.0	21.33
Bhatkal	16.80	21.16
Dandeli	26.70	41.61
Karwar	12.10	16.11
Kundapura	12.00	15.85
Mangalore	22.90	23.75
Puttur	15.10	16.43
Sirsi	14.10	22.76
Udupi	14.30	18.77
Ullal	19.80	22.95
B. Sewerage		
Bhatkal	NA	12.23
Karwar	NA	18.92
Mangalore	NA	12.37
Udupi	NA	13.21
C. Drainage		
Ankola	12.00 – 16.00	19.70
Bhatkal	13.00 – 19.00	13.43
Dandeli	12.00 – 23.00	22.16
Karwar	15.00 – 25.00	21.63
Kundapura	15.00 – 24.00	17.87
Mangalore	15.00 – 24.00	21.10

[32] Published by the Ministry of Road Transport and Highways, Government of India.

Components	Appraisal EIRR (%)	Completion EIRR (%)
Puttur	14.00 – 18.00	40.62
Sirsi	13.00 – 19.00	22.62
Udupi	12.00 – 21.00	12.39
Ullal	14.00 – 23.00	73.73
D. Solid Waste		
Ankola	NA	12.16
Bhatkal	NA	12.79
Karwar	NA	35.44
Mangalore	NA	12.58
Puttur	NA	12.27
Udupi	NA	12.30
Ullal	NA	41.85
E. Roads and Bridges		
Ankola	NA	39.13
Bhatkal	16.00 – 31.00	21.09
Dandeli	13.00 – 29.00	33.62
Karwar	14.00 – 23.00	26.63
Kundapura	15.00 – 27.00	48.47
Mangalore	18.00 – 30.00	41.90
Puttur	14.00 – 29.00	41.41
Sirsi	13.00 – 28.00	40.44
Udupi	12.00 – 26.00	68.92
Ullal	14.00 – 30.00	48.49

Source: Asian Development Bank estimates; EIRR = economic internal rate of return; NA = not available

16. Based on the analysis, the project can be rated as efficient in achieving the outcome and outputs. All EIRRs calculated on completion are higher than the appraisal estimates, because the welfare of the beneficiaries has increased greatly, and beyond what was estimated at appraisal; consideration of health benefits during re-evaluation contributes to this. Overall, for all components the EIRR calculated at completion is higher than the benchmark value of 12%, thus justifying the investments. However, the benefit for the sewerage component in Mangalore could be further improved, once KUIDFC completes the construction of balance work and commissions the entire scheme.

17. Many benefits (such as health cost savings due to a reduction in the incidence of vector-borne diseases, and an improvement in the visual appeal of the city) could not be quantified and hence have not been captured in the analysis.

18. The qualitative assessment of other components showed that they helped improve the overall environment of the towns and quality of life of individuals.

B. Financial Analysis

I. Analysis at Appraisal

19. The FIRRs and fund flow projections were prepared for cost recovery components in accordance with ADB's *Framework for the Economic and Financial Appraisal of Urban Development Sector Projects*. Even though the overall sustainability of the project is largely determined by performance in the continued implementation of the project's institutional reforms, financial sustainability is determined by investment planning, cost recovery, and asset management reforms undertaken by the implementing agencies in the case of revenue generating projects. While calculating the FIRR, the following assumptions were made:

- The analysis was conducted at constant March 1999 base prices and taking into account the incremental O&M cost.
- Project investment cost included all the costs barring price contingencies and interest during construction
- The value of benefits arising from water sales was calculated by multiplying the volume of water sold by the proposed tariffs for each year at constant March 1999 prices, increased by 2 percent annually in real terms.
- A sewerage surcharge, 60% of the water tariff would be imposed from April 2005, and in the case of Mangalore, the same surcharge would be effective from April 2001 and increase to 75% from April 2005.
- A monthly charge between Rs30 and Rs40 would be imposed for SWM beginning April 2001, and this would be increased every year in real terms by 2% over domestic inflation.

