



Completion Report

Project Numbers: 29466-013 and 29466-023
Loan Numbers: 1813 and 2293
September 2015

India: Kolkata Environmental Improvement Project

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Asian Development Bank

CURRENCY EQUIVALENTS

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

	At Appraisal (Loan 1813)	At Project Completion (Loan 1813)
	16 November 2000	20 November 2012
Re1.00 =	\$0.021	\$0.018
\$1.00 =	Rs46.675	Rs54.855

	At Appraisal (Loan 2293)	At Project Completion (Loan 2293)
	13 November 2006	13 November 2013
Rs1.00 =	\$0.0224	\$0.016
\$1.00 =	Rs44.710	Rs63.991

ABBREVIATIONS

ADB	–	Asian Development Bank
CBP	–	capacity-building program
DFID	–	Department for International Development of the United Kingdom
DSC	–	design and construction supervision consultants
EIRR	–	economic internal rate of return
EKW	–	East Kolkata Wetlands
FIRR	–	financial internal rate of return
GOWB	–	Government of West Bengal
IEE	–	initial environmental examination
IWD	–	Irrigation and Waterways Department
KEIP	–	Kolkata Environmental Improvement Project
KMC	–	Kolkata Municipal Corporation
KMDA	–	Kolkata Metropolitan Development Authority
LIBOR	–	London interbank offered rate
MDG	–	Millennium Development Goal
MFF	–	multitranches financing facility
NHC	–	neighborhood committee
NHG	–	neighborhood group
NGO	–	nongovernment organization
O&M	–	operation and maintenance
PCR	–	project completion report
PMC	–	project management consultant
PMU	–	project management unit
RRP	–	report and recommendation of the President
SCP	–	stakeholder consultation process
SDU	–	social development unit
S&D	–	sewerage and drainage
STP	–	sewage treatment plant
SHG	–	self-help group
SWM	–	solid waste management
TA	–	technical assistance

WEIGHTS AND MEASURES

ha	–	hectares
kl	–	kiloliter
km	–	kilometer
M	–	meter
Mld	–	million liters per day
mm	–	millimeter
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., FY2015 begins on 1 April 2014 and ends on 31 March 2015.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	India
2.	Loan Number	
	– Original Loan	1813-IND
	– Supplementary Loan	2293-IND
3.	Project Title	
	– Original Loan	Kolkata Environmental Improvement Project
	– Supplementary Loan	Kolkata Environmental Improvement Project (Supplementary)
4.	Borrower	India
5.	Executing Agencies	Kolkata Municipal Corporation Irrigation and Waterways Department, Government of West Bengal
6.	Amount of Original Loan	
	– Initial Loan	\$250.00 million
	– Revised Loan	\$162.71 million
	Amount of Supplementary Loan	
	– Initial Loan	\$80.00 million
	– Revised Loan	\$79.06 million
7.	Project Completion Report Number	PCR:IND 1540

B. Loan Data

1.	Appraisal (Original Loan)	
	– Date Started	23 May 2000
	– Date Completed	08 June 2000
	Appraisal (Supplementary Loan)	
	– Date Started	12 September 2006
	– Date Completed	15 September 2006
2.	Loan Negotiations (Original Loan)	
	– Date Started	10 November 2000
	– Date Completed	11 November 2000
	Loan Negotiations (Supplementary Loan)	
	– Date Started	09 November 2006
	– Date Completed	10 November 2006
3.	Date of Board Approval	
	– Original Loan	19 December 2000
	– Supplementary Loan	14 December 2006
4.	Date of Loan Agreement	
	– Original Loan	18 December 2001
	– Supplementary Loan	21 February 2007
5.	Date of Amended and Restated Loan (Original Loan)	24 July 2002

6.	Date of Loan Effectiveness (Original Loan)	
	– In Loan Agreement	18 March 2002
	– Actual	16 April 2002
	– Number of Extensions	1
	Date of Loan Effectiveness (Supplementary Loan)	
	– In Loan Agreement	22 May 2007
	– Actual	01 June 2007
	– Number of Extensions	1
6.	Closing Date (Original Loan)	
	– In Loan Agreement	31 December 2007
	– Actual	20 November 2012
	– Number of Extensions	2
	Closing Date (Supplementary Loan)	
	– In Loan Agreement	31 December 2010
	– Actual	13 November 2013
	– Number of Extensions	2
7.	Terms of Loan (Original Loan)	
	– Interest Rate	London interbank offer rate (LIBOR)-based (floating)
	– Maturity (number of years)	25
	– Grace Period (number of years)	-
	Terms of Loan (Supplementary Loan)	
	– Interest Rate	LIBOR-based (floating)
	– Maturity (number of years)	19
	– Grace Period (number of years)	-
9.	Disbursements	
a.	Dates (Original Loan)	

Initial Disbursement	Final Disbursement	Time Interval
16 October 2002	20 November 2012	123 months
Effective Date	Original Closing Date	Time Interval
16 April 2002	31 December 2007	69 months

b. Dates (Supplementary Loan)

Initial Disbursement	Final Disbursement	Time Interval
05 September 2007	13 November 2013	75 months
Effective Date	Original Closing Date	Time Interval
01 June 2007	31 December 2010	44 months

c. Amount (\$ million) under Original Loan

Category	Original Allocation	Partial Cancellation	Last Revised Allocation^a	Amount Disbursed	Undisbursed Balance
01 civil works	134.00	(8.83)	142.83	127.34	15.49
02 equipment and materials	22.00	16.69	5.31	6.79	(1.48)
03 small-scale loan facility	0.06	0.00	0.06	0.01	0.05
04 resettlement	5.00	0.12	4.88	4.89	(0.01)
05 training	0.25	0.25	0.00	0.00	0.00
06 consulting services	13.30	(4.49)	17.79	17.83	(0.04)
07 front-end fee	2.50	0.00	2.50	2.50	0.00
08 interest and commitment charge	55.60	53.23	2.37	2.37	0.00
09 incremental administration	0.75	0.52	0.23	0.23	0.00
10 prior technical assistance	0.75	0.00	0.75	0.75	0.00
11 unallocated	15.79	14.74	1.05	0.00	1.05
Total	250.00	72.23	177.77	162.71	15.06

^a Last revised allocation takes into account the reallocations carried out in July 2002, June 2003, April 2005 and April 2011.

d. Amount (\$ million) under Supplementary Loan

Category	Original Allocation	Partial Cancellation	Last Revised Allocation^b	Amount Disbursed	Undisbursed Balance
01 works	60.00	(7.68)	67.68	67.36	0.32
02 equipment and materials	2.00	(1.00)	3.00	2.88	0.12
03 consulting services	6.00	(2.96)	8.96	8.60	0.36
04 unallocated	12.00	12.00	0.00	0.00	0.00
05 operation and maintenance of resettlement housing		(0.36)	0.36	0.22	0.14
Total	80.00	0.00	80.00	79.06	0.94

^b Last revised allocation takes into account the reallocations carried out in February 2008, April 2011 and June 2013.

10. Local Costs (Financed)

- Amount (\$)	90,180,735.00
- Percent of Local Costs	61.64%
- Percent of Total Cost	55.42%

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	22.50	76.28
Local Currency Cost	378.87	289.55
Total		

2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	143.60	124.06
ADB Financed	257.80	241.77
Other External Financing	-	-
Total	401.40	365.83
IDC Costs		
Borrower Financed	-	19.57
ADB Financed	4.87	4.87
Other External Financing	-	-
Total		

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

3. Cost Breakdown by Project Component (\$ million)

Component	Appraisal Estimate	Actual
Part A stakeholder consultation process	0.25	0.20
Part B sewerage and drainage	234.92	214.11
Part C solid waste management	10.15	6.57
Part D slum improvement	10.72	8.76
Part E canal improvement works	47.97	53.16
Part F implementation assistance and capacity building	29.16	40.42
taxes and duties	19.39	18.17
contingencies		
Physical	13.18	-
Price	30.76	-
finance costs	4.87	24.44
Total	401.37	365.83

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
design and supervision consultants	1 October 2001	9 August 2002
project management consultants	2 July 2001	30 January 2003
nongovernment organization services	1 October 2001	30 July 2002
public relation consultants	1 October 2001	7 August 2002
legal consultants	-	10 June 2008
external monitoring and evaluation of resettlement plan	-	3 November 2007
completion of engineering designs	31 December 2008	30 June 2010
civil works contract		
date of award	1 July 2002	26 May 2003
completion of work	31 December 2009	31 December 2013
equipment and supplies		
dates		
first procurement	1 July 2002	12 March 2003
last procurement	3 October 2006	12 June 2012
completion of equipment installation	30 June 2009	30 June 2013
start of operations		
completion of tests and commissioning	31 December 2010	31 December 2013
beginning of start-up	31 December 2010	31 December 2013

5. Project Performance Report Ratings (Original Loan)

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 19 December 2000 to 31 December 2000	Satisfactory	Satisfactory
From 1 January 2001 to 31 December 2001	Satisfactory	Unsatisfactory
From 1 January 2002 to 31 March 2002	Satisfactory	Unsatisfactory
From 1 April 2002 to 30 June 2002	Satisfactory	Satisfactory
From 1 July 2002 to 31 December 2002	Satisfactory	Satisfactory
From 1 January 2003 to 30 June 2003	Satisfactory	Satisfactory
From 1 July 2003 to 31 August 2003	Satisfactory	Satisfactory
From 1 September 2003 to 31 October 2003	Partially Satisfactory	Unsatisfactory
From 1 November 2003 to 31 December 2003	Partially Satisfactory	Unsatisfactory
From 1 January 2004 to 31 December 2004	Partially Satisfactory	Unsatisfactory
From 1 January 2005 to 31 December 2005	Partially Satisfactory	Unsatisfactory
From 1 January 2006 to 30 June 2006	Partially Satisfactory	Unsatisfactory
From 1 July 2006 to 31 July 2006	Satisfactory	Unsatisfactory
From 1 August 2006 to 31 December 2006	Satisfactory	Unsatisfactory
From 1 January 2007 to 31 December 2007	Satisfactory	Unsatisfactory
From 1 January 2008 to 31 December 2008	Satisfactory	Unsatisfactory
From 1 January 2009 to 31 December 2009	Satisfactory	Unsatisfactory
From 1 January 2010 to 31 October 2010	Satisfactory	Unsatisfactory
From 1 November 2010 to 31 December 2010	Satisfactory	Satisfactory
From 1 January 2011 to 31 December 2011	Satisfactory	Satisfactory
From 1 January 2012 to 30 June 2012	Satisfactory	Satisfactory

6. Project Performance Report Ratings (Supplementary Loan)

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 14 December 2006 to 31 December 2006	Satisfactory	Satisfactory
From 1 January 2007 to 31 December 2007	Satisfactory	Satisfactory
From 1 January 2008 to 31 December 2008	Satisfactory	Satisfactory
From 1 January 2009 to 31 December 2009	Satisfactory	Satisfactory
From 1 January 2010 to 31 December 2010	Satisfactory	Satisfactory
From 1 January 2011 to 31 December 2011	Satisfactory	Satisfactory
From 1 January 2012 to 31 December 2012	Satisfactory	Satisfactory
From 1 January 2013 to 30 June 2013	Satisfactory	Satisfactory

D. 1. Data on Asian Development Bank Missions (Original Loan)

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan fact-finding	06—16 March 2000	6	66	a, b, c, d, e, f
Loan consultation	02—10 March 2000	1	9	g
Loan appraisal	23 May—8 June 2000	7	119	a, d, h, i, j, k, l, m
Loan contact	21—22 May 2001	2	4	e, n
Special project administration 1	8—14 December 2001	1	7	e
Loan review 1	11—13 February 2002	1	3	e

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan inception	17—18 April 2002	3	6	e, o
Special project administration 2	09—11 June 2002	1	3	e
Loan review 3	12—15 November 2002	3	12	e, o
Loan review 4	20—23 January 2003	2	8	e, g
Loan review 5	17—18 July 2003	1	2	e
Loan review 6	10—11 December 2003	2	4	p, q
Loan disbursement 1	22—23 December 2003	1	2	r
Loan review 8	05—08 April 2004	2	8	p, e
Loan review 9	17-20 August 2004	2	8	p, s
Loan review 10	28—30 September 2004	3	9	p, r, s
Loan review 11	30 March—1 April 2005	2	6	p, s
Loan review 12	08—10 August 2005	1	3	e
Loan review 13	09—10 January 2006	2	4	e, p
Loan review 14	15—17 November 2006	2	6	w, f
Loan review 15	04—08 June 2007	3	15	t, q, x
Loan review 16	04—11 October 2007	2	16	t, s
Midterm review	5—8 February 2008	1	4	f
Special project administration 3	9—10 April 2008	3	6	f, x
Loan review 17	26—28 August 2008	3	9	q, f, x, y
Loan review 18	21—24 April 2009	2	8	f, x
Loan review 19	15—18 December 2009	4	16	t, f, y, x
Special project administration 4	14—15 July 2010	2	4	t, f
Loan review 20	30 August— 01 September 2010	2	6	t, x
Loan review 21	06—08 July 2011	2	6	f, x
Special project administration 5	17—18 November 2011	1	2	x
Special project administration 6	16—20 January 2012	2	10	y, z
Loan review 22	13—16 March 2012	2	8	aa, ab
Project completion review 1	25—27 March 2015	2	6	aa, ab
Project completion review 2	06—10 April 2015	3	9	ac, ab, z

2. Data on Asian Development Bank Missions (Supplementary Loan)

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan fact-finding 1	23—25 May 2006	2	6	t, e
Loan fact-finding 2	3—7 July 2006	2	10	e, u
Loan appraisal	12—15 September 2006	3	12	t, c, v
Loan inception	04—08 June 2007	3	15	t, q, x
Loan review 1	04—11 October 2007	2	16	t, s
Loan review 2	06—08 December 2007	2	6	t, s
Midterm review	5—8 February 2008	1	4	f
Special project administration 1	9—10 April 2008	3	6	f, x
Loan review 3	26—28 August 2008	3	9	q, f, x, y
Loan review 4	21—24 April 2009	2	8	f, x
Loan review 5	15—18 December 2009	4	16	t, f, y, x
Special project administration 2	1415 —July 2010	2	4	t, f
Loan review 6	30 August— 01 September 2010	2	6	t, x
Loan review 7	06—08 July 2011	2	6	f, x
Special project administration 3	17—18 November 2011	1	2	x
Special project administration 4	16—20 January 2012	2	10	y, z
Loan review 8	13—16 March 2012	2	8	aa, ab

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Special project administration 5	9—10 April 2008	3	6	f, x
Loan review 9	26—28 August 2008	3	9	q, f, x, y
Loan review 10	21—24 April 2009	2	8	f, x
Loan review 11	15—18 December 2009	4	16	t, f, y, x
Special project administration 6	14—15 July 2010	2	4	t, f
Loan review 12	30 August— 01 September 2010	2	6	t, x
Loan review 13	06—08 July 2011	2	6	f, x
Special project administration 7	17—18 November 2011	1	2	x
Special project administration 8	16—20 January 2012	2	10	y, z
Loan review 14	13—16 March 2012	2	8	aa, ab
Loan review 15	09—12 April 2013	3	12	aa, ab, h
Special project administration 9	11—13 September 2013	2	6	aa, ab,
Project completion review 1	25—27 March 2015	2	6	aa, ab
Project completion review 2	06—10 April 2015	3	9	ac, ab, z

a = senior project engineer; b = project specialist; c = project economist; d = counsel; e = senior project implementation officer; f = project implementation officer; g = social development specialist; h = environmental specialist; i = director; j = manager; k = financial analyst; l = resettlement specialist; m = gender specialist; n = resident representative, India Resident Mission; o = country director, India Resident Mission; p = head, urban unit; q = head, project administration unit; r = senior control officer; s = urban specialist; t = senior urban development specialist ; u = senior environmental specialist; v = senior counsel; w = principal urban specialist; x = project analyst; y = senior social development and resettlement officer; z = senior environment officer; aa = senior project officer; ab = associate project officer; ac = senior safeguard specialist.

I. PROJECT DESCRIPTION

1. The Kolkata Environmental Improvement Project (KEIP) was formulated to address human development and environmental health concerns in the city of Kolkata in India.¹ Kolkata had severe environmental problems, a high proportion of poor people, a municipal corporation that had progressively implemented urban governance reforms and showed a willingness to continue doing so, and the potential to serve as a useful model for other large municipalities.² Asian Development Bank (ADB) provided the government with project preparatory technical assistance (TA) to undertake a feasibility study and prepare a project design to develop investment proposals to improve Kolkata's urban environment.³ The project was to focus on the outer areas of the city, which were beset by problems caused by infrastructure deficiencies.⁴ Frequent flooding was common during the rainy season and exposed large swaths of the city's population to pathogens, particularly in Kolkata's slums.

2. The project's objectives were to (i) improve the environment in the outer areas of Kolkata, (ii) reduce poverty in low-income areas by providing affordable access to basic urban services, (iii) facilitate community empowerment through participatory processes, (iv) protect the environment from adverse developmental impacts, and (v) help develop the Kolkata Municipal Corporation (KMC) as a proficient and autonomous municipality.

3. An investment need of \$360 million was identified through the preparatory TA (footnote 3). On 19 December 2000, ADB approved a loan of \$250 million for the project, with the Government of West Bengal (GOWB) contributing \$54.6 million and the KMC \$55.4 million. The loan agreement (loan 1813-IND) was signed on 18 September 2001, the loan became effective on 16 April 2002. The loan agreement was amended and restated on 24 July 2002.⁵ Under a parallel financing agreement with the KMC, the Department for International Development of the United Kingdom (DFID) supported the capacity-building program (CBP) to sustain investments under the project with a grant of \$42 million. In 2002, the Government of India requested cancellation of \$30 million under the loan to reduce the GOWB's debt burden.⁶ In 2005, the government requested cancellation of \$42.2 million allocated for interest and commitment charges. The loan closed on 30 June 2012, and loan account closed on 20 November 2012.

4. In October 2005, the GOWB requested ADB through the Government of India for a supplementary loan to help the KMC achieve the originally intended scope and objectives of the project and to move closer to meeting Millennium Development Goal (MDG) targets, particular the MDG 7 objectives of better living conditions in slums and better access to sanitation and

¹ In 2001, Calcutta was renamed Kolkata.

² ADB. 2000. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Loan for the Calcutta Environmental Improvement Project*. Manila. The name of the project was changed in 2001 to reflect the change in the city's official name.

³ The project preparatory TA for KEIP amounting to \$1 million was approved on 16 October 1998. ADB. 1998. *Technical Assistance to India for Preparing the Kolkata Environment Improvement Project*. Manila.

⁴ 32 percent of the outer population connected to water system, 18 percent to a sewerage system, less than 50 percent of the area covered by a drainage system and under 70 percent of the area served by solid waste collection.

⁵ This restated loan agreement is referred to as the original loan.

⁶ ADB. 2002. *Partial Cancellation of Loan Savings: Kolkata Environmental Improvement Project*. New Delhi. The original loan was approved in 2000 under the pool-based single currency US dollar window and the London interbank offered rate, but was transformed in 2002 entirely to the London interbank offered rate-based lending system, which at the time of the transformation carried a significantly lower interest rate. This was the source of \$30 million in savings for the GOWB.

clean water.⁷ The supplementary loan, along with an estimated investment cost of \$113.6 million, was approved by ADB on 14 December 2006. The loan agreement was signed on 21 February 2007. Under the supplementary loan, ADB provided financing of \$80 million, while the GOWB contributed \$19.5 million and the KMC \$14.1 million. The revised estimated total investment cost of the project was \$401.4 million.⁸ The supplementary loan closed on 30 June 2013, and its financial closure was on 13 November 2013.

