



Completion Report

Project Number: 38272-023
Loan Number: 2410
September 2021

India: Uttarakhand Urban Sector Development Investment Program – Project 1

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Asian Development Bank

CURRENCY EQUIVALENTS

Currency unit		–	Indian rupee/s (₹)
		At Appraisal	At Project Completion
		14 December 2007	16 July 2018
₹1.00	=	\$0.053	\$0.0146
\$1.00	=	₹39.410	₹68.484

ABBREVIATIONS

ADB	–	Asian Development Bank
APFS	–	audited project financial statements
COVID-19	–	coronavirus disease
DBO	–	design-build-operate
DMF	–	design and monitoring framework
DSC	–	design and supervision consultant
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
EOCC	–	economic opportunity cost of capital
HSC	–	house service connection
IEE	–	initial environmental examination
IPIU	–	investment program implementation unit
IPMC	–	investment program management consultant
IPMU	–	investment program management unit
JNNURM	–	Jawaharlal Nehru National Urban Renewal Mission
km	–	kilometer
m	–	meter
MFF	–	multitranche financing facility
mld	–	million liters per day
NGO	–	nongovernment organization
O&M	–	operation and maintenance
PAM	–	project administration manual
PCR	–	project completion report
PFR	–	periodic financing request
PPP	–	public–private partnership
STP	–	sewage treatment plant
TA	–	technical assistance
UDD	–	Urban Development Department
UJS	–	Uttarakhand Jal Sansthan (Uttarakhand water and sewer operation and maintenance agency)
ULB	–	urban local body
UPJN	–	Uttarakhand Pey Jal Nigam (Uttarakhand portable water and sewer infrastructure development and construction corporation)
UUSDA	–	Uttarakhand Urban Sector Development Agency
UUSDIP	–	Uttarakhand Urban Sector Development Investment Program
WSS	–	water supply and sanitation

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., FY2021 ends on 31 March 2021.
- (ii) In this report, “\$” refers to United States dollars.

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BASIC DATA

A. Loan Identification

- | | | |
|----|----------------------------------|---------------------------------------------------------------------|
| 1. | Country | India |
| 2. | Loan number and financing source | 2410; Ordinary capital resources |
| 3. | Project title | Uttarakhand Urban Sector Development Investment Program – Project 1 |
| 4. | Borrower | India |
| 5. | Executing agency | Urban Development Department, Uttarakhand |
| 6. | Amount of loan | \$60 million |
| 7. | Financing modality | Multitranche financing facility |

B. Loan Data

- | | | |
|----|----------------------------------|----------------------------------------------------------------|
| 1. | Appraisal | |
| | – Date started | 22 August 2007 |
| | – Date completed | 29 August 2007 |
| 2. | Loan negotiations | |
| | – Date started | 20 November 2007 |
| | – Date completed | 21 November 2007 |
| 3. | Date of Board approval | 1 February 2008 |
| 4. | Date of loan agreement | 23 October 2008 |
| 5. | Date of loan effectiveness | |
| | – In loan agreement | 21 January 2009 |
| | – Actual | 17 December 2008 |
| | – Number of extensions | None |
| 6. | Project completion date | |
| | – Appraisal | 30 June 2012 |
| | – Actual | 23 January 2018 |
| 7. | Loan closing date | |
| | – In loan agreement | 31 December 2012 |
| | – Actual | 23 January 2018 |
| | – Number of extensions | Three |
| 8. | Financial closing date | |
| | – Actual | 16 July 2018 |
| 9. | Terms of loan | |
| | – Interest rate | London interbank offered rate (LIBOR)-based (floating) + 0.60% |
| | – Maturity (number of years) | 25 years |
| | – Grace period (number of years) | 5 years |

10. Disbursements

a. Dates

Initial Disbursement 26 February 2009	Final Disbursement 16 July 2018	Time Interval 112 months
Effective Date 17 December 2008	Actual Closing Date 23 January 2018	Time Interval 85 months

b. Amount (\$'000)

Category	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation ^a (4 = 1+2-3)	Amount Disbursed (5)	Undisbursed Balance ^b (6 = 4-5)
1. Civil works	27,852.00					
2. Equipment	14,351.00				39,699	2,504
3. Consulting services	605.00				149	456
4. Surveys/Studies	1,016.00					1,016
5. Consulting Services	8,034.00				12,225	(4,191)
6. Incremental Recurrent Cost of Program, Project Management, and Implementation	1,562.00				4,718	(3,156)
7. Unallocated	6,580.00					
Total	60,000.00				56,790	3,210

Note: Numbers may not sum precisely because of rounding.

1. Civil works and equipment are combined in disbursement.

2. Surveys/studies and consulting services.

^a No official record on the revised loan allocation was found.

^b The undisbursed balance of \$3.21 million was canceled on 16 July 2018.

C. Project Data

1. Project cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign exchange cost ^a	11.4	5.5
Local currency cost	74.3	72.7
Total	85.7	78.2

^a Foreign exchange cost includes only interest during construction.

2. Financing plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation cost		
Borrower financed	14.3	15.9
ADB financed	60.0	56.8
Other external financing		
Total implementation cost	74.3	72.7
Interest during construction costs		
Borrower financed	11.4	5.5
ADB financed	-	-
Other external financing	-	-
Total interest during construction cost	11.4	5.5
Total	85.7	78.2

3. Cost breakdown by project component (\$ million)

Component	Appraisal Estimate	Actual
Base Costs		
1. Water Supply	27,836	18,968
a. Dehradun	13,295	10,909

b. Haridwar	7,002	531
c. Nainital	7,539	7,528
2. Sewerage management	20,623	36,669
a. Dehradun	20,623	36,669
3. Capacity Building Program	3,111	153
a. Financial and institutional reform	1,717	0
b. Solid waste segregation	490	87
c. Solid waste management strategy and planning	299	0
d. Slum improvement strategy and planning	101	0
e. In-county training and study visits	503	65
4. Project management	7,537	16,943
a. Project management and implementation units	1,562	4,718
b. Project management consultants	1,937	2,479
c. Design and supervision consultants	4,038	9,746
5. Tax and Duties	7,941	0
Subtotal	67,048	72,733
Contingencies	7,282	0
Financial Charges During Implementation	11,384	5,514
Total	85,714	78,247

Note: Taxes and contingencies of actuals are included in the base costs.

Source: Periodic financing request and project administration manual for project 1 for appraisal estimates; completion information from ADB mainframe database (ADB share) and investment program management unit (for counterpart contribution) and ADB estimates.

4. Project schedule

Item	Appraisal Estimate	Actual
Date of contract with consultants	1 July 2008	4 November 2008
Completion of engineering designs	30 June 2008	4 May 2017
Civil works contract		
Date of award	1 January 2009	24 December 2009
Completion of work	30 June 2012	23 January 2018
Equipment and supplies		
Dates		
First procurement	1 July 2009	12 November 2010
Last procurement	31 December 2011	31 March 2016
Completion of equipment installation	30 June 2012	31 December 2016
Start of operations		
Completion of tests and commissioning	30 June 2012	23 January 2018
Beginning of start-up	1 July 2012	24 January 2018

5. Project performance report ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 1 February 2008 to 31 July 2008	Satisfactory	Satisfactory
From 1 August 2008 to 30 September 2008	Satisfactory	Unsatisfactory
From 1 October 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 March 2011	Satisfactory	Satisfactory
Single Project Rating		

From 1 April 2011 to 30 June 2011	On Track
From 1 July 2011 to 30 September 2011	On Track
From 1 October 2011 to 31 December 2011	Potential Problem
From 1 January 2012 to 31 March 2012	Potential Problem
From 1 April 2012 to 30 June 2012	On Track
From 1 July 2012 to 30 September 2012	On Track
From 1 October 2012 to 31 December 2012	On Track
From 1 January 2013 to 31 March 2013	On Track
From 1 April 2013 to 30 June 2013	Potential Problem
From 1 July 2013 to 30 September 2013	Potential Problem
From 1 October 2013 to 31 December 2013	On Track
From 1 January 2014 to 31 March 2014	On Track
From 1 April 2014 to 30 June 2014	On Track
From 1 July 2014 to 30 September 2014	On Track
From 1 October 2014 to 31 December 2014	On Track
From 1 January 2015 to 31 March 2015	On Track
From 1 April 2015 to 30 June 2015	On Track
From 1 July 2015 to 30 September 2015	On Track
From 1 October 2015 to 31 December 2015	On Track
From 1 January 2016 to 31 March 2016	On Track
From 1 April 2016 to 30 June 2016	On Track
From 1 July 2016 to 30 September 2016	On Track
From 1 October 2016 to 31 December 2016	On Track
From 1 January 2017 to 31 March 2017	On Track
From 1 April 2017 to 30 June 2017	On Track
From 1 July 2017 to 30 September 2017	On Track
From 1 October 2017 to 31 December 2017	On Track
From 1 January 2018 to 31 March 2018	On Track
From 1 April 2018 to 30 June 2018	On Track
From 1 July 2018 to 30 September 2018	On Track

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Pre-Fact Finding Contact	7–11 May 2007	4	20	a, b, c, d
Loan Fact Finding	11–26 Jun 2007	5	25	a, b, c, d, e
Appraisal	22–29 Sep 2007	3	18	a, b, c
Inception	19–23 Jan 2009	3	15	b, f, g
Loan Review 1	6–13 Jul 2009	2	16	b, h
Special Project Administration 1	14–18 Dec 2009	1	5	b
Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Special Project Administration 2	14–17 Apr 2010	4	16	b, i, h, j
Loan Review 2	6–13 Nov 2010	2	14	h, j
Project Review 1	1–9 Sep 2011	2	14	h, j
Project Review 2	21–28 May 2012	2	12	h, k
Special Project Administration 3	4–10 Dec 2012	2	10	h, k
Midterm Review	5–11 Dec 2013	3	15	h, k, l
Special Project Administration 4	8–9 Oct 2014	2	4	h, k
Special Project Administration 5	18–19 Nov 2014	2	4	k, m
Special Project Administration 6	25–27 Nov 2015	3	9	h, n, o
Loan Review 3	15–24 Jun 2016	4	28	h, p, q, r
	28–30 Nov 2016			
Special Project Administration 7	7–9 Dec 2016	1	6	h

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Special Project Administration 8	23–25 May 2017	2	6	h, r
Loan Review 4	30 Oct–7 Nov 2017	5	20	h, r, s, q, p f

a = principal urban development specialist, b = urban economist, c = safeguards specialist (consultant), d = water utility specialist (consultant), e = counsel, f = assistant project analyst, g = staff consultant, h = project implementation officer, India Resident Mission, i = senior urban specialist, j = assistant project analyst, k = associate project officer, l = resettlement specialist, m = associate social development officer (gender), n = senior safeguards specialist, o = resettlement consultant, p = gender consultant, q = environmental safeguards consultant, r = project analyst (consultant), s = social safeguards officer.

I. PROJECT DESCRIPTION

A. The Program

1. The state of Uttarakhand in northern India is characterized by hilly terrain and high forest coverage. Uttarakhand's urban centers play an increasingly important role in the state's economic transformation, but their infrastructure and services remained inadequate. The Uttarakhand Urban Sector Development Investment Program (UUSDIP) was designed to improve the quality of life of urban residents, and promote sustainable, efficient, and responsive service delivery in Uttarakhand's urban areas. The Asian Development Bank (ADB) approved the UUSDIP as a multitranche financing facility (MFF) on 24 January 2008 at an estimated cost of \$500 million, with a loan component of \$350 million and the Government of India's contribution of \$150 million.¹ The UUSDIP was designed to be implemented in four tranches over a period of 8 years (2008–2016).

B. Project 1 Under the Program

2. The first tranche of the UUSDIP (project 1) had an expected impact of improved quality of life for urban residents in Uttarakhand's selected towns of strategic importance, and an expected outcome of increased access to better quality of piped water supply services to the people living within the towns of Dehradun, Haridwar, and Nainital, and sewerage and sewage treatment facilities by the end of the project period.² To achieve the intended outcome, project 1 had five outputs under two major parts. The outputs of Part A: Improved Urban Infrastructure and Services were (i) implemented water supply in Dehradun, Haridwar, and Nainital; and (ii) implemented sewerage in Dehradun. The output of Part B: Capacity Development and Investment Program Management were implemented assistance to support the attainment of the Uttarakhand government's urban governance, finance, and service delivery improvement action plan. At appraisal, project 1 planned to (i) provide better quality and sustainable infrastructure and services in Dehradun, Haridwar, and Nainital by improving water supply for 95% of the population, reducing unaccounted for water, and increasing access to wastewater management for 24% of the population; and (ii) benefit 31 urban local bodies (ULBs) by improving (a) governance through the implementation of reforms, (b) sustainability of urban services to meet operation and maintenance (O&M) costs, (c) migration to double entry accounting, and (d) public–private partnership contracts. Project 1 aimed to benefit about 1 million people in three ULBs.³ Project 1 under the MFF with a project loan of \$60 million was approved on 1 February 2008, signed on 23 October 2008, and declared effective on 17 December 2008. The original loan closing date of 31 December 2012 was extended thrice to close on 23 January 2018 and financial closure was on 16 July 2018.

II. DESIGN AND IMPLEMENTATION

A. Project Design and Formulation

3. Project 1 was *relevant* to the government and ADB sector strategies at appraisal, aligning with ADB's country partnership strategy for India, 2003–2006 and country strategy and program update, 2004–2005, which addressed poverty reduction primarily through support for

¹ ADB. 2007. [*Report and Recommendation of the President to the Board of Directors: Proposed Multitranchise Financing Facility to India for the Uttarakhand Urban Sector Development Investment Program*](#). Manila.

² ADB. 2007. *Periodic financing request report: Uttarakhand Urban Sector Development Investment Program: Tranche 1*. Manila.

³ Government of India, Office of the Registrar General and Census Commissioner. 2011. *Census of India, 2011*. New Delhi. It indicates a total of 0.99 million, which are: Dehradun (574,840), Haridwar (231,338), and Nainital (185,699).

infrastructure-led growth.⁴ It was also aligned with the government's inclusive Eleventh Five-Year Plan, 2007–2012, highlighting urban infrastructure development as a key to economic development with reform agenda of Jawaharlal Nehru National Urban Renewal Mission (JNNURM),⁵ and encouraging balanced and sustainable development by reducing spatial disparities.⁶ The state government has prepared city development plans for three priority towns under its participation in JNNURM,⁷ while project 1 was intended to support the remaining sector investment requirements that were not captured under JNNURM.⁸ The project design at project completion remained *relevant* as it aligns with pillars 2 and 3 of the country partnership strategy for India, 2018–2022, and ADB's Strategy 2030 operational priorities on making cities more livable, and strengthening governance and institutional capacity.⁹ The modality choice for project 1 was appropriate. The lessons learned from previous ADB urban sector projects in India were considered and incorporated in the project design by (i) providing advance support for building capacities for project management and implementation; (ii) addressing the high levels of coordination required among concerned agencies; (iii) increasing stakeholder involvement during project design, their ownership of project assets, and their sustainability; and (iv) phasing urban reforms and familiarization with ADB procedures to avoid start-up delays through a bridging technical assistance project. The project also conducted extensive public consultations, which were a critical element for project design and implementation as they helped the state government and beneficiaries to gain a good level of project ownership.

B. Project Outputs

4. A periodic financing request (PFR) for project 1 was approved without a design and monitoring framework (DMF).¹⁰ Yet the DMF for the project was included in the project administration manual (PAM), which was used for the loan inception mission in January 2009 (Appendix 1A and 1B). The project description for the PFR and the targets indicated in the DMF in the PAM reveal some discrepancies in project outputs as discussed in detail in Appendix 1A. During project implementation, ADB processed and approved two scope changes.¹¹ All other changes recorded in mission aide-mémoires and tripartite portfolio review meeting records did not go through ADB's internal scope change process. This project completion report (PCR) counts only the achievement of output targets indicated in the original DMF and the officially approved scope changes. Out of 20 original output indicators, 4 were officially removed, 3 achieved, 1 substantially achieved, 3 partially achieved and 9 not achieved. The achievement of output targets is summarized in paras. 5–12 and detailed in Appendix 1A.

⁴ ADB. 2003. [Country Strategy and Program: India, 2003–2006](#). Manila; and ADB. 2003. *Country Strategy and Program Update: India, 2004–2006*. Manila.

⁵ In 2005, the Government of India launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), a reform-linked urban infrastructure financing scheme, and in May 2007, the Government of Uttarakhand signed a memorandum of understanding to participate in the scheme.

⁶ Government of India, Planning Commission. 2008. [Eleventh Five-Year Plan, 2007–2012](#). New Delhi.

⁷ Government of Uttarakhand, State Planning Commission. 2008. *Annual Plan: 2008–2009*. Dehradun.

⁸ ADB. 2009. Aide-Mémoire. *Inception Mission January 2009*. Dehradun. An agreement was reached during the mission to limit the scope of the Haridwar water supply subproject as it was being funded through a JNNURM grant.

⁹ ADB. 2017. [Country Partnership Strategy: India, 2018–2022—Accelerating Inclusive Economic Transformation](#). Manila; and ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

¹⁰ ADB. 2006. *Staff Instructions on the Use of the MFF*. Manila. According to these instructions, which were issued in 2006, a PFR shall have its own DMF.

¹¹ The change in scope approved on 30 May 2008 allowed the realignment of Bandal raw water main pipes to avoid environmentally critical areas in Dehradun. The second change in implementation arrangement approved on 25 March 2009 allowed the removal of a water supply distribution line in Haridwar as the state government decided to include those works under the JNNURM program (Appendix 2).

1. Part A: Urban Infrastructure Improvement and Services

5. **Implemented water supply optimization subproject in Dehradun.** ADB approved the rerouting of the water supply network to avoid environmentally sensitive areas (footnote 11). By project completion, the outputs under the Dehradun water supply subproject included (i) construction of 155.8 kilometers (km) of water supply pipeline, substantially achieving the original target of 172.5 km and the revised target of 179.8 km,¹² and (ii) installation of 25,500 house service connections (HSCs), falling short in meeting the original target of 65,000 HSCs.¹³ The output target on installation of 71,000 domestic meters was not achieved. The completion of these works was indicated in the PFR but not included in the DMF. The target of 42% nonrevenue water (NRW) reduction could not be assessed as no measurement was carried out.¹⁴ Additionally, (i) renovation of 46 pump houses and replacement of pumping machinery, (ii) construction of a weir, (iii) construction of one softening plant, (iv) installation of three chlorinators, and (v) procurement of seven silent mobile generators were completed.

6. **Implemented water supply optimization subproject in Nainital.** At project completion, outputs targets were partially or not met: (i) 37.9 km water supply network was constructed against the original scope of 93 km, (ii) the targeted 6,850 HSCs and 4,150 household meters were not installed, and (iii) no NRW assessment was done as no data was available to verify NRW reduction.¹⁵ Nevertheless, project 1 achieved the following outputs that were not indicated in the DMF: (i) construction of four tube wells with a total of 14 million liters per day (mld) cumulative water supply capacity, (ii) construction of 22 ground-level service reservoirs, (iii) construction of one softening plant, and (iv) construction of four pump houses. After project completion, the government provided 5,353 HSCs using its own fund.

7. **Implemented water supply optimization subproject in Haridwar.** During implementation, the water supply network construction in Haridwar was removed from the project scope as the government decided to include the Haridwar water supply component under JNNURM (footnote 11 and Appendix 2A).¹⁶ On the other hand, project 1 achieved the following that was indicated in the PFR but not included in the DMF: (i) renovation of 16 pump houses and (ii) construction of 16 new pump houses with pumping machinery in Haridwar, although the Haridwar water supply pipeline was dropped from the project (footnote 11). After project completion, a total of 30,187 HSCs were provided with the government's fund under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT).¹⁷

¹² The periodic financing request includes the laying of 172.5 km in the subproject scope while the project administration manual prepared during the inception mission indicates 177 km. The scope was revised to 179.8 km because the raw water main was rerouted, resulting in the additional laying of 7.3 km of pipeline.

¹³ The state government decided to finance the remaining house connections gradually, using funds from various national schemes. As of date, an additional 15,773 HSCs have been completed and works are under progress.

¹⁴ The state government has started nonrevenue water (NRW) assessment in Dehradun and is making some progress. It is also planning to expand the NRW assessment to other ULBs, but progress has been slow because of the coronavirus disease (COVID-19) and the consequential shift in state government priorities.

¹⁵ According to aide-mémoires and TPRM records, the Government of Uttarakhand requested the reduction of pipe networks to 49.92 km and the removal of household service connections and meters in the Nainital water supply optimization component as these would be financed by the government. However, ADB's official approval for scope change was not processed.

¹⁶ Even though the removal of other components for the Haridwar subproject (HSCs for water supply and household meters and NRW assessment) was not explicitly stated in the scope change memo, these components appear to have been dropped from project 1 together with the Haridwar water supply pipes installation.

¹⁷ The Government of India launched the Atal Mission for Rejuvenation and Urban Transformation in June 2015 with the aim of establishing infrastructure that could ensure adequate and robust sewage networks and water supply for urban transformation by implementing urban revival projects.

8. **Implemented sewerage subproject in Dehradun.** By project completion, the Dehradun sewerage subproject outputs included (i) laying of 132.25 km of sewer network, against the original target of 200 km (even though a TPRM record in March 2017 indicated a revised target of 125 km); (ii) construction of a 68 mld sewage treatment plant (STP) as planned; and (iii) provision of 8,284 HSCs against the original target of 14,000 HSCs because of delays in implementation. After project completion, the state government continued the works for sewerage system development, providing 35,561 connections using its own resources and under AMRUT. An additional 650 connections will be completed by the end of 2021.