II. Analysis at Completion

20. Reassessment of the financial analysis has been conducted using the incremental capital cost and operating expenses for estimating the incremental cost stream. The actual weighted average cost of capital considering the actual financing plan of the project is calculated at 3.27% in real terms.

21. The financial cash flow statement includes all base costs including price and physical contingencies, but excludes interest during construction. The base cost also includes 16 percent of the actual capital expenditure as a share of the implementation cost. The O&M costs, which include personnel, administrative overheads, power charges, chemicals, repairs and maintenance, and miscellaneous expenses, were considered as reported by KUIDFC in November 2009. Contingency and price fluctuations for the foreign investment component are not considered. The financial projections are undertaken at constant prices (Y2012).

22. **Water Supply.** Incremental revenue from the project is estimated based on water sold as per the estimated incremental and non-incremental water demand from existing and new consumers and connection charges. The benefit stream is estimated for 25 years.

23. **Sewerage and Solid Waste Management.** No revenues have accrued to the municipalities since the project, and so no financial analysis has been conducted.

24. **Market Facilities.** Market facilities were constructed as revenue-generating projects. However, details of stalls let out and market fees collected from such stalls were not available during the re-evaluation; hence, the financial analysis was not conducted.

III. Re-evaluation findings

25. While carrying out the FIRR analysis at completion, only income from direct user charges and connections and other fees collected for water supply are considered as the financial benefit. The analysis at completion also calculated the sensitivity indicators relevant at project completion and found that the subprojects are sensitive to future O&M costs and changes in tariff. The summary comparison of FIRR at appraisal and at re-evaluation for the water supply component is presented in Table 2.

Table A11.2: Financial Feasibility of Water Supply Component at Completion

City	FIRR at Appraisal	FIRR at Completion
Ankola	4.70%	Negative
Bhatkal	9.00%	Negative
Dandeli	20.80%	Negative
Karwar	6.30%	Negative
Kundapura	3.10%	Negative
Mangalore	16.40%	4.29%
Puttur	3.50%	Negative
Sirsi	3.80%	Negative
Udupi	4.30%	0.76%
Ullal	3.00%	Negative

Source: ADB Staff Estimates

26. The FIRR for the water supply subproject in Mangalore is 4.29%, which is higher than the weighted average cost of capital of 3.27%, but lower than the appraisal estimate of 16.4%. For the other water supply subprojects, barring Udupi (0.76%), the FIRR is negative. The negative FIRR indicates that the present value of costs far exceeds the incremental revenues that would accrue from direct user changes and other water supply fees. In the case of Mangalore and Udupi, the buoyancy in revenues from the water supply component resulted in a positive FIRR, indicating that incremental revenues exceed the capital expenditure and the incremental O&M cost because of the project interventions. For some ULBs, water tariffs are inadequate to recover even the O&M costs. The variance in the actual FIRRs from the appraisal estimate are due to (i) over-optimistic assumptions during appraisal regarding water tariff increases, in spite of the low willingness to pay reported in the project preparatory TA's socio-economic survey, and (ii) the achievement of fewer house connections than targeted.

27. However, the GoK, as per the State Finance Commission's recommendation, is sharing 8% of revenue receipts with ULBs. These funds are being provided to the ULBs under three heads: (a) global protection, to meet establishment and energy costs, (b) global provision, to meet expenditure under plan outlays, and (c) un-tied grants. The amount of global protection funds being received by all project ULBs is sufficient to meet all salary expenses and power

charges. If this amount is considered a part of the financial benefits of the water component, the financial analysis results improve for all project towns.

28. Moreover, GoK, through its February 2011 order, has directed all ULBs to increase the water tariff as per the prescribed rates, which will result in a doubling of the tariff and the imposition of sewerage surcharges. Of the 10 ULBs, three have already started implementing the revised tariff since 2012 and the remaining will implement it after obtaining the consent of the respective councils. The ULBs have also launched special schemes and are carrying out awareness campaigns to encourage citizens to take house connections. It is expected that these initiatives will further improve financial viability.