5. The project comprised the following six parts:

(i) **Stakeholder consultation process.** The stakeholder consultation process (SCP) was aimed at stakeholder involvement for effective project implementation. The process was to focus on stakeholder awareness, participation, education, and consultation. Affordable access by the poor to basic services and community empowerment were crosscutting components.

(ii) **Sewerage and drainage improvements:** The sewerage and drainage (S&D) improvements were intended to optimize sewage collection and treatment, reduce flooding through improved storm water drainage in the Cossipore-Chitpur, Jadavpur, Topsia, South Suburban East, and Garden Reach areas of the city and make efficient use of S&D systems created under Ganga Action Plan, a plan to clean up river Ganga.

(iii) **Solid waste management:** Solid waste management (SWM) aimed to improve the management of municipal, hazardous, and biomedical waste.

(iv) **Slum improvements:** The slum improvements component aimed to improve environmental services in informal and formal low-income settlements, including the areas' water supply, drainage, and sanitation services. Nongovernment organizations (NGOs) were to be mobilized to design and manage these activities.

(v) **Canal improvements:** The canal improvements component was to include (a) rehabilitation, dredging, de-silting, lining to improve hydraulic efficiency, (b) replacement or construction of bridges and culverts across drainage canals to eliminate drainage constrictions, and (c) construction of canal pumping stations. This was to require relocation of about 11,000 people living on canal banks.

(vi) **Implementation assistance and capacity building.** The implementation assistance and capacity building component was to provide incremental administration services for the KMC and the Irrigation and Waterways Department (IWD) of the GOWB; equipment, vehicles, and logistical support; consulting services for design and supervision and project management; the services of NGOs; and capacity building. The CBP was funded by the DFID and was to cover organizational development, computerization, public relations and communications, a geographical information system, and resource management.

6. The project was expected at appraisal to benefit about 5 million people through the SCP and SWM interventions and 1.4 million people through S&D improvements, as well as to deliver

⁷ In 2005, the procurement activities under the original loan reached an advanced stage, and the KMC realized that the available loan funds would not cover the project scope. The supplementary loan was formulated to finance cost overruns due to price escalation and cost underestimation for components during project appraisal. Loan funds were also used to prepare a preliminary design report for the subsequent ADB-financed Kolkata Environment Improvement Investment Program. Target 11 of MDG 7 was to achieve a significant improvement in the lives of at least 100 million slum dwellers across the world by 2020. MDG 7 target 10 was to halve the population without sustainable access to sanitation and safe drinking water by 2015.

⁸ ADB. 2006. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Supplementary Loan Kolkata Environment Improvement Project*. Manila.

improved infrastructure to 65,000 slum dwellers. Socioeconomic data collected during appraisal showed that 50% of the 5 million expected beneficiaries lived in slum settlements, and that 4% of these people lived below the poverty line. The SCP and CBP were expected to have a direct impact on the poor. Improved access to the S&D system and better SWM for the poor was intended to translate into public health improvements and increased privacy and security for women and girls. Project interventions in slum communities were to provide better access to such basic facilities as clean water supply and sanitation. The quality of life of the 11,000 canal bank dwellers who were to be resettled due to the project was expected to improve through implementation of the resettlement plan. Direct health benefits through reduction of water-related diseases would provide additional economic benefits by increasing the capacity of beneficiaries for income generation and education. Community participation in the operation and maintenance (O&M) of facilities under slum improvement programs and local involvement in SWM and sanitation programs were expected to complement the public health benefits. The design and monitoring framework and actual project achievements are summarized in Appendix 1.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

7. The project addressed to government and ADB sector strategies at the time of formulation. It was and continues to be highly aligned with ADB's Strategy 2020, with its emphasis on infrastructure-led growth, poverty reduction, environment protection, and institutional strengthening.⁹ It was relevant and responsive to ADB policy focus on inclusive growth, infrastructure development, and environmental sustainability.¹⁰ It was consistent with India's policy on the devolution of powers and functions and institutional strengthening and capacity building in local governments and agencies.¹¹ During loan appraisal, it was consistent with India's Ninth Five-Year Plan for 1997–2002, which sought to improve human health, reduce poverty, and provide basic infrastructure as its primary goals. The project was mentioned as a priority in the administrative report for 2001–2005 of the GOWB's Municipal Affairs Department. Changes in project design during the processing of the supplementary loan further enhanced the project's social, environmental, and operational impact.

8. The project loan modality adopted was more relevant than one alternative available at the time of initial approval, since program lending was deemed more suited to mature executing agencies. However, the multitranche financing facility (MFF) option that ADB introduced in 2006 would have suited the project better had it been available, since it would have helped enhance the sequencing of interventions based on the priorities, experience, and preparedness of the KMC and the IWD. The KMC has adopted the MFF modality for subsequent project in Kolkata.¹²

9. Based on a detailed problem analysis, the project preparatory TA identified six project components involving S&D, SWM, slum rehabilitation, cleaner production and pollution control, rehabilitation of lakes and canals, and institutional development. The cleaner production and pollution control component was replaced by a stakeholder consultation program, but all the other components the TA identified were retained as those were pertinent to the city's needs

⁹ ADB. 2008. *Strategy 2020. The Long-Term Strategic Framework of the Asian Development Bank, 2008-2020*. Manila.

¹⁰ ADB. 2013. *Country Partnership Strategy: India, 2013-2017*. Manila; ADB. 2013. *Country Operations Business Plan: India, 2013-2015*. Manila.

¹¹ Government of India. The Constitution (74th Amendment) Act, 1992. New Delhi.

¹² ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility to India for the Kolkata Environment Improvement Investment Program*. Manila.

and priorities. The engineering designs were based on preliminary investigations, secondary data, and consultations, and the primary data was limited. Inadequate interest in the contracting community to bid for large and complicated sewerage packages and the complexities of finding land for resettlement, forced adjustments during the implementation phase to consider the expertise and capacity of the potential contractors. These adjustments were within the original overall project scope and based on extensive stakeholder consultation.

10. A subcomponent related to hazardous and biomedical waste management under the SWM component was dropped in July 2003. The funds were reallocated for S&D network works thereby increasing the coverage of S&D component. Construction of two new STPs for treatment of wastewater from boroughs VII and XII were dropped from the project scope as studies indicated that the wastewater could be used for fish cultivation in the East Kolkata Wetlands (EKW) with no adverse impact on the EKW's ecology, increase hydraulic efficiency and generate more economic and livelihood opportunities.¹³ Part of the project funds were used for improving the sewage distribution system in the EKW. These changes in scope yielded major advantages in terms of flood protection, improving the ecology of EKW canals and enhanced the project's relevance. A proposed landfill site at Dhapa which was located within the EKW, a protected Ramsar site was dropped from the project scope.

B. Project Outputs

11. The project had several major successes in meeting its target outputs. Major project outputs achieved are:

(i) **Sewerage and drainage:** Assessment of targets versus project achieved under S&D reveals the following: (a) 378 km of S&D network was constructed covering the entire project area (100% of the revised target set in 2008); (b) 218 km of existing S&D conduits were renovated and desilted as per the actual requirement, against the estimated target of 364 km; (c) the target of augmentation of 3 existing sewage treatment facilities was fully achieved; (d) 20 new pumping stations were constructed and 22 existing pumping stations rehabilitated with increased efficiencies and capacities (100% achievement of the revised target set in 2008); (e) 14 water bodies were rehabilitated; and (f) 46,145 sewerage connections were provided, achieving full coverage in project areas.

(ii) **Canal improvement and resettlement.** The original targets for canal improvement and resettlement were desilting of approximately 70 km of canals, lining of 21 km of canals, construction of 53 bridges over canals and resettlement of 3,626 affected households. The target for desilting was increased to 130.8 km when EKW canals were added to the scope, and the target for resettlement revised to 2,880 affected households in 2013. The revised targets were fully achieved; while 52 bridges over canals were constructed, and one dropped due to unavailability of land.

(iii) **Slum improvement.** Construction of 565 standposts, 700 community toilets, 280 bathing spaces, 28 km of drains and 178,000 square meters of public space work ensured full achievement of the appraisal targets.

(iv) **Solid waste management.** All waste collection and disposal equipment targeted during appraisal were procured and put in use by KMC. This has made the solid waste collection more efficient. Construction of a sanitary landfill of 1,200 metric tons per day capacity was dropped from the project scope (para. 10).

¹³ ADB. 2006. *Cluster Technical Assistance to India for Capacity Building for the Protection of East Kolkata Wetlands*. Manila.

(v) **Implementation assistance and capacity building.** The project ensured that the KMC underwent regular external audits and issued audited financial statements. It also resulted in introduction of electronic measurement books which enabled online approval by concerned engineers of the measurement of works of contractors and the online preparation of payment vouchers. Implementation assistance provided under the project greatly enhanced the executing agencies' capacities for large-scale project implementation and management. The capacity-building interventions resulted in the formation of 2,025 neighborhood groups, 82 neighborhood committees, and 1,953 thrift and credit societies.

12. Scope changes that led to modifications in anticipated outputs are discussed in para. 10. Appendix 1 provides details on the expected outputs and those achieved.

C. Project Costs

13. The estimated project cost at the original loan appraisal was \$360.00 million, including an unallocated amount of \$15.79 million for physical and price contingencies. During processing of the supplementary loan, the revised project cost was put at \$401.40 million. Actual project cost at completion was \$365.83 million, 91% of the revised project cost estimated during supplementary loan appraisal. There was no major shift between foreign and local costs. The ADB loan at completion totaled \$241.77 million. Of this, \$162.70 million was under the original loan out of an available \$177.77 million, and \$79.06 million was under the supplementary loan out of the \$80 million available. Loan savings of \$16.01 million were cancelled on completion. A reduction in the project cost from that estimated during supplementary loan processing was due to appreciation of the US dollar against the Indian rupee and the dropping of the plans to construct a landfill and two new STPs (para. 10). The contribution of the GOWB and the KMC on completion totaled \$124.06 million. Appendix 2 provides details of allocations under the original and supplementary loans and the actual disbursements by category. Appendix 3 compares project cost at appraisal for both loans with actual costs. The approved grant of \$30 million by the DFID was later increased to \$42 million.

D. Disbursements

14. Disbursements remained low in the initial 3 years of implementation due to various delays (para. 15). The project gained momentum in 2005 after a substantial strengthening of the project management unit (PMU). This accelerated both project implementation and disbursements (Appendix 4). Disbursements totaled \$241.77 million for both the loans.¹⁴ All withdrawal applications were submitted to ADB through the Controller of Aid Accounts and Audit. The project used the direct payment method and the reimbursement method through statement of expenditures process and documented claims. The project benefitted from the simplified statement of expenditures procedure, which did not require the submission of supporting documentation of expenditures. The loan allowed an imprest account, but the facility was not used. All disbursement related qualifications raised by the auditors were duly addressed.

¹⁴ ADB. 2013. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Multitranchise Financing Facility India: Kolkata Environment Improvement Investment Program*. Manila. p. 3. Para. 3 states that, although the KEIP suffered start-up delays, it made remarkable progress from 2006 on, with more than \$30 million a year in disbursements during 2007–2012. It said that this reflected the KMC's capacity and commitment.

E. Project Schedule

15. The target closing date for the original loan was 31 December 2007. The project schedule was affected by start-up delays in the first 3 years due to (i) a delay in signing the loan agreement (signed on 18 September 2001); (ii) delays in setting up a fully functional PMU; (iii) delayed recruitment of consultants and procurement; (iv) preparation of detailed engineering designs based on secondary data; (v) the lack of interest among contractors to bid for the large and complicated S&D packages; and (vi) delayed resettlement due to the long time taken to identify resettlement sites, which delayed the handing over of the sites to the contractors.¹⁵ The original loan was extended to 31 December 2010 in November 2007. Subsequently, both loans were extended in December 2010 to 30 June 2012. The extension of the original loan was needed because works related to canal pumping stations could not be completed on time.¹⁶ Some spillover works in S&D were also identified and required 18 months of additional work. The S&D work under the original loan took longer than expected due to the complex nature of utility shifting, difficulties in working in narrow lanes, lack of diversion roads at some sites, some design changes due to site conditions, and termination of a large S&D contract.¹⁷ In addition, two major elections slowed implementation from late 2008 to 2010. The second extension of the supplementary loan from 30 June 2012 to 30 June 2013 was undertaken in September 2012 to enable all important works to be included and completed. Less important works were reprioritized, removed from ADB financing, and completed using KMC's own funds. All works were completed by the end of 2013. Overall, project completion was delayed by 5 years. In part, this reflects unrealistic schedules at appraisal.

F. Implementation Arrangements

16. The project's implementation arrangements were appropriate to deliver the project's original design outputs. The project had two executing agencies, the KMC and the IWD, each headed by a project director. The KMC was the principal executing agency and responsible for all interventions except canal works, which were under IWD. Initial coordination problems between the two executing agencies were later sorted out.

17. A high-powered committee was established by the GOWB in June 2002 to ensure the counterpart funding and that all the objectives of the project would be achieved.¹⁸ Initially, this committee was called the steering committee, but the loan agreement required the steering committee to be headed by the state government's minister of municipal affairs, with the mayor of Kolkata as deputy chair. The steering committee remained in place in accordance with the loan agreement.

18. A PMU was established at the KMC headed by an ex officio joint commissioner. At the IWD, the PMU was headed by the department's chief engineer. The PMU had overall responsibility for project management, monitoring of institutional and policy reforms, and ensuring smooth coordination between the KMC, the Kolkata Metropolitan Development Authority, the GOWB, the IWD, and all consultants. In 2005, a social development unit (SDU)

¹⁵ Land for resettlement sites initially identified was within the EKW and could not be used due to its environmental sensitivity. An additional year was required to search for replacement land. Initially, simple one-story residences were planned, but it was decided due to land constraints to build multistory apartments. This required more time than low-level construction would have required and led to delays in resettlement.

¹⁶ The contract for constructing the pumping stations was terminated in October 2009 due to poor contractor performance. The contract was rebid and awarded in July 2010.

¹⁷ The contract was terminated due to poor contractor performance in June 2009. The contract was rebid, awarded in July 2010 and completed in December 2013.

¹⁸ GOWB, Department of Municipal Affairs. 2002. *Notification no. 811*. Kolkata.

was created within the KMC's PMU and made responsible for implementing the CBP in slums and carrying out resettlement. The PMU also established a contract management unit for contract management, implementation, and monitoring. This reengineering of the PMU structure helped improve the confidence of stakeholders. Key PMU staff were sourced from line departments in the KMC and the IWD. The PMUs were supported by a project management consultant (PMC) in overall project management and a design supervision consultant (DSC) in supervising detailed design, bid document preparation, and construction. A public relations consultant (PRC) and a legal consultant were appointed to support the PMUs. NGOs were engaged to help carry out the slum improvement component. The GOWB established a project implementation committee to review and approve the canal improvement works prepared by the DSC and evaluate technical and financial bids. A similar project implementation committee was constituted by the Mayor of Kolkata to approve and oversee implementation of works by the KMC which was later replaced by a technical-financial committee with the same functions.

G. Conditions and Covenants

19. The majority of the loan covenants were complied with. The metering of industrial, institutional, and bulk domestic consumers has been completed, but metering of all water consumers with 20 mm ferrule size or less and introduction of a water tariff, as required by the loan covenants, was not fully achieved. A flat rate is being charged to small commercial establishments. KMC has yet to comply with the covenant regarding financial reforms, such as the implementation of progressive block rates for water and sewerage surcharges based on metering of water supply consumers with ferrule size of less than 20 mm. Property tax reforms have been partly complied with. Compliance with all covenants for which compliance is still lacking has been included for phased implementation in the subsequent ADB-financed project in Kolkata approved in 2013 (footnote 12). Appendix 7 provides details on the status of compliance with loan covenants.

H. Consultant Recruitment and Procurement

20. Consultants were engaged in accordance with ADB's Guidelines on the Use of Consultants, October 1998. The KMC followed the quality-based method to select the DSC and the PMC, but the process took more than 12 months and contributed to the initial delays. The PMC and DSC were retained under the supplementary loan through single source selection, and the PRC and the legal consultant were recruited in mid-2008 using quality- and cost-based selection. ADB raised the threshold limit for local competitive bidding from \$3 million to \$10 million under the original loan to make it consistent with the threshold limit under the supplementary loan. ADB's local competitive bidding procedure and international competitive bidding procedure were followed for procurement of civil work contracts. Preparation of standard bid documents, evaluation of bids and award of the contracts were smoothly executed. There were some initial bid failures for the large S&D contracts, because of packaging, complexity, and high bid prices. This was resolved by repackaging the contracts based on the availability of potential bidders, equitable distribution of risks and assurances between all parties to the contract, and updating the engineer's estimates based on market rates.

I. Performance of Consultants, Contractors, and Suppliers

21. The overall performance of the consultants is rated *satisfactory*, even though their performance varied in quality. The use of input-based rather than deliverable-based design contracts resulted in some consultant management difficulties for the KMC related to detailed engineering and preparation of bid documents. Inadequate pre-design investigations caused

delays in the finalization of designs and bid documents. On the advice of the DSC and the PMC, standard specifications for civil works using national codes, practices, and guidelines were compiled and incorporated into bid documents. This facilitated the standardization of project works and quality control. Initially, the DSC and PMC did not recognize the complexity and interdependencies involved in the large S&D contracts, and this resulted in bid failures. The subsequent corrective contract repackaging and updating of the engineer's estimate resulted in the successful award of contracts. The DSC could not field quality staff for some positions. The contracts of the NGO and PRC recruited under the original loan were terminated due to poor performance. Another PRC was recruited under the supplementary loan. NGOs were later recruited under the DFID capacity-building program.

22. Overall, the performance of the contractors is rated *satisfactory*. Although a few sewerage contractors performed well in terms of time, the majority of the S&D contracts and canal improvement contracts were delayed due to difficult site conditions and an unrealistic execution schedule. One large S&D contract and the canal pumping station contract were terminated due to poor contractor performance. Later on, the remaining works of the terminated contracts were executed properly by capable contractors. Performance of the suppliers is rated *satisfactory*.

J. Performance of the Borrower and the Executing Agency

23. The performance of the borrower and the executing agencies is rated *satisfactory*. The borrower, represented by the central government's Department of Economic Affairs, chaired regular tripartite review meetings with ADB and the executing agencies. These periodic meetings helped identify bottlenecks and monitor the physical and financial progress of the project. The borrower also facilitated scope changes, changes in loan modalities, and implementation arrangements that enhanced the project effectiveness. The required counterpart funding was provided on time. Initially, the KMC's PMU, created as distinct entity, was not vested with sufficient authority and lacked the qualified and experienced staff needed to review the consultants' work. This hampered project progress in the early stages, as most matters had to be referred by the PMU to KMC. The PMU's managerial and technical capacity was strengthened in 2004–2005. This made project implementation more efficient and boosted the confidence of all the major stakeholders. The unit exhibited strong leadership throughout the rest of the project period. The IWD's PMU, established in April 2003, placed a coordinator at the KMC's PMU, to strengthen coordination between the executing agencies.