2. Part B: Capacity Development and Investment Program Management

9. **Strengthened urban local bodies.** By project completion, 597 staff (including 271 female staff) were trained through 19 training programs on project implementation, effective O&M of water supply and sewerage assets, safeguards management and grievance redress, and double entry accounting systems. However, the original target of 4,500, covering O&M staff of other ULBs beyond the proposed project ULBs, was not met. The second indicator, targeting 50% of mandated reforms under the JNNURM to be fully complied with in the three cities (Dehradun, Haridwar, and Nainital), exceeded the project target by transferring 14 of the 18 urban functions (77% of mandated reforms) to the respective ULBs.

10. **Restructured water supply and sanitation utilities for efficient and financially sustainable service delivery.** The action plan targeted 15 ULBs to be trained on O&M cost recovery, covering all the ULBs where water supply and sewerage assets were proposed. However, by project completion, only three ULBs had received 19 training programs on efficient O&M and cost recovery of water supply and sanitation (WSS) assets, water metering, use of efficient pumps, revenue enhancement, GIS based property mapping, and computer-based billing and collection.

11. **Increased local revenues and improved financial management.** By project completion, no ULBs had migrated to an accrual-based double entry accounting system even though relevant training was provided. Double entry accounting system was developed after project completion and is currently under testing. If the testing proves successful, the system will be deployed in phases to all the ULBs. Even though no target indicator on local revenue increase was proposed, it is worth to note that local revenues in six ULBs (Dehradun, Haldwani, Haridwar, Nainital, Ramnagar, and Roorkee) increased during fiscal years (FYs) 2015–2019. But FY2020 local revenues decreased because of the impact of coronavirus disease (COVID-19) since early 2020.

12. **Prepared public–private partnership packages for selected subprojects.** At appraisal, project 1 set a target of at least one public–private partnership (PPP) contract to be awarded. A design-build-operate (DBO) contract, which is type of PPP contract, was awarded for the Dehradun sewerage treatment plant, thus meeting the target. Furthermore, several PPP contracts were awarded for urban infrastructure development and service delivery through the state government's specially constituted PPP cell.

C. Project Costs and Financing

13. Project 1 cost at appraisal was \$85.7 million, with an ADB loan amount of \$60.0 million and the government's contribution of \$25.7 million. At completion, the total project cost was reduced to \$78.2 million, with an ADB loan amount of \$56.8 million and the government's contribution of \$21.4 million, changing the ratio of ADB loan to the government's contribution from

70:30 at appraisal to 73:27 at completion. The cost reduction resulted from the scope changes (footnote 11), transfer of outputs to other government programs, and underachievement of targets.

D. Disbursements

14. By project completion, \$56.8 million (94.6% of the originally allocated loan amount) had been disbursed. The statement of expenditure procedure allowed up to \$100,000 equivalent per individual payment, which was effectively utilized by the project. Actual disbursements deviated from the original projections because of project implementation delays (para. 15). Annual and cumulative disbursements of loan proceeds are in Appendix 5.

E. Project Schedule

15. The original closing date of 31 December 2012 was extended thrice, and the loan was closed on 23 January 2018.¹⁸ Initial implementation delays resulted from (i) slow progress in finalizing implementation arrangements and staffing, including establishing the Uttarakhand Urban Sector Development Agency (UUSDA) and it then took up its role as investment program management unit (IPMU); (ii) difficulties in preparation and delays in approval for detailed engineering designs because of the IPMU staff's unfamiliarity with ADB procurement; (iii) procurement delays brought about by the rebidding of several work contracts; and (iv) poor interdepartmental and district government level coordination for necessary government clearances, including right-of-way clearance for pipe installation. In addition, Uttarakhand suffered from a natural disaster in June 2013, which led to significant delays in project implementation.¹⁹ Successive unforeseen events such as a complete ban on all pipelaying works in Uttarakhand by the National Green Tribunal, and a ban on mining, resulting in an acute shortage of building materials, led to further significant delays.²⁰ These extraneous events impacted the contractors' resource mobilization and performance.²¹ Financial closure of several completed contracts and handing over of completed project assets to the responsible line agency, the Uttarakhand Jal Sansthan (UJS), and ULBs for O&M were also delayed.²²

F. Implementation Arrangements

16. The implementation arrangements were appropriate to the project design and to achieve the envisaged outputs. The Urban Development Department (UDD) of the state government was the executing agency. In April 2008, the UUSDA was established after being registered as a society and took up the role of IPMU under the supervision of the UDD. As for the water supply and sewerage components, Uttarakhand Pey Jal Nigam (UPJN) was designated as the investment program implementation unit (IPIU) at appraisal. During implementation, instead of taking sole responsibility as the IPIU, the UPJN deployed some of its staff to the IPIUs in project towns. The IPMU and IPIUs were assisted by an investment program management consultant (IPMC) and two design and supervision consultants (DSCs) in preparing design documents,

¹⁸ The first loan extension was approved on 15 January 2013 from 31 December 2012 to 31 December 2014. The second loan extension was approved on 5 May 2014 from 31 December 2014 to 25 January 2016. The third loan extension was approved on 21 December 2015 from 25 January 2016 to 23 January 2018.

¹⁹ In 2013, a multi-day cloudburst caused devastating floods, landslides, and loss of life, becoming one of the country's worst natural disasters. The state government had to prioritize rescue, relief, and rehabilitation operations and could not focus on the project implementation during this time.

²⁰ The ban, which was effective from 2014 to 2016, was a part of a larger multi-states initiative to clean the Ganga River.

²¹ These issues contributed to the *unsatisfactory* and *potential problem* ratings in the project performance system for the following periods: (i) July–September 2008, (ii) October 2011–March 2012, and (iii) April–September 2013.

²² UJS is a nodal office for O&M of water supply and sanitation systems in the state, with the authority to (i) set, revise, and collect tariffs; and (ii) augment the WSS schemes when required.

managing the tendering of contracts, and supervising construction works. Training and capacity building activities were carried out by the IPMU and DSCs. Town-level committees at project ULBs provided ground-level feedback and coordination. They also functioned as grievance redress committees, with mayors as chairpersons and nongovernment organization (NGO) representatives included as members. A system to receive complaints was put in place at each project site with support from a community awareness and public participation NGO that was engaged for public awareness training.

G. Technical Assistance

17. A project preparatory technical assistance (TA) totaling \$750,000, consisting of \$600,000 from ADB's Technical Assistance Special Fund-others and \$150,000 in-kind contribution from the state government, was provided for strengthening project management and implementation capacity of state agencies, and to achieve a high level of project readiness.²³ The TA was approved on 14 July 2005 and closed on 30 April 2009. The TA activities included the: (i) development and appraisal of representative subprojects; (ii) preparation of detailed feasibility studies and reports on social, economic, financial, and environmental due diligence of the select subprojects, including poverty and social analysis to design specific interventions targeting the poor, vulnerable, and women; (iii) development of an urban policy and institutional reform agenda; and (iv) capacity building for sector institutions, ULBs, and utilities. The TA improved the subprojects' due diligence, enabling a series of stakeholder consultations that boosted the stakeholders' ownership of the project.

H. Consultant Recruitment and Procurement

18. Six consulting firms and one individual consultant were planned to be engaged under project 1, the work scope of which included support for the subsequent tranches under the MFF. Consultants under the project were recruited in accordance with ADB's Guidelines on the Use of Consultants (2006, as amended from time to time). The IPMU followed the quality- and cost-based selection method to appoint all the consulting firm packages. During project implementation, only three consulting packages for the IPMCs and two for the DSCs were awarded.²⁴ The initial plan to recruit consultants for capacity building got dropped at the government's request as those works were not needed urgently. The overall performance of the consultants under the project is rated *generally satisfactory*. The procurement of civil works and goods conformed with ADB's Procurement Guidelines (2006, as amended from time to time). Project contracts were procured using international and national competitive biddings, limited international bidding, and shopping method, depending on the market and nature of the packages. Initial delays in procurement were caused by potential bidders not being familiar with the requirements, which resulted in either nonresponsive bids or high bid prices. Five work contracts got rebid in 2009. During this process, the government organized local business opportunity seminars and procurement seminars to provide better information on ADB bidding processes and bid requirements for potential bidders. Despite numerous efforts, contracts were not awarded per the projected timeframe at appraisal. The implementation challenges were more serious than anticipated (para. 15). By project completion, 18 works contracts and three equipment contracts were awarded. The overall performance of the contractors was *less than satisfactory* mainly because of the poor

²³ ADB. 2005. [*Technical Assistance to India for Preparing the Uttarakhand Urban Development Project*](#). Manila.

²⁴ It was decided during the February 2010 mission that as the scope of capacity building, slum improvement strategy and planning, and solid waste management (SWM) strategy and planning are within the scope of the IPMC (ADB. 2007. *Facility Administration Manual for Uttarakhand Urban Sector Development Investment Program*. Manila. Appendix 5, Table A3.2, footnote c), the same will be incorporated in the IPMC contract bidding documents and subcontracted to third parties.

performance of the contractors for three major pipe network works in Dehradun, which were discontinued after contract termination. Rebidding introduced new contractors, who completed the remaining works. Their performance was *satisfactory*. Use of a PPP-type contract proved to have a positive effect. Private contractors who were awarded a DBO contract improved the O&M of a sewerage treatment plant. Performance of the goods suppliers is rated *satisfactory*. Annual and cumulative contract awards are in Appendix 6.

I. Safeguards

1. Environmental Safeguards

19. Project 1 was classified category B for environment following ADB's Environment Policy (2002).²⁵ The government prepared four initial environmental examination (IEE) reports for three towns—Dehradun (sewerage and water supply), Haridwar (water supply), and Nainital (water supply)—and an environmental assessment and review framework at appraisal. The summary IEE report was disclosed on the ADB website, and the environmental assessment and review framework was included as a supplementary appendix in the report and recommendation of the President (RRP) of the UUSDIP. During implementation, the IEE reports for Dehradun and Nainital water supply subprojects were updated to reflect revised alignments. The implementation of environmental safeguards was weak at the beginning as the government paid inadequate attention to environmental management aspects. After engaging a full-time environment professional at the IPMU, environmental safeguard performance improved in terms of (i) compliance with local environmental and labor regulations by civil works contractors; and (ii) implementation of the environmental management plans (EMPs) and environmental monitoring plans. The environmental safeguards action plans jointly prepared by the government and ADB were implemented satisfactorily over the period. The environmental experts working with the consultants and the civil works contractors facilitated adherence with the agreed provisions under the ADB-cleared EMP and environmental monitoring plans.

20. ADB consistently followed up with the PMU because they were not able to submit the semiannual environment monitoring reports on time. The public consultations and outreach activities during implementation could have been scheduled just before the commencement of construction activities in different parts of the cities. Contractors did not inform the affected residents of the construction schedule and impacts in a timely manner. Affected residents experienced some inconveniences, such as trenches in front of houses and shops affecting access and movement, traffic congestion caused by reduced road widths during construction, concerns about pedestrian safety, and sudden drop in services resulting from affected utilities. The locals in the area registered their grievances at the construction sites. These were resolved through consultations and by incorporating minor design, site adjustments, and/or improving work practices. There were no major grievances nor public protests on environmental aspects of the subprojects that were implemented. At the completion of project 1, there were no outstanding issues pertaining to environmental safeguards. Overall, safeguard compliance management was rated *satisfactory* (a detailed assessment is in Appendix 8).

2. Social Safeguards

21. Project 1 was classified category B for involuntary resettlement and C for indigenous peoples at approval up to project closure based on ADB's safeguard policies.²⁶ During loan

²⁵ ADB. 2002. [Environment Policy 2002](#). Manila

²⁶ ADB. 1995. [Involuntary Resettlement](#). Manila; and ADB. 1998. [The Bank's Policy on Indigenous Peoples](#). Manila.

processing, the resettlement framework and four resettlement plans for three subproject towns were prepared as a supplementary appendix to the RRP of the UUSDIP. During the project implementation, 36 households suffered temporary income loss. In addition to compensation for livelihood loss, the households were provided resettlement assistance. Project 1 achieved the objectives laid out in the resettlement framework and resettlement plans to avoid and mitigate involuntary impacts, compensating those affected based on the entitlement matrix. Information disclosure, participation, and consultation activities for the implementation of social safeguards were effectively carried out. The IPIUs formulated credible and effective grievance redress mechanisms—including a toll-free number and a free WhatsApp number—through community mobilization officers.²⁷ One grievance related to social safeguards was received during the implementation of project 1. The complainer requested a passage to allow him access to his land. The grievance was resolved by providing the easement to access his land. As of project completion, there are no pending grievances regarding social safeguards. The executing agency prepared and submitted 10 social safeguards monitoring reports to ADB. Overall, involuntary resettlement and indigenous peoples safeguard compliance was assessed to be *satisfactory* (a detailed assessment is in Appendix 8).

J. Monitoring and Reporting

22. Out of the 82 project covenants, 81 project covenants have been complied with. The noncompliance on financial management was mainly related to the delayed submission of audited project financial statements (APFS). The government's project financial management arrangements were largely in place, as timely counterpart funding and budget provision was smooth during project implementation. The project was under implementation for 11 FYs, from FY2009 until the final APFS in FY2019. During this period, seven APFS received were qualified and three were unqualified. ADB has no record of an APFS submission from the UUSDA in FY2009.²⁸ The initially submitted APFS for FY2012²⁹ and FY2018³⁰ had quality issues, necessitating revisions. Except for FY2011 and FY2013, all APFS submissions were delayed. Audit reports received from private chartered accountants during FY2012–FY2014 and FY2016–FY2019 were qualified, while those received from government auditors in FY2010 and FY2011 and from a private auditor in FY2015 were unqualified. In FY2010 and FY2011, the project submitted two sets of audit reports, one audited by the deputy accountant general for externally assisted project and another by private auditors. ADB did not accept the audit reports issued by the two private firms, which were internal auditors. However, ADB did accept the project financial statements based on assurances from the deputy accountant general for external assisted project that the ADB loan proceeds were used for the intended purposes. Thus, the APFS in both years were accepted by ADB.

²⁷ ADB. 2020. Independent Evaluation Department. [Corporate Evaluation: Effectiveness of the 2009 Safeguard Policy Statement](#). Manila.

²⁸ Per project administration information 5.07: Financial reporting and auditing of loan and grant financed projects—the first APFS submission for loan 2410-IND was applicable at the end of FY2009.

²⁹ For FY2012, the initial APFS submission was on time but had several deficiencies and on 26 April 2013, ADB accepted a revised APFS. ADB rolled out relevant templates in 2013 through a duly approved terms of reference document. ADB recorded that the APFS had been received 4 months late. The revised set included an overall opinion and required specific assurances even though there were some shortcomings in the project financial statements. ADB's review communication letter dated 12 July 2013 included suggestions for improvement in future years. The ADB letter insisted, among other requirements, on a full-time program director and a financial controller as overall day-to-day managerial directions to the accounting team were found lacking.

³⁰ ADB also rejected the initially submitted APFS for FY2018 because it did not meet the bank's approved standard financial reporting formats.

23. The corrections expected on the APFS for FY2018 together with the APFS for FY2019 were also long overdue. To fulfill outstanding formalities, the UUSDA project management was willing to improve its financial management skills. With guidance from the ADB project completion team on the preparation of project financial statements and, for the auditors, aspects of financial reporting, the government finally prepared and resubmitted the revised APFS for FY2018 (30.8 months overdue) along with the APFS for FY2019 (18.7 months overdue), both of which qualified and confirmed with acceptance by ADB. The final APFS for FY2019 submitted was reconciled with ADB's own disbursement records on an overall cumulative basis. With proper guidance, the auditor was able to prepare a management letter using the correct template. Deficiencies in the APFS identified during the review process mainly reflected a lack of project accounts capacity and auditors. This issue has been flagged for future improvement. Although the audit reports of both FY2019 and FY2018 contained some inconsistencies, no material discrepancies on financial reporting have been found. Project management has commented appropriately on all matters highlighted by the auditors. The ADB's letter of communication has suggested appropriate steps to improve and strengthen both accounting and audit functions. There are no outstanding issues in the APFS concerning ADB disbursements. Monitoring and reporting arrangements, including quarterly progress reports and semiannual safeguard reports, were complied with even though some delays in submission occurred. The details of the compliance status are in Appendix 9.

III. EVALUATION OF PERFORMANCE

A. Relevance

24. Project 1 is *relevant* to the government's development objectives and ADB's country and sector strategies both at appraisal and completion as it remained a government priority and aligned with ADB's country partnership strategies and country operations business plans for India (para. 3). Project 1 was consistent with the objectives of ADB's Strategy 2020 during implementation by tailoring infrastructure investments to complement the government's and the state government's initiatives, and to stimulate market-led growth.³¹ Though formulated before ADB's Strategy 2030, the project design remained relevant at completion as it was still aligned with the new strategy and consistent with operational priority 4, with its focus on building livable cities and providing sustainable urban services.³² The project objectives of sustainable and equitable access to basic municipal services also remained aligned with the government's successive five-year plans and the NITI Aayog's Strategy for New India @75.³³ The modality of project 1 was appropriate and responsive to the requirements of the state government as part of an MFF program (para. 3). While the project's results chain was sound overall with suitable outputs and outcome, it is noted that the DMF indicated three towns for the sewerage outcome target despite only implementing sewerage interventions in one town (para. 25). The two approved changes in scope were appropriate in view of environmental concerns and adjustments in government financing under the sector (footnote 11). In general, it was evident that the targets were closely monitored and revised as necessary based on circumstances during implementation. However, the project could have undertaken the requisite ADB administrative procedures for approving the changes to formally update the DMF.

³¹ ADB. 2008. [Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020](#). Manila.

³² ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

³³ Government of India, NITI Aayog. 2018. *Strategy for New India @ 75*. New Delhi. NITI Aayog is a policy of the Government of India that aims to achieve sustainable development goals with cooperative federalism by fostering the involvement of the country's state governments in the economic policy-making process using a bottom-up approach.

B. Effectiveness

25. Project 1 is rated *less than effective*. Three of the seven project outcomes were achieved in terms of the number of people with access to a water supply and sewerage, two relating to urban reform and revenue increase to cover O&M were partially achieved, and two on NRW reduction and migration to double entry accounting were not achieved. Out of the 20 outputs indicated in the DMF, four output targets relating to the Haridwar water supply were removed, reflecting the approved scope changes. Thus, out of a total 16 outputs, three were achieved, one was substantially achieved, three were partially achieved, and nine not achieved. Project 1 also accomplished several additional outputs, which were not indicated in the DMF and/or PFR (paras. 5-7). Details are provided in Appendix 1A.

26. The water supply distribution network infrastructure and improved safe access to water supply services benefited 0.99 million people, or 100% of the population, in the three project ULBs—Dehradun, Haridwar, and Nainital.³⁴ Although most components of the Haridwar water supply subproject were taken up by the JNNURM scheme, the pumping infrastructure constructed in Haridwar financed under project 1 benefited 100% of Haridwar's population. As for sewerage, the target outcome indicator covering the three towns is inconsistent with the output since only Dehradun implemented a sewerage subproject. Nevertheless, the Dehradun sewerage subproject benefited 0.54 million people against a target of 0.40 million with the construction of the sewerage network and STP and the provision of 8,284 sewer household connections. Water supply and sanitation infrastructure and services were provided in three ULBs with some scope changes instigated without official approval and delay in completion of works (paras. 4–12).

27. The state government awarded a number of PPP contracts in urban infrastructure development and service delivery through a specially dedicated PPP cell. A PPP-type DBO contract was used for the STP construction in Dehradun, achieving the output and outcome targets. The government is currently conducting test trials of accrual-based double entry accounting systems in various ULBs and relevant training was provided under project 1. When the test trials are finished, the state government will deploy the new system to all the ULBs, which will improve the efficiency of financial resource planning and management, accountability, and transparency. The planned outcome of devolving 18 urban services to municipal governments under the 74th Constitutional Amendment was substantially achieved as 14 of the 18 functions have been devolved to three project ULBs, and initiatives to strengthen capacities of ULBs to devolve the remaining 4 functions are underway. Revenues from water supply and sewerage during FY2015–FY2019 have increased in all three project ULBs—Dehradun, Haldwani, and Nainital, except for FY2019–FY2020, which was impacted by COVID-19. Financial sustainability analysis (para. 30) shows that except for the Nainital water supply, tariff revenues have been able to cover O&M costs since 2021 (however, this does not take into account the impact of COVID-19). As no accurate NRW assessment was carried out during implementation, the government is currently measuring NRW data in Dehradun and planning to expand to other ULBs. Overall, safeguards implementation was satisfactory. Despite some delays and challenges (paras. 19-20), the implementation of EMPs and other environmental safeguards-related requirements were complied with. Social safeguard requirements were effectively complied with, and compensation was paid to 36 households as per the agreed entitlement matrix.

³⁴ Dehradun experienced fast-growing peri-urban areas because of a huge influx of urban migrants and conducted a re-boundary mission in 2018 to redraw city boundaries under the Delimitation Commission or Boundary Commission of India. As a result, Dehradun has expanded to 300% in area (196.48 square kilometers) and increased by 141% in population (803,983 in 2018) living in 100 wards.