29. Mangalore City Corporation (MCC) has signed an agreement with Mangalore special economic zone for O&M of pumping stations and sewage treatment plants in return for the use of effluents. This will not only help to conserve water but also reduce the O&M liability for MCC.

C. Fiscal and Financial Sustainability of Project Towns

30. The financial strength of each project municipality was analyzed at project completion to ascertain whether its financial capacity could sustain the O&M of the assets created under the project, as well as additional assets created in the future using municipal funds. The analysis covers the study of the financial statements for the last five financial years i.e. 2006–07, 2007–08, 2008–09, 2009–10, and 2010–11. The overall analysis leads to the following observations:

a) All the project towns depend on the devolution of funds from GoK (as recommended by the State Finance Commission), and the percentage of the contribution of own revenues to the devolved funds is relatively low;

b) The salary expenses and power charges of all project ULBs are being met from the funds available under the global protection head of the State Finance Commission;

c) After implementation of the property tax reform program under the project, the ULBs' average revenue from property tax every year has increased by 14% between 2000 and 2011;

d) GOK introduced a new water tariff regime in FY2012, and so the impact of this tariff was not reflected in the analysis, which covered only up to FY2011;

e) All project towns except Sirsi showed an operating surplus in all the five years of the analysis;

f) All project towns showed a positive rate of return, thus indicating a positive cash flow from their operations; however, some towns showed irregular trends;

g) Mangalore City Corporation (MCC) has signed an agreement with Mangalore SEZ for O&M of pumping stations and sewage treatment plants in return for the use of effluents. This will significantly reduce the O&M burden of MCC;

h) All the project towns showed a positive current assets ratio on average, thus indicating positive liquidity; and

i) All the project towns showed a positive debt-equity ratio on average, thus indicating positive capital structures.

31. Overall, the project is rated financially sustainable. All the project towns reported favorable rates of return, current asset ratios, and debt-equity ratios. However, the operating

expenses ratio needs improvement by improving the share of own revenue. With low tariffs and user charges, the FIRR of the water supply subprojects produced negative results. Nevertheless, the devolution of funds from GoK ensures that all municipalities are able to meet regular expenses and invest in municipal infrastructure, even when tariffs are not always sufficient to cover O&M expenses. Strengthening of municipal revenues through implementing reforms is an ongoing process and all municipalities are in the process of strengthening their financial capability to sustain O&M of assets created under the project, as well as additional assets created in the future using municipal funds.