K. Performance of the Asian Development Bank

24. The performance of ADB is rated *satisfactory*. ADB undertook regular review missions that closely monitored the project's progress, provided advice, and facilitated discussions between the KMC, the PMU, the GOWB, and the Government of India on timely project implementation and disbursements. Contractors were invited to participate in most of the review meetings. ADB's monitoring and transparent procedures helped avert local interferences and facilitated implementation of the project. The training opportunities and exposure to project implementation in other regions that ADB provided to PMU personnel, as well as ADB's continuous support helped build PMU capacity. The state government identified areas where it believed ADB's performance could have been better. It cited ADB's documentation requirements as cumbersome. It also said that the new set-up created for project implementation could have ensured greater KMC involvement at pre-project design stage, for better ownership of the project by KMC from the beginning.

III. EVALUATION OF PERFORMANCE

A. Relevance

25. The project was rated *relevant* to country and sector strategies at the time of appraisal and on completion. It was relevant to government and ADB objectives of addressing environmental degradation and reducing poverty. It remained aligned with the Tenth, Eleventh, and Twelfth Five-Year Plans of Government of India through its focus on improving infrastructure, the environment, and governance.¹⁹ It responded to the India's emergent ambitions, including the achievement of faster and more inclusive and sustainable growth by removing infrastructure deficits, improving the quality and coverage of basic social services, and enhancing environmental sustainability.²⁰ Changes made to the project's interventions enhanced its social, environmental, and operational impact. The project has increased the abilities of the KMC and the IWD to handle large-scale investments.

B. Effectiveness in Achieving Outcome

26. Overall, the project was rated *effective* in achieving its targeted outcome. Almost all outcome indicators and targets in the design and monitoring framework were achieved. This effectiveness in achieving the outcome can largely be attributed to the delivery of the intended outputs (para. 11).²¹ The project benefited the entire project area population of 1.5 million with access to S&D facilities. The slum improvement component exceeded its target of 0.2 million beneficiaries to benefit 0.3 million. The SWM component benefited about 5 million people as targeted. The S&D network constructed under the project has been commissioned. The SWM equipment procured under the project has made solid waste collection more efficient. The poverty reduction subcomponent was highly successful. Self-help groups (SHGs) formed in project slums and resettlement colonies and composed mainly of women significantly empowered their members. This was evident from the project completion review mission focus group discussions with SHGs (Appendix 9). The SHGs provided additional income for the households of women participants and helped fund their children's education and health care and other household needs. The groups also helped provide a forum for tackling such social problems as domestic violence, alcoholism, child labor, and underage marriage. Regular health and hygiene training by NGOs helped boost the effectiveness of facilities created in slums and resettlement colonies.

27. The project was successful in introducing innovative practices. These included the use of electronic measurement books, use of advanced trenchless technologies for laying sewers through congested areas to minimize disruptions and extensive use of hydrodynamic models in S&D and canal network designs. The project ensured that the KMC underwent regular external audits and issued audited financial statements. All of these enhanced the project's effectiveness in achieving the intended outcome targets.

C. Efficiency in Achieving Outcome and Outputs

28. Overall, the project is rated *efficient*. Economic analysis of the major components during the processing of the supplementary loan estimated an economic internal rate of return (EIRR)

¹⁹ Government of India. Planning Commission. <http://planningcommission.nic.in/plans/planrel/fiveyr/welcome.html>

²⁰ Government of India. Planning Commission. *Twelfth Five Year Plan (2012–2017)*. New Delhi.

²¹ Some sub-outputs were cancelled. Para. 10 justifies the dropping of a landfill and two new STPs. Full coverage of households was achieved in project areas, even though fewer sewerage house connections were provided than targeted.

of 12.7% for the S&D component, 19.2% for the canal improvement component, and a combined EIRR of 13.3% for both components. The analysis could not quantify some important expected benefits, such as (i) the reduced private and public costs of mosquito control, (ii) an appreciation of land values due to an improved environment and the reduced risk of flooding, (iii) psychological benefits from reductions in morbidity and mortality, (iv) reduced disruption of traffic due to reduced flooding, and (v) positive impacts on tourism and tourist-related businesses.

29. On completion, the combined EIRR for the interrelated components of S&D and canal improvement—which comprised about 94.4% of the project cost—has been calculated as 14.8%.²² No EIRR has been estimated for the project's slum improvement and procurement of SWM equipment because the benefits are difficult to quantify. Nonetheless, these subprojects have clearly improved the quality of life of the people affected by providing them with better access to sanitation facilities. This includes people living in Kolkata's slums.

D. Preliminary Assessment of Sustainability

30. At the overall level, the project is rated *less than likely* to be sustainable. The degree of sustainability will vary between outputs. The likely variations include the following:

(i) The poverty reduction achievements are very likely to be sustained due to the strong base provided by the project and the vibrancy and growth of the self-help groups and neighbourhood groups created under the project (Appendix 9).

(ii) SWM component is likely to be sustained, since a master plan for SWM has been approved by KMC and the necessary equipment procured and put into operation.

(iii) The sustainability of the canal improvements is less than likely due to the IWD's limited financial resources for O&M. This affects regular cleaning operations of the canals. New squatters have settled along some canal banks, which is also posing difficulties for O&M.

(iv) Adequate resources are needed for future repairs and maintenance of the assets of the resettlement component. While housing cooperatives have been formed and seed money for maintenance provided, sustainability will be difficult to achieve in the absence of regular contributions from the residents towards such expenses.

31. The sustainability of the S&D component is less than likely, because the O&M costs are not being recovered and the KMC depends on grants to meet them. The financial internal rate of return (FIRR) for the S&D component has been calculated at completion to be negative. The component's FIRR was estimated to be 1.31% in the documents of both the original loan and the supplementary loan. These analyses projected that the S&D component would generate enough revenues to cover its incremental O&M costs. However, the KMC did not introduce domestic water metering or implement water tariffs, which meant that the share of revenues expected to cover S&D O&M costs has not materialized. In addition, fewer number of new household sewerage connections were provided than estimated and, with no flow of regular revenue, O&M costs have not been fully recovered. The KMC assigns 15% of property tax collection for the S&D sector.²³ With this transfer and devolution from the GOWB, through

²² The SCP and implementation assistance and capacity development components were part of all the project activities. Hence, for the purpose of this analysis, the common costs are apportioned among the four components based on the final cost of the respective component.

²³ KMC is complying with the KMC Act, which requires that 30% of property tax collection go to finance water supply and S&D, and that half of that amount is for S&D.

grants for dearness allowance, increased cost of pay, relief on pension, and fixed grant for power, KMC is able to finance O&M costs of its assets without levying tariffs.²⁴ The KMC has yet to fully implement property tax reforms, which limits its scope for increasing revenues funding of the replacement of assets at the end of their economic life. The financial sustainability of the KMC and the changes evident between appraisal and at completion are analyzed in Appendix 8.

E. Impact

32. **Institutional impact.** The project has helped strengthen the capabilities of the KMC and the IWD for handling large-scale, development-oriented projects. The project also introduced regular auditing of the KMC accounts which made the KMC a stronger institution. The capacity-building program had wide-ranging, positive impacts:

(i) **Organizational development.** Restructuring and delegation of power led to considerable simplification of the KMC's works approval process, supporting expeditious service delivery. Major training activities enhanced staff capacity and improved staff motivation. The transfer of the operation of some civic services from para-statal agencies to the KMC has resulted in a single point of interface for all civic services.

(ii) **E-governance.** The accounting and financial management system at the KMC is now fully computerized, and an integrated enterprise resource planning system has been implemented.²⁵

(iii) **Urban planning and management.** Through public-private partnerships and land monetization projects, some maintenance responsibilities were successfully passed on to private sector partners.

(iv) **Citizen services.** The introduction of a grievance redress system and a citizen's charter established accountability for services provided by KMC.

(v) **Social sector development.** Social sector development resulted in the registration of 2,025 neighborhood groups, 82 neighborhood committees, and 1,953 thrift and credit societies. Community involvement helped in the efficient implementation of project schemes. The KMC's pro-poor expenditures increased by 70% during 2011.²⁶

33. **Socioeconomic impact.** Project interventions have had several positive socioeconomic impacts. Poverty levels in Kolkata declined by 6.3% during 2009²⁷–2013.²⁸ Although this cannot be attributed entirely or directly to the project, it did have a significant positive impact on the well-being of poor residents. The focus group discussions with beneficiaries conducted in the project areas by ADB's project completion review mission showed that flooding has decreased significantly after the commissioning of the project drainage network in 2014. The sanitary and environmental conditions and the quality of life of the general population and the poor in the project neighborhoods have been greatly improved by the project through better management of sewage and drainage flows. At-risk, low-income households living without titles on low-lying, marginal lands were resettled and provided with titled, serviced housing. The project's slum improvement components have improved S&D, canals, SWM, and slum areas and thereby

²⁴ The dearness allowance is a cost of living adjustment allowance paid to the government employees.

²⁵ 64% increase in KMC's internal revenue is recorded. KMC's internal revenue rose from Rs4,990 million in FY2006 to Rs8,170 million in FY2010.

²⁶ Kolkata Municipal Corporation. 2012. *Capacity Building Programme: A Report*. Kolkata.

²⁷ National Institute of Public Finance and Policy. 2009. *National Urban Poverty Reduction Strategy*. New Delhi.

²⁸ GOWB, State Urban Development Agency. 2013. *Urban Household Survey Results*. Kolkata.

enhanced the environment and public health conditions. The instances of malaria in the project areas declined from 96,909 in 2010 (including one death) to 7,041 in 2014, with no deaths.²⁹

34. **Resettlement.** A resettlement plan was prepared in 2000, and the project was classified as category A for involuntary resettlement impacts. The plan was revised in 2006 to reflect design modifications. In 2010, a resettlement plan was prepared for the Padirhati pumping station subproject. In 2013, the plan was updated to reflect changes in project scope, the land required for resettlement, and the number of relocated persons, as well as the changes due to the 2010 resettlement scheme for the Padirhati station subproject. It also addressed pending involuntary resettlement issues. Land was obtained for the project through acquisition (3.51 acres from 64 persons), negotiated purchase (4.09 acres of private land from 31 landowners and 11.75 acres of government land), and long-term lease (1.20 acres of government land). The project caused physical and/or economic displacement of 2,880 non-titled canal bank families and shop owners. The project successfully demonstrated convergence with a government housing program, Valmiki Ambedkar Awas Yojana, to provide housing with secure tenure to these non-titled affected families. The KMC avoided relocation of 559 persons by undertaking desilting works in some canal stretches after ensuring adequate precautionary measures. This approach was consistent with ADB's involuntary resettlement Policy (1995). Of the remaining 187 entitled persons, 31 could not be found and the rest did not wish to relocate. They were not forced to do so. Affected landowners from whom land was acquired under state and national law, the Land Acquisition Act, 1894, were compensated based on market value.³⁰ Of the 2,880 relocated households, 2,041 were granted 90-year lease deeds. A decision on leases for the remaining 838 apartments found locked or /occupied by families other than entitled families, is pending. Shifting allowances of Rs300 per affected family have not yet been paid to 2,460 families.³¹ The state did not protect cleared canal bank areas from squatting. The secondary displacement due to acquisition of two small parcels of land was not documented. Appendix 10 summarizes resettlement planning and implementation issues. KMC has agreed to implement a corrective action plan by March 2016 to:

- (i) take a decision on granting of lease deeds for the 838 flats found locked/occupied by other families.
- (ii) pay pending shifting allowances of Rs300 each to 2,460 households.
- (iii) undertake a due diligence review of land acquisition and involuntary resettlement, identify any corrective actions required.

35. **Environment.** The project was classified as category B for environment. Under the supplementary loan, this was changed to B sensitive, in accordance with ADB's Environment Policy (2002). ADB approved the initial environmental examination (IEE) reports for both loans, and the 120-day disclosure requirement for the supplementary loan was complied with. During the project's initial years, little was done to implement the environmental management and

²⁹ KMC. 2015. *Activities and Achievements of KMC Health Department, 2010-2015*. Kolkata.

³⁰ Land acquisition was initiated in FY 2003 and completed in FY 2005. The Land Acquisition Act, 1894 provided the necessary legal base. The risk of low compensation triggering litigation and attendant delays was mitigated by the use of the West Bengal Land Acquisition Manual, 1991, which guides the state government in calculating compensation. In the case of both the acquired sites (at Purba Putiary and Sampa Mirza Nagar), the market value of land was determined by the First Land Acquisition Collector Kolkata in line with the provision of section 23 of the land acquisition act and clause 68 of the land acquisition manual. After determining the market value, the collector declared the compensation payable under section 11 of the act. The compensation or award so declared was paid to the individual land owners through checks. A 2010 KEIP social monitoring report states that all individual owners from whom land was acquired were paid for the land at the replacement cost.

³¹ The agreed Entitlement Matrix required a shifting allowance to be paid to all relocated households.

monitoring plans. ADB conducted safeguards review missions and developed time-bound environmental safeguards corrective action plans. Applicable statutory environmental compliance was thus ensured, and IEEs were updated to incorporate scope changes and address identified shortcomings. The semiannual reports on environmental management and monitoring plan implementation have been submitted to ADB regularly. While the STPs are meeting the regulatory discharge standards for treated sewage, the operation of the STPs was identified as an area of concern because the volume of incoming raw sewage was inadequate. The housekeeping practices at the STPs require improvements and a need for engineering overhaul of the process was identified to reduce the power consumption. Despite these constraints, the project has contributed to improvement in the environmental conditions. Further improvement is possible once these constraints are addressed.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

36. Overall, the project is rated *successful*. This overall success can be attributed to the delivery of the intended outcome and outputs, processes the project has created and the institutional capacity the project has built in the executing agencies. The project was distinguished as one of the best performing projects in India with high disbursements over several consecutive years.³² It was appropriate and relevant to the policies of government and ADB and remained so on completion. The project is rated *effective* in achieving planned outcome. It has contributed to achievement of the MDGs, especially related to sanitation. Despite initial delays, the project has had a positive impact on environmental sanitation and health for all citizens in coverage areas, including the urban poor. The overall project cost was within the estimates. Economic evaluation of project components has reconfirmed the project's economic viability. Sustainability of the project is considered less than likely.

B. Lessons

37. The project yields the following important lessons:

- (i) Fully staffed PMUs and complete involvement of the executing agencies from the outset are necessary to create ownership and commitment.
- (ii) Project timelines need to take into account implementation complexity, the experience of the executing agency, consultants and contractors, and the available working seasons.
- (iii) Use of innovative practices like electronic measurement books and advanced technologies like trenchless technology for pipe laying can help improve implementation efficiency.
- (iv) Access to transport facilities at resettlement sites is key to protect the livelihoods of resettled people, especially women and the differently-abled. It is necessary to protect sites from which people are relocated, from squatting.
- (v) Secondary displacement due to land acquisition and resettlement always needs to be included in resettlement plans.

³² ADB 2013. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Multitranchise Financing Facility India: Kolkata Environment Improvement Investment Program*. Manila. Supplementary Documents to the Summary of Project Performance, p. 4. para. 10 states: "While facing some bottlenecks in covenant compliance, KEIP is one of the best-performing projects in India, with high disbursements over several consecutive years."

(vi) For projects with a canal rehabilitation component, a component to integrate bank protection and maintenance with community involvement can support sustainability.

C. Recommendations

1. Project Related

38. **Monitoring.** The executing agencies should closely monitor operation of such project assets as the canal improvements and sewage pumping stations to ensure that they yield envisaged benefits. An engineering overhaul of the STP process is suggested. The executing agency should monitor operations through regular audits and move towards sustainability. ADB would monitor the implementation of the corrective action plan on resettlement issues which has been agreed with KMC (para. 34).

39. **Covenants.** Before drafting covenants related to water metering and tariff introduction, ADB should consider the type of intervention envisaged. Water sector reforms should be adopted through long-term plan with intermediate steps and a road map. Executing agencies should carry out a public outreach campaign to explain the costs of providing services, seek feedback and thereafter seek support for tariff imposition or increases.

40. **Institutional capacity building.** Developing a team of technical experts in the PMU with a mix of permanent employees of the executing agency and long-term consultants will help build in-house capacity. Deputation of staff from the executing agency to the PMC or DSC with specific responsibilities may help build executing agency capacity.

41. **Timing of the project performance evaluation report.** The project performance evaluation report should be prepared in early 2016, by which time all interventions should have been operational for 2 years.

2. General

42. The project completion report makes the following general recommendations:

(i) **Expanded technical assistance inputs.** To speed up implementation at the initial stage, executing agencies should use ADB's project design facility for advance preparation of detailed designs and other preparatory activities.

(ii) **Mapping of utilities.** Proper mapping of existing utilities during the design phase would enable precision in engineering design and rationalize contingency provisions.

(iii) **Contract packaging.** Contract packaging should be based on the technical parameters, size, and availability of potential contractors and ensure equitable distribution of risks and assurances from all parties to a contract.

(iv) **Financial due diligence.** Robust financial due diligence and financial management assessment of the executing agency should be conducted at appraisal.

43. **Consultancy contracts.** If the executing agency's capacity to monitor contracts is adequate, a single consultancy contract covering project management, design and supervision should be engaged rather than separate DSC and PMC. This will avoid overlaps, minimize time for decision making, and help in efficient project implementation. Consultancy contracts should have defined norms and penalties for replacement of staff. If the executing agency's design capacity is weak, the DSC work should be divided into detailed design consultants and

construction supervision consultants. Consultant payments for designs should be based on deliverables, while those for supervision should be based on inputs. This hybrid payment procedure is likely to ensure timely delivery, efficient use of experts' inputs, and help improve accountability.