C. Efficiency

28. Project 1 is rated as *less than efficient*. Overall, the combined investment under project 1 is economically viable with an economic internal rate of return (EIRR) of 13.5%, exceeding the economic opportunity cost of capital (EOCC) of 12%. The EIRRs of the two water supply subprojects in Dehradun and Haridwar meet the EOCC threshold. The sensitivity analysis has demonstrated the robustness of the results, with these subprojects being economically viable under most of the scenarios. However, the sewerage subproject in Dehradun and the water supply subproject in Nainital have EIRRs less than the EOCC of 12%. Details are in Appendix 10.

29. In comparison to the economic analysis results for the water supply and sewerage subprojects during the loan processing stage (2007), EIRRs have declined at completion stage for all four subprojects. This reduction in viability results is mainly because of two factors: (i) implementation delays for all subprojects, which resulted in a delay in achieving benefits; and (ii) considerable cost overruns in the Nainital water supply and Dehradun sewerage subprojects as outlined below. As a result of these cost overruns, the expenditure during implementation was ₹3,050.1 million at 2007 prices, exceeding the target cost (during processing periods) of ₹1,969.8 million by about 54.8%.

- (i) Dehradun water supply saw a cost reduction of 24.2% and Haridwar water supply saw a cost reduction of 12.7%;
- (ii) Nainital water supply experienced a cost overrun of 22.5% while Dehradun sewerage experienced a cost overrun of 140.6%;
- (iii) All subproject's start was delayed by 2 years; and
- (iv) Time overrun ranging from 4–60 months. Maximum time overrun of 60 months was observed for the Dehradun sewerage subproject.

D. Sustainability

30. Project 1 is rated as *likely sustainable*. The subprojects are considered viable if the resulting financial internal rates of return are greater than the weighted average cost of capital, and cost recovery tariffs are within consumer affordability. Additionally, the operating ratio will need to be maintained lower than “unity” throughout the project period to ensure sustainability. Initial spreadsheet iterations reveal that the Nainital water supply subproject operations would be sustainable with O&M expenditures exceeding tariff revenues. However, under the present arrangement of the capital cost of the ADB loan and the government's contribution being passed on a “grant” basis to operating entities in the project towns, the burden of loan repayment will be removed. To be sustainable, subprojects only need to recover O&M along with possible partial capital cost recovery to meet the periodical maintenance requirements. Even with this approach, only two subprojects (water supply and sewerage subprojects in Dehradun) are sustainable for O&M recovery. However, all three subprojects are expected to achieve full O&M recovery from 2020–2021.

31. During the processing stage, it was planned that all the assets created under the project will be transferred to ULBs for operation. Under this arrangement, the financial capacity of the ULBs in the project towns were assessed at appraisal for supporting the O&M of subprojects. However, the assets were transferred to UJS, which is the entity responsible for operating water supply and sanitation, as the ULBs still need time to build financial capacity. Under the current transition period, the UJS remains the ongoing system operator: all revenues from the periodically revised tariff structure for water supply and sewerage are deposited to the state government and in turn, the government provides 100% of the O&M requirements for all projects through budget

allocations. By providing 100% of O&M requirements, irrespective of their tariff revenue, the government is ensuring sustainability of the projects. Thus, the government absorbs all the O&M deficits, if required, through budget provisions for project sustainability. Analysis of the revenue account for O&M of the UJS for 3 years (2017–2018 to 2019–2020) indicates that the revenue expenditure was decreasing (from ₹4,429 million in 2017–2018 to ₹3,586 million in 2019–2020) and revenue income was increasing (from ₹2,232 million in 2017–2018 to ₹2,440 million in 2019–2020), resulting in a reduction of the government's support for O&M (₹2,197 million in 2017–2018 and ₹1,146 million in 2019–2020). The government's support of O&M deficits for all water supply and sewerage subprojects will further decline with the implementation of tariff revisions in 2020 and the ensuing increase in UJS revenue collection.

32. The UJS has sufficient institutional capacity and resources to manage the existing water supply assets. Institutional capacities of ULBs and state bodies were improved and will be further improved as part of ongoing reforms. The project ULBs have benefited from the finance and urban governance reforms and the government continues with its human resources and institutional capacity augmentation initiatives for better municipal asset management and governance under different programs so that ULBs can fully be equipped to take over the asset O&M as well as local revenue management. The environmental benefits, including reduction of water logging, improved cleanness, reduced gases from untreated wastewater, increased as more households are connected to the water supply and sewer networks.

E. Development Impact

33. Project 1 is rated as *satisfactory*. The project aimed to support sustainable, high quality urban infrastructure and service delivery, and better urban governance to benefit the residents, particularly the poor and vulnerable people in the project ULBs. Reflecting the DMF targets, two targeted impacts were achieved by improving the percentage of the urban population with access to improved urban infrastructure and services, including all the slum population in three project towns. The target of a 20% reduction in the number of waterborne and sanitation-related disease cases was partially achieved. Project 1 provided safe treated drinking water for 0.76 million people in two project cities, reducing the water collection burden, primarily of the vulnerable segments of the population and women, thereby increasing the opportunity and time for economic pursuits. The project interventions resulted in a cleaner and healthier urban environment, contributing to overall improvements in public health for about 0.99 million people in three project cities, reducing exposure to waterborne disease, and in turn reducing associated treatment costs and lesser economic productivity losses from such diseases.³⁵ The project's sanitation interventions benefited 0.54 million people, based on 2018 municipal limits, and the numbers are increasing, with more than 23,000 additional people benefiting to date because of the state government's continued efforts. While the project did not achieve a 20% reduction in waterborne and sanitation-related disease, no continuous increase was found during 2015–2019.³⁶ Considering the continuous population growth, the number of cases associated with waterborne and sanitation-related diseases was controlled and remained at a similar or improved level in Dehradun, Haridwar, and Nainital.

34. Project 1 contributed to reducing non-income dimensions of poverty as three project towns reduced the standard of living deprivation indicator in the United Nations' multidimensional

³⁵ Government of India, Office of the Registrar General and Census Commissioner. 2011. *Census of India, 2011*. New Delhi.

³⁶ Significant reduction was reported in 2020, which seems unusual, and the assumption is that the reduction was temporary because of the COVID-19 related movement control.

poverty index.³⁷ Project 1 benefited about 0.1 million people living in informal settlements in three project ULBs—including 48% of the slum population in Dehradun and 100% of the slum populations in Nainital and Haridwar—by providing improved urban services. The project built the capacities of the IPMU and IPIU staff, and contractors through planned cohesive training programs and on-the-job learning. The capacity building and training programs contributed to the enhanced professionalism of ULB staff, strengthened institutional arrangement, improved municipal governance, and encouraged participatory management at project ULBs. The project contributed to strengthening the administrative, management, and operating capacities of all three project ULBs, and their financial resources and municipal asset management capacities. The project caused a temporary loss of income, which was not significant and affected persons were compensated as per the agreed entitlement matrix. Project 1 contributions to ADB Strategy 2030 operational priorities are provided in Appendix 12.

F. Performance of the Borrower and the Executing Agency

35. The overall performance of the borrower is rated *satisfactory*. The borrower, represented by the government's Department of Economic Affairs, provided timely guidance and decisions to the state government, and undertook regular tripartite review meetings with ADB, the state government, and the IPMU to resolve issues, and monitor the project progress. The overall performance of the executing and implementing agencies under Project 1 is rated *satisfactory*. The government provided support to the IPMU and IPIUs through timely counterpart funding throughout the project period. However, it was observed that delays in finalizing implementation arrangements, frequent transfers of officers in critical positions, and delays in deputing staff for all IPMU and IPIU positions led to slow progress in implementation. The government's commitment to the project by continuing with delivering on the remaining project scope using its own resources beyond the project period is noteworthy. Financial management performance is rated *less than satisfactory*, as audit shortcomings persisted over the years. Nonetheless, the government and the IPMU exhibited good leadership in state level reforms implementation and are continuing to put effort into urban governance reforms. The IPIUs' engagement with communities has improved throughout the project implementation. Through various capacity building workshops to disseminate best construction management practices that were adopted in other projects, and learning visits for project staff, the IPMU has improved its capacity in project management overtime, including safeguard compliance. The government has shown stronger ownership overtime, as evidenced by its continuous expansion of water supply and sewer household connections using its own resources. The submission of initial safeguards monitoring reports was delayed, however after the mobilization of the safeguards staff and consistent follow-up, the submission of reports became regular.

G. Performance of the Asian Development Bank

36. ADB's overall performance is rated *satisfactory*. ADB undertook regular project review missions, a midterm review mission, and special project administration missions to assess progress and advise on the resolution of outstanding issues. Monitoring, capacity building, and guidance by ADB throughout the project cycle helped define processes, address issues through time-bound actions and targets, and expedite project implementation. ADB supported the IPMU's study visits to other ADB-financed projects in India so that the staff could learn better business processes and re-engineering measures for effective project implementation. ADB ensured that the project adhered to due processes and transparency in procurement, disbursements, and safeguards while upholding integrity and ethical standards. Even though ADB did not process all

³⁷ United Nations. 2019. *Global Multidimensional Poverty Index 2019: Illuminating Inequalities*. New York.

the internal approvals for scope changes in accordance with project administration instruction 5.02, it has diligently supported the state government and the IPMU in project implementation.

H. Overall Assessment

37. Overall, the project is rated *less than successful*. The project was *relevant* to the government's overall development objectives and ADB's policies at appraisal and continues to remain so upon completion. The project is rated *less than effective* as three of the seven outcome indicators and only three of the 16 revised output indicators were achieved, and one substantially achieved. The project is rated *less than efficient* due to a significant time and cost overruns. However, the project is *likely sustainable* given the sufficient financial and institutional arrangements for future operations of the subprojects.

Overall Ratings	
Criteria	Rating
Relevance	Relevant
Effectiveness	Less than effective
Efficiency	Less than efficient
Sustainability	Likely sustainable
Overall Assessment	Less than successful
Development impact	Satisfactory
Borrower	Satisfactory
Executing agency	Satisfactory
Performance of the Asian Development Bank	Satisfactory

Source: Asian Development Bank.

IV. ISSUES, LESSONS, AND RECOMMENDATIONS

A. Issues and Lessons

38. For complex projects implemented by government agencies with little experience in ADB projects, coordination and monitoring should be enhanced through various means of communication and capacity building activities. It is important to assess the capacity of the project executing and implementing agencies, including familiarity with ADB requirements, timely approval of local permits and approvals, capacity to respond to external shocks, and other challenges as part of due diligence and throughout implementation. In this project, more hands-on support, and a series of capacity building programs on ADB requirements, subproject preparation, project readiness, and procurement could have been provided.

39. An efficient data collection and record management system should be maintained throughout project implementation. This will avoid inconsistencies in project information and facilitate project performance monitoring and reporting, including timely submission of all required reports.³⁸

40. Any adjustment in scope during implementation should secure appropriate approval following ADB requirements and be reflected in the DMF. Based on a regular review of project progress, actual conditions on the ground, and government priorities, ADB and the Government

³⁸ It is noted that ADB went through an internal data management system change in 2011. As this PCR was prepared during the COVID-19 under the work-from-home arrangement, it was challenging to access all the hard copies kept in the office and obtain electronic copies of the project records from the older system.

of Uttarakhand should have processed the necessary changes for approval in a timely manner, which could have improved the success rating for the project.

B. Recommendations

41. The project-specific recommendations for project implementation are as follows. The project document and DMF during loan processing should be well-designed to avoid unrealistic commitment and/or discrepancies throughout document processing. The project should build proper measures and methods to assess (i) the technical performance of the WSS systems, such as nonrevenue water, and (ii) quality WSS service delivery, such as a 24/7 water supply, response time for repairs, and other consumer complaints. If any changes occur during implementation, ADB should strictly follow the proper internal approval procedure and carry out regular updates on the project DMF for accurate measurement and evaluation on the project performance. Earlier and better preparation of detailed project reports for subprojects would help procurement and improve project readiness. Adequate training and familiarization of ADB bidding procedures and requirements should be provided for the executing and implementing agencies, prospective bidders, and contractors to ensure smooth and timely procurement and project implementation. Stakeholder communications should be enhanced, particularly with authorities that are involved in any stage of project implementation. For instance, the authorities that provide clearances for project implementation should have been closely consulted in advance to avoid any delay in implementation. Project scheduling should be regularly updated and closely monitored by the executing and implementing agencies. Uncompromised financial reporting in accordance with terms of reference templates (suitable for executing agencies following cash-based accounting) should be emphasized.³⁹ Adequate budget provisioning for accounting and audit functions should be considered as it would help to streamline and strengthen audit and accounts functions in the long run. The project should ensure that the implementation team is strong, including a full range of technical ADB team members with expertise in technology, procurement, safeguards, and financial management in particular to provide active support to the executing and implementing agencies in resolving any issues during project implementation. Through close communication with ADB, the executing and implementing agencies should get timely support and advice to help them comply with the project schedule and performance monitoring and reporting. There is no follow-up relevant to the project.

42. General recommendations for future projects are as follows: (i) early finalization and streamlining of implementation arrangements for timely implementation; (ii) comprehensive risk assessment on procurement and contract management with robust mitigation planning; (iii) enhanced ADB implementation members to provide timely hands-on support to ensure smooth implementation and full compliance of covenants; (iv) enhanced project document management with good use of digital document keeping through ADB SharePoint; and (v) commitments under a project should be suitable for unique local conditions and be realistic, based on institutional capacity and level of commitment, with appropriate allocation of resources. Overcommitment should be avoided.

43. **Timing of the project performance evaluation report.** The project performance evaluation report should be prepared in 2022 to assess the sustainability of project 1.

³⁹ Use of templates will facilitate easy comparison of financial statements, enabling users to draw relevant analytical conclusions.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators and Targets		Project 1 Achievements
Impact: Improved quality of life for urban residents in Uttarakhand's selected towns of strategic importance	<p>Percentage of urban population with access to improved urban infrastructure and services increased by 31%</p> <p>Access to urban infrastructure and services by slum population increased by 50%</p> <p>Number of waterborne and sanitation-related diseases decreased by 20%</p>		<p>Achieved. Improved urban infrastructure and services provided under the project benefited 100% of the urban population of the project locations in 3 project ULBs (Dehradun before the 2018 city re-boundary, Haridwar Nainital).</p> <p>Achieved. 100% of the slum population in the project areas of 3 project ULBs got benefit of improved access to urban infrastructure and services in 3 project towns.</p> <p>Partly achieved. Number of waterborne and sanitation-related diseases was controlled to remain at the same level in Dehradun, Haridwar and Nainital despite increase in population^a</p>
Outcome	Indicators	Original Target Values	Project 1 Achievements
Increased access to better quality and sustainable urban infrastructure and services for about 1.9 million people expected to be living in Dehradun, Nainital and Haridwar by the end of project period	Water Supply		
	Number of people with access increased	1.6 million people (95% of population of 3 towns)	Achieved. 100% population in three ULBs (Dehradun before the 2018 city re-boundary, Nainital and Haridwar), amounting to 0.99 million population, benefited from increased access to improved water supply services.
	NRW reduced	Reduced to 20%	Not achieved. No accurate NRW data collection was carried out. But the government is currently undertaking NRW in Dehradun and planning to expand to other ULBs.
	Sewerage		
	Number of people with access increased	0.4 million people (24% of population of 3 towns) ^b	Achieved. Under Project 1, sewerage infrastructure output was only planned in Dehradun, which benefited 0.54 million or equivalent to 100% of the population in Dehradun before the 2018 city re-boundary.
	Governance		
	Number of ULB complied with 74 th CAA and the JNNURM Reform agenda	31 ULBs	Not achieved. Only 3 ULBs (Dehradun, Haridwar and Nainital) in Uttarakhand were taken up under the JNNURM reforms program, all of which achieved compliance to the 74 th CAA and the JNNURM reforms agenda in involved devolution of urban functions to the ULBs.

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
	Sustainability				
	Number of ULBs and UJS generate increased revenues to meet O&M costs of urban services	3 ULBs		Partially achieved. Revenues from water supply and sewerage during financial year (FY) 2015 and 2019 have increased in all 3 project ULBs (Dehradun, Nainital, and Haldwani) except for FY 2019/2020 impacted by COVID-19. Analysis shows that except for Nainital water supply, revenues from tariff could cover O&M cost since 2021 (but not taking into account the COVID-19 impact).	
	Number of ULBs and UJS migrated to double entry accounting	3 ULBs		Not achieved. The migration process to double entry accounting in Uttarakhand is still ongoing. All 4 project ULBs (Dehradun, Haldwani, Haridwar, and Nainital) are currently testing the double entry accounting system developed.	
	Number of PPP contract awarded	1		Achieved. The STP contract in Dehradun embedded with O&M component. Further, several PPP contracts were awarded for urban infrastructure development and service delivery through the specially constituted PPP cell at the government.	
Outputs	PFR Project Description	Project 1 DMF Indicators	Target Values	Revised Target Values ^c	Project 1 Achievements
1. Implemented water supply subproject in Dehradun	Replacement & reorganization of old rising & distribution mains (about 172km)	Water supply network (km) improved	172.5 km (The PFR indicates 172.5 km while the PAM prepared during Inception Mission states 177 km.)	179.8 km ^d (14.3 km installation of rerouting line to avoid environmentally sensitive areas, replacing 7km of the existing Bandal Raw Water Main)	Substantially achieved. A total of 155.8 km water supply network laid.
	Installation of domestic water meters (about 83,000 no.)	Number of household connection increased	65,000	No approved scope change.	Not achieved. A total of 25,500 house connections were provided.
	Leak detection and rectification in the water distribution system	Number of household meters newly installed	71,000	No approved scope change.	Not achieved.

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
		Nonrevenue water reduced	42%	Aide memoire shows the removal of this indicator but no scope changes approval	Not achieved. No accurate NRW data collection was carried out. But the government is currently undertaking NRW in Dehradun and planning to expand to other ULBs.
	Replacement of old pumping units (around 27 no.)	-	-		(Achieved.) A total of 46 pump houses are renovated including the replacement of pumping machinery.
	Upgrading of 2 water treatment plants (20&14 mld capacity)	-	-		(Not achieved)
	Introducing SCADA system on existing tube wells	-			(Not achieved)
	Construction of a water testing laboratory	-			(Not achieved)
	Installing bulk water meters at strategic locations (about 74 no.)	-			(Not achieved)
	Supply, delivery, testing, and commissioning of 10 mobile generator sets	-	-		(Achieved.) Procurement of 7 silent mobile generators were completed.
	-	-		Construction of a weir (Additional scope without scope change approval)	(Achieved) Construction of one weir was completed.
	-	-			(Achieved) Construction of one softening plant was completed.
	-	-			(Achieved.) Three chlorinators were installed.

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
2. Implemented water supply subproject in Nainital	Replacement and reorganization of old rising & distribution mains (150km)	Water supply network (km) improved	93 km	49.52 km	Partially achieved. 37.9 km water supply network laid (32.3 km rising main and 5.3 km of distribution lines).
	-	Number of household connection increased	6,850	As per records, removed from the scope but no scope change approval	Not achieved. No water supply connections nor meters are provided.
	Installing domestic water meters to house connection (about 4,150 no.)	Number of household meters newly installed	4,150	As per records, removed from the scope but no scope change approval	Not achieved.
	Leak detection and rectification	Nonrevenue water reduced	19%		Not achieved. No accurate NRW data collection was carried out. But the government is currently undertaking NRW in Dehradun and planning to expand to other ULBs.
	Development of old tube wells (7 no.)	-	-		(Partially achieved.) 4 tube wells of cumulative 14 mld capacity constructed.
	-	-	-	Construction of 22 reservoirs (additional scope without scope change approval)	(Achieved.) A total of 22 ground-level service reservoirs were constructed.
	Reconstruction of old pump house and replacement of old pumping units (about 16 no.)	-	-	Construction of 4 pumping stations (additional scope without scope change approval)	(Achieved.) A total of 4 pump houses were renovated including replacement of pumping machinery.
	Renovation of old filter plant (8 mld capacity) with a water testing laboratory	-			(Not achieved)

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
	Construction of system control room (4 no.)	-			(Not achieved)
	Introducing SCADA system on existing tube wells	-			(Not achieved)
	Replacement of clear water tanks (4 no.)	-			(Not achieved)
	Installing bulk water meters at strategic locations (104 no.)	-			(Not achieved)
	-	-			(Achieved). One softening plant was constructed.
3. Implemented water supply subproject in Haridwar	Replacement and reorganization of old rising & distribution mains (233 km)	Water supply network (km) improved	162 km	Removed from the scope and financed by the government.	Removed from the scope.
	Installing domestic water meters to house connection (about 24,000 no.)	Number of household connection increased	19,200	Removed from the scope and financed by the government.	Removed from the scope.
	Leak detection and rectification	Number of household meters newly installed	24,000	Removed from the scope and financed by the government.	Removed from the scope.
		Nonrevenue water reduced	10%	Removed from the scope and financed by the government.	Removed from the scope.
	Replacement of old pumping units (5 no.)	-	-	Pumphouse renovation including pumping machinery replacement (Additional scope)	(Achieved.) A total of 16 pump houses were renovated and pumping machinery were replaced.