IMPLEMENTATION SCHEDULE

Task	Target		Actual	
	Start Date	End Date	Start Date	End Date
Part A. Capacity Building, Community Participation, and Poverty Reduction				
Training Local Government Staff				
Public Awareness and Participation	3 Jan 00	31 Dec 04	1 Jan 01	31 Mar 09
Capacity Building	3 Apr 00	31 Dec 04	1 Jul 02	31 Mar 09
Poverty Reduction				
a. Organize Community Groups	3 Apr 00	30 Jun 00	1 Jul 02	31 Dec 04
b. Detailed design	3 Jul 00	31 Dec 01	1 Jul 02	31 Dec 06
c. Construction	3 Sep 01	31 Mar 03	3 Dec 02	30 Nov 07
d. Employment Enhancement Scheme	3 Jul 00	30 Jun 04	1 Jun 02	17 Nov 05
Part B. Water Supply, Rehabilitation and Expansion				
a. Nonrevenue water reduction	3 Apr 00	30 Sep 01	…	…
b. Detailed design	3 Jan 00	31 Mar 02	1 Jul 01	31 Dec 06
c. Construction of intakes	3 Jul 00	31 Mar 01	19 Dec 02	31 May 09
d. Procurement of pipes and meters	3 Apr 00	30 Sep 02	6 Jun 09	30 Sep 09
e. Construction	2 Apr 01	31 Mar 04	5 Dec 02	18 Jun 10
f. Commission	1 Oct 03	31 Dec 04	1 Apr 07	30 Jun 10
Part C. Urban Environmental Improvements				
Waste Water Management				
a. Detailed design	3 Jan 00	31 Dec 01	1 Oct 01	31 Dec 06
b. Construction	2 Apr 01	30 Jun 04	13 Jan 03	30 June12[#]
c. Commission	1 Oct 03	31 Dec 04	1 Apr 07	30 Jun 10[##]
Drainage				
a. Prepare master plans	3 Jan 00	31 Dec 00	1 Oct 01	30 Sep 02
b. Detailed design	2 Oct 00	30 Jun 02	1 Jan 03	31 Dec 03
c. Construction	1 Apr 02	31 Mar 04	29 Nov 02	30 Jun 08
Solid Waste Management				
a. Prepare master plans	3 Jan 00	31 Dec 00	1 Apr 01	30 Sep 02
b. Procurement of vehicles and equipment	3 Apr 00	31 Mar 01	23 Aug 02	...
c. Detailed design	1 Jan 01	30 Jun 02	1 Oct 01	30 Jun 04
d. Construction	1 Apr 02	31 Mar 04	25 Jul 03	30 Jun 09
e. Contracting private sector operators	1 Jul 03	30 Jun 04	1 Jul 03	30 Sep 09
Part D. Street and Bridge Improvements				
a. Detailed design	3 Jan 00	31 Mar 02	1 Jul 03	30 Sep 06
b. Construction	2 Apr 01	31 Dec 04	3 Mar 05	15 Sep 09

Task	Target		Actual	
	Start Date	End Date	Start Date	End Date
Part E. Coastal Environmental Management				
a. Coastal Resource Management and Conservation Plan	3 Jul 00	30 Jun 01	21 Dec 02	31 May 03
b. Cleaner Production and Environmental Monitoring	3 Jul 00	31 Dec 01	16 Nov 05	31 Mar 08
c. Mangrove Afforestation	3 Jul 00	31 Dec 01	1 Oct 01	31 Dec 04
d. Mangalore Urban Waterfront Rehabilitation	3 Jul 00	30 Jun 01	24 Feb 05	31 Aug 08

About 7km of sewer lines in Mangalore are likely to be laid by December 2012

All works are commissioned except two sewage treatment plants at Mangalore, which are likely to be commissioned by June 2013

… = not available.

Source: Karnataka Urban Infrastructure Development Finance Corporation, Government of Karnataka.

COMMUNITY AWARENESS AND PARTICIPATION PROGRAM

1. The Community Awareness and Participation Program (CAPP) was a critical component to institutionalize a participatory approach in all aspects of the project, and ensure inclusion of the poor and disadvantaged, and sustainability. The program was implemented in all 10 towns with the assistance of two local NGOs, Shree Kshetra Dharmashala Rural Development Project and Mysore Resettlement and Development Agency. The major activities covered under the program were community development and promotion of Self-Help Groups (SHGs); skills training and entrepreneurship development; livelihood for underprivileged youth; low cost sanitation (LCS); information, education, and communication (IEC) activities; and community participation in solid waste management (SWM).