44. **Operation and maintenance by contractors.** The contracts for major works should include provisions for the contractor to undertake at least 3–5 years of O&M, with output guarantees. This, coupled with O&M training of the maintenance staff, can ensure the efficiency and smooth transition of O&M from the contractor to the asset owner after the O&M period.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Revised Performance Targets/ Indicators	Project Achievements
<p>Impact Sustained improvement in the environmental health and quality of life of residents of the city of Kolkata.</p>	<p>Three years after project completion (2013):</p> <ul style="list-style-type: none"> • Percentage of people below the poverty line reduced by 7. • Average number of flood days reduced by 10%. 	-	<p>Percentage of population below poverty line in Kolkata declined from 34.50% in 2009^a to 28.18% in 2013—i.e., by 6.32%.^b</p> <p>Average number of flood days has declined. In 1999, 27.7% households in outer areas of Kolkata reported, some or many days or />1 month of flooding. A 2011 World Bank study reports flooding for 1–10 days in some parts of KMC area, indicating a decline in flooding.^{c, d}</p>
<p>Outcome Provision and sustainable management of urban sanitation and solid waste management facilities in the project areas.</p>	<p>By the end of the Project (2010):</p> <ul style="list-style-type: none"> • More than 2 million people in the project areas have access to sewerage and drainage facilities. • Improved environmental conditions and solid waste management facilities for more than 5 million people in Kolkata. • Improved basic urban services for more than 0.2 million slum dwellers. • The KMC to meet all operation and maintenance (O&M) costs. • The KMC to fulfill its debt-service commitment. 	-	<p>Sewerage and drainage facilities covering 100% of population in the project sewerage and drainage coverage area have benefited 1.5 million people by project completion.</p> <p>5 million people benefited from improved solid waste management facilities in Kolkata.</p> <p>A total of 0.3 million slum dwellers benefited from improved basic services in slums, exceeding the target of 0.2 million slum dwellers.</p> <p>More than 100% of O&M costs have been covered since 2001 through direct charges, allocations of property tax revenues, and government grants. Recovery of costs through direct charges, as reported by the KMC, increased from 50% of costs in 2012 to 64% by March 2013.</p> <p>KMC is able to meet its debt service commitments, having closed its high-interest loans and having no major loans other than those from the GOWB and ADB.</p>

Design Summary	Performance Targets/Indicators	Revised Performance Targets/ Indicators	Project Achievements
<p>Outputs</p> <p>1. Provision of new and rehabilitation of existing sewerage, drainage, and other urban infrastructure facilities completed in the Project areas.</p>	<p>By the end of the Project (2010):</p> <ul style="list-style-type: none"> • Construction of about 424 Km of a new sewerage and drainage network (52 Km completed). • Renovation and de-silting of about 364 Km of existing sewers and drains. • Construction of 18 new pumping stations and augmentation and rehabilitation of 17 existing pumping stations. • Augmentation and rehabilitation of three existing sewage treatment plants (STPs). • Construction of two new STPs (total capacity of 150 million liters per day). • Rehabilitation of around 14 small water bodies and parks (3 completed). • 100,000 sewerage connections (746 completed) and 100,000 water meters installed. • Sanitary landfill with a capacity of 1,200 metric tons per day constructed and waste collection equipment purchased. 	<p>The target for sewerage and drainage network was reduced to 378 Km in 2008.</p> <p>-</p> <p>The target was revised to 20 new pumping stations and augmentation and rehabilitation of 22 existing pumping stations.</p> <p>-</p> <p>Proposed 2 new STPs were dropped from project scope. ^e</p> <p>Sewerage connection targets were revised to 70,000 in 2008.</p> <p>Sanitary landfill was dropped from project scope.</p>	<p>The revised target of 378 km was fully achieved. The remaining pipe length had been laid by KMC and funded from its own sources.</p> <p>The estimated target was higher than the actual requirement. Renovation and desilting of 218 km of sewers and drains undertaken, per actual requirement.</p> <p>Revised target was fully achieved.</p> <p>Three existing STPs augmented and rehabilitated.</p> <p>Rehabilitation of 14 targeted small water bodies and parks completed.</p> <p>The original and the revised target for sewerage house connections were higher than the actual requirement in project coverage areas. Connections achieved were 46,145 (100% of required connections in project areas).</p> <p>Waste collection equipment was procured and put to use.</p>

Design Summary	Performance Targets/Indicators	Revised Performance Targets/ Indicators	Project Achievements
	<ul style="list-style-type: none"> Approximately 70 Km of de-silting and 21 km of canal lining undertaken (1.3 km completed), and 53 bridges constructed over canals (8 completed). Resettlement of 3,626 affected households in apartments in line with the agreed resettlement plan (229 families relocated). 	<p>The target for de-silting was revised to about 130.8 km when East Kolkata Wetlands canals were added to project scope.</p> <p>Target for resettlement was revised in 2013 to 2,880 affected households.</p>	<p>130.8 km of canals desilted. 7.6 km of canal lining completed. 52 bridges constructed, and 1 bridge dropped, as land was not available.</p> <p>All 2,880 targeted households were resettled.</p>
<p>2. Basic slum improvements carried out and infrastructure facilities built in low-income areas and access to services provided.</p>	<ul style="list-style-type: none"> Construction of 8,500 water standposts, construction and upgrading of 700 community latrines, construction of 280 washing and/or bathing platforms, widening of 28 Km of drains, and improvement and paving of 178,000 square meters of open public space (currently 70% of all slum works have been completed). 	<p>Target for standposts was reduced to 565. To minimize wastage of water, KMC took a policy decision to reduce the number of public standposts and provide house connections.</p>	<ul style="list-style-type: none"> 565 standposts (reduced target), 700 community latrines, 280 bathing platforms, widening of 28 km of drains and improvement of 178,000 sq m of open public space work completed.
<p>3. Communities empowered and involved through participatory processes.</p>	<ul style="list-style-type: none"> Water and sanitation service fees to represent no more than 5% of the average monthly household income. Community representatives involved in the project steering committees and management procedures. 	<p>-</p>	<p>No water and sanitation service fee is being levied for domestic consumers. Average annual property tax for houses of less than 50 square meters (of which 30% is assigned by KMC for water and sewerage) is less than 1% of average annual household income.</p> <p>Ward councilors as community representatives were involved in decision making in the field-level committees constituted for the project. Steering committee and high-powered committee did not have community representatives.</p>
<p>4. STPs completed and functioning in line with standards.</p>	<ul style="list-style-type: none"> Sewage effluent from all treatment plants meets the standards specified by the West Bengal Pollution Control Board. 	<p>-</p>	<p>STPs are meeting the regulatory discharge standards for treated sewage.</p> <p>Sewerage and drainage assets</p>

Design Summary	Performance Targets/Indicators	Revised Performance Targets/ Indicators	Project Achievements
	<ul style="list-style-type: none"> • Sewerage and drainage assets belonging to the KMDA transferred to the KMC. 		<p>within the geographical boundary of the KMC have been transferred from the KMDA to the KMC through an internal agreement.</p>
<p>5. The KMC achieves cost recovery in relation to services and develops as a proficient and autonomous municipality.</p>	<ul style="list-style-type: none"> • Water and sewerage tariffs introduced and the KMC operates water and sewerage services on commercial principles. • The KMC's workforce reduced by 10%. • The KMC's accounting system is fully computerized. • The KMC's solid waste management responsibilities are delegated to the private sector. • Area-based property tax system introduced and tax collection efficiency of 80% achieved. 	-	<p>30% of property tax is assigned by the KMC to cover water and sewerage costs. The KMC does not manage water and sewerage on a commercial basis, except for bulk connections. GOWB provides grants for power costs incurred by the KMC. The KMC is able to sustain the fiscal balance of water and sewerage cost with further transfers from the general fund in addition to the 30% property tax allocation.</p> <p>Employee strength reduced from about 37,000 in FY2002 to 27,415 in FY2015—a reduction of 26%—due to retirement and employee deaths. The KMC has adopted a policy of no new recruitment.</p> <p>Accounting and financial management system in KMC is fully computerized. At present, KMC uses Oracle 7i/10g/11i for its database. In many of its processes, the KMC has also implemented an integrated enterprise resource planning system based on Oracle Financials. The system generates financial and project management reports.</p> <p>The majority of solid waste collection and disposal arrangements of KMC are now outsourced to private contractors under service contracting arrangements.</p> <p>The KMC has undertaken required background work for introduction of an area-based property tax system, including amendments to the KMC act, formation of a municipal valuation committee, issuance of draft notification, solicitation</p>

Design Summary	Performance Targets/Indicators	Revised Performance Targets/ Indicators	Project Achievements
			of objections and suggestions from the general public, and formation of an anomaly review committee to consider cases of hardships and anomalies. The collection efficiency of property tax averages 60% to 65% every year.

ADB = Asian Development Bank, FY = fiscal year, GOWB = Government of West Bengal, KEIP = Kolkata Environmental Improvement Project, km = kilometer, KMC = Kolkata Municipal Corporation, KMDA = Kolkata Metropolitan Development Authority, O&M = operation and maintenance, PPMS = project performance monitoring system, STP = sewage treatment plant.

^a National Institute of Public Finance and Policy. 2009. *National Urban Poverty Reduction Strategy*. New Delhi

^b Government of West Bengal, State Urban Development Agency. 2013. *Urban Household Survey Results (after summary revision 2013)*. Kolkata.

^c World Bank. 2011. *India: Vulnerability of Kolkata Metropolitan Area to Increased Precipitation in a Changing Climate*. New Delhi.

^d Focus group discussions conducted by the project completion review mission with people in the project area, including slum residents, indicated a significantly reduced incidence of flooding in terms of depth and duration of flooding. No secondary data is available on incidence of flooding in project coverage areas.

^e ADB. 2010. *Minor Change in Scope: Kolkata Environmental Improvement Project (Supplementary)*. New Delhi. In lieu of 2 new STPs, desilting of East Kolkata Wetlands canals was taken up.

Sources: Project Management Unit, KMC.

Project Management Unit, Irrigation and Waterways Department, GOWB.

Note: The design and monitoring framework was revisited during supplementary loan processing. Performance targets and indicators of the framework were retained or refined during supplementary loan processing.

ALLOCATION, REALLOCATION, AND ACTUAL DISBURSEMENT

ORIGINAL LOAN (LOAN 1813)

(\$ million)

Cat Code	Category	ADB Financing	Original Allocation	Revised Allocation (Jul 2002)	Revised Allocation (Jun 2003)	Revised Allocation (Apr 2005)	Last Allocation (Apr 2011)	Net Amount Available	Amount Disbursed	Undisbursed Balance
01	Civil works	72 % (30% foreign and 42% local expenditure)	134.00	131.00	136.00	136.00	142.83	142.83	127.34	15.49
02	Equipment and materials	100% of foreign and 85% of local expenditure	22.00	22.00	17.00	17.00	5.31	5.31	6.79	(1.48)
03	Small- scale loan facility	100% of local expenditure [#]	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0.05
04	Resettlement	100% of local expenditure [#]	5.00	5.00	5.00	5.00	4.88	4.88	4.89	(0.01)
05	Training	100% of foreign and 100% of local expenditure [#]	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.00
06	Consulting Services	100% of foreign and 100% of local expenditure [#]	13.30	12.30	12.30	12.30	17.79	17.79	17.83	(0.04)
07	Front-end fee	100% of amount due	2.50	2.50	2.50	2.50	2.50	2.50	2.50	0.00
08	Interest and commitment charge	100% of amount due	55.60	44.60	44.60	2.37	2.37	2.37	2.37	0.00
09	Incremental administration	100% of foreign and 5% of local expenditure	0.75	0.75	0.75	0.75	0.23	0.23	0.23	0.00
10	Prior technical assistance	—	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.00
11	Unallocated	—	15.79	0.79	0.79	0.79	1.05	1.05	0.00	1.05
	Total		250.00	220.00	220.00	177.77	177.77	177.77	162.71	15.06

excluding taxes.

Source: Asian Development Bank loan financial information system.

SUPPLEMENTARY LOAN (LOAN 2293)

(\$ million)

Cat Code	Category	ADB Financing	Original Allocation	Revised Allocation (Feb 2008)	Revised Allocation (Apr 2011)	Last Allocation (Jun 2013)	Net Amount Available	Amount Disbursed	Undisbursed Balance
01	Works	72 % of total expenditure	60.00	60.00	72.16	67.68	67.68	67.36	0.32
02	Equipment and materials	100% of total expenditure [#]	2.00	2.00	0.00	3.00	3.00	2.88	0.12
03	Consulting services	100% of total expenditure [#]	6.00	9.50	7.84	8.96	8.96	8.60	0.36
04	Unallocated	—	12.00	8.50	0.00	0.00	0.00	0.00	0.00
05	Operation and maintenance of resettlement housing	100% of total expenditure [#]	0.00	0.00	0.00	0.36	0.36	0.22	0.14
	Total		80.00	80.00	80.00	80.00	80.00	79.06	0.94

[#] excluding duties and taxes.

Source: Asian Development Bank loan financial information system.

PROJECT COST BY COMPONENT
(\$ million)

Item	Appraisal Estimate			Actual
	Foreign	Local	Total	Total
A. Base Cost				
1. Stakeholder consultation process	0.00	0.25	0.25	0.20
2. Sewerage and drainage ^a	2.14	232.78	234.92	214.11
3. Solid waste management ^b	5.57	4.58	10.15	6.57
4. Slum improvement ^c	0.00	10.72	10.72	8.76
5. Canal improvement works ^d	0.00	47.97	47.97	53.15
6. Implementation assistance and capacity building ^e	7.86	21.3	29.16	40.42
Subtotal (A)	15.58	317.60	333.17	323.21
B. Contingencies				
1. Physical	0.62	12.57	13.19	0.00
2. Price	1.44	29.32	30.76	0.00
Subtotal (B)	2.05	41.89	43.94	0.00
C. Finance Charges ^f	4.87	0.00	4.87	24.44
D. Tax and Duties	0.00	19.39	19.39	18.17
Total	22.50	378.88	401.38	365.82

contingencies were used for contract variations and price escalation during implementation.

^a Actual cost decreased due to dropping of two sewage treatment plants and appreciation of US dollar against Indian rupee.

^b Actual cost decreased due to dropping of construction of landfill and appreciation of dollar against Indian rupee.

^c Actual cost decreased due to appreciation of US dollar against Indian rupee.

^d Actual cost increased due to inclusion of rehabilitation of the East Kolkata Wetlands canals in the scope.

^e Actual cost increased due to extended implementation period.

^f Increase in finance charges due to underassessment during processing of supplementary loan.

Source: Asian Development Bank.

CONTRACT AWARDS AND DISBURSEMENTS**Table A4.1: ORIGINAL LOAN (LOAN 1813)**

(\$ million)

Year		Contract Awards					Disbursements				
		Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2002	Projection	6.10	7.40	0.00	0.00	13.50	0.00	0.00	1.00	0.60	1.60
	Actual	0.00	0.00	9.94	0.00	9.94	0.00	3.25	0.14	0.40	3.79
2003	Projection	5.30	2.50	6.60	11.20	25.60	0.50	0.30	0.60	1.10	2.50
	Actual	4.43	0.33	0.31	0.26	5.33	0.22	0.51	0.62	0.60	1.95
2004	Projection	1.00	0.00	0.00	0.00	1.00	1.50	1.50	1.30	0.90	5.20
	Actual	0.93	0.00	1.63	1.47	4.03	0.49	0.96	1.41	2.11	4.97
2005	Projection	23.30	1.20	27.50	30.0	82.00	1.40	4.00	2.00	6.00	13.40
	Actual	0.07	27.45	0.00	25.91	53.43	1.23	1.59	1.81	6.03	10.66
2006	Projection	4.00	41.00	7.00	5.00	57.00	4.00	5.00	11.00	7.00	27.00
	Actual	0.70	2.17	3.91	41.94	48.72	1.32	2.27	3.21	9.04	15.84
2007	Projection	21.40	7.10	0.00	2.10	30.60	8.40	9.10	5.50	9.10	32.10
	Actual	7.85	0.00	7.24	0.80	15.80	5.41	6.04	7.19	7.23	25.87
2008	Projection	0.00	7.30	0.00	0.00	7.30	9.70	10.70	7.60	4.50	32.50
	Actual	0.00	2.24	0.00	0.00	2.24	11.72	4.09	8.16	9.35	33.41
2009	Projection	0.00	5.80	0.00	0.00	5.80	7.60	7.30	4.40	6.10	25.40
	Actual	0.00	4.33	0.00	0.00	4.33	3.60	6.54	6.68	6.57	23.39
2010	Projection	0.00	1.30	13.90	0.00	15.20	4.50	5.80	3.90	2.70	16.90
	Actual	0.00	0.01	4.30	0.00	4.31	2.41	5.07	5.61	7.12	20.21
2011	Projection	5.00	0.00	0.00	0.00	5.00	1.50	5.30	2.80	3.40	13.00
	Actual	7.36	0.00	0.00	0.13	7.49	3.36	2.68	3.03	3.88	12.95
2012	Projection	0.00	0.00	0.00	0.00	0.00	1.20	3.30	3.30	0.00	7.80
	Actual	0.20	1.28	0.00	0.00	1.48	1.49	2.56	3.99	1.62	9.66

Table A4.2: SUPPLEMENTARY LOAN (LOAN 2293)

(\$ million)

Year		Contract Awards					Disbursements				
		Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2007	Projection	0.00	2.00	15.00	13.00	30.00	0.00	0.80	3.00	1.50	5.30
	Actual	0.00	33.65	0.00	4.51	38.17	0.00	0.00	1.87	1.81	3.69
2008	Projection	16.50	0.50	1.00	1.00	19.00	2.00	3.00	2.00	3.00	10.00
	Actual	7.30	6.02	1.82	0.66	15.79	1.44	0.68	2.26	3.35	7.73
2009	Projection	0.00	5.90	6.30	0.00	12.20	5.10	5.00	4.10	4.50	18.70
	Actual	0.00	0.00	3.56	0.00	3.56	2.72	1.96	4.26	3.11	12.04
2010	Projection	0.00	17.50	0.00	0.00	17.50	4.20	3.80	4.40	2.80	15.20
	Actual	0.16	1.36	9.56	0.35	11.42	2.32	3.36	3.74	4.06	13.48
2011	Projection	0.00	0.00	0.00	0.00	0.00	3.30	4.80	3.80	5.10	17.00
	Actual	0.00	0.00	0.00	1.21	1.21	3.29	3.07	3.48	3.77	13.61
2012	Projection	0.00	2.00	0.00	0.00	2.00	1.30	4.90	4.30	0.00	10.50
	Actual	0.40	1.44	0.00	6.85	8.70	1.79	3.41	3.95	4.66	13.81
2013	Projection	0.00	0.00	0.00	0.00	0.00	2.00	4.00	3.60	6.00	15.60
	Actual	0.00	0.00	0.22	0.00	0.22	2.16	3.16	2.65	6.73	14.70

Q = quarter.

Source: Asian Development Bank.