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
				without scope change approval) ^e	
	-	-			(Achieved.) A total of 16 new pump houses were constructed
	Introducing SCADA system on existing tube wells	-			(Not achieved)
	Establishing a water testing laboratory	-			(Not achieved)
	Installing bulk water meters at strategic locations (about 74 no.)	-			(Not achieved)
4. Implemented sewerage subproject in Dehradun	Laying, testing, and commissioning sewer lines of about 150 km	Sewer network (km) increased	200 km	125 km indicated in the 2016 TPRM record but no scope change approval ^f	Partially achieved. 132.25 km sewer network laid.
	-	Number of household connections increased	14,000	21,000 indicated in the 2016 TPRM record but no scope change approval ^g	Partially achieved. 8,284 house service connections provided.
	Design, supply, construction, testing, and commissioning 67mld sewerage treatment plant	Sewerage treatment capacity (mld) increased	68 mld	No change	Achieved. One sewage treatment plant of 68 mld capacity was constructed and in operation.
5. Strengthened ULBs	Design and conduct of training programs	Number of staff trained	4,500	Changed to 600 staff but no scope change approval ^h	Not achieved. A total of 597 staff were trained under 19 training programs, including 271 (45%) women participants.

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
		Level of JNNURM reform fully complied	50%	No change.	Achieved. All 3 JNNURM cities (Dehradun, Nainital and Haridwar) have complied with over 65% of mandated JNNURM reforms by devolving 14 of the mandated 18 functions (77% reforms) to ULBs ⁱ
6. Restructured WSS utilities for efficient and financially sustainable service delivery	Assistance in improving local revenues.	Number of ULBs trained in O&M cost recovery achieved	15 ULBs	Changed from 15 to 3 ULBs but no scope change approval ⁱ	Not achieved. A total of 18 training programs were conducted to staff of all 3 project ULBs in efficient O&M and cost recovery mechanisms of WSS assets. Steps taken to improve O&M cost recovery were: Reduction of cost: <ul style="list-style-type: none"> • NRW reduction • Water metering • Use of energy efficient pumps Revenue enhancement: <ul style="list-style-type: none"> • GIS based property mapping • Computer based billing and collection system
7. Increased local revenues and improved financial management	Assisting ULBs and water utilities to introduce and implement accrual-based double entry system of accounting.	Number of ULB with accrual-based double entry accounting system adopted	15 ULBs	No change	Not achieved. The government is currently conducting trial test on accrual-based double entry accounting system and carrying out series of training to ULBs.
8. Prepared PPP packages for selected subprojects	Identifying suitable components and developing PPP schemes.	Number of PPP contracts awarded	At least one	No change	Achieved. The STP contract in Dehradun embedded with O&M component. Several PPP contracts were awarded for urban infrastructure development and service delivery through the

Design Summary	Performance Indicators and Targets			Project 1 Achievements	
					pecially constituted PPP cell at the government.

CAA = Constitutional Amendment Act, COVID-19 = coronavirus disease, GIS = geographic information system, JNNURM = Jawaharlal Nehru National Urban Renewal Mission, km = kilometers, mld = million liters per day, NRW = nonrevenue water, O&M = operations and maintenance, PPP = public–private partnership, SCADA = supervisory control and data acquisition, STP = sewage treatment plant, UFW = unaccounted for water, ULB = urban local body, UJS = Uttarakhand Jal Sansthan, WSS = water supply services.

^a Data from The Directorate of Health and Family Welfare, Government of Uttarakhand, as provided by the implementing agency.

^b Incorrect indicator as sewerage interventions were planned under project 1 in only one ULB (Dehradun) as indicated in DMF Outputs.

^c Revised target based on the approved memo for the changes in loan project during the implementation.

^d Based on the approved scope change memo in May 2008.

^e Indicated in the TPRM records in December 2011.

^f Indicated in the TPRM records in August 2016.

^g Recorded in September 2012 TPRM.

^h National Institute of Urban Affairs. 2015. *Compendium of Good Practices: Urban reforms in Indian Cities*. New Delhi

ⁱ Based on the approved scope change memo in March 2009.

Sources: Government of Uttarakhand and Asian Development Bank.

PROJECT 1 PFR- DETAILED PROJECT DESCRIPTION

DETAILED PROJECT DESCRIPTION

I. Part A: Urban Infrastructure and Services Improvements

1. Water Supply

1. **Dehradun:** Water supply optimization program involving replacement of old pumping units (about 27 nos), upgrading of 2 water treatment plants (20 & 14 mld capacity), introducing SCADA system on existing tube wells, construction of a fully equipped water testing laboratory, preparation and hydraulic analyses of existing water supply network, leak detection and rectification in the distribution system, replacement & reorganization of old rising & distribution mains (about 172 km), installing bulk water meters with sluice valves at strategic locations (about 74 nos) and domestic water meters (about 83000 nos) to house connections including supply of all materials (except domestic water meters), equipment and labour complete.

2. Conducting hydrogeological study to ascertain ground water balance.

3. Supply, delivery at site, testing, commissioning of 10 nos. mobile generator set inclusive of spares, all taxes, duties, freights and warranty complete.

4. **Nainital:** Water supply optimization program involving replacement of old pumping units (about 16 nos), renovation of old filter plant (8 mld capacity) with a fully equipped water testing laboratory, construction of system control room (4 nos), introducing SCADA system on existing tube wells, development of old tube wells (7 nos), replacement clear water tanks (4 nos), reconstruction of old pump house including providing energy meters and standby pumps, preparation and hydraulic analyses of existing water supply network, leak detection and rectification in the distribution system replacement and reorganization of old rising & distribution mains (150 km), installing of bulk water meters with sluice valves at strategic locations (104 nos) and domestic water meters to house connections (about 4150 nos) including supply of all materials (except domestic water meters), equipment and labour complete.

5. **Haridwar:** Water supply optimization program involving replacement of old pumping units (5 nos), introducing SCADA system on existing tube wells, establishing a fully equipped water testing laboratory, preparation and hydraulic analyses of existing water supply network, leak detection and rectification in the distribution system, replacement & reorganization of old rising & distribution mains (about 233 km), installing bulk water meters with sluice valves at strategic locations (about 74 nos.) and domestic water meters to house connections (about 24000 nos) including supply of all materials (except domestic water meters), equipment and labour complete.

6. **Dehradun, Nainital and Haridwar Towns:** Supply, testing and commissioning of about 111150 nos. domestic water meter for house connections including supply of all accessory materials and labour complete.

2. Sewerage

7. **Dehradun:** Design, supply, construction, testing, commissioning of 67 mld capacity sewage treatment plant of appropriate technology at Kargi and necessary sewage pumping stations including supply of all materials, equipment and labour and operation & maintenance for a period of 5 years following commissioning of the plant including supply of chemicals and spares but excluding cost of energy which will be supplied by the owner.

8. Laying, testing and commissioning sewer lines of 150 mm -1000 mm dia, about 150 km total length, construction of manhole chambers, at 30 metre or less intervals, inspection

chambers for property connections, rising mains and other sewer appurtenance including supply of all materials, equipment & labour complete for Kargi zone.

II. Part B: Capacity Building and Investment Program Management

9. Capacity Building involves all Investment Program towns: These include

- (i) Preparing, in consultation with stakeholders, feasible action plans to empower (where possible) and strengthen the capacities of ULBs in terms of organizational structures, urban planning, asset management, and operation and maintenance of infrastructure and services and assistance in the implementation of the action plans
- (ii) Conducting institutional surveys and developing and assisting the implementation of detailed action plans to (a) to establish a regulator, (b) remove the overlaps in functioning of UPJN and UJS, (c) develop measures for involvement of ULBs in planning and provision of WSS, (d) develop performance-based contractual arrangements to establish clear accountabilities between service provider (UJS), ULBs and the State, and (e) introduce improvements into the governance structure and the organizational and operational systems of UJS, including in asset management and financial management systems and staff skills,
- (iii) Assistance in improving local revenues and financial management through (a) undertaking tariff studies to restructure water tariffs into consumption-based volumetric tariffs and introduce a sewerage surcharge and solid waste management charges, (b) developing detailed action plans for achieving the cost recovery targets, (c) studies and surveys and action plans to improve property tax - increasing tax coverage and basis of value and tax collection efficiencies, (d) assisting ULBs and water utilities to introduce and implement accrual-based double-entry system of accounting, including preparation of manuals, installation of computerized systems, and training of staff of utilities, and ULBs, and (e) assisting in the creation of an enabling framework and transfer of knowledge and skills and in planning and managing PSP, and identifying suitable components and developing PPP schemes.
- (iv) Training needs assessment and design and conduct of training programs to address the skill requirements of reforming urban institutions, including urban local bodies and water utilities and any other relevant agency as appropriate.
- (iv) Preparation of a state-wide slum policy, including mapping of slums, different typology of slums, criteria under which upgrading, re-blocking, or redevelopment can take place, approaches to slum upgrading, and a costed action plan for slum upgrading.
- (v) Development of a state-wide solid waste management policy strategy and action plan for collection, treatment, and disposal of solid waste based on Gol's MSW rules and considering the role of public, private, and community sectors, the State's fragile natural environment and various settings (hills, foot hills, plain areas) that require innovative and distinct approaches to SWM; and
- (vi) A civic awareness campaign on the Investment Program, its scope, and anticipated benefits to stimulate demand for improved services and solicit support of the urban residents for successful implementation of the Program and special support to ULBs in SWM public awareness and individual and community-level solid waste segregation and reduction of waste at source.

AIDE MÉMOIRE OF FACILITY AND LOAN INCEPTION MISSION, AND PROJECT 1 DMF



Asian Development Bank

**AIDE MEMOIRE OF FACILITY AND LOAN INCEPTION MISSION
FOR
LOAN 2410-IND: UTTARAKHAND URBAN SECTOR DEVELOPMENT
INVESTMENT PROGRAM¹
19 – 23 JANUARY 2009**

I. INTRODUCTION

1 A facility and loan inception mission² for Loan 2410-IND: Uttarakhand Urban Sector Development Investment Program (the Investment Program) visited Dehradun on 19-23 January 2009. The main purposes of the Mission were to: (i) finalize and discuss in detail with the executing agency³ (EA) the facility administration manual (FAM) and project administration memorandum (PAM); (ii) explain in detail ADB's requirements for recruiting consultants, procuring goods and related services, and works, and conducting disbursements; (iii) review the adequacy of the preparatory work done by the EA, particularly recruiting personnel, engaging consultants, procuring goods and related services, and works; (iv) explain ADB's reporting requirements for the project; and agree on a reporting format. The Mission had extensive discussions with the Chief Secretary; the Principle Secretary, Finance; the Secretary, Finance; as well as the Secretary, Urban Development; the Program Director and staff of the investment program management unit (IPMU) and investment program implementation units (IPIU), and the consultants⁴ recruited by ADB and by the Investment Program.

2 The inception mission prepared this Aide Memoire based on the discussions with the government of Uttarakhand and the Government of India (the Government). The list of persons met is attached as Attachment 1. The major findings and schedule were reported to UDD at a meeting on 22 January 2009 in Dehradun, and the draft Aide Memoire was discussed during a wrap-up with the Government in New Delhi on 27 January 2009. The understandings reached and recorded in this aide memoire, together with its appendixes, are subject to approval of higher authorities in the Government of India, the government of Uttarakhand, and ADB. The Mission requested the Government and the government of Uttarakhand to confirm the Aide Memoire by **28 February 2009**.

II. MAIN DISCUSSION TOPICS

3 **FAM and PAM.** The Mission provided a FAM (Attachment 2) and a PAM (Attachment 3)

¹ The Asian Development Bank (ADB) approved a multitranchise financing facility (MFF) to India for the Uttarakhand Urban Sector Development Investment Program in the amount of \$350 million from ADB's Ordinary Capital Resources on 24 January 2008. The MFF will extend multiple loans to finance a range of appropriate subprojects under the Investment Program, subject to submission of a related periodic financing request (PFR) by the Government and execution of the related loan and project agreements. Each loan will constitute a tranche. The first PFR for Project 1 under the investment program, Loan 2410-IND, was approved on 1 February 2008 in the amount of \$60 million.

² An Inception Mission (the Mission) from the Asian Development Bank (ADB) comprising Hiroyuki Ikemoto, Urban Economist (Mission Leader), and Suzanne G. Barbin, Assistant Project Analyst.

³ The executing agency is the Urban Development Department, the government of Uttarakhand.

⁴ Mr. Swamendu Bhattacharyya was engaged as a staff consultant by ADB to facilitate implementation of the Investment Program.

to the IPMU. The FAM articulates the implementation arrangements and procedures, but limited to those related to administration of the multitranchise financing facility (MFF) and common procedures across tranches. Implementation arrangements specific to the Project 1 under the MFF are in the PAM for the Project 1. The FAM and PAM are active documents, progressively updated and revised as necessary, particularly following any changes in project or program costs, scope, or implementation arrangements. The documents were presented to the project director during a meeting on 21 January 2009. Active discussions with project staff were undertaken on 21 January and 22 January. The Mission focused discussion on the relevant portions of the documents (procurement, disbursement arrangements, reporting requirements). Comments from the project staff were noted, and the draft FAM/PAM have been revised to reflect comments received.

4 Establishment of IPMU as Society. The Mission is pleased to note that the IPMU was established on 28 April 2008 by the Government Order (Attachment 4) as a part of Uttarakhand Urban Sector Development Agency (UUSDA) registered under the Societies Registration Act as an entity with the Chief Secretary as its president and Secretary Urban Development, as vice president.

5 Appointment of Project Director and Deputy Project Director. The Mission is pleased to note that the EA (i) has appointed a new project director on 16 January 2009 and (ii) is in the process of appointing a deputy project director with an engineering background. ADB regards that appointment of the project director and full-time deputy project director is one of the fundamental requirements to effectively implement an urban sector project, and the Mission highly appreciates the effort of the EA for the timely selection and appointment.

6 Appointment of PMU and IPMU Staff. Section 10 (b), Schedule 5 of the Loan Agreement states that the government of Uttarakhand will ensure that within 1 month of the Effective Date each of IPMU and IPIU will have all the staff appointed and in place. The Mission acknowledged human resource scarcity of the government of Uttarakhand, and because of this, they are extremely having difficulty in appointing IPMU and IPIU staff from the government staff who will work on a full-time basis. The Mission felt that outsourcing might be necessary. The EA agreed that by **1 March 2009**, it would seek deputation for or would recruit:

- (i) a water supply and waste water management engineer;
- (ii) a procurement officer;
- (iii) a community development officer;
- (iv) an accountant with treasury operations background; and
- (v) an MIS officer.

7 Timely Budget Allocation. The annual budget of Rs10,000,000 (\$200,000 equivalent) was released on 21 January 2009. The Mission highly appreciates the EA's effort in having the budgetary allocation released to the IPMU in accordance with Schedule 5 Section 6 (b-i) of the Loan Agreement. This will enable the IPMU to make necessary payments for issuing tender notices by **31 January 2009** and initial payments to the consultants **as soon as fielding**.

8 Use of Imprest Account. The IPMU expressed its concern that it might not have adequate cash to make payments for larger contracts during project implementation. The Mission explained to the EA that the Loan Agreement has a provision for an imprest account, which could be used like petty cash. The Mission informed that:

- (i) **Initial Advance Amount.** The Mission recommends ADB that the initial amount to be advanced to the first generation imprest account (FGIA) in Delhi will be \$3

million.⁵ The initial advance or replenishment by ADB into the FGIA will be converted into equivalent rupees by the Controller of Aid Accounts and Audit following its policy, and transferred in rupees through the budgetary mechanism.

- (ii) **Opening of Second Generation Imprest Account (SGIA).** The government of Uttarakhand will have to open an SGIA in a current account in a commercial bank. This requires the commitment by the Uttarakhand government and the EA to adhere to ADB procedures for operating the SGIA.
- (iii) **Eligibility in Use of SGIA.** The IPMU will draw from the SGIA only the portion of expenditures eligible for ADB financing. The EA warranted that funds in the SGIA would be used only to fund eligible expenditures in accordance with the terms of the Loan Agreement and to meet the immediate short-term disbursement requirements of the loan. Both the FGIA and SGIA will be established, managed, and liquidated in accordance with guidelines contained in *ADB's Loan Disbursement Handbook*.

The Mission urged the EA to communicate with the Government of India to make necessary internal arrangements for the transfer of funds **as early as possible**.

9 Office Arrangements for Consultants. The Mission highly appreciated the effort of the IPMU in securing office spaces for (i) the investment program management consultants, and (ii) design and supervision consultants for Gahrwal Region Design, which are both near the IPMU office. The Mission was informed that reasonable office space was identified for the supervision consultant at Haldwani for Kumaun Region, but the contractual arrangement was pending. The Mission requested IPMU to expedite contractual arrangement, taking advantage of the IPMU as an independent body.

10 Change in Scope of the Project 1. The IPMU informed that a portion of the water supply subproject in Haridwar no longer requires ADB financing, since JNNURM grant fund became available after the appraisal of the Investment Program. The Mission felt that so far as the Investment Program's outcome could be achieved regardless of 'who is financing the subproject', the Mission does not have any objection to exclusion of the subproject. However, the Mission requested to send to ADB an official letter explaining the details of such change by **15 February 2009**.

11 Flexibility in Selection of Subprojects under the Investment Program. The Chief Secretary; the Principle Secretary, Finance; the Secretary, Finance; and the Secretary, Urban Development; requested for a degree of flexibility in identifying subprojects to be implemented in each town. The Mission advised that:

- (i) The scope of Project 1 may be reduced to reflect the deletion of a portion of water supply subproject in Haridwar, but should not be increased in order to leave some allowances for meeting unexpected cost increase in bid prices under the Project 1. The cost overrun may increase the financial burden of the EA;
- (ii) There is no concrete scope of the subsequent tranches, and so far as the subprojects meet the subproject selection criteria as agreed in the Framework Financing Agreement, the EA can propose any eligible subprojects in subsequent

⁵ Loan Disbursement Handbook" dated January 2007 (ADB's Loan Disbursement Handbook) states that the initial advance amount will be Equivalent to 6-months estimated expenditure or 10% of the loan amount, whichever is lower. According to the loan disbursement estimates during loan appraisal in 2007, the disbursement amount in the first year was estimated at \$6 million. The Mission advised that the initial advance would be \$3 million.

tranches;

- (iii) In case some subprojects are selected outside the 31 towns, the EA will have to propose a minor change in scope with adequate justification, but extent of such deviation from the selection criteria should be kept to a minimum.

12 Revision of Procurement Plan. The Mission reflected changes in the procurement plan which was made before the inception mission, such as (i) minor modifications in procurement packages under Project 1 based on detailed engineering design, and (ii) a merger of four consultant contract packages⁶ into one under investment program management consultants contract. The Mission confirmed that despite adjustments in packaging, the modes of procurement have not changed. The revised procurement plan is in the FAM.

13 Integrated Approach to Urban Development at Programming Level. ADB's experiences in urban sector show that a mixture of multiple sectors (such as water, sewage, waste management and urban roads) under one loan results in slower utilization of the loan proceeds in early years of implementation. This is financially inefficient for both the Lender and the Borrower. Under the Investment Program, the Mission and the EA agreed that one tranche/loan will cover one sector,⁷ and a subsequent tranche/loan will cover another one sector. Sequencing of sectors—that is, programming of urban intervention—will be based on engineering soundness. As provided in the FAM:

- (i) **First Tranche (2008-2012)** covers water sector in larger towns (accompanying with some sewage subprojects);
- (ii) **Second Tranche (2009-2013)** covers water sector (accompanying with some sewage subprojects);
- (iii) **Third Tranche (2010-2014)** covers water sector in hilly towns (accompanying with some sewage subprojects);
- (iv) **Last Tranche (2011-2016)** covers solid waste management and roads.

14 Processing of Tranche 2. The Mission advised that before the EA requests for the 2nd Tranche, it is necessary to show good progress on Tranche 1. The Mission suggested that it will consider appraisal of Tranche 2 subprojects when:

- (i) 80% (in contract value) of all major contract under Tranche 1 listed in the procurement plan is awarded;
- (ii) a substantial part of (a) the assurances listed in the FAM and (b) the loan covenants listed in the PAM are complied with;
- (iii) subproject concept papers are prepared for each subproject in accordance with the formats and procedures described in the FAM
- (iv) the investment program management consultants completed all field surveys required for detailed engineering design.

15 Strategy for Contract Awards immediately after Project 2 Loan Signing. ADB feels it is very important that the EA utilizes the loan proceeds as soon as the loan agreement is signed. To achieve this under the Project 2, the Mission proposed, based on the experiences of the urban sector team in ADB's India Resident Mission, that:

- (i) The IPMU prepares a subproject concept notes for each subproject as per the

⁶ The four contracts includes (i) investment program management consultants (\$1.9 million), (ii) capacity-building consultants (\$1.2 million), (iii) solid-waste management strategy and planning consultants (\$0.5 million), (iv) slum improvement strategy and planning consultants (\$0.1 million).

⁷ A water supply subproject may needs to implement together with a sewage subproject. This is to minimize (i) the impacts of increased water supply on sewage, and (ii) the number of excavation works on the road.

format in the FAM, and reached consensus on the subproject between a town-level committee, the executive committee and ADB;

- (ii) Once the concept paper is agreed, the IPMU engage the investment program management consultants to conduct surveys for detailed design;
- (iii) As soon as the field survey completes, ADB conducts a subproject proposal review mission. In parallel, the IPMU prepares subproject appraisal reports;
- (iv) Once ADB's review completes, the IPMU engages the design and supervision consultants to prepare detailed engineering design using the survey from the investment program management consultants. In parallel, ADB process the loan;

16 **Contract Awards and Disbursement Forecast for 2009.** The contract awards and disbursement forecasts for 2009 are \$33.0 million and \$8.8 million respectively. The figure is subject to further ADB's assessment. In order to achieve the forecast, the IPMU will issue tender notice of 7 contract packages by **31 January 2008**.