2. The key outcomes of the program are summarized below:

- **Community development and promotion of self-help groups.** CAPP promoted thrift and credit activities through the formation of SHGs as a key rapport building and community participation activity. Initially, Rs8 million was provided from the project as a revolving fund for SHGs. Nearly 2500 SHGs covering about 30,000 low-income families were formed. The majority of the members (about 90%) are women from below poverty line families. The SHGs have mobilized more than Rs50 million through their own savings and disbursed internal loans of Rs120 million. Nearly 16,000 SHG members have undergone skills training and 4,000 persons have started various entrepreneurial activities. Some SHGs also provided medical insurance schemes for their members. The activity has provided direct benefits to over 150,000 people, about one-sixth of the total population of the project towns. During focus group discussions and in case studies, it was reported that the average income of SHG members has increased from below Rs30–40/day to above Rs140–150/day.[33] A majority of members reported having improved or upgraded their housing, as a result of their enhanced income. Overall, the program helped members to improve their lives and support their children's education, thereby building a brighter future for them. Discussions with women members also revealed that there has been a positive impact on their standing in society and their family, enabling them to have a greater voice in family matters and decisions of importance. Even though the SHG component of the Karnataka Urban Development and Coastal Environmental Management Project (KUDCEMP) came to an end in 2006, most of the SHGs have become self-sustaining and are continuing with thrift and credit activities and micro-enterprises.
- **Livelihood for underprivileged youth.** The project had an innovative livelihoods component targeting the livelihood needs of underprivileged youth, who were provided with skills training in fields related to information technology, hospitality, and business process outsourcing industries. This initiative was undertaken in collaboration with the Livelihood Advancement Business School program of Dr Reddy's Foundation, Hyderabad and was supported by the two implementing NGOs. Of the 700 students trained, 95% obtained job placements. In a parallel skills upgrading program, computer training was provided to 1,146 students from low-income families to improve their employability, 72% of which were girl students.
- **Low cost sanitation.** Low-cost toilets were provided to people from economically weaker sections. About 10,020 LCS units were constructed through innovative, beneficiary-driven

[33] Government of Karnataka, Karnataka Urban Infrastructure Development and Finance Corporation and Shree Kshetra Dharmasthala Rural Development Project. n.d. *A Report on the Performance of Community Development Programmes*. GoK and SKDRDP. Bangalore and Dharmasthala; and Karnataka Urban Infrastructure Development and Finance Corporation and MYRADA. n.d *Completion Report from MYRADA*, Karwar, Karnataka.

procurement and implementation procedures. Provision of toilet facilities has enabled the beneficiaries, particularly women, to live with dignity and respect. It has also improved the overall environment of the surroundings as well as health and hygiene.

- **Information, education, and communication (IEC).** IEC resource centers set up in each town managed implementation of the activity. A short film, training manuals, information booklets, and town newsletters were prepared on themes such as SHGs in solid waste management, the role of urban local bodies (ULBs) in KUDCEMP, and the project's implementation status. In addition, awareness campaigns were carried out.
- **Community participation in solid waste management (SWM).** As mandated by state policy and the KUDCEMP strategy on SWM, SHGs were selected, trained, and oriented to undertake primary collection of solid waste in all the project towns. Project ULBs have employed these SHGs for primary collection of solid waste.

3. CAPP has helped build capacity and consensus among communities, project implementing agencies, and ULBs to meet the challenges associated with project implementation, environmental protection, and sustainability. It also facilitated the active participation and socio-economic empowerment of women through micro credit, income generation, and skills upgrading programs.

ACTION PLAN FOR OUTSTANDING ISSUES

Action	Town(s)	Responsibility for Action	Time frame	Monitoring Responsibility	Reporting Frequency
1. Complete the remaining land acquisition as per the agreed SRP provisions	Mangalore	Mangalore Municipal Corporation	By 31 Dec 2012	GoK	Monthly
2. Complete sewer laying works for the remaining 7km and commission STPs at Surathkal and Jeppinamogaru.	Mangalore	PIU (Mangalore)	By 31 June 2013	GoK	Quarterly
3. Provide water supply house service connections in the remaining areas.	All towns	Respective ULB	By 30 Sep 2013	GoK	Yearly
4. In areas where new water distribution networks are laid, phase out the old network and provide house connections only from the new lines	Mangalore, Dandeli, Bhatkal and Puttur	Respective ULB	By 30 June 2013	GoK	Yearly
5. Provide sewerage house connections in the remaining areas.	Mangalore	ULB	By 30 Sep 2013	GoK	Yearly
6. Provide additional handholding support to weak capacity ULBs in O&M of UGD system	Bhatkal and Karwar	KUIDFC	By 31 January 2013	GoK	Once completed

GoK=Government of Karnataka, PIU = project implementation unit, STP= sewage treatment plant, ULB = urban local body, UGD=underground drainage