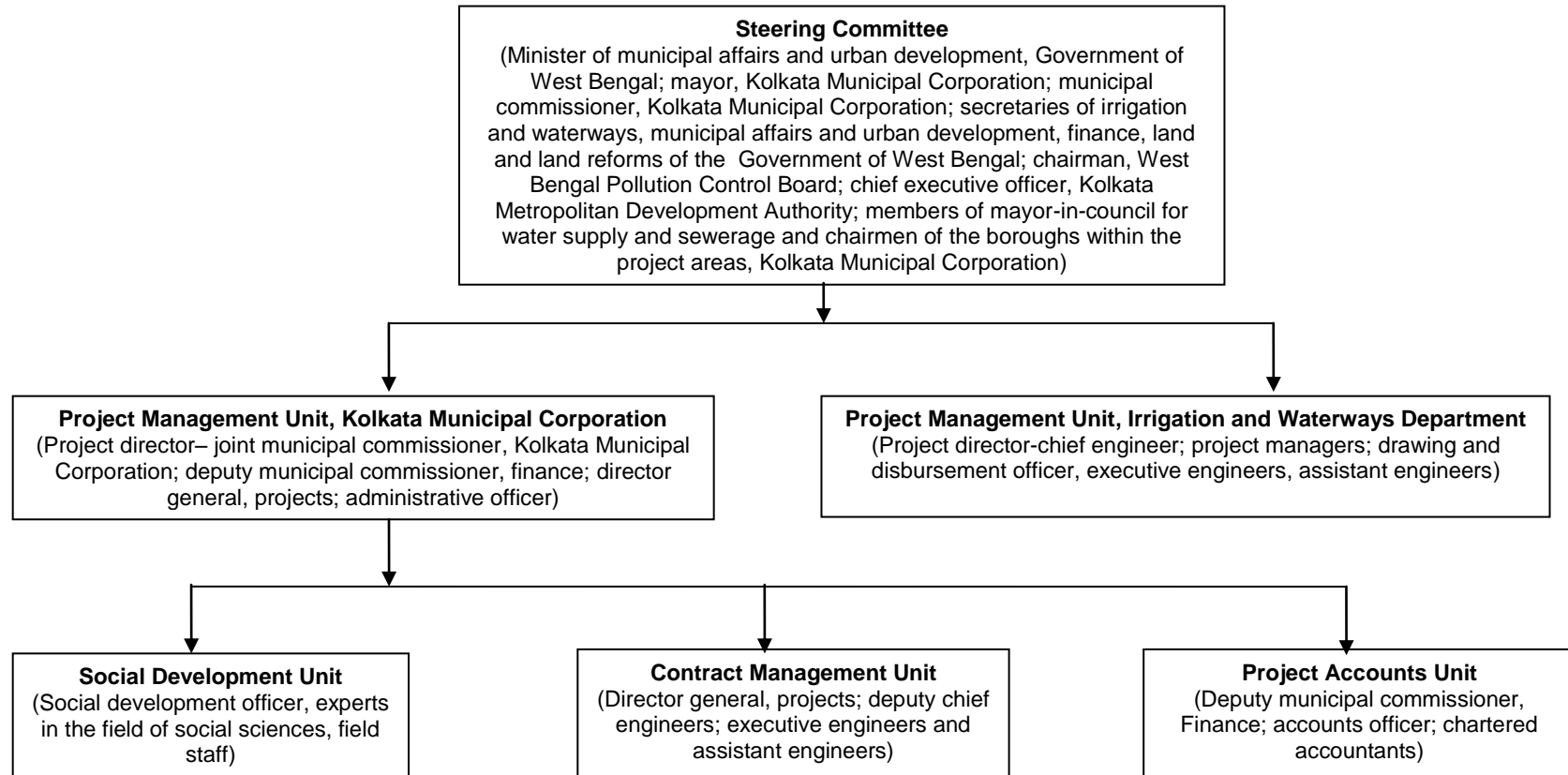
IMPLEMENTATION SCHEDULE

Task	Target		Actual	
	Start Date	End Date	Start Date	End Date
Stakeholder consultation process				
a. Workshops and seminars	1 Oct 01	31 Dec 10	1 Jan 03	30 Jun 12
b. Study tours	1 Jul 02	31 Dec 10	1 Jan 03	30 Jun 12
c. Development of educational material	1 Jul 02	31 Dec 07	1 Jan 03	30 Jun 12
d. NGO's implementation assistance	1 Oct 01	30 Jun 10	30 Jul 02	30 Jun 10
e. Public relations	1 Oct 01	30 Jun 10	7 Aug 02	30 Jun 12
Sewerage and drainage				
a. Civil works	1 Jul 02	31 Dec 10	10 Nov 03	31 Dec 13
b. Equipment	1 Jul 04	31 Mar 05	28 Apr 03	22 Apr 13
c. Land acquisition	1 Oct 02	31 Dec 04	1 Jan 03	31 Dec 05
Solid waste management				
a. Civil works	1 Jul 02	31 Dec 08	—	—
b. Equipment	1 Jul 04	31 Mar 08	12 Mar 03	11 Sep 12
c. Land acquisition	1 Oct 02	31 Dec 03	—	—
Slum improvements				
a. Crisis management	1 Oct 02	30 Sep 08	26 May 03	15 Feb 09
b. Slum improvements	1 Jul 03	30 Sep 08	26 May 03	15 Feb 09
Canal improvement works				
a. Civil works	1 Jan 03	31 Dec 10	8 Mar 04	30 Jun 13
b. Equipment	1 Jul 04	30 Jun 09	2 Mar 07	30 Jun 12
c. Land acquisition and resettlement	1 Oct 02	31 Dec 07	1 Oct 02	31 Dec 12
Implementation assistance				
a. Incremental administration	1 Jun 01	31 Dec 10	1 Jan 02	30 Jun 13
b. Capacity building and training of KMC	1 Jun 01	31 Dec 10	1 Jan 02	30 Jun 13
c. MIS, GIS	1 Jun 01	30 Jun 10	1 Jan 02	30 Jun 13
d. Financial and asset management reforms	1 Jun 01	31 Dec 07	1 Jan 03	Ongoing
e. Human resources management	1 Jun 01	31 Dec 07	1 Jan 03	Ongoing
f. Water metering, billing and collection improvements	1 Jun 01	31 Dec 09	—	—
g. Slum management, urban planning	1 Jun 01	31 Dec 08	1 Jan 04	Ongoing
h. Design and contract document	1 Oct 01	31 Dec 08	1 Sep 02	31 Dec 10
i. Project management consultants	1 Jun 01	31 Dec 10	30 Jan 03	30 Jun 12
j. Project design and supervision	1 Oct 01	31 Dec 10	9 Aug 02	31 Dec 13

KMC= Kolkata Municipal Corporation, GIS= geographic information system, MIS= management information system, NGO= nongovernment organization.

Source: Kolkata Municipal Corporation.

PROJECT IMPLEMENTATION ARRANGEMENTS



STATUS OF MAJOR LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
Project Implementation		
<p>Within one month of 16 April 2002, the State shall constitute a steering committee for the Project (the Project Steering Committee) to be established under the Chairmanship of the Minister of Municipal Affairs and Urban Development of the State, with the Deputy Chairman being the Mayor of Calcutta, the Secretary being the Municipal Commissioner, the members including the Joint Secretary, Ministry of Urban Development of the Borrower, the Director (ADB) Department of Economic Affairs of the Ministry of Finance of the Borrower, the Secretaries of Irrigation and Waterways Department (IWD), Municipal Affairs, Urban Development, Finance, Land and Land Reforms and the Chairman, West Bengal Pollution Control Board, the Members Mayor-in-Council for water supply and sewerage services, and the borough Chairman of the boroughs within the Project area. The Project Steering Committee shall oversee the implementation of the Project and the policy and institutional reforms in paragraph 10 to 15 of this Schedule and ensure that all necessary counterpart funding is provided for the Project. The Project Steering Committee shall meet quarterly.</p>	<p>Loan agreement (LA), Schedule 6, para. 1 of the Original Loan</p>	<p>Complied with.</p>
<p>The Kolkata Municipal Corporation (KMC) shall be the Project Executing Agency for Parts A, B, C, D and F as described in paragraphs 2 to 13, and 17 of Schedule 1 to the Loan Agreement of the Original Loan.</p>	<p>LA, Schedule 6, para. 2(a) of the Original Loan</p>	<p>Complied with.</p>
<p>The State, represented by IWD and KMC, shall be the Project Executing Agency for Part E as described in paragraphs 14 to 16 of Schedule 1 to the Loan Agreement of the Original Loan. Consulting services under Part F shall also be provided to IWD.</p>	<p>LA, Schedule 6, para. 2(b) of the Original Loan</p>	<p>Complied with.</p>
<p>The State shall ensure that a Project Management Unit (PMU) shall be established within IWD. Such PMU shall be headed by a Project Director who is a Chief Engineer, IWD.</p>	<p>LA, Schedule 6, para. 3(a) of the Original Loan</p>	<p>Complied with.</p>
<p>The KMC shall ensure that a PMU shall be established within KMC. Such PMU shall be headed by a Project Director who is a Joint Commissioner.</p>	<p>LA, Schedule 6, para. 3(b) of the Original Loan</p>	<p>Complied with.</p>
<p>The PMUs referred to in paragraphs 3(a) and 3(b) of this Schedule shall both be responsible for overall</p>	<p>LA, Schedule 6, para. 3(c) of the</p>	<p>Complied with.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
management of the Project, including recruitment of consultants, procurement, land acquisition, monitoring of resettlement, stakeholder consultation, slum development, review and approval of detailed designs, review and approval of contract awards, implementation of the physical works, quality assurance, and monitoring of policy and institutional reforms. The PMUs shall also both provide the coordination point for KMC, Kolkata Metropolitan Development Authority (KMDA), the State, IWD and all consultants for the Project.	Original Loan	
The State and KMC shall ensure that the PMUs referred to in paragraphs 3(a) and 3(b) of this Schedule shall each be staffed with all necessary qualified and computer-literate personnel experienced in project management accounting, engineering and procurement. The State and KMC shall ensure that such PMU staff shall be sourced from the departments assigned for the entire duration of the Project and incorporated into the organizational structure responsible for the assets and systems implemented under the Project.	LA, Schedule 6, para. 3(d) of the Original Loan	Complied with.
Both PMUs referred to in paragraphs 3(a) and 3(b) of this Schedule shall be assisted by associated line departments, project management consultants, design and construction supervision consultants and for Parts A and D of this Project by NGOs, community based organizations and borough and ward level committees utilizing the stakeholder consultation process under Part A of the Project.	LA, Schedule 6, para. 3(e) of the Original Loan	Complied with.
The Borrower shall ensure that the Project is implemented in accordance with Schedule 6 to the Initial Loan Agreement and provisions of this Schedule.	LA, Schedule 5, para. 1 of the Supplementary Loan	Complied with.
KMC shall be the Project Executing Agency for Parts B, C and F as described in Schedule 1 to Loan Agreement of the Supplementary Loan. KMC shall act as the lead Project Executing Agency.	LA, Schedule 5, para. 2(a) of the Supplementary Loan	Complied with.
The State, represented by IWD and KMC, shall be the Project Executing Agency for Part E as described in Schedule 1 to the Loan Agreement of the Supplementary Loan.	LA, Schedule 5, para. 2(b) of the Supplementary Loan	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
The State and KMC shall ensure that the Project Director of PMU in KMC continues to be of the special secretary rank and the Project Director of PMU in IWD continues to be of a chief engineer rank, and both the PMUs continue to have qualified and experienced project staff for the revised duration of the Project.	LA, Schedule 5, para. 3 of the Supplementary Loan	Complied with.
KMC shall ensure that all necessary steps, such as (a) providing training to IWD; (b) engaging consultants and auditors, as required; (c) seconding personnel to IWD, as applicable; and (d) submitting all required reports and information to ADB by IWD, are carried out in timely manner.	LA, Schedule 5, para. 4 of the Supplementary Loan	Complied with.
Reports, Accounts and Mid-term Review		
Without limiting the generality of Section 4.04 of the Loan Agreement of the Original Loan and Section 2.08 of the Project Agreement, the State and KMC shall ensure that their respective Project Directors referred to in paragraphs 3(a) and 3(b) of this Schedule shall each provide the Steering Committee for the Project and the Bank with quarterly PMU reports which shall inter alia (a) be based on data collected from IWD and KMC; (b) provide progress on policy and institutional reform as defined in paragraphs 10 to 15 of this Schedule; (c) provide any modifications required to the Project schedule; (d) provide details of problems encountered on the Project; (e) provide an outline of Project related work in the ensuing quarter; and (f) provide summary financial accounts for the Project, including expenditure during the quarter and year-to-date expenditure.	LA, Schedule 6, para. 4 of the Original Loan	Complied with.
Without limiting the generality of Section 4.04 of the Loan Agreement of the Original Loan and Section 2.08 of the Project Agreement, the State and KMC shall ensure that the Project completion report from IWD and KMC respectively shall be submitted to the Bank within three months of Project completion and shall include details of implementation, costs, benefit monitoring and evaluation and such other information as the Bank shall reasonably request.	LA, Schedule 6, para. 5 of the Original Loan	Complied with.
Without limiting the generality of Section 4.04 of the Loan Agreement of the Original Loan and Section 2.08 of the Project Agreement, the State and KMC shall ensure that the Project Directors referred to in paragraph 3(a) and 3(b) of this Schedule shall each	LA, Schedule 6, para. 6 of the Original Loan	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
submit all reports, accounts and financial statements within agreed time frames satisfactory to the Bank.	LA, Schedule 6, para. 7 of the Original Loan	Complied with.
<p>Within two years of the Effective Date, the Borrower, the State and KMC shall ensure that a midterm review shall be conducted by representatives of the Borrower, the State, KMC, the Bank and DFID following completion of detailed design and award of procurement and consulting services contracts. Such a midterm review shall include (a) evaluation of Project progress, implementation procedures, procurement methodology, benefit and monitoring evaluation activities and performance of consultants; and (b) recommendation of any corrective measures to remedy weaknesses identified. The Borrower, the State and KMC shall ensure that such corrective measures are duly implemented.</p>		
Benefit, Monitoring and Evaluation		
<p>The Borrower, State and KMC shall ensure that a Benefit, Monitoring and Evaluation program shall be undertaken in accordance with the Bank's project performance monitoring system.</p>	LA, Schedule 6, para. 8 of the Original Loan	Complied with.
<p>The State and KMC shall ensure that for purposes of the BME program, the PMUs referred to in paragraphs 3(a) and 3(b) of this Schedule shall each (a) undertake periodic surveys to determine changes in agreed upon social indicators, satisfactory to the Bank, including public health, welfare, economic and physical conditions, environmental improvements, changes in property values, poverty, community development and operational efficiency of the Project; and (b) submit a detailed implementation plan for monitoring benefits and preparing benchmark information for the Bank's review and concurrence within 6 months of 16 April 2002. The PMUs shall be assisted by project management and design and construction supervision consultants. The State and KMC shall ensure that BME findings shall be used to adjust the Project.</p>	LA, Schedule 6, para. 9 of the Original Loan	Complied with.
Capacity Building		
<p>The State and KMC shall ensure that benefit monitoring and evaluation of the Capacity Building Program (CBP), funded by DFID, is carried out. The baseline data for CBP shall be collected and monitoring indicators set by March 2007.</p>	LA, Schedule 5, para. 5 of the Supplementary Loan	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
The State and KMC shall ensure that the Project's capacity building and social sector interventions continue to be supported by DFID, throughout the revised duration of the Project.	LA, Schedule 5, para. 6 of the Supplementary Loan	Complied with.
Policy and Institutional Reform		
The Borrower, the State and KMC shall execute the Policy and Institutional Action Plan as agreed to by the Borrower, the State, KMC and the Bank.	LA, Schedule 6, para. 10 of the Original Loan	Partially complied with Details as indicated below in relevant covenants.
The Borrower and the State shall ensure that water supply investments in the Project area shall be maintained up to Fiscal Year 2006/2007 at a level that will result in at least 100,000 total connections by the end of that Fiscal Year, with an average number of connections of 8,000 per year and 57,000 incremental connections by the end of Fiscal Year 2007.	LA, Schedule 6, para. 11 of the Original Loan	Complied with.
The KMC shall undertake a program of metering all water consumers with 20mm ferrule size or more. The KMC shall take account of ongoing World Bank studies in undertaking a program of metering all water supply consumers with less than 20mm ferrule size based on consumption demand to be agreed with the Bank such that (a) 25 percent of all such consumers shall be metered by the end of Fiscal Year 2002/2003; (b) 50 percent of all such consumers shall be metered by the end of Fiscal Year 2003/2004; and (c) 100 percent of all such consumers shall be metered by the end of Fiscal Year 2004/2005. All consumers shall be metered by the end of Fiscal Year 2009/2010.	LA, Schedule 6, para. 12 of the Original Loan	Partially complied with. Compliant on metering industrial, commercial, and institutional consumers. Noncompliant on metering domestic consumers. KMC has prepared and adopted a policy paper on a road map toward a self-sustaining water supply system. The agreed assurances and covenanted conditions of ADB's follow-up Kolkata Environmental Improvement Investment Program envisage phased implementation of metering within the program period. ^a KMC made efforts to comply through procurement of 150 bulk water meters. It installed them at locations in Kolkata to study the generation and distribution of water supply and identify areas for improvement of efficiency.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>The KMC shall implement property tax reform acceptable to the Bank by no later than the end of Fiscal Year 2003/2004 in accordance with actions agreed to between the State, KMC and the Bank under the Policy and Institutional Reform Agenda and amendments to the KMC Act under paragraph 12(a) of Schedule 4 to the Loan Agreement of the Original Loan.</p>	<p>LA, Schedule 6, para. 13 of the Original Loan</p>	<p>Partially complied with. KMC is in the process of introducing UABPT through self-assessment of the property by the property owners. The UABPT has been finalized after several rounds of stakeholder consultations. The KMC act was also amended by the state for introduction of UABPT. (Requirement of amendments to KMC act enabling the state to issue rules related to UABPT was extended to 30 May 2005 and subsequently to 31 August 2005, 31 March 2006, and 31 December 2006). KMC stated that the implementation of the UABPT in its current form would require some more amendments in the KMC act. Also some major changes in the web portal of KMC are necessary for online submission of taxes.</p>
<p>Excluding Garden Reach water supply treatment plants, the KMC shall adopt water supply and sewerage assets within its geographical boundaries under the control of the KMDA such that all such assets are adopted by KMC no later than the end of Fiscal Year 2004/2005 in accordance with actions agreed to between the State, KMC and the Bank under the Policy and Institutional Reform Agenda.</p>	<p>LA, Schedule 6, para. 14 of the Original Loan</p>	<p>Complied with.</p>
<p>The KMC shall ensure that the rationalization and redeployment of KMC staff shall result in sufficient number and quality of staff deployed in the management of hazardous and biomedical wastes, such that these wastes are handled, transported, treated and disposed of in accordance with the relevant legislation and regulations of the Borrower, State and KMC and the Bank's environmental guidelines.</p>	<p>LA, Schedule 6, para. 15 of the Original Loan</p>	<p>The subcomponent of hazardous and biomedical wastes was dropped from the project scope.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Financial Reform</p> <p>Subject to the ongoing World Bank studies on metering and paragraph 12 of this Schedule, the State and KMC shall ensure that a progressive block rate of water tariff and sewerage surcharge, based on metering of such water supply consumers as previously agreed to with the Bank, shall be implemented such that (a) a KMC regulation on a progressive block rate water tariff and sewerage surcharge shall be approved by the State and issued by KMC, by the end of Fiscal Year 2002/2003; (b) the scope of such a KMC regulation shall be extended as wards are metered and a progressive block rate water tariff and sewerage surcharge imposed in the Fiscal Year immediately following such metering; and (c) the adoption of such water tariff and sewerage surcharge shall be completed in the KMC's jurisdictional area at the end of Fiscal Year 2007/2008.</p>	<p>LA, Schedule 6, para. 16 of the Original Loan</p>	<p>Partially complied with. KMC introduced water tariffs and sewer surcharges for institutional, commercial, and industrial users in 2008 and installed about 260 water meters for the bulk users. For domestic users, however, KMC continued to cover the operating cost through the property tax, and did not introduce user charges and meters. The covenants on tariff were conditioned by design elements. Firstly, the project sought a major water tariff reform, but this was not accompanied by investments in water supply that would have led to service improvement. Secondly, since KMC was able to fully meet the operating expenses from existing sources, such as charges to industrial users, allocation from KMC's property tax revenue, and subsidies from the state government, it faced difficulties in justifying to the public the immediate need for levying domestic user charges. KMC recognizes the importance of cost recovery and has prepared and adopted a policy paper and road map for establishing a self-sustaining water supply system. It states that the KMC will introduce water tariffs in a phased manner.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
The KMC shall improve property tax collection efficiency to 80 percent on a basis satisfactory to the Bank by the end of Fiscal Year 2004/2005 in accordance with actions agreed to between the State, KMC and the Bank under the Policy and Institutional Reform Agenda.	LA, Schedule 6, para. 18 of the Original Loan	Partially complied with. KMC reported tax collection efficiency of 63% achieved in FY2014. Full compliance to achieve 80% efficiency is planned in phases under ADB's Kolkata Environment Improvement Investment Program (footnote a).
The KMC shall ensure that external auditors acceptable to the Bank shall have audited KMC's unaudited accounts and that such external auditors shall have audited: (a) KMC's unaudited 1994 accounts by December 2000; (b) KMC's unaudited 1995 accounts by March 2001; (c) KMC's unaudited 1996 accounts by June 2001; (d) KMC's unaudited 1997 accounts by September 2001; (e) KMC's unaudited 1998 accounts by December 2001; and (f) KMC's unaudited 1999 accounts by March 2002.	LA, Schedule 6, para. 19 of the Original Loan	Complied with.
The KMC shall ensure that the audit of KMC's Fiscal Year 2000/2001 accounts shall be completed by external auditors acceptable to the Bank by 30 June 2002, and that thereafter such external auditors shall complete audits of KMC's accounts on an annual basis within 12 months of the end of the Fiscal Year.	LA, Schedule 6, para. 20 of the Original Loan	Complied with. The deadline for KMC audited accounts was extended to 31 December 2003, 31 March 2005, and 31 May 2005.
By 31 December 2004, the KMC shall have amended its contract with the Kolkata Port Trust under Section 171 (7) of the KMC Act and the State shall have ratified such amendment which shall ensure a revision satisfactory to the Bank, to the exemption or reduction on property tax for Kolkata Port Trust properties.	LA, Schedule 6, para. 21 of the Original Loan	Not complied. This covenant was found to be not aligned with the project objectives and did not have any impact on the outcome of the project.
The State shall ensure that annual transfers shall be provided to the State at levels prescribed by the State Finance Commission, including in respect of (a) entitlements of local self government; and (b) dearness allowance.	LA, Schedule 6, para. 22 of the Original Loan	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
The State shall ensure adoption of budget estimates and charges on the Consolidated Fund of the State each Fiscal Year under Article 202 of the Constitution of India sufficient to finance the State's counterpart funding expenditures for the Project in accordance with the Bank's financing plan agreed with the Borrower.	LA, Schedule 6, para. 23 of the Original Loan	Complied with.
The KMC shall ensure adoption of the budget estimates and budget allocations each Fiscal Year sufficient to finance the KMC's counterpart funding expenditures for the Project in accordance with the Bank's financing plan agreed with the Borrower. The KMC shall submit to the Bank in January of each year the subsequent year's KMC budget including provision of KMC counterpart funding.	LA, Schedule 6, para. 24 of the Original Loan	Complied with.
The KMC shall ensure that a dedicated operating account shall be established for solid waste management by the end of Fiscal Year 2001/2002.	LA, Schedule 6, para. 25 of the Original Loan.	Complied with.
The State and KMC shall ensure that KMC shall have issued regulations with State approval or KMC shall have adopted budget estimates to meet full operations and maintenance recovery and 30 percent allocation from property tax for water supply, sewerage and drainage by the end of Fiscal Year 2004/2005.	LA, Schedule 6, para. 26 of the Original Loan.	Complied with.
Water Tax and Tariff		
The State shall ensure that KMC completes stakeholder consultations and consensus building on installation of water meters by 31 December 2006.	LA, Schedule 5, para. 7 of the Supplementary Loan	Partially complied with. KMC introduced water tariffs and sewer surcharges for institutional, commercial, and industrial users in 2008 and installed about 260 water meters for the bulk users. For domestic users, however, KMC continued to cover the operating cost through the property tax and did not introduce user charges and meters. The covenants on tariff were conditioned by design elements. Firstly, the project sought a major water tariff reform, but this was not accompanied by investments in water
By 31 December 2006, KMC shall complete a study on willingness to pay.	LA, Schedule 5, para. 8 of the Supplementary Loan	
KMC shall finalize the water tariff strategy and publicly disclose it on its website by 31 March 2007.	LA, Schedule 5, para. 9 of the Supplementary Loan	
By not later than 30 June 2007, KMC shall have introduced flat water tax/tariff.	LA, Schedule 5, para. 10 of the Supplementary Loan	
The State and KMC shall ensure that by 28 February 2007 at least 100,000 water meters are procured.	LA, Schedule 5, para. 11 of the Supplementary Loan	