Contract Award Progress and Disbursement (in \$ million)					
	I Quarter	II Quarter	III Quarter	IV Quarter	Total
Contract Awards	9.4	1.8	17.5	4.4	33.0
Disbursement	1.0	1.0	3.0	3.8	8.8

I. NEXT STEPS AND INDICATIVE SCHEDULE

17 The Mission and the EA agreed on the following schedules:

- Contractual arrangement for consultants' office space in Nainital **immediately**;
- Communication with the Government of India about opening of imprest accounts **as soon as possible**;
- Invite bids for the seven contract packages under the Project 1 by **31 January 2008**.
- Submission of a request for change in scope of the Project 1 by **15 February 2009**;
- Confirmation of the Aide Memoire by **28 February 2009**;
- Comply with Section 10 (b), Schedule 5 of the Loan Agreement by **1 March 2009**.

The Mission requested confirmation of Aide Memoire by **28 February 2009**. Comments and clarifications on the FAM and PAM may be sent separately, directly to the Mission from the IPMU at any time.

III. ACKNOWLEDGEMENT

18 The Mission acknowledges with thanks the assistance and the full cooperation it received from the officials of the Government, the government of Uttarakhand, consultants assigned to the Project and the IPMU.



23 January 2009
Hiroyuki Ikemoto
Urban Economist
Asian Development Bank

DESIGN AND MONITORING FRAMEWORK
Uttarakhand Urban Sector Development Investment Program–Project 1

Design Summary	Performance Targets/indicators		Data Sources/ Reporting Mechanisms	Assumptions and Risks
Impact Improved quality of life for urban residents in Uttarakhand's selected towns of strategic importance	By the end of the Investment Program (2016) in the program towns: <ul style="list-style-type: none"> Percentage of urban population with access to improved urban infrastructure and services increased by 31% Access to urban infrastructure and services by slum population increased by 50% Number of waterborne and sanitation-related diseases decreased by 20% 		<ul style="list-style-type: none"> State and national economic statistics Uttarakhand economic review Census data (2011) Regular data and reports from Uttarakhand directorate of economics and statistics Project completion report 	Assumptions <ul style="list-style-type: none"> Continuing political commitment to urban infrastructure development and sector reforms Encouraging private sector investment in the program towns including in tourism and industry Risk <ul style="list-style-type: none"> Lack of state or local government commitment to urban sector reforms
Outcome Increased access to better quality and sustainable urban infrastructure and services for about 1.9 million people expected to be living in the Dehradun, Nainital and Haridwar by the end of project period (2016)	Indicators	Target Values	<ul style="list-style-type: none"> Census data (2011) The second state finance commission report Municipal corporation and development authority annual reports IPPMS reports IPMU's quarterly progress reports ADB review mission reports Resettlement and environmental external monitoring reports ADB's project completion report 	Assumptions <ul style="list-style-type: none"> Timely Investment Program implementation Timely actions by state and service providers to implement urban reforms Cooperation of town residents to share civic responsibility Effective capacity development of institutions to manage project assets Risks <ul style="list-style-type: none"> Delayed actions to implement urban governance, finance, and service-delivery improvement action plan Lower-than-expected willingness to pay for services Delays in land acquisition and resettlement planning activities
	By the end of the subproject period: Water supply <ul style="list-style-type: none"> Number of people with access increased. UFW reduced Sewerage <ul style="list-style-type: none"> Number of people with access increased Governance <ul style="list-style-type: none"> Number of ULBs complied with 74th CAA and the JNNURM Reform agenda Sustainability <ul style="list-style-type: none"> Number of ULBs and UJS generate increased revenues to meet O&M costs of urban services Number of ULBs and UJS migrated to double-entry accounting Number of PPP contract awarded. 	<ul style="list-style-type: none"> 1.6 million people (95% of population of 3 towns) Reduced to 20% 0.4 million people (24% of population of the 3 towns) 31 ULBs 31 ULBs 		
Outputs 1. Implemented water supply subproject in	Indicators]	Target Values	UDD quarterly progress reports IPPMS reports	Assumptions <ul style="list-style-type: none"> Civic awareness program will result in
	By the end of the subproject period: <ul style="list-style-type: none"> Water supply 	<ul style="list-style-type: none"> 177 km 		

Design Summary	Performance Targets/indicators		Data Sources/ Reporting Mechanisms	Assumptions and Risks
Dehradun	network (km) improved.	<ul style="list-style-type: none"> 65,000 71,000 42% 	Commissioning certificates Disbursement and reimbursement records departmental reports	public support for replacement of connections and metering.
2. Implemented water supply subproject in Nainital	<ul style="list-style-type: none"> Number of household connection increased. Number of household meters newly installed. Non-revenue water reduced <p>[Indicators] By the end of the subproject period:</p> <ul style="list-style-type: none"> Water supply network (km) improved. Number of household connection increased. Number of household meters newly installed. Non-revenue water reduced 	<p>[Target Values]</p> <ul style="list-style-type: none"> 93 km 6,850 4,150 19% 	Annual work plans ADB review mission reports Project completion report Census reports	<p>Assumptions</p> <ul style="list-style-type: none"> WSS utilities are committed to efficiency improvements linked to longer-term performance improvement plans <p>Risks</p> <ul style="list-style-type: none"> Delayed action on WSS utility reforms Delayed action on rationalization of user charges
3. Implemented water supply subproject in Haridwar	<ul style="list-style-type: none"> Water supply network (km) improved. Number of household connection increased. Number of household meters newly installed. Non-revenue water reduced 	<p>[Target Values]</p> <ul style="list-style-type: none"> 162 km 19,200 24,000 10% 	Annual work plans ADB review mission reports Project completion report Census reports	<p>Assumptions</p> <ul style="list-style-type: none"> WSS utilities are committed to efficiency improvements linked to longer-term performance improvement plans <p>Risks</p> <ul style="list-style-type: none"> Delayed action on WSS utility reforms <p>Delayed action on rationalization of user charges</p>
4. Implemented Sewerage subproject in Dehradun	<ul style="list-style-type: none"> Sewer network increased. (km) Number of household connection increased. Sewerage treatment capacity increased. (mld) 	<ul style="list-style-type: none"> 200 km 14,000 68 mld 	Annual work plans ADB review mission reports Project completion report Census reports	<p>Assumptions</p> <ul style="list-style-type: none"> WSS utilities are committed to efficiency improvements linked to longer-term performance improvement plans <p>Risks</p> <ul style="list-style-type: none"> Delayed action on WSS utility reforms <p>Delayed action on rationalization of user</p>

Design Summary	Performance Targets/indicators		Data Sources/ Reporting Mechanisms	Assumptions and Risks
5. Strengthened ULBs	By the end of the subproject period: <ul style="list-style-type: none">Number of staff trained.Level of JNNURMS reform fully complied.	4,500 50%	Urban Directorates report	charges Assumptions <ul style="list-style-type: none">GoU/UDD is committed to participate in capacity building efforts and providing required WSS utilities are committed to efficiency improvements linked to longer-term performance improvement plans Risks <ul style="list-style-type: none">Delayed action on WSS utility reforms Delayed action on rationalization of user charges <ul style="list-style-type: none">Staff reflects learning to financial management
6. Restructured WSS utilities for efficient and financially sustainable service delivery	<ul style="list-style-type: none">Number of ULB trained in O&M cost recovery achieved.	15 ULBs		
7. Increased local revenues and improved financial management	<ul style="list-style-type: none">Number of ULB with accrual based double entry accounting system adopted.	15 ULBs		<ul style="list-style-type: none">
8. Prepared PPP packages for selected subprojects	<ul style="list-style-type: none">Number of PPP contracts awarded..	At least one		
Activities with Milestones				Inputs (\$ million)
1. Investment Program Preparation <ul style="list-style-type: none">1.1 IPMU in UDD established by March 2009, and fully operational.1.2 IPIUs in UPJN in Dehradun and its subunits in Dehradun, Haridwar, and Nainital are established and fully operational by December 2009.1.3 Program consultants are appointed by November 2008 through advance activities.1.4 Environmental clearance for first tranche subprojects completed by September 20081.5 Survey, investigation, mapping, and design data prepared by June 2008.1.6 Engineering design and tender documents for the 40% first tranche subprojects prepared by June 2008.1.7 Make land available and free of all encumbrances at the proposed site earmarked for construction of the STP at Dehradun, fence the land and place signages by March 2009.1.8 Hand over to UPJN the municipal land set aside for Dehradun STP by June 2008. 2. Implementation of First Tranche Subprojects <ul style="list-style-type: none">2.1 Urban Infrastructure and Services<ul style="list-style-type: none">2.1.1 Initiate civic awareness campaign and community mobilization by March 2009.2.1.2 Update construction plans and schedule by February 2009.2.1.3 Initiate resettlement planning activities by March 2009.2.1.4 Initiate preparation of state slum policy by March 2009.2.1.5 Start preparation of solid-waste master plan and awareness campaign by April 2009 and June 2009.2.1.6 Start procuring and installing water meters by January 2010.				<ul style="list-style-type: none">ADB (\$60.0 million)Government (\$25.7 million)

Design Summary	Performance Targets/indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
	<p>2.1.7 Award contract and commence construction works by May 2009</p> <p>2.1.8 Complete construction activities by June 2012.</p> <p>2.2. Capacity Development</p> <p>2.2.1 Undertake capacity-building and training needs assessments and initiate training programs by September 2009.</p> <p>2.2.2 Prepare detailed reform action plans by June 2009 for ULB strengthening, water utility reforms, and revenue and financial management improvements, and start assisting in their implementation.</p> <p>2.2.3 Start preparing draft regulations, operating procedures and manuals, and organizational development plans to implement reforms as required by August 2009.</p> <p>2.2.4 Design and conduct training programs to enhance skills in IPMU and IPIUs to implement the Investment Program and build capacity of ULBs, water utilities, and other relevant agencies to operate and maintain the Investment Program assets with assistance of the Program management consultants from September 2009.</p>		

APPROVED MEMOS OF CHANGES



Asian Development Bank

Memorandum

South Asia Department
Urban Development Division

For Approval of Para. 10

30 May 2008

To: Hun Kim *OK*
Director, SAUD *1 - June - 08*From: *for* Gülfer Cezayirli *Penawans*
Principal Urban Development Specialist, SAUD

Subject: Loan 2410-IND: Uttarakhand Urban Sector Development Investment Program—Minor Change in Project Scope

A. Background Information

1. On 24 January 2008, the Asian Development Bank (ADB) approved a multitranche financing facility (MFF) to India for the Uttarakhand Urban Sector Development Investment Program in the amount of \$350 million from ADB's Ordinary Capital Resources. The first PFR of the investment program, Loan 2410-IND, was approved on 1 February 2008 in the amount of \$60 million. The Investment Program aims to provide critically needed urban infrastructure and services. It combines capital investments with support to the Uttarakhand government's urban reform action plan to ensure sustainable outcomes. It targets selected urban centers which will lead industrial and tourism growth while contributing to the reduction of poverty.

2. The Executing Agency for the investment program is the Urban Development Department (UDD) of the Uttarakhand government.

B. Current Status of Project Implementation

3. The Loan is expected to be signed in July 2008. Advance contracting has been moving well, particularly in the recruitment of consultants for three packages (IPMC, DSC1, DSC2), and fielding is projected to be in August 2008.

C. Change in Project Scope

4. The scope of Loan 2410-IND includes the water supply optimization program of Dehradun. This program is related to urban infrastructure and service improvements, which is one of the investment program's interventions.

5. The optimization program identified the need to replace the Bandal Raw Water Main (BRWM), which passes through mostly forest areas. This BRWM, although designed to convey 10 mld of water directly to the water treatment plan (WTP), is tapped in several places on the way to provide water to the nearby settlements. Further the pipeline is old and damaged in many sections, resulting to wastage of water due to leakage. All these result in transmission of much less quantity of water (about 6 mld) to the WTP. Additionally, as the existing pipeline passes through environmentally critical areas without having easy access, its maintenance is

difficult, resulting to undue wastage of water. As a result, the replacement under the subcomponent could be limited to an initial 7 km.

6. While undertaking the detail engineering survey and design, it was found that the alignment can be substantially improved by rerouting it mostly along the existing government roads and over government-owned land, which is situated away from the hill slope. With the new alignment, the entire length of the pipeline can be replaced and therefore improving the supply of water, through BRWM. Based on the new initial environment examination (IEE) undertaken, it has been observed that there would be no adverse environmental impact for this proposal, nor would there be any resettlement issues in undertaking the subcomponent as per revised alignment.

7. A detailed survey and engineering design have been carried out for laying the new BRWM with a 450 mm dia 14.3 km long DI pipeline along the revised alignment. The estimated additional cost of works with the increased length of pipeline is \$2.3 million.

D. Staff View and Recommendation

8. The proposed change in scope to accommodate the revised realignment of the BRWM will not materially alter or fundamentally affect the Program's immediate objectives, components or benefits. While the realignment will result in an increase in cost of \$2.3 million, this change is not in excess of the 15% of the project cost, thus will not constitute a major change in scope. The updated IEE has been submitted and ADB concurred that the impact is not significant. Since the revised alignment will follow the existing government road and over government land, there will be no resettlement issues. To confirm this, the EA will be requested to submit a revised resettlement plan.

9. The allocation for the water supply component for Dehradun is \$13.2 million, and is sufficient to accommodate the increase in cost.

10. In accordance with para 14 of PAI 5.04, Director's approval for a minor change in scope to approve the proposed realignment of BRWM is requested.

cc: Assistant General Counsel, OGC; Director, COS1; OIC, CTLA; Country Director INRM; F. Emmanuel, CTLA-1

GC:sp



Asian Development Bank

Memorandum

South Asia Department
Urban Development Division

For Approval of Para. 8

25 March 2009

To: Hun Kim *[Signature]*
Director, SAUD 25-3-09

From: Hiroyuki Ikemoto *[Signature]*
Urban Economist, SAUD

Subject: Loan 2410-IND: Project 1 under M0018: Uttarakhand Urban Sector Development Investment Program—Minor Change in Implementation Arrangement *[Signature]*

A. Background Information

1. On 24 January 2008, the Asian Development Bank (ADB) approved a multitranchise financing facility (MFF) to India for the Uttarakhand Urban Sector Development Investment Program in the amount of \$350 million from ADB's Ordinary Capital Resources. The Investment Program aims to provide critically needed urban infrastructure and services. It combines capital investments with support to the government of Uttarakhand's urban reform action plan to ensure sustainable outcomes. It targets selected urban centers which will lead industrial and tourism growth. The Executing Agency (EA) for the Investment Program is the Urban Development Department (UDD) of the government of Uttarakhand.

2. The Investment Program consists of four projects, which will be financed under the MFF in four tranches of loan. The first tranche of loan (Loan 2410-IND) in the amount of \$60 million for financing Project 1 was approved under the MFF on 1 February 2008 and was made effective on 17 December 2008. Project 1 aims to improve water supply and sewage treatment infrastructure in Dehradun, Haridwar and Nainital.

B. Current Status of Project Implementation

3. The EA entered into contracts with Investment Program Management Consultants and two groups of Design and Supervision Consultants in November 2008, and the consultants were mobilized in 22 December 2008. Six out of the 12 contract packages were notified for national competitive bidding in March 2009.

C. Change in Implementation Arrangements

4. Haridwar¹ is regarded as one of the seven holiest places by the Hindus. As such, Haridwar hosts several religious festivals, such as *Ardh Kumbh Mela* (a mass Hindu pilgrimage

¹ In Hindi, Haridwar stands for Dwar of Hari or Gateway to God, "Hari" meaning god and "dwar" meaning gate.

celebrated every six years at Haridwar and Allahabad), in which more than 70 million Hindu pilgrims observe.² It is planned that Haridwar will host the *Ardha Kumbha Mela* in the year 2010.

5. The EA originally planned to complete the works related to the water supply distribution lines in Haridwar within 2009 under Project 1 so as to be ready for accommodating a large number of the pilgrims in 2010. However, as a result of the delay in loan effectiveness, the EA had to commence works using the Government of India's grant fund under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), in order to complete the works as originally planned. Consequently, the EA requested ADB for exclusion of the contract packages related to the water supply distribution lines in Haridwar from ADB financing.

6. The estimated contract value of works on the water supply distribution lines for Haridwar at the time of appraisal was \$7.1 million, of which ADB was to finance 76% (\$5.4 million).

D. Staff View and Recommendation

7. The proposed change in implementation arrangement is a shift in the financing source for the contract packages related to the water supply distribution lines in Haridwar from the ADB loan to own financial resources following the government of Uttarakhand procurement procedure.³ Staff confirmed that, the change in the financing source did not affect the nature of the works and, therefore, the change in implementation arrangement would not lower the original output target of Project 1. Likewise, the change will not materially alter or fundamentally affect the immediate objectives, components or benefits of Project 1. The reduction in scope of financing will result in loan saving by \$5.4 million, and this change is not in excess of the 15% of the total project cost, thus will not constitute a major change in scope.

8. In accordance with para 14 of PAI 5.04, Director's approval for a minor change in implementation arrangement to approve the proposed exclusion of works on the water supply distribution lines in Haridwar under Project 1 from ADB financing is requested.

cc: Directors, COS1/SAOC; A. Mohammed, OIC for SARD Team, OGC; Assistant Controller, CTLA; Country Director INRM; F. Mathew, CTLA-1

Hl:sgb

² According to Wikipedia (http://en.wikipedia.org/wiki/Ardh_Kumbh_Mela), "over 45 days beginning in January 2007, more than 70 million Hindu pilgrims took part in the Ardh Kumbh Mela at Allahabad, and on January 15, the most auspicious day of the festival of Makar Sankranti, more than 5 million participated".

³ Section 1.5 of Procurement Guidelines (2007) states "the procedures outlined in these Guidelines apply to all contracts for goods and works financed in whole or in part by ADB. For the procurement of those contracts for goods and works not financed by ADB, the borrower may adopt other procedures."

TRIPARTITE PORTFOLIO REVIEW MEETING – BRIEFING SHEETS

Loan 2410: MFF Uttarakhand Urban Sector Development Investment Program – Project 1 Status as of 31 December 2011

Executing Agency: Urban Development Department (UDD), Government of Uttarakhand

Section — I: Milestones, Financial Data and Projections

A. Loan Milestones		
Approval	01-Feb-08	
Signing	23-Oct-08	
Effective	17-Dec-08	
Original Closing	31-Dec-12	
Revised Closing		
Time Extension	0.0	months
Time Remaining	12.0	months

B. Loan Amount (\$ million)		
Original Loan	60.00	
Canceled	0.00	
Net Loan	60.00	
Committ. Charges	0.24	

C. Loan Financial Progress (\$ million)			
Amt to be Contracted	60.00	Average Disbursement per month	0.42
Cummulative Contract Award	41.94		
Balance	18.10	2011 Average Disbursement per month	0.81
Amt to be Disbursed	60.00		
Cummulative Disbursement	19.69	Average Disbursement Required per Month	3.35
Balance	40.30		

D. Contract Awards and Disbursements Achivement Performance (\$ million)							
Indicators		2010	2011				
			Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Contract Award	Target	20.20	-	-	-	-	-
	Achieved	35.50	-	-	-	0.09	0.09
	Balance	(15.30)	-	-	-	(0.09)	(0.09)
Disbursement	Target	10.60	3.70	4.00	4.30	4.10	16.10
	Achieved	7.40	-	5.58	1.38	2.79	9.75
	Balance	3.20	3.70	(1.58)	2.92	1.31	6.35

Loan 2410: MFF Uttarakhand Urban Sector Development Investment Program
Status as of 31 December 2011

Section – II : Project Details and Progress

A. Project Description

Part A: Urban Infrastructure and Services Improvements, comprising (a) water supply optimization in Dehradun, Nainital, Haridwar; and (b) sewerage in Dehradun.

Part B: Capacity Building and Investment Program Management, comprising, investment program management, capacity building, civic awareness, slum policy formulation and solid waste management strategy development.

B. Program Impact

The Investment Program will improve quality of life for the urban residents of Uttarakhand. The Investment Program is also expected to improve the quality of services and experience enjoyed by more than 8 million tourists and pilgrims who visit the Program towns annually.

C. Status of Achieving the Outcomes (of the Investment Program)

Outcomes	Indicators	Targets	Baseline Data	Achieved	
				15 Jun 2011	31 Dec 2011
Improved living conditions in the Program towns	Water supply • Number of people with improve access to water supply system	• 0.72 million people	Of total 0.72 million current population, 0.3 million is getting adequate quantity of water	Work under progress	No change in status
	Sewerage • Number of people with improve access to sewerage system	• 0.13 million people	Nil	Work under progress	No change in status

D. Status of Achieving the Outputs (of Project 1)

Outputs	Target	Achievement	
		15 Jun 2011	31 Dec 2011
Physical outputs (by the end of 2012)			
Water supply improvement. • Laying of water pipelines.	• 226 km	52 Km laid(23%)	81 Km laid (36%)
• Augmentation of potable water production capacity.	• 14 MLD	5% physical progress	10 % physical progress
• Construction of reservoirs	• 13 Nos	8% physical progress	6 reservoirs are under construction. Average physical progress is 23%
• Rehabilitation of pumping station(PS) and replacement of pumps	• 88 Nos	85 numbers of pumps have been procured and supplied.	112 numbers of pumps have been procured and supplied. Out of which 32 have been
• Construction of new PS	• 5 Nos	2% physical	

Outputs	Target	Achievement	
		15 Jun 2011	31 Dec 2011
Physical outputs (by the end of 2012)			
		progress	installed. 10% physical progress.
Sewerage Improvements:			
• Sewer pipes increased.	• 125 km	13 km laid (10%)	30 km laid (24%)
• Number of HH connection increased.	• 21,000	Nil	No change in status.
• Sewerage treatment capacity increased. (mld)	• 68 MLD	54% physical progress	60% physical progress
Capacity Building (2014)			
Strengthened ULBs:			
• Number of staff trained.	• 600	543 nos of officials/staff have been trained	623 nos of officials and elected representative trained.
• Level of JNNURMS reform fully complied.	• 50% achieved	Out of 18 function listed in the 12 th schedule 12 are transferred to the ULBs Accounting reform activities initiated in 3 project towns For GIS based property tax mapping and E-governance, proposals are being prepared for inviting bids	State slum policy developed under the project has been approved by GoU on 13 Dec 2011.
Urban Reform Agenda			
• Number of ULBs achieved O&M cost recovery.	• 3 ULBs	(i) The urban service provider has recovered 55%, 53% & 51% of total O&M cost during 2008-2010 from Dehradun, Haridwar & Nainital towns respectively (ii) GoU has taken up following action to improve O&M cost recovery : (a) Reduction of cost: • NRW reduction • Water metering	No change in status.