Covenant	Reference in Loan Agreement	Status of Compliance
		supply that would have led to service improvement. Secondly, since KMC was able to fully meet the operating expenses from existing sources, such as charges to industrial users, allocation from KMC's property tax revenue, and subsidies from the state government, it faced difficulties in justifying to the public the immediate need for levying domestic user charges. KMC considers the introduction of tariffs an inevitable step for aiming beyond operation and maintenance of cost recovery in a long-run and has prepared and adopted a policy paper and road map for establishing a self-sustaining water supply system. It states that the KMC will introduce water tariffs in a phased manner.

Resettlement and Environmental

The State and KMC shall ensure that all necessary measures shall be taken to mitigate any adverse social impacts associated with the Project. Such mitigation measures shall include rehabilitation assistance for Part E of the Project in accordance with a Resettlement Plan satisfactory to the Bank, the Bank's Involuntary Resettlement Policy and the Bank's Handbook on Resettlement 1998, as amended from time to time, to residents with legal title, those with claims and those without any formal legal title or claim to land affected by involuntary resettlement as result of the Project.

LA, Schedule 6, para. 27 of the Original Loan

Complied with.

The State and KMC shall ensure that upon completion of the design of Project facilities under the Project, a Resettlement Plan, if required, shall be prepared and submitted to the Bank for review and approval in accordance with the Bank's Involuntary Resettlement Policy and the Bank's Handbook on Resettlement 1998, as amended from time to time.

LA, Schedule 6, para. 28 of the Original Loan

Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>The Resettlement Plan in paragraph 27 of this Schedule and para 28 of this Schedule shall, inter alia, implement (a) minimization of relocation; (b) protection of single women-headed households and other vulnerable groups; (c) relocation at sites within close proximity to original settlements; (d) association of NGOs, selected in accordance with criteria acceptable to the Bank, in the relocation process; (e) inclusion of skills development and credit programs if required as part of rehabilitation packages; (f) information dissemination and disclosure of the resettlement plan; (g) full consultation with affected persons; (h) a full census of all affected persons; (h) a baseline social and economic survey development in consultation with affected persons; and (i) rehabilitation of rag pickers and child labour as agreed by the Bank, the Borrower, State and KMC. The State shall ensure relocation sites for affected persons shall be no further than two kilometres from their present location and that such relocation sites are confirmed in consultation with affected persons.</p>	<p>LA, Schedule 6, para. 29 of the Original Loan</p>	<p>Complied with.</p>
<p>The State and KMC shall ensure that resettlement activities under the Project are carried out in accordance with the Borrower's applicable laws and policies, and ADB's <i>Policy on Involuntary Resettlement</i>, 1995. The State and KMC shall ensure that land and facilities are made available to the affected persons in accordance with the updated resettlement plan and affected people are relocated directly from present settlements to permanent flats and no more transit villages are established.</p>	<p>LA, Schedule 5, para. 17 of the Supplementary Loan</p>	<p>Complied with.</p>
<p>The State and KMC shall ensure that all necessary measures shall be taken to mitigate any adverse environmental impacts associated with the Project. Such mitigation measures shall include. (i) processing and disposal of wastewater pursuant to standards, prescribed by the environmental protection laws, rules and regulations of the Borrower, the State and KMC and environmental quality standards acceptable to the Bank for environmental impact assessments and (ii) processing and disposal of hazardous Biomedical wastes in accordance with Safety standards prescribed by the environmental protection laws, rules and regulations of the Borrower, the State and KMC and the environmental quality standards acceptable to the Bank for environmental impact assessments, including ensuring that such waste is disposed in appropriately, remote, secure and</p>	<p>LA, Schedule 6, para. 30(a) of the Original Loan</p>	<p>Complied with.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
sanitary landfills in accordance with such standards.		
The Borrower shall cause the State and KMC to prepare, in consultation with other concerned agencies and due public consultation, an Initial Environmental Examination (IEE) upon acquisition of land for any Project facility and an Environmental Impact Assessment (EIA) upon acquisition of land for any Project facility which is considered to have a significant environmental impact, both in accordance with the Bank's relevant guidelines and the Borrower's relevant guidelines.	LA, Schedule 6, para. 30(b) of the Original Loan	Complied with.
The Borrower shall submit an annual report to the Bank providing the results of an environmental and safety monitoring program and copies of permits and licenses certifying that Project facilities, including that Integrated Hazardous Waste Management Facility and the Central Biomedical Waste Treatment Facility, are operated and maintained in accordance with the environmental and safety standards of the Borrower.	LA, Schedule 6, para. 30(c) of the Original Loan	Hazardous waste management and biomedical waste management were dropped from the project scope.
The State and KMC shall ensure the enforcement of new connections from properties to sewers and drains.	LA, Schedule 6, para. 31 of the Original Loan	Complied with.
The State and KMC shall ensure that the City Sewerage and Drainage master plan is completed by 31 March 2007.	LA, Schedule 5, para. 12 of the Supplementary Loan	Complied with.
In the event KMC proposes to choose alternative treatment through the fisheries in EKW then KMC shall submit to ADB and EMP and EKW including a detailed study satisfactory to ADB on potential impacts of sewage discharge from the catchments zones covered under the project into the EKW. The study shall provide scientific and quantitative evidence that (a) all types of sewage-receiving environment within the EKW shall be capable of treating current and proposed sewage discharge to required levels (b) effluent discharged into receiving waters shall meet inland surface water standards as prescribed by the local statutory and the borrower's regulations/requirements and in the Pollution prevention and abatement handbook of the world bank, as referred to in ADB's Environment Policy 2002 (c) current and proposed discharge shall not have potential adverse impacts on the ecological resources in the EKW and other receiving environment throughout the Project's design life (d)	LA, Schedule 5, para. 13 of the Supplementary Loan	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>the EKW and associated canals/ channels can absorb the present and additional pollution load without posing significant environmental threat of any kind. The study and the resettlement plan shall be publicly disclosed and discussed with affected persons in the project area.</p>		
<p>The State and KMC shall ensure (a) strict compliance with the Borrower's and the State's existing environmental laws and ADB's <i>Environmental Policy</i> 2002 (b) implementation of all necessary measures to mitigate any adverse environmental impacts associated with the project and environmental monitoring activities as identified in the revised IEE and Environmental Management Plan (EMP) and (c) consultation with affected persons on environmental issues.</p>	<p>LA, Schedule 5, para. 14 of the Supplementary Loan</p>	<p>Complied with.</p>
<p>The Borrower shall cause the state and KMC to revise, in consultation with other concerned agencies and due public consultation, the IEE upon acquisition of land for any project facility and an EIA upon acquisition of land for any Project facility which is considered to have a significant environmental impact, both in accordance with ADB's <i>Environment Policy</i>, 2002, and the Borrower's relevant guidelines.</p>	<p>LA, Schedule 5, para. 15 of the Supplementary Loan</p>	<p>Complied with.</p>
<p>By 31 of December of every year the borrower shall submit an annual report to ADB providing the results of the environmental and safety monitoring program as identified in the EMP and copies of relevant permits and licenses obtained for the project facilities and ensure that the project facilities are operated and maintained in accordance with the environmental and safety standards of the Borrower.</p>	<p>LA, Schedule 5, para. 16 of the Supplementary Loan</p>	<p>Complied with.</p>
<p>Cofinancing</p>		
<p>In the event the DFID Agreement shall become liable for suspension or cancellation, the Borrower shall promptly and to the satisfaction of the Bank ensure that the funds under the DFID Agreement shall be made available to the Project on the same terms, conditions and quantum of funds as the DFID Grant pursuant to the DFID Agreement.</p>	<p>LA, Schedule 6, para. 32 of the Original Loan</p>	<p>The DFID Agreement was never suspended or cancelled.</p>
<p>Good Governance and Anticorruption</p>		
<p>The State and KMC shall take concrete proactive steps listed in Appendix 13 to the RRP to ensure good governance and prevent corruption, In particular, the State and KMC shall ensure that (a)</p>	<p>LA, Schedule 5, para. 18 of the Supplementary Loan</p>	<p>Complied with.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>relevant provisions of ADB's Anticorruption Policy, 1998, as amended to date, are included in the bidding documents for the Project; (b) all contracts financed by ADB in connection with the Project include provisions specifying the right of ADB to audit and examine the records and accounts of IWD and KMC and all contractors, suppliers, consultants, and other service providers as they relate to the Project; and (c) information on (i) bidding procedures, bidders and contract awards for the Project, and (ii) use of the funds disbursed under the Project, is publicly disclosed on the website for the Project.</p>		

CBP = capacity-building program, DFID = Department for International Development, Government of the United Kingdom, EIA = environmental impact assessment, EMP = environmental management plan, IEE = initial environmental examination, IWD = Irrigation and Waterways Department, KMC = Kolkata Municipal Corporation, LA = loan agreement, NGO = nongovernment organization, UABPT= unit area-based property tax.

^a ADB. 2013. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Multitranche Financing Facility India: Kolkata Environment Improvement Investment Program*. Manila.

EVALUATION OF ECONOMIC AND FINANCIAL ANALYSIS

A. Background

1. The economic internal rates of return (EIRRs) and financial internal rates of return (FIRRs) of all the components of the Kolkata Environmental Improvement Project were evaluated at project completion using the data provided by the Government of West Bengal (GOWB), the Kolkata Municipal Corporation (KMC), and the project management unit of the Kolkata Environmental Improvement Project (KEIP). Some relevant information was also collected from websites of the Government of India and other institutions. These EIRRs and FIRRs were compared with the appraisal estimates.

2. The economic and financial analysis of the project has used the framework provided in ADB's Guidelines for the Economic Analysis of Water Projects and Financial Management and Analysis of Projects.¹

3. The economic and financial analysis focused on the economic benefits generated by the project and its financial sustainability. The analysis also considered the financial and fiscal capacity of the KMC to service project debts and ensure the sustainable provision of urban services. The reassessment of EIRRs, FIRRs, and the financial and fiscal performance of the KMC estimated during project appraisal provided insights into the financial and economic performance of the investments during the project implementation period (2002–2013). Sensitivity tests of the financial and economic rates of return were undertaken to understand the institutional and service management reforms required to sustain these investments. The economic and financial viability of the project was evaluated for a period of 25 years, with no salvage value assumed thereafter. This appendix summarizes the economic and financial viability evaluation of the project at completion and compares its findings with those of the evaluation carried out during appraisal of the original and supplementary loans for the project.²

B. Economic Evaluation

I. Analysis at Appraisal

4. Economic evaluation was carried out twice, once during the processing of the original loan and subsequently during the processing of the supplementary loan. The available evaluation results are considered in para.9.

5. During the appraisal of the original loan, an integral economic analysis was made for the project, excluding the component for stakeholder consultation process. The aggregate EIRR for the project was estimated at 14.5%, which was considered to be higher than the economic opportunity cost of capital of 12 %. The economic net present value of the project was calculated for discount rates of 10 % and 12 %. In both cases, it was positive. The results of the sensitivity analysis showed that the EIRR was most sensitive to delays in the realization of benefits. However, the EIRR remained above 12% in all sensitivity analyses.

6. The economic analysis during original loan appraisal considered the following:
(i) The project would improve the living and environmental conditions in the KMC area.

¹ ADB.1998. *Guidelines for the Economic Analysis of Water Supply Projects*. Manila; ADB.2005. *Financial Management and Analysis of Projects*. Manila.

² ADB. 2000. *Report and Recommendation of the President to the Board of Directors: Proposed Loan for the Calcutta Environmental Improvement Project*. Manila; ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Supplementary Loan Kolkata Environment Improvement Project*. Manila.

(ii) The sewerage, drainage, and canal components would benefit about 1.4 million people of the outer areas of Kolkata.

(iii) The stakeholder consultation process, solid waste management (SWM), and capacity-building components would benefit all of the KMC area, which had an estimated population of 5.0 million.

(iv) The slum improvement component would benefit 220,000 people.

(v) The EIRR evaluation considered the economic capital costs, incremental operation and maintenance (O&M) costs of all components. The calculated per capita values for each economic benefit and the target population were multiplied in each case for the EIRR analysis.

(vi) The analysis assumed that the main economic benefit of the project would derive from improved human health. The project would reduce water-related diseases due to reduced flooding, construct sewerage systems, and improve SWM.

(vii) Cost savings would include reduced spending (a) by governments on hospital and health care; (b) by households on medical care; (c) for cleaning septic tanks; (d) on removing solid waste dumped into the canals; and on repairing roads, vehicles, and dwellings as a result of reduced flood damage. Reduced flooding would also mean less disruption of traffic and save people time when travelling to work. Benefits would also be obtained from recycling and composting solid waste.

7. During appraisal of the supplementary loan, the project's scope changed, and a new economic evaluation was done. Economic analysis for the supplementary loan was carried out for only sewerage and drainage (S&D) component and canal improvement component.

8. The EIRR for the S&D improvement component was estimated at 12.7% for all seven KMC boroughs (out of the fifteen boroughs in KMC area) where KMC carried out the S&D improvements and at 11.8% for the two additional boroughs under the supplementary loan—roughly about the economic opportunity cost of capital of 12.0% in both cases. For the canal improvement component, the EIRR was estimated at 19.2%, much higher than the economic opportunity cost of 12.0%. The combined EIRR for the components was estimated at 13.3%.

9. Table A8.1 summarizes the findings of the economic analysis carried out during the appraisal of the supplementary loan.

Table A8.1: Results of Economic Analysis at Appraisal of Supplementary Loan

Component	EIRR and SI	Base case	Capital and O&M		Combined Effect	Construction delay by 1 year	Construction delay by 2 years
			Cost up by 10%	Benefits down by 10%			
Sewerage & drainage	EIRR (%)	12.70	11.80	11.70	10.80	12.00	11.60
	SI		0.76	0.85			
Canal Improvement and Resettlement	EIRR (%)	19.20	17.60	18.60	15.90	17.60	16.30
	SI		0.91	0.32			

Source: ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Supplementary Loan Kolkata Environment Improvement Project*. Manila.

10. The economic analysis during the supplementary loan appraisal considered 150,000 additional project beneficiaries under the S&D component.

11. The analyses for the original and the supplementary loans have considered improved human health as the main economic benefit. The disability-adjusted life year data was multiplied by the median per capita income to calculate the health benefits. Some of the benefits accrued under the project are difficult to quantify such as (i) reduction in private and public costs of mosquito control, (ii) appreciation in land values because of the improved

environment and the reduced risk of flooding, (iii) the psychological benefits from reductions in morbidity and mortality, (iv) reduced disruption of traffic due to the reduction of flooding, and (v) positive impacts on tourism and tourist-related businesses. If these non-quantified benefits had been considered, the EIRR would have been much higher at appraisal.

II. Analysis at Completion

12. The analysis at completion applied the same approach used during appraisal to recalculate the EIRR. For calculating population growth, the compounded annual growth rate of the population during 2001-2011 was used for projecting the population until 2025. The analysis assumed an average household size of 4.6 persons.

13. **Sewerage and drainage component and canal improvement component.** The parameters considered for economic evaluation of the components were (i) savings in health costs, (ii) savings of the capital costs of septic tanks and cleaning costs, and (iii) avoidance of income loss because of a reduction in flooding. The analysis estimated the cost savings for the capital cost of septic tanks and the cleaning costs for 46,145 household that were provided with sewage connections. The analysis further assumed the following:

- (i) septic tank cleaning charges (KMC Charges & Incidental Expenses) is considered as assumed at Rs3,250 (\$65).
- (ii) the cost of construction of septic tanks derived from Central Public Works Department Rates, was assumed as Rs44,940 (\$899).
- (iii) the average daily income of non-slum households was considered as Rs489.89 (\$9.8) and for slum households as Rs73.48 (\$1.47).
- (iv) the reduction of the frequency of flooding is assumed to be in the range of 10-12 days per year.

The economic benefit due to reduced damage to property could not be assessed in absence of reliable data.

III. Reevaluation of Findings

14. Taking into account the savings outlined in para. 13, economic indicators were calculated for the S&D and canal improvement components. The EIRR evaluation for these components together at completion was 14.81%, higher than the EIRR calculated during appraisal. Table A8.2 provides a summary of the details of the economic evaluation.