Outputs	Target	Achievement	
		15 Jun 2011	31 Dec 2011
Physical outputs (by the end of 2012)			
		<ul style="list-style-type: none">• Use of energy efficient pumps (b) revenue enhancement: <ul style="list-style-type: none">• GIS based property mapping• Compute based billing and collection system	
<ul style="list-style-type: none">• Number of ULB with accrual based double entry accounting system adopted.	<ul style="list-style-type: none">• 15 ULBs	GoU has engaged chartered accountants to prepare accrual based accounting for Dehradun, Nainital & Haridwar towns. GoU has also approached Karnataka municipal reform cell to adopt the best practices of municipal accounting.	The state cabinet has also approved accrual based double entry accounting manual and taken decision to engage chartered accountants for 4 additional towns.
<ul style="list-style-type: none">• Number of PPP contracts awarded.	<ul style="list-style-type: none">• At least one awarded	No change in status	In Nainital 24x 7 water supply will be taken up in PPP mode. The RFP is being prepared for hiring a private operator.

E. Status of Project Inputs and Activities (Indicate activities up to contract award)

Inputs/Activities	Status	Remarks
Consulting Service		
<ul style="list-style-type: none"> • PMC • 2 DSCs 	<ul style="list-style-type: none"> • Contract awarded • Contract awarded 	
Procurement: Civil Works: Dehradun: <ul style="list-style-type: none"> • Water Supply: 4 contract packages • Sewerage: 3 contract packages Haridwar: <ul style="list-style-type: none"> • Water Supply: 1 contract package Nainital: <ul style="list-style-type: none"> • Water Supply: 4 contract packages 	<ul style="list-style-type: none"> • 4 contracts worth \$12.8 M have been awarded • 3 contracts worth \$24.8 M have been awarded • 1 contract worth \$0.72 M has been awarded. • 4 contracts worth \$8.6 M have been awarded. 	

F. Implementation Status of Action Plan from Previous TPRM

S. No	Action Plan	Responsibility	Time Frame	Status
1	Obtain all the pending right of clearances and permissions	UDD	31 August 2011	Partially complied
2	Take decision on use of lighter pipe material and new technologies to expedite sewer laying works	GoU/UDD	15 September 2011	Not complied.

G. Major Issues and Proposed Actions

No	Major Issues	Actions	Responsibility	Time Frame
1	Delay in obtaining right of way clearances	<u>Nainital</u> <ul style="list-style-type: none"> Obtain all pending right of way clearances including tree cutting permission or take decision on alternative solutions. If GoU is not able to resolve the issue within the timeframe, it might initiate a proposal for reduction of scope. <u>Dehradun</u> <ul style="list-style-type: none"> Obtain clearances from NHAI for laying sewers along NH 74 	GoU	March 2012 April 2012 March 2012
2	Slow progress of works	<ul style="list-style-type: none"> Prepare a detailed schedule and action plan to ensure early completion of the works Ensure physical completion of at least 7 civil works contracts out of 11 ongoing contracts. 	PMU PMU	March 2012 2012
3	Loan extension	Prepare detailed schedule of remaining project activities and submit request for loan extension through DEA	GoU	April 2012
4	Strengthening of IPMU and IPIUs to ensure effective implementation of the project.	<ul style="list-style-type: none"> Appoint Dy. Project Director Re-engineering of IPMU and IPIU as per the PAM of PFR2 	GoU	March 2012 April 2012

H. EA Projections for CY2012 (\$ million) –

Contract Award				Total	Disbursements				Total
Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4	
-	-	-	-	-	4.51	4.49	4.18	2.76	15.94

I. EA Projections for CY 2013 and 2014 (\$ million)

Contract Award		Total	Disbursements		Total
2013	2014		2013	2014	
5.0	0.0	5.0	15.0	9.38	24.38

Loan 2410: UTTARAKHAND URBAN SECTOR DEVELOPMENT INVESTMENT PROGRAM - PROJECT 1
(M0018)

Status as on 29 Aug 2016

Executing Agency: Urban Development Department, Government Of Uttarakhand

Section - I: Milestones, Financial Progress and Projections

MFF Data	
MFF Approval	24 Jan 2008
MFF Amount	350.0
PFR Approved (2)	160.0
Balance	190.0
Completion	23 Jan 2018

A. Loan Milestones	
Approval	01 Feb 2008
Signing	23 Oct 2008
Effective	17 Dec 2008
Original Closing	31 Dec 2012
Revised Closing	23 Jan 2018
Time Extension	61 months
Time Remaining	17 months

B. Loan Amount (\$ million)	
Original Loan	60.0
Canceled	0.0
Net Loan	60.0
Committ. Charges	0.4

C. Loan Financial Progress (\$ million)	
Amt to be Contracted	60.0
Cumulative Contract Award	54.7
Balance	5.3
Amt to be Disbursed	60.0
Cumulative Disbursement	47.3
Balance	12.7



Average Disbursement per month	0.46
2016 Average Disbursement per month	0.3
Average Disbursement Required per month	0.7

D. Contract Awards and Disbursements Achievement Performance (\$ million)						
Indicators		2016				
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Contract Award	Target	-	-	-	-	-
	Achieved	-	-	0.3	-	0.3
	Balance	0.0	0.0	-0.3	0.0	-0.3
Disbursement	Target	1.5	2.6	1.4	1.5	7.0
	Achieved	1.2	1.1	0.3	-	2.6
	Balance	0.3	1.5	1.1	1.5	4.4

Loan 2410: MFF Uttarakhand Urban Sector Development Investment Program-Project 1

Name of Line Ministry	Ministry of Urban Development
Name of Executing Agency	Urban Development Department, Government of Uttarakhand
Name of Implementing Agency	Urban Development Department, Government of Uttarakhand
State Government Nodal Contacts	Mr. S. Ramaswamy, Principal Secretary, Planning, Government of Uttarakhand Phone No:+91135-2712040
Name and Contact details of Project Director	Dr. V. Shanmugam, Program Director Email: dr.vshanmugam@gmail.com Phone No:+91135-2714104

Section – II : Project Details and Progress**A. Project Description**

The objective of the Investment Program is to improve the quality of life of urban residents in Uttarakhand through rehabilitation and expansion of basic urban infrastructure in major urban centers of the State.

The Project 1 under the Investment Program will support the following components.

Part A: Urban Infrastructure and Services Improvements, comprising (a) water supply optimization in Dehradun, Nainital, Haridwar; and (b) sewerage in Dehradun.

Part B: Capacity Building and Investment Program Management, comprising, investment program management, capacity building, civic awareness, slum policy formulation and solid waste management strategy development.

B. Program Impact

The Investment Program will improve quality of life for the urban residents of Uttarakhand. The Investment Program is also expected to improve the quality of services and experience enjoyed by more than 8 million tourists and pilgrims who visit the Program towns annually.

C. Status of Achieving the Outcomes

Outcomes	Indicators	Targets (By Jan 2018)	Baseline Data	Achieved	
				31 Jan 2016	15 August 2016
Improved living conditions in the Program towns	Water supply • Number of people with improve access to water supply system	• 0.72 million people	of total 0.72 million current population, 0.3 million is getting adequate quantity of water	0.60 million people already benefitted from improved water supply	0.64 million are benefitting from the project
	Sewerage • Number of people with improve access to sewerage system	• 0.13 million people	Nil	0.10 million population benefitted.	0.11 million population benefitted.

D. Status of Achieving the Outputs

Outputs	Target	31 Jan 2016	15 August 2016
Physical outputs	By 2018		
Water supply improvement.			
• Laying of water pipelines.	• 193 km	146 Km laid (76%) of which 102 km tested.	152 Km laid (79%) of which 115 km tested.
• Augmentation of potable water production capacity.	• 14 MLD	100% physical progress	100% physical progress
• Construction of reservoirs	• 22 Nos	22 reservoirs completed. Physical progress is 100%.	22 reservoirs completed and commissioned.
• Rehabilitation of pumping station(PS) and replacement of pumps	• 88 Nos	122 numbers of pumps have been procured and supplied. Out of which 120 have been installed.	126 numbers of pumps have been procured and supplied. Out of which 123 have been installed and commissioned.
• Construction of new PS	5 Nos	100% physical progress	100% physical progress
Sewerage Improvements:			
• Sewer pipes increased.	• 125 km	109 km laid	112 km laid and 109 km tested. No progress of work under sewer laying contracts due to NGT ban since January 2016
• Number of HH connection increased.	• 21,000	4072 nos	4072 nos.
• Sewerage treatment capacity increased. (mld)	68 MLD	100% physical progress. Trial run completed on 10 October 2015 and the plant is now operational.	100% physical progress. Trial run completed on 10 October 2015 and the plant is now operational.
Capacity Building (2014)	By 2018		
Strengthened ULBs:			
• Number of staff trained.	• 600	Senior Officials of ULBs were sent to ASCI Hyderabad for training from 25-27 May 2015.	Same as that of 31 Jan 2016
• Level of JNNURMS reform fully complied.	• 50% achieved	40 newly appointed ULB's officers were provided trainings through Institute of Cooperative Management Dehradun w.e.f 15.06.2015 to 27.06.2015. Two newly appointed Executive Officers are being sent to ASCI Hyderabad for training between 27 July to 29 July 2015.	Same as that of 31 Jan 2016
Urban Reform Agenda			
• Number of ULBs achieved O&M cost recovery.	• 3 ULBs	(i) The urban service provider has recovered 55%, 53% & 51% of total O&M cost during 2008-2010 from	Same as that of 31 Jan 2016

Outputs	Target	31 Jan 2016	15 August 2016
		Dehradun, Haridwar & Nainital towns respectively (ii) GoU has taken up following action to improve O&M cost recovery : (a) Reduction of cost: • NRW reduction • Water metering • Use of energy efficient pumps (b) revenue enhancement: • GIS based property mapping Compute based billing and collection system	
• Number of ULB with accrual based double entry accounting system adopted.	• 15 ULBs	GoU has engaged chartered accountants to prepare accrual based accounting for Dehradun, Nainital & Haridwar towns. The state cabinet has also approved accrual based double entry accounting manual and taken decision to engage chartered accountants for 4 additional towns. GoU has also approached Karnataka municipal reform cell to adopt the best practices of municipal accounting.	Same as that of 31 Jan 2016

E. Status of Project Inputs and Activities (Indicate activities up to contract award)

Inputs/Activities	Status
Consulting Service • PMC • 2 DSCs	• Contract completed • Contracts awarded. New firm under Project 2 has been appointed for Garhwal region.
Procurement of Civil Works: Dehradun: • Water Supply: 5 contract packages • Sewerage: 3 contract packages Haridwar: • Water Supply: 1 contract package Nainital • Water Supply: 5 contract packages	• 5 contracts worth \$10.41 M have been awarded • UDD awarded terminated Dehradun water supply package (worth \$4.39M) in December 2015. • 4 contracts worth \$24.15 M have been awarded • UDD terminated 2 sewer laying contracts due to non-performance. • Retendered sewerage packages were awarded (worth \$11 M) in January 2014. • 1 contract worth \$0.65 M has been awarded. • 5 contracts worth \$6.2 M have been awarded.

F. Component and Financing

Category	ADB Financing (\$ Million)
Civil works	27.85
Equipment	14.35
Training/Fellowship	0.60
Survey and Studies	1.02
Consulting Services	8.03
Incremental Assistance	1.56
Unallocated	6.58
Total	60.00

G. Procurement Details

Sr.	Component	Total Contract Packages		Contracts Awarded		Contracts to be Awarded	
		No. of Packages with cost & location	Scope	No. of packages	Scope	No. of packages	Scope
1.	Water Supply (Deharadun, Haridwar & Nanital)	11 (including 1 retendered package) (\$18 million)	Pipeline: 193 km	11 (\$18 million)	Pipeline: 226 km	—	—
2.	Sewerage (Deharadun)	6 (including 2 retendered packages) (\$23 million)	Pipeline: 125 km STP: 68 MLD	6 (\$23 million)	Pipeline: 125 km STP: 68 MLD	—	—

H. PMU Staffing

1	Status of Project Director in PMUs			
1 a	Is the Project Director (PD) currently posted?	Yes	Nature of PD posting	Part Time
1 b	Current PD is posted since when?	January 2015	PD's authority level for decision on important project matters?	Full Authority
2	Status of PMU Staffing			
2 a	No. of PMU staff as agreed with ADB or as per Org Structure in PAM/FAM/RRP.	16	Actual no. of PMU staff in place at present.	13
			Full Time	10
			Additional Charge	3
2 b	Details of PMU Positions which are critical but currently vacant.	None		
3	Status of PIU Establishment			
3 a	Are PIUs required to be established in the Project?	Yes	Are PIUs fully staffed	Yes
3 b	No. of PIUs required as agreed with ADB in Org Structure in PAM/FAM/RRP	3	Actual no. of PIUs	3

I. Status of Submission of Audited Financial Statements/Project Accounts

Financial Year	Due Date for Submission	Status of Submission	Complied (Y/N) or ongoing
2014-15	31 December 2015	28 March 2016	Complied
2015-16	31 December 2016	Being complied	Not yet due

J. Implementation Status of Action Plan from January 2016 TPRM

No	Issues/ Action Plan	Responsibility	Time Frame	Status
1.	Slow Disbursement: Expedite execution and complete all the packages barring recently awarded Dehradun water supply contract.	UDD, GOU	31 December 2016	Not yet due. Likely to achieve
2.	Loan savings: Submit request for loan cancellation of \$5 million.	UDD, GoU	31 March 2016	ADB has recently fielded loan review mission and it was assessed that the savings under the loan will be marginal (\$3 million) and might require to fund any unanticipated expenses.
3.	Delay in handing over of completed assets and financial closure of completed contracts: Streamline the process of handing over of completed assets to line agencies and ensure financial closure of physically completed contracts.	UDD, GOU	For completed works by 28 February 2016 and ongoing contracts within 2-3 months of physical completion	Not yet complied

K. Major Issues and Proposed Actions

No	Major Issues	Actions	Responsibility	Time Frame
1.	Slow disbursement:	Expedite execution and submit claims worth \$2.3 million in Q3 and \$2.4 million in Q4 2016	UDD, GoU	December 2016
2.	Delay in completion of contracts	Out of 4 ongoing works contracts, ensure completion of at least 3 contracts.	UDD, GOU	December 2016
3.	Delay in handing over of completed assets and financial closure of completed contracts	Streamline the process of handing over of completed assets to line agencies and ensure financial closure of physically completed contracts	UDD, GoU	For completed works by 30 September 2016 and ongoing contracts within 2-3 months of physical completion

PROJECT COST AT APPRAISAL AND ACTUAL

(\$ million)

Component	Appraisal Estimate			Actual		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Base Costs						
1. Water Supply		27,836	27,836		18,968	18,968
a. Dehradun		13,295	13,295		10,909	10,909
b. Haridwar		7,002	7,002		531	531
c. Nainital		7,539	7,539		7,528	7,528
2. Sewerage management		20,623	20,623		36,669	36,669
a. Dehradun		20,623	20,623		36,669	36,669
3. Capacity Building Program		3,111	3,111		153	153
a. Financial and institutional reform		1,717	1,717		0	0
b. Solid waste segregation		490	490		87	87
c. Solid waste management strategy and planning		299	299		0	0
d. Slum improvement strategy and planning		101	101		0	0
e. In-county training and study visits		503	503		65	65
4. Project management		7,537	7,537		16,943	16,943
a. Project management and implementation units		1,562	1,562		4,718	4,718
b. Project management consultants		1,937	1,937		2,479	2,479
c. Design and supervision consultants		4,038	4,038		9,746	9,746
5. Tax and Duties		7,941	7,941		0	0
Subtotal		67,048	67,048		72,733	72,733
B. Contingencies		7,282	7,282		0	0
C. Financial Charges During Implementation	11,384	0	11,384	5,514	0	5,514
Total	11,384	74,330	85,714	5,514	72,733	78,247

Note: Numbers may not sum precisely because of rounding.

Source: PFR and PAM for project 1 for appraisal estimates; completion information from ADB Mainframe Database (ADB share) and IPMU (for counterpart contribution) and ADB estimates.

PROJECT COST BY FINANCIER

Table A4.1: Project Cost at Appraisal by Financier

Component	ADB		Government of Uttarakhand		Total	
	Amount (\$'000)	% of Cost Category	Amount (\$'000)	% of Cost Category	Amount (\$'000)	% of Cost Category
A. Base Costs						
1. Water Supply	24,737	88.9%	3,099	11.1%	27,836	100.0%
a. Dehradun	12,072	90.8%	1,223	9.2%	13,295	100.0%
b. Haridwar	6,175	88.2%	827	11.8%	7,002	100.0%
c. Nainital	6,490	86.1%	1,049	13.9%	7,539	100.0%
2. Sewerage management	0	0.0%	20,623	100.0%	20,623	100.0%
a. Dehradun	18,036	87.5%	2,587	12.5%	20,623	100.0%
3. Capacity Building Program	0	0.0%	3,111	100.0%	3,111	100.0%
a. Financial and institutional reform	1,717	100.0%	0	0.0%	1,717	100.0%
b. Solid waste segregation	490	100.0%	0	0.0%	490	100.0%
c. Solid waste management strategy and planning	299	100.0%	0	0.0%	299	100.0%
d. Slum improvement strategy and planning	101	100.0%	0	0.0%	101	100.0%
e. In-county training and study visits	503	100.0%	0	0.0%	503	100.0%
4. Project management	7,537	100.0%	0	0.0%	7,537	100.0%
a. Project management and implementation units	1,562	100.0%	0	0.0%	1,562	100.0%
b. Project management consultants	1,937	100.0%	0	0.0%	1,937	100.0%
c. Design and supervision consultants	4,038	100.0%	0	0.0%	4,038	100.0%
5. Tax and Duties	0	0.0%	7,941	100.0%	7,941	100.0%
Subtotal	53,421	79.7%	13,627	20.3%	67,048	100.0%
B. Contingencies	6,580	90.4%	702	9.6%	7,282	100.0%
C. Financial Charges During Implementation	0	0.0%	11,384	100.0%	11,384	100.0%
Total	60,000	70.0%	25,714	30.0%	85,714	100.0%

ADB = Asian Development Bank.

Note: Numbers may not sum precisely because of rounding.

Source: PFR and PAM for project 1 for appraisal estimates; completion information from ADB Mainframe Database (ADB share) and IPMU (for counterpart contribution) and ADB estimates.

Table A4.2: Project Cost at Completion by Financier

Component	ADB		Government of Uttarakhand		Total	
	Amount (\$'000)	% of Cost Category	Amount (\$'000)	% of Cost Category	Amount (\$'000)	% of Cost Category
A. Base Costs						
1. Water Supply	10,076	53.1%	8,892	46.9%	18,968	100.0%
a. Dehradun	5,073	46.5%	5,836	53.5%	10,909	100.0%
b. Haridwar	451	84.9%	80	15.1%	531	100.0%
c. Nainital	4,552	60.5%	2,976	39.5%	7,528	100.0%
2. Sewerage management	29,623	80.8%	7,046	19.2%	36,669	100.0%
a. Dehradun	29,623	80.8%	7,046	19.2%	36,669	100.0%
3. Capacity Building Program	149	97.3%	4	2.7%	153	100.0%
a. Financial and institutional reform						
b. Solid waste segregation	83	95.2%	4	4.8%	87	100.0%
c. Solid waste management strategy and planning						
d. Slum improvement strategy and planning						
e. In-county training and study visits	65	100.0%	0	0.0%	65	100.0%
4. Project management	16,943	100.0%	0	0.0%	16,943	100.0%
a. Project management and implementation units	4,718	100.0%	0	0.0%	4,718	100.0%
b. Project management consultants	2,479	100.0%	0	0.0%	2,479	100.0%
c. Design and supervision consultants	9,746	100.0%	0	0.0%	9,746	100.0%
5. Tax and Duties	-	-	-	-	-	0.0%
Subtotal	56,790	78.1%	15,943	21.9%	72,733	100.0%
B. Contingencies						
C. Financial Charges During Implementation	0	0.0%	5,514	100.0%	5,514	100.0%
Total	56,790	72.6%	21,457	27.4%	78,247	100.0%

ADB = Asian Development Bank.

Note: Numbers may not sum precisely because of rounding.