Table A8.2: EIRR Evaluation of Sewerage and Drainage Component at Completion

(Figures in \$ Million)

Fiscal Year		Total Economic Benefits	Economic Costs (O&M)	Economic Costs (Capital)	Total Economic Benefits	Total Economic Costs	Net Economic Benefits
Year	Year						
FY2002	Y0	-	-	-	0.00	0.00	0.00
FY2003	Y1	15.16	-	-	15.16	0.00	15.16
FY2004	Y2	15.36	-	-	15.36	0.00	15.36
FY2005	Y3	15.57	0.01	0.18	15.57	0.19	15.38
FY2006	Y4	15.79	0.05	0.49	15.79	0.54	15.26
FY2007	Y5	16.03	0.11	0.88	16.03	0.99	15.04
FY2008	Y6	16.27	0.11	-	16.27	0.11	16.16
FY2009	Y7	16.53	1.29	16.58	16.53	17.88	-1.35
FY2010	Y8	16.81	3.35	28.76	16.81	32.11	-15.30
FY2011	Y9	17.10	6.80	48.38	17.10	55.18	-38.08
FY2012	Y10	13.43	8.79	27.92	13.43	36.71	-23.28

Fiscal Year		Total Economic Benefits	Economic Costs (O&M)	Economic Costs (Capital)	Total Economic Benefits	Total Economic Costs	Net Economic Benefits
Year	Year						
FY2013	Y11	16.96	14.05	73.69	16.96	87.74	-70.78
FY2014	Y12	17.23	20.50	90.37	17.23	110.87	-93.64
FY2015	Y13	17.52	20.67	2.36	17.52	23.02	-5.50
FY2016	Y14	17.82	20.67	-	17.82	20.67	-2.85
FY2017	Y15	18.13	20.67	-	18.13	20.67	-2.53
FY2018	Y16	16.92	20.67	-	16.92	20.67	-3.75
FY2019	Y17	18.54	20.67	-	18.54	20.67	-2.13
FY2020	Y18	18.88	20.67	-	18.88	20.67	-1.79
FY2021	Y19	19.24	20.67	-	19.24	20.67	-1.43
FY2022	Y20	19.62	20.67	-	19.62	20.67	-1.05
FY2023	Y21	18.76	20.67	-	18.76	20.67	-1.90
FY2024	Y22	20.25	20.67	-	20.25	20.67	-0.41
FY2025	Y23	20.68	20.67	-	20.68	20.67	0.01
FY2026	Y24	21.13	20.67	-	21.13	20.67	0.46
FY2027	Y25	21.60	20.67	-	21.60	20.67	0.93
At Completion		Total			441.35	613.34	
			EPV @	12.00%	115.23	126.93	
			ENPV @	12.00%			-11.70
			EIRR @	12.00%			14.81%

EPV = economic present value, ENPV = economic net present value, EIRR = economic internal rate of return, FY = fiscal year.

Source: Asian Development Bank estimates.

15. Based on this analysis, the project can be rated *efficient* in achieving its intended outcome and outputs. The EIRR calculated on completion is higher than the appraisal estimates, because the welfare of the beneficiaries has increased beyond what was estimated at appraisal. Consideration of health benefits during evaluation contributed to this. The overall EIRR calculated at completion was higher than the benchmark value of 12%, which justifies the investments.

16. 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 or captured in the analysis. The qualitative assessment of other components showed that they helped improve the overall environment of the project areas and the quality of life of individuals.

B. Financial Evaluation

I. Analysis at Appraisal

17. The project's financial viability was not assessed during appraisal of the original loan, but the appraisal did involve a detailed analysis of the financial sustainability of the KMC. Appraisal for the supplementary loan included financial analysis to confirm the financial viability of the S&D component, the only revenue-generating component designed under the original project. It used revised cost estimates and paid particular attention to the components considered for funding under the proposed supplementary loan.

18. This analysis estimated that the S&D improvement component covered by the proposed supplementary loan, which involved two additional boroughs, would have a FIRR of 6.60%, which was above the weighted average of cost of capital of 4.90%. It also estimated that the S&D improvement component, combining the S&D improvements under both the original loan and the supplementary loan, would have an overall FIRR of 1.31%.

The analysis nonetheless estimated that the entire S&D improvement component financed by both loans could generate more than enough revenue to cover the incremental O&M costs resulting from the project. It estimated that these incremental revenues would cover both full O&M costs and 58% of the capital costs resulting from the project.

19. Table A8.3 summarizes the findings of the financial analysis carried out during the appraisal of the supplementary loan.

Table A8.3: Results of Financial Analysis at Appraisal of Supplementary Loan

Component	FIRR and SI	Base case	Capital and O&M Cost up by 10%	Benefits down by 10 %	Total Revenue down by 10 %	Implementation delay by 1 year	10 % reduction in new connections
Sewerage & drainage	FIRR (%)	1.31	0.64	0.84	1.05	1.11	0.80
	SI		10.47	5.60	2.48		6.38

Source: ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Supplementary Loan Kolkata Environment Improvement Project*. Manila.

20. The financial analysis of the S&D component at supplementary loan appraisal considered with- and without-project scenarios and used the project's cost estimates. It also assumed that the revised user charges that KMC would levy for water supply and sewerage, provides a certain revenue stream. Cost and revenue projections were made over a 30-year period from commissioning of the scheme. Costs included (i) capital expenditures under the project, including physical contingencies and taxes and duties; (ii) O&M expenditures; and (iii) additional capital expenditures to repair and rehabilitate the assets created under the project. The revenue projections included (i) sewerage charges from domestic and non-domestic customers, (ii) connection fees from new customers, (iii) trade effluent charges collected from industrial customers, and (iv) revenue share from KMC property tax and a contribution from the GOWB based on the projected number of house connections. The major assumptions made regarding user charges were (i) that they would be raised every year; (ii) that domestic user charges would rise 15% over the first 5 years, and non-domestic charges would increase 10% per annum over the same period; and (iii) that upward revisions would be lower during subsequent years for both domestic (8%) and non-domestic users (7%). The analysis assumed connection fees of Rs4,500 for domestic users and Rs8,500 for non-domestic users. The cost of loan funds was set at 12.5%, and contributions from the GOWB and the KMC considered at a cost of 9%. International inflation was assumed to be 1.2% and domestic inflation 4.1%.

II. Analysis at Completion

21. The KMC did not implement the planned tariffs on domestic water supply, which were assumed in the appraisal analysis. A share of these tariffs would have gone to meet the O&M expenses of S&D component. At completion, no flow of regular revenue is being provided from the proposed tariffs to recover the cost of O&M for the new sewerage connections provided to 46,145 households under the project. The KMC assigns 15% of collected property tax revenues to its S&D operations. This is in compliance with a section of the government legislation creating the KMC, which requires that 30% of property tax collection to go to water supply and S&D, and that half of this would go to S&D. The KMC uses this amount and transfers from the GOWB to show recovery of its S&D O&M costs without levying any tariffs for water, sewerage, and drainage services. The transfers used from the GOWB include grants for Dearness Allowance, Grants for Increased Cost of Pay, Relief on Pension, and Fixed Grant for electricity. Considering the fact that KMC could collect the one-time sewerage connection charges from these new connections, it is considered that there was no recurring revenue inflow from assets created under the project

and no allocation of property tax collection. Since KMC is able to collect the one-time sewerage connection charges from these new connections only, the financial analysis considers that the KMC did not earn any recurring revenue from the assets. The analysis does not consider the general allocation of property tax collection done by KMC for the S&D Component. With no incremental revenue, the financial evaluation at project completion has used the base capital cost. KMC has not delineated the O&M expenses for the project assets, and no related maintenance and service contracts for these assets have been awarded. Hence, the analysis assumed the O&M expenses of the assets at 8% per annum of the component's final base capital cost.

22. Based on the actual project financing, the actual WACC was calculated as 9.34% in real terms. The WACC calculation is shown in Table A8.4.

Table A8.4: Calculation of Weighted Average Cost of Capital at Project Completion

Particulars	Financing Component		Total Project Cost
	ADB Financing	GOWB Grant and KMC Contribution	
Amount (in \$ Million)	241.77	124.06	365.83
Weighting ^a	66.09%	33.91%	100.00%
Nominal Cost ^b	14.50%	8.68%	
Tax Rate	0.00%	0.00%	
Tax-Adjusted Nominal Cost	14.50%	8.68%	
Inflation Rate ^c	0.80%	7.54%	
Real Cost	13.59%	1.06%	
Weighted Component of WACC	8.982%	0.359%	
Weighted Average Cost of Capital	9.34%		

^a CADB financed 43%–100% of the costs of individual components.

^b Reserve Bank of India. 2012. *Reserve Bank of India Bulletin- November 2012*. India. Nominal cost for GOWB grant and KMC's contribution is equivalent to average of the last reported 12 months end of month yield to maturity of speculative grade liquidity transactions in Government of India dated securities for various residual maturities for 30 years maturity term. Rate of interest on loan from ADB considered as per the on-lending agreement between the GOWB and the KMC.

^c World Bank. 2008. *Global Development Finance: The Role of International Banking*. Washington. Global price escalation is based on international cost escalation factors during 2008–2012.

World Bank. 2013. *World Development Indicator*. Washington. Inflation in India has been calculated at an average of the rate of inflation in India since 1992 and up to 2012.

23. The financial cash flow statement includes all base costs, including taxes and duties and price and physical contingencies. It excludes all finance costs, including interest during construction, commitment charges, and front-end fee. The base cost also includes 15.1% of the actual capital expenditure as a share of the stakeholder consultation and implementation assistance and capacity-development costs. The O&M costs include costs for personnel, administrative overheads, power, chemicals, repairs and maintenance, and other miscellaneous expenses. They were considered to be 8% of the final base costs, since the KMC has yet to earmark any funds specifically for the O&M of the project assets. The financial projections were undertaken at constant 2013 prices.

24. **Sewerage and drainage component.** Only the S&D component was considered by during the financial evaluation, because it was assumed to be a revenue-generating component during appraisal. The loan appraisal projected a revenue stream of sewer charges and trade effluent charges. It also assumed a fee from new sewer connections and allocations from the KMC's property tax revenues. Although the project covered full project area, 46,145 sewerage connections were provided against the revised target of 70,000. The KMC has yet to install water meters and has not introduced the domestic water tariffs and household connections as envisaged. Since the financial analysis at project appraisal

assumed that the KMC would allocate a part of the water charges that have not been levied as sewerage charges, the S&D component is left with no regular revenue flow (para. 21).

25. Unlike the appraisal financial analysis, the financial evaluation at completion did not consider the allocation of KMC property tax revenue collected in the seven boroughs where the S&D component was implemented. These transfers are not incremental revenue that can be attributed to these project interventions but instead accrue to all of the KMC's S&D operations, as they did before the project was implemented. Sewer connection fees were assumed to average Rs4,500 per household, similar to the figure assumed during appraisal of the supplementary loan.

26. The evaluation's financial analysis calculated the FIRR for the S&D component at completion to be negative and thus below the assumed WACC. The financial net present value is -\$153.80 million. Details of FIRR evaluation are in Table A8.5.

Table A8.5: FIRR Evaluation of S&D Component at Project Completion

(Figures in \$ Million)

Fiscal Year		Incremental revenue receipts (of project)	Incremental O&M payment (of project)	Incremental capital receipts (of project)	Incremental CAPEX (of project)	Total Incremental Receipts	Total Incremental Payment	Net Cash Flow
FY2002	Y0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FY2003	Y1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FY2004	Y2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FY2005	Y3	0.00	0.01	0.00	0.16	0.00	0.17	-0.17
FY2006	Y4	0.00	0.05	0.00	0.44	0.00	0.48	-0.48
FY2007	Y5	0.00	0.11	0.00	0.79	0.00	0.90	-0.90
FY2008	Y6	0.00	0.11	0.00	0.00	0.00	0.11	-0.11
FY2009	Y7	0.00	1.29	0.00	14.79	0.00	16.09	-16.09
FY2010	Y8	0.00	3.35	0.00	25.65	0.00	26.95	-26.95
FY2011	Y9	0.00	6.80	0.00	43.16	0.00	46.50	-46.50
FY2012	Y10	1.38	8.79	0.00	24.90	1.38	31.70	-30.32
FY2013	Y11	1.38	14.05	0.00	65.73	1.38	74.52	-73.14
FY2014	Y12	1.38	20.50	0.00	80.62	1.38	94.67	-93.28
FY2015	Y13	0.00	20.67	0.00	2.10	0.00	22.77	-22.77
FY2016	Y14	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2017	Y15	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2018	Y16	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2019	Y17	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2020	Y18	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2021	Y19	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2022	Y20	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2023	Y21	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2024	Y22	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2025	Y23	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2026	Y24	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
FY2027	Y25	0.00	20.67	0.00	0.00	0.00	20.67	-20.67
At Completion				Total		4.14	562.87	
				FPV @	9.34%	1.43	155.22	
				FNPV @	9.34%			-153.80
				FIRR @	9.34%			Negative

FPV = financial present value, FNPV = financial net present value, FIRR = financial internal rate of return, FY = Fiscal Year.

Source: Asian Development Bank estimates.

III. Reevaluation of Findings

27. The comparison of the FIRR at appraisal and completion for the S&D component makes it clear that non-introduction of the planned water metering and water tariffs has made the component financially unviable. Had KMC collected the revenue envisaged in the project design, the FIRR finding at completion would have matched that of the appraisal. The WACC computed at completion is higher than that calculated at appraisal because of changes in the cost of funding and rate of inflation. During appraisal, it was assumed that the cost of loan funds and contributions from the GOWB would be 12.50% and the KMC would be 9%. They were assumed to be 14.5% from the GOWB and 8.68% from the KMC at project completion. The international inflation rate was assumed to be 1.2% during appraisal which was revised to 0.80% at completion. The domestic inflation rate was assumed to be 4.10% during appraisal which was revised to 7.54% at completion. The KMC's dependence on property tax collections and grant transfers from the GOWB for sector development continues. Moreover, due to delayed introduction of property tax reforms, the potential for generating additional revenue that will be needed to meet future sector development funding also remains a concern. The KMC needs to consider linking municipal services to appropriate levels of user charges to attain financial independence.

C. Fiscal and Financial Sustainability of Kolkata Municipal Corporation

28. The appraisal for the original loan found that the KMC was following the generally accepted accounting principles of India. However, a lack of computerized accounting systems forced the KMC during project implementation to rely on cash-based accounting information rather than accrual accounting procedures. This delayed the preparation of accounts and presentation of financial statements.³ With the introduction of a capacity-building program financed by the Department for International Development of the United Kingdom that progressed simultaneously along with this project, the KMC achieved substantial improvement in its financial and accounting systems and performance.⁴ The KMC continued to improve the existing structure of municipal finance and accounting since the FY2004, as well as its internal audit. It also continued strengthening its municipal finance and accounts department.

29. The KMC has computerized its accounting and is now following the accrual system of accounting. As of May 2015, the KMC had presented accounts until fiscal year FY2014 for audit and to the examiner of local accounts of Comptroller and Auditor General of India. The examiner of local accounts issued a true and fair certificate for its accounts up to FY2013. This had been a major achievement for the KMC and ADB believes it is continuing to improve the system.

30. The KMC is able to sustain the O&M expenses of all municipal services and create infrastructure assets from its own tax revenue, which had a compounded annual growth rate (CAGR) of 11.85% during 2005-2013, and from its non-tax revenue, which had a CAGR of 5.70% during 2005-2013. However, about 35% of total revenue still comes as grants from GOWB and Government of India, which grew by a CAGR of 10.73% during 2005-2013. Administrative expenses (CAGR = 15.08%), including employee cost and electricity expenses (CAGR = 11.69%) are the major expenditures. Its operating surplus before depreciation on assets grew during 2005-2013 by a CAGR of 2.67%. However, due to increase in the municipal assets, the KMC now has to recognize higher provisions for depreciation on the municipal assets for which the net surplus grew during 2005-2010, reported deficit in 2011, and have started showing surplus from 2012 onwards. The

³ In 2000, procedural issues delayed the presentation of accounts for audit for the fiscal years 1990–1991.

⁴ The capacity-building program aimed to improve accounting and financial management of KMC.

additions to assets include those provided by the project, which have been transferred to the line departments of KMC.

31. The KMC is able to meet its debt obligations for loans borrowed from GOWB except for the loan obligations of the project. It borrowed heavily to meet its expenses before 2000. Most of the borrowings were in the form of bank overdraft facilities and other short-term loans at very high rates of interest against liens of fixed deposits at a moderate rate of interest. Prior to introduction of financial reforms in 2000, the KMC also borrowed huge amounts due to improper financial management. After 2002, as required under ADB's loan covenants, the KMC took prudent financial decisions and repaid all outside loans. The impact was immediate. The KMC could once again meet its debt service commitments and continued to reduce its borrowing costs.

32. The KMC is in the process of introducing a unit area-based property tax.⁵ At present, it applies the annual-rental-value method of property taxation for tenanted properties and a reasonable-rental-value approach for properties occupied by their owners. KMC determines the annual value. The KMC is able to collect 60%–65% of assessed property taxes every year, and this revenue has been increasing. The increase is mainly due to improvements in the collection machinery. During FY2013, the KMC collected Rs2,592.3 million of past-due taxes through an amnesty scheme that waived a certain portion of the interest and penalty for those who paid overdue amounts.

⁵ Under unit-area based property taxation, the property tax is derived from the covered area of the property and area of vacant land multiplied by unit area values as fixed by the municipality for the area where the property or land is located.

MAINSTREAMING GENDER: ACHIEVEMENTS AND LESSONS LEARNED

1. The Kolkata Environment Improvement Project (KEIP), undertaken by the Asian Development Bank (ADB) in India in 2001-2003, was not designed to target women beneficiaries specifically, but all of its components were expected to help improve their quality of life.¹ The project's aim to improve environmental sanitation was expected to particularly benefit women. Resettlement planning was carried out carefully to ensure that gender issues were dealt with properly.² The self-help groups (mainly of women) created with support from the KEIP has proven to be both successful and sustainable. Although ADB did not prepare a gender action plan for the project, the KEIP made a fairly significant contribution to gender mainstreaming activities.

2. This appendix details the project's gender benefits. It includes information from (i) a published case study of women's self-help groups formed under the KEIP,³ (ii) a published case study of gender in resettlement under the KEIP and the resettlement plans for the KEIP published on the web,⁴ (iii) the official project reports and records, and (iv) consultations with women from relocated households and beneficiaries of self-help groups the project helped set up. It documents lessons learned from implementing the main gender mainstreaming activities, which were (i) promoting women's legal empowerment through the award of titles to apartments, with additional benefits accorded to households headed by women by granting them ground floor residences at resettlement sites; and (ii) supporting the economic and social empowerment of women by providing vocational training and forming self-help groups.

3. **Consultations and integration of gender issues in planning.** Gender issues were integrated with care into project planning, including resettlement planning and implementation. During stakeholder consultation, separate discussions were held with women to gain information on such gender issues such as appropriate entitlements, formation and role of user groups, self-help groups, and field-level monitoring committees. These consultations were meant to address women's concerns, motivate them, and engage their participation in planning and implementing the project works at local level.

4. **Gender in resettlement: promoting the legal empowerment of women.** Legal and nontransferable titles to housing provided under the project at resettlement sites were issued in the name of women, which empowered these women legally. This was one of the most significant gender interventions under the KEIP. Households headed by women were considered vulnerable and were accorded an additional entitlement in the form of ground-floor apartments, which offered commercial potential for helping them increase their incomes.

5. **Supporting women's economic and social empowerment through skill training.** The project introduced skills training programs to help augment the income levels of affected families and slum households. Vocational training was provided to willing women and girls from resettlement sites and colonies, as well as project area slums. Courses taught tailoring, beautician, and physiotherapy skills, among others, that would allow participants to earn additional income and help support their families.

¹ ADB. 2000. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Loan for the Calcutta Environmental Improvement Project*. Manila.

² ADB. 2006. *Report and Recommendation of the President (RRP) to the Board of Directors: Proposed Supplementary Loan Kolkata Environment Improvement Project*. Manila. p. 5-6.

³ ADB. 2008. *From the Ground Up. Case Studies in Community Empowerment*. Manila. pp. 28-38.

⁴ ADB. 2011. *Gender Mainstreaming Case Studies: India*. Manila. pp 9-18. See also KEIP. 2006. *Resettlement Plan: Kolkata Environment Improvement Project*. Kolkata, and KEIP. 2013. *Resettlement Plan: Kolkata Environment Improvement Project*. Kolkata. The 2006 Resettlement Plan placed emphasis on gender issues.

6. **Self-help groups.** The formation and financing of self-help groups (SHG) for women and the creation of apex groups or /neighborhood groups (NHGs) and were part of the capacity-building program under the KEIP. The program was funded by a \$42 million grant from the Department for International Development (DFID) and improved the Kolkata Municipal Corporation's (KMC) service delivery system and community access to basic services. A report documenting project initiatives related to community empowerment stated: "Many of the city's poorest residents lack the skills or opportunity to secure decent jobs, leaving them dependent on charity or free services." It also reported that the KMC and ADB were "pioneering a development approach that enables slum dwellers to help themselves in resolving a wide range of social and environmental issues" (footnote 3).

7. A total of 35 SHGs were formed in project resettlement colonies under the KEIP (Box). Typically, a SHG had 10 members, each of whom committed to saving Re1 a day or Rs30 a month. After 1 year of saving, the SHG was eligible for a loan from a nationalized bank equivalent to three times the total savings of its members. Each NHG was an apex body, initially having 6--8 SHGs under its umbrella. The DFID-funded capacity building component resulted in the formation of 2,025 NHGs, 82 neighborhood committees, and 1,953 thrift and credit societies.⁵

Deep Neighborhood Group: A Model Support System for Women's Empowerment

A neighbourhood group (NHG) called Deep and located in ward 5 of the Kolkata Municipal Corporation was visited during the 2015 project completion review mission for the Kolkata Environmental Improvement Project undertaken by the ADB during 2001-2003. The PCR team found the NHG to be a vibrant entity that was making a difference in the lives of women members of the self-help groups (SHGs) that fall under its purview. Deep officials said that it was formally registered in 2007 under the West Bengal Societies Act and initially had eight SHGs under its umbrella. That number had since almost quadrupled to 31. ADB assistance was provided to Deep NHG in two instalments to meet initial costs, one of Rs40,000 and another of Rs95,000. Women members of the SHGs under Deep were given training in professions and skills to help them earn income as beauticians or in such areas as embroidery, food processing, computer operation, and toy making. Deep became financially independent in 2008 and continues to meet all of its costs through the revenues it generates.

The NHG earns income from the preparation and supply of midday meals for 24 primary and upper primary schools, the supply of school uniforms for neighborhood schools, maintenance of public parks, and the production and sale of hand-embroidered linen and paper bags. Members also work as beauticians, tailors, and embroiderers. It had a bank balance of Rs200,000 as of May 2015. The NHG continues to have links with the KMC, which provides it with training support, but it is able to manage all of its activities on its own. All 12 participants in the focus group discussion of women members at Deep NHG indicated that they had benefited greatly (i) in monetary and economic terms by earning Rs1000-2000 per month per head (in salary and shares in profits) through joint economic activities and microenterprises, enabling them to supplement family incomes and support their families' health and education costs; (ii) in terms of financial inclusion, having increased access to capital when required, through loans at a specified rate (2% per month) from the SHGs, freeing them from the clutches of moneylenders; (iii) in social terms, by becoming confident and self-reliant, increasing their sense of self-worth as well as standing in the eyes of family/community members, (iv) in terms of emotional and problem-solving support from the group, where women are able to discuss and find possible solutions to problems if any, besetting their respective families. KMC sees a need to measure the extent to which the women have strengthened their economic, familial, and social status in ways that go beyond their added ability to supplement family incomes.

Source: Interactions with Deep NHG during project completion review Mission and officials of Kolkata Environmental Improvement Project.

⁵ Formation of SHGs in resettlement colonies was funded by ADB, while those in slums under the capacity-building program were funded by DFID. Project resources were used for SHG activities in slums as well.

8. The mobilization of women, formation of SHGs, and training of members in financial management, bookkeeping, and opening bank accounts was undertaken by non governmental organisations (NGO) engaged under the project. Vocational and skills training for microenterprises was provided to 326 women SHG members from the project resettlement colonies to 517 women members of existing SHGs and those formed under the KEIP from 85 slums improved under the project.⁶

9. **Other gender-sensitive actions.** The project also ensured that women were the main beneficiaries of poverty alleviation schemes and sought to empower women through gender sensitization, participation, and training. Women held fairly responsible, decision-making positions and not only clerical jobs on the staff of the project management unit.

10. **Outcomes of gender-focused activities.** The gender-focused activities and outputs of the project described in paras. 4,5 and 6 led to significant positive outcomes for women. The interventions related to the awarding of titles, access to training and income-generating activities, and participation and membership in SHGs have helped women achieve (i) economic empowerment through a share in the control of income and decisions on the use of income and material resources in the household, (ii) legal and social empowerment through participation in decision-making processes in the SHGs, and (iii) positive changes in the community and male regard for women.

11. **Lessons.** The project yields the following important lessons in mainstreaming gender:

(i) **Skill training activities.** Lessons drawn from skills training activities are based on consultations during the project completion review mission. One is that the training could have been more effective at gender mainstreaming and empowerment if a diverse range of training options had been offered to different women at each resettlement site or colony. Instead, a single training program was provided for all of the women in each site or colony. Women should also have been encouraged to take up courses in such activities as plumbing and the repair of mobile phones and air-conditioners, which have traditionally been male bastions. In addition, the project should have provided safe transport to and from training venues for women to encourage them to opt for training outside of the trades traditionally regarded as suited for women. These were not offered near their homes.⁷

(ii) **Formation of self-help groups.** Based on discussions with the KMC, several lessons may be relevant to design of future interventions. The appointment of an NGO without a base in the city to manage social sector activities is not as effective a mechanism for integrating social development and gender mainstreaming activities in a project as having a social development unit within the project management unit.⁸ Appointing a large number of NGOs may be counterproductive, since it makes managing their activities a complex exercise. The KEIP initially engaged 10 NGOs. Two of these—Bharat Sevashram Sangha and Tiljala Shed—were outstanding. Ideally, they should have been given the opportunity to appoint larger teams and manage SHG activities across the city. Stringent criteria for NGO selection may help screen out potential nonperforming NGOs at the start. Appointment of a serving or

⁶ Data was obtained from unpublished official documents and records of SHG activities available with the project management unit.

⁷ Beautician, physiotherapy, and tailoring courses were given at the resettlement sites and colonies, but training in the repair of mobile phones and air conditioners required participants to travel to a training institute. Women found this to be barrier to participating in such courses. Women trained under the project told the project completion review mission that they were happy with the type of training they received and were using the skills they learned to supplement their families' incomes. However, the design of similar projects in the future needs to build in elements such as the provision of safe transport facilities that are needed by women and will help ensure that they have equal access with men to the training programs offered.

⁸ In 2005, the project replaced a Delhi-based NGO with its own Social Development Unit in the PMU. The SDU then appointed 10 city NGOs, later reduced to 6, to mobilize and counsel self-help groups, known as *sangha*.

retired KMC or /government officer, rather than a consultant or/contractual staff member, as head of the social development unit of the KEIP helped ensure greater ownership and continuity of social development and gender mainstreaming activities, especially after completion of the NGOs' tenure. The maintenance of strong links with the KMC and elected representatives for each area by the SHGs and NHGs formed under the project has been and continues to be beneficial for the groups in accessing information on government programs and schemes and potential business opportunities. This adds to their sustainability. Adequate emphasis on and investment in training and capacity building at the initial stages of group formation have a demonstration effect and lead to automatic scaling up of activities related to gender mainstreaming and women's empowerment, eliminating the need for any support.

(iii) **Resettlement planning.** Consultations and dialogue among men of the importance of women's contribution to the family, most often in the form of unpaid work, are key to the acceptance of gender-focused proposals by all community members.

LAND ACQUISITION AND RESETTLEMENT

1. This Appendix deals with land acquisition and resettlement planning and implementation undertaken for the Kolkata Environment Improvement Project (KEIP), and documents the lessons learned.

2. **Resettlement Plans.** A resettlement plan was prepared in 2000 for the KEIP, which was classified as category A for involuntary resettlement impacts. In 2006, the plan was revised to reflect physical changes and design modifications. In 2010, a resettlement plan was prepared for the Padirhati pumping station subproject. In 2013, the plan was updated to reflect further changes in the project scope. The 2013 plan updated the 2006 plan in terms of land requirements for resettlement sites and the number of resettled families. It also included the 2010 resettlement plan for the Padirhati pumping station subproject. An action plan was prepared in 2013 that aimed to close pending issues pertaining to relocation and resettlement. A census and socioeconomic survey of affected persons undertaken in 2000 and verified in 2005 served as the bases for the two resettlement plans in 2000 and 2006. The number of displaced non-titled canal bank households was revised from time to time due to scope changes and/or to avoid relocation. The totals were 3,507 households per the survey in 2000, 3,626 households per the survey in 2006, and 2,880 households in 2013.

3. **Due Diligence Review of Secondary Displacement.** Land requirements for the project changed during implementation due to scope changes, including the dropping of such components as a planned landfill site. Identification of government land helped avoid land acquisition in carrying out the sewerage and drainage components. Private land acquisition for two resettlement sites (Purba Putiary and Sampa Mirza Nagar) and negotiated purchase of private land at Kalagachhia and Sampa Mirza Nagar was undertaken. Details of this secondary displacement due to acquisition are not covered in a resettlement plan under ADB's involuntary resettlement Policy (1995). Kolkata Municipal Corporation (KMC) has agreed to undertake due diligence review to address the pending issues and take any corrective measures required.

4. **Resettlement Plan Implementation.** The KMC's project management unit (PMU), which was responsible for implementation of the resettlement plan, reported that land for the project was obtained in several ways. It reported that 3.51 acres were acquired from 64 persons for resettlement sites at Purba Putiary and Sampa Mirza Nagar. Another 4.09 acres of private land was purchased through negotiations from 31 landowners for resettlement sites at Kalagachhia and Sampa Mirza Nagar, an access road to a resettlement site at Sampa Mirza Nagar, and construction of Padirhati pumping station and sewage outfall structure. A total of 11.75 acres of government land was purchased for resettlement sites at Nonadanga and Kasba. Government land totaling 1.198 acres of government land was obtained through a long-term lease for construction of sewage pumping stations. In addition to loan agreement impacts to 64 titled landowners due to acquisition, the project caused physical and/or economic displacement of 2,880 non-titled canal bank residents and shop owners, identified through the census and socioeconomic survey of affected persons in the 2006 resettlement plan.

5. The executing agency reported that of the 3,626 entitled households identified through the census survey, 2,880 were provided flats with secure tenure. Relocation of 559 entitled shops and residences was avoided by permitting sectional improvements. Of the remaining 187 entitled persons, 31 could not be traced and the rest did not wish to relocate and were not required to do so. The executing agency reported that affected landowners from whom land was acquired under

the Land Acquisition Act, 1894 were compensated based on market value of land.¹ The project relocated and provided housing with secure tenure to 2,880 non-titled residential and/or commercial properties. Members of relocated households said during focus group discussions that affected persons have improved access to health and education in their new locations. They also reported having better access to jobs due to skills training and improved social standing due to access to housing with secure tenure. Improved livelihood outcomes were indicated by relocated households in the resettlement sites (Kasba, Purba Putiary) visited during the April 2015 project completion review mission. Information on the situation in other sites was not available. The project successfully demonstrated convergence with a government housing program, Valmiki Ambedkar Awas Yojana, to provide secure tenure to non-titled affected persons who had to be relocated. Protection of canal bank areas cleared for the project from subsequent squatting was not undertaken.

6. Allotment of flats at resettlement sites was through a transparent draw of lots in the presence of affected persons. The project was successful in allotting flats to women members of affected households. Vulnerable persons, including those in households headed by women and disabled persons, were allocated ground-floor flats with commercial potential, as were those who had had shops before relocation. The remaining flats were allocated to other entitled households.

7. The resettlement process was delayed for three years due to difficulties in land acquisition. The census survey that identified the affected persons and set a cut-off date for identification of affected persons was undertaken in 2000. A survey to verify the affected persons identified in 2000 was undertaken in 2005, and the canal works began in 2006. Due to the time lag between 2000 and 2006, new squatting occurred at some project locations. It could not be addressed by the KEIP because the occupants arrived after the cut-off date.

8. KMC needs to carry out the following actions to ensure full compliance with the entitlement matrix and inform ADB:

(i) Granting of remaining lease deeds: Ninety year lease deeds have been granted to 2,041 households found to reside in the apartments provided. Decision on the issue of granting of lease deeds for the remaining 838 flats found locked or /occupied by other families other than those of entitled persons, is pending. KMC would take a decision on this issue by 31 March 2016.

(ii) Payment of shifting allowance: Payment of shifting allowance was made to 420 transit camp households; payments of Rs300 each to the remaining 2,460 households are pending. The payments would be made by 31 March 2016.

(iii) Due diligence review of land acquisition and involuntary resettlement: A due diligence review of land acquisition and involuntary resettlement would be undertaken by KMC by 31 March 2016.

¹Land acquisition was initiated in 2002-2003 and completed in 2005. The Land Acquisition Act,1894 provided the necessary legal base. The risk of inappropriately low compensation triggering litigation and attendant delays was mitigated by the use of the West Bengal Land Acquisition Manual of 1991, which guides the state government in calculating compensation. In the case of both the acquired sites (at Purba Putiary and Sampa Mirza Nagar), the market value of land was determined by the first land acquisition collector of Kolkata in line with the provision of section 23 of the land acquisition act and clause 68 of the land acquisition manual. After determining the market value, the collector declared the compensation payable under section 11 of the act. The compensation or award so declared was paid to the individual land owners through checks. Details have been provided to ADB by the executing agency during the project completion review mission. A 2010 KEIP social monitoring report states that all individual owners from whom land was either acquired or purchased were paid for the land at the replacement cost.

9. **Institutional arrangements for resettlement.** The social development unit (SDU) of the KMC's PMU was responsible for resettlement implementation. The project management and design supervision consultants supporting the SDU and the PMU included resettlement specialists. The services of an external monitor for social safeguards appointed in November 2007 were retained until mid-2011. Adequate staffing of the SDU until well after the period of physical relocation was critical to handling responsibilities that continued after relocation. In retrospect, the project completion report finds that the appointment of a contractual staff member to head the SDU for a certain period was less effective than having a KMC staff member or a retired government official deputed to the position would have been.

10. **Grievance redress.** The project did not have a grievance redress committee, because the PMU believed that such a formal committee would remain out of reach of the affected persons. Instead, the project adopted an informal process for redressing grievances. All affected persons had access to the community mobilisers of the SDU, who would listen to their grievances and report to the project director at PMU. However, this would not have been an independent or objective process, and the SDU officials themselves identified the need for (i) a simple grievance recording mechanism, such as a grievance register at each site office; and (ii) a grievance tracking mechanism ensure that the grievance redress mechanism was robust. No pending formal grievances are reported by the SDU. An informal grievance that emerged during the project completion review focus group discussion related to the small size of apartments provided, but this could not be addressed by the KMC after project completion. Informal grievances related to pending actions by the KMC and the PMU were recorded, and an action plan was prepared to address these in 2013. All the issues listed in the plan have been resolved.

11. **Consultation and disclosure.** The project disseminated information to affected persons from time to time through the community mobilisers of the SDU. Information was conveyed verbally and through printed hand-outs. However, project stakeholders recommended that clear and visible displays of project information, implementation schedules, and grievance redress processes be displayed at the work sites of future projects. In addition to web disclosure, information on entitlements, compensation, eligibility, the cut-off date, and implications of the cut-off date needs to be clearly conveyed to all potential affected persons at project locations. Timely dissemination of information to affected persons on entitlement and the relocation process can help reduce grievances by affected persons.

12. The project yield the following lessons learned from resettlement implementation:

- (i) The protection of sites from which people are relocated is necessary. Otherwise, squatting or encroachment can recur, and the very purpose of resettlement is defeated.²
- (ii) Engagement with the community in situations of conflict, non-acceptance of compensation or divergent opinions is a necessary prerequisite for successful resettlement. Effort to ensure an initial buy-in from local community leaders and politicians is needed to prevent such situations.
- (iii) Flexibility on the part of project proponents—e.g. in case of the KEIP, the decision to undertake sectional improvement of canals—can help avoid or minimize resettlement.
- (iv) Two-part resettlement creates greater distress for affected persons. Relocation in one step after completion of the necessary housing and infrastructure facilities works better. Coordination with line agencies to ensure that adequate transport facilities such as bus

² The final social monitoring report of the external monitor records the need for protection of canal banks from which people were relocated.

services are close to resettlement sites is critical to protecting the livelihoods of relocated persons, especially women.

(v) Providing additional dwellings or benefits for large families translates into greater chances of resettlement success, because this may help avoid fragmentation of families and social networks.

(vi) The SDU of a PMU needs to be adequately staffed until well after the period of physical relocation so that it can handle responsibilities that do not end with relocation (e.g., lease deed registration). The project should also timely mobilize the safeguards experts and continue their services till loan closure.

(vii) Systematic and continuous approach to enhance capacity in ADB policy, procedures, and requirements for staff of the executing agency is required.

(viii) Local NGOs with a strong grassroots presence are more successful at community level work than NGOs based in other places. NGO personnel need to be given adequate time beyond the resettlement implementation period for activities aimed at sustainability.

(ix) There is need to always include secondary displacement due to land acquisition and resettlement for resettlement sites in all resettlement plans.

(x) Resettlement monitoring needs to be more stringent during implementation to ensure just compensation for temporary income loss.

(xi) Resettlement plan updating, monitoring, and due diligence needs to be better structured. It should focus on compliance with ADB policy and the project's entitlement matrix, as well as continuous feedback from and dialogue with the project office to ensure midcourse corrections, if necessary.

CONTRIBUTION TO ADB RESULTS FRAMEWORK

No.	Level 2 Results Framework Indicators	Target	Revised Target	Aggregate Output	Method/Comments
1.	Households with new or improved sanitation (number)	100,000	46,145	46,145	The original target of 100,000 sewerage house connections did not match the actual requirement, which the project achieved. 100% coverage of households was achieved in project areas.
2.	Land improved through irrigation, drainage and/or flood management (hectares)			4,800	Flooding reduced in about 4,800 hectares of the project area due to improved drainage facilities.
3.	Households with reduced flood risk (number)	454,000	340,000	340,000	Sewerage and drainage facilities under the project have benefited 1.5 million people (equivalent to 340,000 households). 100% coverage area of sewerage and drainage in project areas has been achieved.

Source: Asian Development Bank project completion review mission.