Source: PFR and PAM for project 1 for appraisal estimates; completion information from ADB Mainframe Database (ADB share) and IPMU (for counterpart contribution) and ADB estimates.

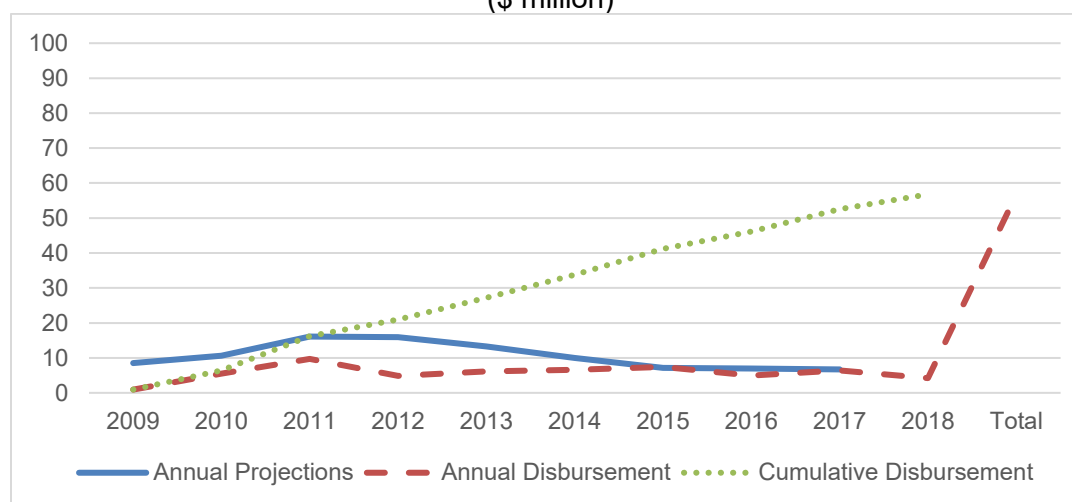
DISBURSEMENT OF ADB LOAN PROCEEDS

Table A5: Annual and Cumulative Disbursement of ADB Loan Proceeds
(\$ million)

Year	Annual Disbursement		Cumulative Disbursement	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2009	0.93	1.64%	0.93	1.64%
2010	5.51	9.70%	6.44	11.34%
2011	9.75	17.17%	16.19	28.51%
2012	4.81	8.47%	21.00	36.98%
2013	6.16	10.85%	27.16	47.83%
2014	6.62	11.66%	33.78	59.49%
2015	7.42	13.07%	41.20	72.56%
2016	4.94	8.70%	46.14	81.26%
2017	6.43	11.32%	52.57	92.59%
2018	4.21	7.41%	56.78	100.00%
Total	56.78	100.0%		

ADB = Asian Development Bank.
Source: Asian Development Bank.

Figure A5: Projection and Cumulative Disbursement of ADB Loan Proceeds
(\$ million)



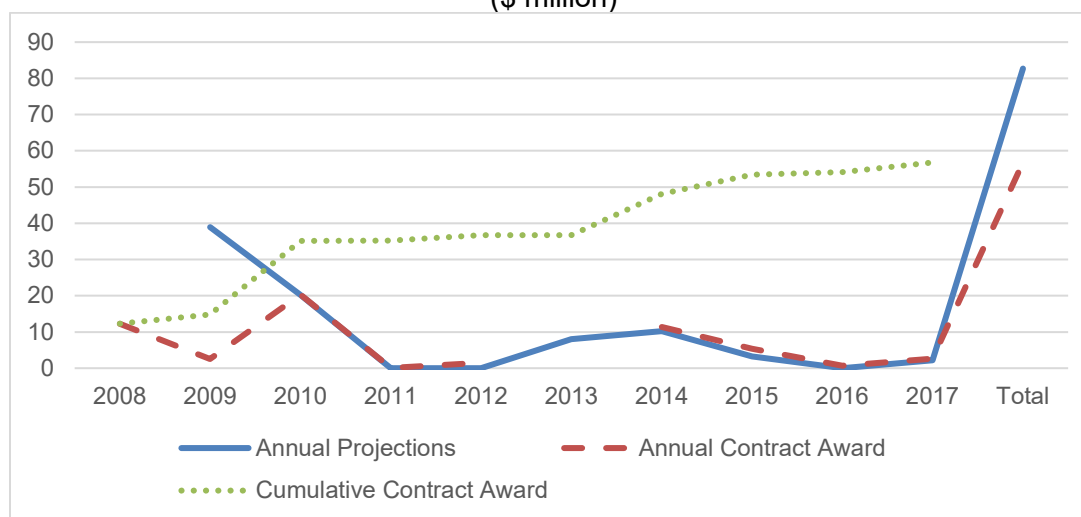
CONTRACT AWARDS OF ADB LOAN PROCEEDS

Table A6: Annual and Cumulative Contract Awards of ADB Loan Proceeds
(\$ million)

Year	Annual Contract Awards		Cumulative Contract Awards	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2008	12.29	21.64%	12.29	21.64%
2009	2.56	4.51%	14.85	26.15%
2010	20.27	35.70%	35.12	61.85%
2011	0.08	0.14%	35.20	61.99%
2012	1.52	2.68%	36.72	64.67%
2013	—	0.00%	36.72	64.67%
2014	11.38	20.04%	48.10	84.71%
2015	5.34	9.40%	53.44	94.12%
2016	0.69	1.22%	54.13	95.33%
2017	2.65	4.67%	56.78	100.00%
Total	56.78	100.0%		

ADB = Asian Development Bank.
Source: Asian Development Bank.

Figure A6: Projection and Cumulative Contract Awards of ADB Loan Proceeds
(\$ million)



SUMMARY OF CONTRACT DETAILS

PCSS	Contract Amount (\$)	ADB Financing (\$)	Disbursed (\$)	Contract Package	Contract Description	Contractor Name	Contract Award	Actual Completion
Dehradun								
Water Supply								
0005	1,655,639	1,655,639	1,655,639	WSS 02D	Procurement of supply, laying, jointing, testing, and commissioning of raw water main from Bandal river.	M/S Infrastructure Ltd. NKG	24-Dec-09	31-Mar-14
0011	667,114	667,114	667,114	WSS 03D	Procurement of works for replacement of pumping plants, electrical items and renovation of pump houses.	R K Engineers Sales Pvt. Ltd. In JV	13-Jul-10	31-Mar-14
0013	2,161,453	2,161,453	2,161,453	WSS 01D	Procurement for works for supplying. Laying, testing, and commissioning of water supply distribution.	Vishwa Infrastructure & Services Ltd. In JV	12-Jul-10	16-Dec-13
0028	121,148	121,148	121,148	WSS02D/BHW	Construction of mass concrete weir across river Bandal for raw water intake channel at head works and construction.	M/S Himalayan Construction	19-Mar-16	31-Mar-17
0008	467,636	467,636	467,636	WSS 04D (EQUIPMENT)	Procurement of silent mobile and static diesel driven electric power generator sets for water supply.	Katsons Technologies Pvt. Ltd.	01-May-10	28-Feb-11
Wastewater								
0006	10,319,418	10,319,418	10,319,418	WWM 01D	Procurement of 68 mld capacity STP on design, supply, installation, O&M basis.	Gharpure Engineering & Constructions (P) Ltd	23-Mar-10	30-Apr-16
0009	1,279,383	1,279,383	1,279,383	WWM 02D	Supply, laying, testing, and commissioning of trunk sewers and branch sewers along with Manh and Appur.	Jyoti Buildtech Pvt. Ltd., New Delhi	13-Jul-10	19-Nov-12
0010	613,840	613,840	613,840	WWM 03D	Supply, laying, testing, and commissioning of branch sewers along with manholes and appurtenances.	Conarch Associates, Ghaziabad	13-Jul-10	10-Apr-12
0020	7,969,713	7,969,713	7,969,713	WWM 02D (RT)	Procurement of works for sewerage system for un-sewered area of Kargi zone in Dehradun.	EMS Infracon Pvt. Ltd., Ghaziabad	23-Jan-14	31-Aug-17

PCSS	Contract Amount (\$)	ADB Financing (\$)	Disbursed (\$)	Contract Package	Contract Description	Contractor Name	Contract Award	Actual Completion
0021	2,534,198	2,534,198	2,534,198	WWM 03D (RT)	Procurement of works for sewerage system for sewerage area (sub-zone e1 and e2) of Kargi zone in Dehradun.	EMS Infracon Pvt. Ltd., Ghaziabad	23-Jan-14	31-Aug-17
0025	4,202,061	4,202,061	4,202,061	WSS01D (RT)	Procurement of works for supplying, laying, testing & commissioning of water supply distribution network.	Tirupati Cement Products	1-Dec-15	23-Jan-18
0026	51,404	51,404	51,404	WWM01D/CC-1	Construction of cement concrete approach road from Haridwar bypass road to new 68 mld STP main gate in Dehradun.	Shree Ganesh Const.	13-Oct-15	25-May-17
0030	1,570,859	1,570,859	1,570,859	WWM05D	Providing, laying, jointing & testing of house service connections under WWM02D & WWM02D(RT).	RG Industries & P.Das Infrastructure in JV	14-Feb-17	19-Feb-18
0031	1,081,782	1,081,782	1,081,782	WWM06D	Providing, laying, jointing, testing of sewer house connections under WWM03D & WWM03D(RT).	RG Industries & P.Das Infrastructure in JV	14-Feb-17	19-Feb-18
Solid Waste Management								
0018	83,090	83,090	83,090	SWM01D (EQUIPMENT)	Procurement of hydraulic compactors for non-biodegradable waste viz. Plastic, papers, cans, pet bottle.	Jain Hydraulic Pvt. Ltd.	12-Sep-11	28-Nov-14
Haridwar Water Supply								
0012	450,634	450,634	450,634	WSS 01H	Procurement of works for replacement of pumping plants and renovation of pump houses of water supply system.	R K Engineers Pvt. Ltd.	13-Jul-10	31-Oct-14
Nainital Water Supply								
0014	1,721,929	1,721,929	1,721,929	WSS 03 N	Replacement of rising mains and old steel tanks and appurtenant works at Nainital.	SMS Paryavaran Limited, New Delhi	29-Jul-10	31-Mar-15
0015	1,539,984	1,539,984	1,539,984	WSS 01 N	Replacement of pumping plants and construction of tube wells, pump houses, sumps and appurtenant at Nainital.	R K Engineers Sales Pvt. Ltd. In JV	13-Jul-10	31-Mar-15

PCSS	Contract Amount (\$)	ADB Financing (\$)	Disbursed (\$)	Contract Package	Contract Description	Contractor Name	Contract Award	Actual Completion
0016	457,223	457,223	457,223	WSS 02 N	Supply, laying, and jointing of distribution system and rising main and appurtenant works at Nainital.	NKG Infrastructure Limited, New Delhi	30-Jul-10	31-Mar-14
0017	591,544	591,544	591,544	WSS 04 N	Construction of clear water reservoirs and appurtenant works at Nainital.	Lal Chand And Company, Ghaziabad	30-Jul-10	31-Mar-14
0027	241,639	241,639	241,639	WSS DG 01N (EQUIPMENT)	Procurement of supply, install testing and commissioning of dg set for pumping stations at Nainital.	Katsons Technologies Pvt. Ltd.	31-Mar-16	30-Nov-17
Trainings								
0007	65,444	65,444	65,444	VARIOUS	Training and capacity building activities.	VARIOUS	23-Oct-08	27-Jan-17
Consulting Services								
0001	2,478,504	2,478,504	2,478,504	IPMC-01	Investment program management consultant (IPMC).	Wilbur Smith Associates, Usain	4-Nov-08	11-Jun-14
0002	3,915,063	3,915,063	3,915,063	DSC-02	Design and supervision consultants' package 2.	STUP Consultants Pvt. Ltd. In JV	4-Nov-08	21-Sep-17
0003	5,831,285	5,831,285	5,831,285	DSC-01	Design and supervision consultants' package 1.	Mott Macdonald Pvt. Ltd. In Association	4-Nov-08	21-Sep-17
Incremental Administration								
0004	900,623	900,623	900,623	VARIOUS	Replenishment of imprest account: incremental recurrent cost of program and project management.	VARIOUS	7-Dec-09	15-Dec-11
0019	1,519,061	1,519,061	1,519,061	VARIOUS	Replenishment of imprest account: incremental recurrent cost of program and project management.	VARIOUS	01-Apr-12	2-Sep-14
0022	876,658	876,658	876,658	VARIOUS	Incremental expenditure for financial year of 2014-2015	VARIOUS	01-Apr-14	2-Oct-15
0024	1,090,241	1,090,241	1,090,241	VARIOUS	Incremental expenditure for financial year of 2015-2016	VARIOUS	01-Apr-15	3-Jan-17
0029	331,274	331,274	331,274	VARIOUS	Incremental expenditure for financial year of 2016-2017	VARIOUS	27-Dec-16	9-Jan-17

ADB = Asian Development Bank, DSC = design and supervision consultant, IPMC = investment program management consultant, MLD = million liters per day, PCSS= procurement contract summary sheet, STP = sewerage treatment plant, SWM = solid waste management, WSS = water supply services, WWM = wastewater management.

Source: Asian Development Bank.

SAFEGUARDS ASSESSMENT

A. Assessment of Environmental Safeguards Implementation

1. **Environmental safeguards implementation arrangements.** The investment program management unit (IPMU) and investment program implementation units (IPIUs) with the support of investment project management consultant (IPMC) and construction supervision consultants (CSCs) were responsible for overall environmental safeguards management and implemented the environmental safeguard measures. An Environment and Social Management Cell (ESMC) was established within IPMU. The ESMC was to be staffed with an environmental professional. Initially an environmental expert was assigned to ESMC, IPMU to manage the environmental safeguards related requirements as additional responsibility. Subsequently, the position was filled with a full-time environment expert hired on annual, renewable contract basis. The IPMU was assisted by the environmental safeguard specialists engaged through the IPMC and CSC, and by the designated environment officers deployed by the civil works contractors. The environment experts from consultants and environment staff of ADB periodically conducted capacity building programs on safeguards for the project staff working with the IPMU, IPIUs, other associated departments, urban local bodies, consultants, and contractors. The annual contract of the full-time environment expert hired at ESMC was renewed by the UDD to provide technical advice and support on environmental aspects for the department including this project. The environment expert continued to organize awareness building and capacity building programs on environment management for the contractors and relevant staff for the projects implemented by the department.

2. **Environmental safeguards implementation.** The project was classified category B for environment as per ADB's Environment Policy, 2002. The environmental assessments were undertaken for identified subprojects in each project town. Four initial environmental examination (IEE) reports for three towns namely Dehradun (sewerage and water supply), Haridwar (water supply) and Nainital (water supply) were prepared during loan processing. The IEE reports included environmental management plans (EMPs), and environmental monitoring plans (EMOPs) for all subprojects at appraisal. An environmental assessment and review framework (EARF) as specifically developed for the investment program. The summary IEE report was disclosed on the ADB website as a part of the investment program report and recommendations to the President (RRP)-linked documents. The EARF was a supplementary appendix to the RRP that was available upon request. The IEE reports for Dehradun and Nainital water supply subprojects were updated during implementation to reflect revised alignments of Bandal raw water main in Dehradun and a rising main in Nainital.

3. The EMP, EMOPs, and associated budget relevant to environmental safeguards were included in contractors' agreements. The compliances with environmental and labor regulations of India by the ULBs – the facility owners and the civil works contractors improved over the period. The implementation of EMP and EMOPs was observed to be weak initially due to inadequate attention on environmental management aspects. With deployment of environment professionals at the IPMU, consultants, and civil works contractors, and with continuous hand-holding support from ADB, the implementation of environmental safeguards corrective actions were developed from time to time based on the shortcomings and/or non-adherence with Environmental Policy, 2002 identified during safeguards review missions or project review missions and meetings. The corrective actions included aspects such as (i) achieving regulatory compliances that were observed to be missing or lapsed due to non-renewal of permissions; (ii) strengthening institutional arrangements by filling up the vacant positions as a result of staff transfers or staff leaving the organizations; (iii) ensuring implementation of environmental mitigation measures as per ADB-cleared EMPs; (iv) testing of environmental parameters through recognized laboratories

and analyzing the test results for improving the environmental conditions to the extent possible; (v) carrying out formal and informal consultations with local residents for informing the schedules of activities and understanding their concerns as the works progressed; (vi) regularly meeting the officials from other government departments such as forest, environment, pollution control board, traffic, groundwater, mines, etc. for facilitating various permissions and coordination; (vii) preparation of environmental monitoring reports to reflect overall environmental performance; (viii) improving the facilities provided to laborers such as dignified accommodation, supply of drinking water and gender segregated sanitation arrangements, medical assistance, usage of personal protective equipment, etc.; (ix) implementing occupational safety and health related provisions in the project affected corridors; (x) displaying project information boards with contact details of officials responsible for receiving grievances apart from maintaining complaint registers at work fronts, and making the grievance redress mechanism functional; (xi) ensuring the project-related environmental planning and other statutory information was readily available at the site offices; and (xii) ensuring that the contractors and their sub-contractors adequately insured their unskilled, semi-skilled and skilled laborers. These corrective actions were implemented over the period to ensure better adherence with the Environmental Policy, 2002. The monitoring of environmental parameters as per ADB-cleared EMOPs for ambient air quality, ambient noise level and surface water quality was carried out by the accredited agencies. The test results indicated that most of the tested parameters were consistent with the baseline values. The development of focused corrective actions, continuous follow-up, and professional support from ADB, availability of full-time qualified environmental practitioner within IPMU and environment experts from consulting firms facilitated improvements over the period.

4. The extent of public consultations and outreach activities was initially limited. The consultations and outreach activities could have been well-planned during implementation, keeping in mind the construction schedules in different parts of the cities so that the residents would have had better understanding of the timelines of the proposed pipeline laying works that facilitating better planning of their activities to reduce the inconveniences caused by the interventions such as trenches in front of houses and/or shops affecting access and movement, reduced road widths causing traffic congestions, pedestrian safety, sudden drop in services due to affected utilities, etc. The process improved after the institutional arrangements were strengthened and focused capacity building efforts such as in-house and ADB organized training events, were undertaken for the project staff on management of environmental aspects. The efforts were made to organize consultations with the residents and public representatives on periodic basis to provide updates on the progress made and proposed work schedules.

5. The submission of semiannual environmental monitoring reports was sometimes irregular during implementation and required a persistent follow-up from ADB to improve the quality of reporting. Initially the submission of reports was delayed till end of 2010 due to absence of dedicated environmental expert within IPMU. The submission of reports became regular after the deployment of environmental expert at IPMU. With additional responsibilities assigned to the environmental expert for other projects under implementation at the department, the submission again became irregular. A persistent and continuous follow-up was necessary from ADB to receive the monitoring reports till June 2019. All the 13 reports (semiannual and/or for consolidated period) were disclosed on ADB website in accordance with ADB's Public Communications Policy 2005.

6. Although no major complaints or public protests on the environmental safeguards related matters were raised for any of the activities implemented under the Project, the subprojects did receive minor grievances from the residents in the surrounding areas such as increased dust emissions, increased noise levels, restricted access to residential properties or shops, utility

services getting affected due to damages, safety concerns for trenches, etc. These grievances received at the worksites (recorded in site-based complaint registers) were resolved within couple of days through a structured consultative process with the complainants by the environment experts of the PMU, consultants, and contractors. The project also had the grievance redress committees at the IPMU and district levels which continued to remain functional during implementation. The concerns raised by the complainants were addressed through minor adjustments at site, in design, and /or work practice improvements such as providing advanced notice on upcoming works and related access restriction to the affected people, appropriately located signages, regular mitigation measures for dust suppression and noise attenuation, sturdy barricading of excavated trenches, early leveling of roads and pathways after completion of works for making the roads travel worthy and safe for pedestrians, constant attention, and quick responses to situations such as damages to water supply lines or other utilities. During the project implementation, there are some issues such as delays in submission of monitoring reports, shortcomings in implementation of EMP provisions, irregular testing of parameters, and delayed regulatory compliances and/or renewals. However, by the time of project completion, the project has no outstanding environmental safeguard related issues, and all the environmental related covenants were complied with. Thus, the overall environmental safeguard management has been assessed to be *satisfactory*.

7. **Lessons learned.** Based on the challenges faced during implementation, (i) there should be an early deployment of environmental experts; (ii) the coordination with regulatory agencies and other government departments should be improved by the Executing Agency in coordination with the facility owners and the contractors; (iii) there should be properly planned public awareness campaigns and outreach events about proposed interventions, their likely benefits and anticipated environmental impacts, with feedback mechanisms documenting actions taken; and (iv) should ensure the establishment and proper implementation of a robust, easily accessible, functional and responsive grievance redress systems from the design stage itself to facilitate public support for the proposed interventions.

B. Assessment of Social Safeguard Implementation

8. **Social safeguards implementation arrangements.** An environment and social management cell (EMSC) were established to implement safeguards requirements within the IPMU. A Social and Community Development Officer, with the support of the community mobilizers were the responsible implementation of the social safeguards.¹ Adequate support for effective implementation and monitoring of social safeguards requirements was provided by safeguard experts of design and supervision consultants. The overall institutional arrangements for the management of social safeguards are assessed as adequate.

9. **Social safeguards Implementation.** Project 1 was classified as category B involuntary resettlement and category C for Indigenous Peoples, as per ADB's safeguard policies.² The

¹ The social and community development officer was available on the project up to 2016 and upon her resignation, the environment officer at IPMU was given additional charge of social safeguards. Two non-governmental organizations were engaged also in February 2011 for implementation of RPs, and Community Awareness and Participation Program (CAPP) and were mobilized till June 2013 and February 2014 respectively. Upon the demobilization of the NGOs, the individual experts as Community Mobilisers were hired for implementation of social safeguards related activities after demobilization of the NGOs. The valuation committee constituted under the project included representative of the affected persons as member besides other government officials. Initially NGOs and later the community mobilisers supported in providing the feedback about the project activities, grievance redress, public disclosure, consultations, and verification of affected persons which provided basis for preparing monitoring reports.

² ADB. 1995. *Involuntary Resettlement*. Manila; and ADB. 1998. *The Bank's Policy on Indigenous Peoples*. Manila.

project continued to remain category B and C involuntary resettlement and indigenous peoples during implementation and until closure. During loan processing, the resettlement framework and four short resettlement plans for three subproject towns were prepared as a supplementary appendix to the RRP. No subproject involved land acquisition (works were implemented on government land and/or existing rights-of-way); however, 36 households suffered temporary income loss during project implementation. The project caused temporary loss of income which was not significant and were compensated as per the agreed entitlement matrix. According to the Uttarakhand Urban Sector Development Investment Program's (UUSDIP) records, ₹0.168 million was paid compensation for temporary income loss and resettlement assistance. The project achieved the objectives laid out in the resettlement framework and short resettlement plans to avoid and mitigate involuntary impacts and compensated as per the provision of the entitlement matrix to those affected. At appraisal, project 1 was classified as category C, as no impact on indigenous peoples was envisaged. It continued to be category C during implementation. The ADB project team and experts provided regular training to the IPMU, IPIUs, and consultants on involuntary resettlement safeguards under various programs, which enhanced their capacity to deal with social safeguard issues.

10. Information disclosure and grievance redress: Information disclosure, participation, and consultation activities to implement social safeguards were effectively carried out. Such activities included: (i) distribution and dissemination of resettlement information among affected households in the local language (Hindi); (ii) regular consultative meetings with affected households and other stakeholders during project implementation; (iii) publicizing actual resettlement impacts and compensation to affected households; (iv) carrying out monitoring activities; and (v) disclosure of social safeguards documents on the project website.

11. A credible and effective grievance redress mechanism was set up in accordance with the agreed resettlement framework to address any project-related grievances of affected persons. Stakeholders through a toll-free number and Whatsapp group were able to file their grievances. The billboards were used to inform communities about filing process and community mobilizers supported in creating a continuous consultation process. Pamphlets were distributed and community consent obtained before commencement of work.³ One grievance related to social safeguards was received during the implementation of the project. The complainant requested to provide the passage so that he can have access to his land. The grievance was resolved by providing the easement to access his land. At the completion of the project, no grievances related to social safeguards are pending. The executing agency prepared and submitted to ADB 10 social safeguards monitoring reports. The submission of safeguards monitoring reports were delayed, however after the mobilization of the safeguards staff and consistent follow-up the submission of reports became regular. However, towards the end of the project with expert at IPMU being given the additional responsibilities the submission again became irregular.

12. **Conclusion and lessons learned.** The resettlement impacts were reduced during the implementation, based on the key ADB principle to avoid and minimize the land acquisition and resettlement impacts through detailed technical design like revised alignments and dropping those components having impacts. Extensive consultations with affected persons and support by the local governments enabled the successful implementation and completion of the short resettlement plans. All the affected households were appropriately compensated. The suggestions and guidance provided by the Missions to resolve the grievance were implemented by the project authorities, which ensured the proper implementation. The project authorities confirmed that there are no outstanding issues and/or any court case related to social safeguards

³ ADB. 2020. *Corporate Evaluation: Effectiveness of the 2009 Safeguard Policy Statement*. Manila.

at completion. Overall, involuntary resettlement and indigenous peoples safeguard compliance was assessed to be satisfactory.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
Project management and implementation		
Executing Agency The executing agency for the project shall be the State of Uttarakhand (State), acting through its Urban Development Department (UDD) and shall be responsible for overall implementation of the project.	Loan Agreement, Schedule 5, para. 1	Complied with.
National Steering Committee		
The Borrower shall cause that (i) the State and (ii) through the State, the UDD, the Investment Program Management Unit (IPMU), and all other bodies, committees and agencies involved in the implementation of the project undertake activities and respective responsibilities as set out in this loan agreement and related documents, in a timely manner to achieve the objectives of the project and the facility.	Loan Agreement, Schedule 5, para. 2	Complied with.
Investment Program Management Unit		
Except as otherwise acceptable to ADB, the State acting through the executing agency shall ensure that:		
The IPMU will be established as a society under the Societies Registration Act 1860 and that the IPMU's charter or constitution (and any changes thereto) shall be in a form and substance satisfactory to ADB. The Chief Secretary of the State shall be appointed as the IPMU's president and Secretary, UDD, vice president. Day to day operations of the IPMU will be through an Investment Program Director (IDP), who will also be the project director. The IDP, with a team of administrative, financial, technical, and social/environmental staff drawn from various relevant departments and utilities will be exclusively responsible for executing, managing, and supervising the project implementation.	Loan Agreement, Schedule 5, para. 3(a)	Complied with.
The IPMU's general body of members (General Body) will comprise of Chief Secretary as its Chair and the secretaries of the relevant State departments and representatives of urban local bodies (ULBs), town committees and nongovernment organizations as its members. The function of the General Body is to provide policy guidance for overall investment program implementation.	Loan Agreement, Schedule 5, para. 3(b)	Complied with.
The IPMU shall have an executive committee (Executive Committee) which will be under the chair of the Secretary, UDD, and consisting, as members, of high-level officials of the State departments of Finance, Drinking Water, and Public Works and relevant ULBs. The Executive Committee will meet at least quarter yearly to provide overall guidance to the IPMU, review project performance, and decide on all major issues of the project management. Duties of Executive Committee will include (i) providing strategic guidance on and overseeing the implementation of the project, including	Loan Agreement, Schedule 5, para. 3I	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
urban reform action plan; (ii) approving subprojects and Periodic Financing Requests (PFRs) under the Investment Program; (iii) ratification of the annual budget estimates; (iv) creation of posts and recruitment of staff; (v) ratification of procurement of services, works, and goods, and approval of disbursements; and (vi) ensuring compliance with safeguards and acquisition of land, and other similar matters.		
IPMU, under the overall guidance of the Executive Committee, will (i) manage the project and have overall responsibility for its implementation; (ii) assist Project implementation unit (PIU)'s in identifying and preparing subprojects and appraise them in consultation with towns; (iii) compile facility tranches and PFRs; in respect of the investment program (iv) appoint consultants; (v) ensure land acquisition and other safeguards; (vi) approve surveys, investigations, engineering designs and bid documents prepared by PIUs; (vii) review procurement of works and goods undertaken by PIUs; (viii) assist ULBs in implementing solid waste management, slum improvement, and minor road components; (ix) oversee contract administration; (x) guide in awareness campaigns and participation programs; (xi) organize and operate the project performance monitoring system; (xii) prepare disbursement requests and forward them to ADB through the Borrower; (xiii) prepare and submit timely reports to ADB; (xiv) review and facilitate the progress of the urban reform action plan compliance with loan covenants; and (xv) design and organize capacity building programs. IPMU will be assisted by Program Management Consultants (PMC) in managing the project.	Loan Agreement, Schedule 5, para. 3(d)	Complied with
IPMU will engage the UPJN as an implementation agency for the water supply and sewerage component of the Project and that UPJN will establish a PIU. The PIU will be accountable and report to the IPMU. The PIU will be headed by a senior engineer in the capacity of Superintending Engineer and be provided with qualified technical, procurement, social, and financial staff. All engineering design, procurement, construction supervision, and quality control of the works shall be carried out by the PIU which will be assisted by the PMC and detailed design and supervision construction consultants. The PIU will carry out their tasks through a dedicated cell created in each of their district units and have regular consultation with ULBs and other the town stakeholders.	Loan Agreement, Schedule 5, para. 3(e)	Complied with. UPJN deputed staff to the IPMU and IPIU.
Notwithstanding the generality of the provisions of Sections 2.13 and 2.14 of the project agreement, the State through the executing agency shall ensure that the IPMU as and when registered as a society, shall continue to undertake all activities and obligations under this loan agreement and project agreement as applicable and in this regard make	Loan Agreement, Schedule 5, para. 3(f)	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
appropriate binding arrangements with such IPMU as registered.		
The State through the executing agency shall ensure that ULBs will be given a major role in implementing the solid waste management and slum upgrading components of the project, under the supervision and support of IPMU through a special cell within it.	Loan Agreement, Schedule 5, para. 4	Complied with.
Town-level committees		
The State through the executing agency shall ensure that town-level committees chaired by the mayor or chairperson will be formed in each of Dehradun, Nainital and Haridwar, with representation of ward members, the district magistrate, collector, municipal commissioner, special area development authority, local representatives of UPJN, UJS, as well as civil society and business representatives. The town committees will review and concur the subprojects under the project selected and formulated in their town, provide feedback on project implementation progress, ensure cooperation of concerned agencies at town-level, and provide a forum for effective involvement of town stakeholders in project implementation and civic awareness activities.	Loan Agreement, Schedule 5, para. 5	Complied with.
Counterpart Funding		
The Borrower shall make available to the State the proceeds of the Loan, in a timely manner in order for the timely implementation of the Project.	Loan Agreement, Schedule 5, para. 6 (a)	Complied with.
The Borrower shall cause the State to make available the Loan proceeds through the executing agency to the IPMU under appropriate arrangements acceptable to ADB, and ensure: (i) sufficient counterpart funds from its budget for each fiscal year, in a timely manner, for the efficient implementation of the project; and (ii) adequate funds are provided, through budgetary allocations or other means, to meet any shortfall between costs of, and revenue from, operations and maintenance of project facilities	Loan Agreement, Schedule 5, para. 6 (b)	Complied with.
The Borrower shall cause the State to ensure that project funds are utilized effectively and efficiently to implement the project and achieve its objectives	Loan Agreement, Schedule 5, para. 6 (c)	Complied with.
Subproject Selection Criteria		
The State through the executing agency shall ensure that subprojects are selected and processed for approval, in accordance with the criteria and procedures included under Schedule 4 to the FFA, and in particular, to the subsector	Loan Agreement, Schedule 5, para. 7(a)	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
specific criteria set out in Section C of Schedule 4 to the FFA, to the satisfaction of ADB; and		
The State through the executing agency shall ensure that it shall post the procurement documents, the criteria for subproject selection and details of sanctioned contracts/subprojects on the investment program website.	Loan Agreement, Schedule 5, para. 7(b)	Complied with.
Governance and Institutional Matters		
The State will ensure that each of the reform measures listed in the Urban Governance, Finance, and Service Delivery Improvement Action Plan set out in Schedule 1 to the FFA, will be implemented in accordance with the time frame set against the relevant measure.	Loan Agreement, Schedule 5, para. 8	Complied with.
The State will ensure that contractual documents under any public-private partnership (PPP) modality are provided to ADB for review and approval, prior to their use in any Subproject.	Loan Agreement, Schedule 5, para. 9	Complied with.
Financial and institutional issues		
The State will ensure that within 1 month of the effective date, the IPMU will be registered as a society under the Societies Registration Act 1860, with its charter or constitution satisfactory to ADB and that the PIU in UPJN at Dehradun and the subunits of the PIU in Dehradun, Nainital and Haridwar will have been established; and	Loan Agreement, Schedule 5, para. 10(a)	Complied with.
The State will ensure that within 1 month of the effective date, each of IPMU and PIU in UPJN at Dehradun and the subunits in Dehradun, Nainital and Haridwar will have all the staff listed for each of them in Attachment 1 to Schedule 3 to the FFA, appointed and in place.	Loan Agreement, Schedule 5, para. 10(b)	Complied with.
Environment		
The State through the executing agency shall ensure that the project is carried out and all project Facilities designed, constructed, operated, maintained, and monitored in compliance with the environmental laws and regulations of the Borrower, the State, ADB's Environment Policy (2002), and the environmental assessment and review framework (EARF);	Loan Agreement, Schedule 5, para. 11(a)	Complied with.
The State through the executing agency shall ensure that subprojects encroaching any National Park, or its buffer zone shall not be included in the project. However, subprojects in or close to the wildlife sanctuaries or any other environmentally sensitive areas may be allowed subject to the executing agency obtaining all statutory clearances;	Loan Agreement, Schedule 5, para. 11(b)	Complied with.
The State through the executing agency shall ensure that an Initial Environmental Examination (IEE) as required, including an Environmental Management Plan (EMP) with budget identifying the cost of its implementation, with adequate public consultation for each subproject, in accordance with the EARF shall be submitted to ADB for	Loan Agreement, Schedule 5, para. 11(c)	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
review and approval before award of related contract. In case of any Environmental Impact Assessment (EIA) or Summary IEE (SIEE) for any subproject classified as A or B sensitive, this shall be subject to the 120-day public disclosure requirement under ADB's Environment Policy (2002);		
The State through the executing agency shall ensure that all mitigation measures identified in the IEE, SIEE, EIA or Summary EIA (SEIA) and the related EMP, as applicable, for each subproject, shall be incorporated in subproject design, and carried out during construction, and operations and maintenance (O&M), and disclosed to stakeholders;	Loan Agreement, Schedule 5, para. 11(d)	Complied with.
The State through the executing agency shall ensure that if there are any changes in specific locations or alignments of any subproject facilities after completion of the process of IEE (or EIA) or due to detailed design or implementation that has an impact on the environmental assessment carried out thus far, then additional environmental assessment shall be carried out in accordance with ADB's Environment Policy (2002) and the EARF, and prior approval of ADB obtained before further physical implementation of the subproject;	Loan Agreement, Schedule 5, para. 11(e)	Complied with.
The State through the executing agency shall ensure that all environmental clearances required by applicable laws, and regulations at Borrower, State, or local levels shall be obtained in a timely manner, prior to commencement of civil works for the relevant subproject, and	Loan Agreement, Schedule 5, para. 11(f)	Complied with.
The State through the executing agency shall ensure that semiannual progress reports on the implementation of the EMPs, measures under the IEE/EIA, and the environmental monitoring shall be carried out as a part of project implementation for review and disclosure in accordance with ADB's Public Communications Policy (2005);	Loan Agreement, Schedule 5, para. 11(g)	Complied with.
Land Acquisition and Resettlement		
The State through the executing agency shall undertake the project in accordance with the Borrower's and State laws and regulations, ADB's Policy on Involuntary Resettlement (1995) and the Resettlement Framework (RF);	Loan Agreement, Schedule 5, para. 12(a)	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>The State through the executing agency shall ensure that to the extent possible, subprojects will not require land acquisition or involuntary resettlement; however, if and acquisition and/or involuntary resettlement are required for any subproject; the executing agency shall ensure following</p> <p>(i) a resettlement plan for the subproject, acceptable to ADB is prepared, in accordance with applicable laws and regulations and the RF, and submitted to ADB for review and approval before award of related civil works contract proper consultation during preparation of the resettlement plan with the affected persons, as also disclosure of the resettlement plan to the affected persons including information on land acquisition and compensation process undertaken;</p> <p>(ii) all land, rights-of-way and other land-related rights required for the subproject are acquired or made available,</p> <p>(iii) all affected persons are compensated and paid resettlement assistance in accordance with the agreed resettlement plan, before award of civil works contracts of the related subproject including any section-wise handover thereof, strictly in accordance with the stipulation in the related civil works contract. If during detailed design and implementation, any modification and/additional land acquisition or involuntary resettlement impacts are identified, the resettlement plan will be prepared (or modified if exiting) in accordance with applicable laws and regulations and the RF and prior approval of ADB obtained before further implementation of the resettlement plan and the subproject;</p> <p>(iv) ensure that efficient grievance redressal mechanisms are in place in accordance with the related resettlement plan to assist affected persons resolve queries and complaints if any, in a timely manner; and</p> <p>(v) ensure that all compensation at replacement value for acquired assets made to affected persons well in advance for them to make alternative arrangements before award of civil works contracts.</p>	Loan Agreement, Schedule 5, para. 12(b)	Complied with.
Indigenous Peoples		
<p>The State through the executing agency shall ensure that if any impact is identified during planning, design, or implementation of any subproject on indigenous peoples, that an Indigenous Peoples Development Plan (IPDP) or integration of specific actions for the indigenous people in the resettlement is prepared in accordance with ADB's Policy on Indigenous Peoples (1998) and the Indigenous Peoples Development Framework (IPDF) and that the same is further</p> <p>(i) approved by ADB before award of related civil works contract, and (ii) implementation before commencement of related civil works contract. Any updating or revision of the IPDP due to change in detailed designs or during implementation shall be in accordance with applicable laws and regulations and the IPDF and prior approval of ADB</p>	Loan Agreement, Schedule 5, para. 13	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
obtained before further implementation of the IPDP and the Subproject.		
Social Issues		
The State through the executing agency shall ensure that civil works contracts under the project follow all applicable labor laws of the Borrower and the State and that these further include provisions to the effect that contractors; (i) carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor and equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts shall also include clauses for termination by the State or executing agency in case of any breach of the stated provisions by the contractors.	Loan Agreement, Schedule 5, para. 14	Complied with.
Performance Monitoring and Evaluation		
The state through the executing agency shall ensure that an Investment Program Performance Monitoring System (IPPMS) satisfactory to ADB is established within three months of effective date. IPMU will establish baseline values for each of the selected indicators and will conduct annual surveys to update the baseline values. The IPPMS will track the investment program, as well as project and subproject implementation activities, target dates, expected inputs, impacts, outcomes and outputs against each indicator to monitor and evaluate the performance of the investment program, the project, and subprojects;	Loan Agreement, Schedule 5, para. 15(a)	Complied with. <i>(Please note that between 1 August 2008 and 30 September 2008, the project got unsatisfactory rating in Implementation Progress but satisfactory in Development Objectives.)</i>
The state through the executing agency shall ensure that without limiting the generality of Section 2.08 of the project agreement, IPMU will provide ADB with quarterly progress reports informing ADB of the progress of the investment program and the implementation progress of the project and individual subprojects. The reports will also provide summary financial accounts of the project and each subproject including summary financial account for each implementing agency, expenditures to date, a report on benefit monitoring, and a report on safeguard compliance; and	Loan Agreement, Schedule 5, para. 15(b)	Complied with.
The state through the executing agency shall ensure that without limiting the generality of Section 2.08 of the project agreement, and after physical completion of the project, but in any event not later than three months thereafter or such later date as ADB may agree for this purpose, it shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request that will cover project and subproject implementation, costs, monitoring and evaluation activities, safeguard compliance, and other information requested by ADB.	Loan Agreement, Schedule 5, para. 15(c)	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
Review		
Based on a review of quarterly progress reports provided under section 2.08 of the project agreement, ADB, Borrower and State representatives shall meet as required to discuss the progress of the project, facility and the investment program, any changes to implementation arrangements, or remedial measures required to be undertaken to achieve the overall objectives of specific subprojects and components and of the overall facility and investment program. In addition to regular reviews, including a midterm review for the Project, a detailed midterm review of the facility will be undertaken within no later than four years of the effective date. The midterm review shall include a detailed evaluation of the scope of the facility, implementation arrangements, any outstanding issues, environment, resettlement and other safeguard issues, achievement of scheduled targets, contract management progress, and other issues, as appropriate.	Loan Agreement, Schedule 5, para. 16	Complied with.
Use of Loan Proceeds		
The Borrower shall make the proceeds of the loan available to the State upon terms and conditions mutually agreeable to ADB and the Borrower and shall cause the State to apply such proceeds to the financing of expenditures on the project in accordance with the provisions of this loan agreement and the project agreement.	Loan Agreement, Article III, Section 3.01	Complied with.
The goods, works and consulting services to be financed out of the proceeds of the loan and the allocation of amounts of the loan among different categories of such goods, works and consulting services shall be in accordance with the provisions of Schedule 3 to this loan agreement. As such, schedule may be amended from time to time by agreement between the Borrower and ADB.	Loan Agreement, Article III, Section 3.02	Complied with.
Except as ADB may otherwise agree, all goods, works and consulting services to be financed out of the proceeds of the loan shall be procured in accordance with the provisions of Schedule 4 to this Loan Agreement. ADB may refuse to finance a contract where goods, works or consulting services have not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.	Loan Agreement, Article III, Section 3.03	Complied with.
Except as ADB may otherwise agree, the Borrower shall cause all goods, works and consulting services financed out of the proceeds of the loan to be used exclusively in the carrying out of the project.	Loan Agreement, Article III, Section 3.04	Complied with.
The closing date for withdrawals from the loan account for the purposes of Section 9.02 of the loan regulations shall be 31 December 2012 or such other date as may from time to time be agreed between the Borrower and ADB.	Loan Agreement, Article III, Section 3.05	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
Particular Covenants		
The Borrower shall cause the State to carry out the project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, urban development and public utility practices.	Loan Agreement, Article IV, Section 4.01 (a)	Complied with.
In the carrying out of the project and operation of the project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 5 to this loan agreement.	Loan Agreement, Article IV, Section 4.01 (b)	Complied with.
The Borrower shall make available to the State, promptly as needed, the funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the project.	Loan Agreement, Article IV, Section 4.02	Complied with.
The Borrower shall cause the State to ensure that the activities of its departments and agencies with respect to the carrying out of the project and operation of the project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Article IV, Section 4.03	Complied with.
The Borrower shall take all action which shall be necessary on its part to enable the State to perform its obligations under the project agreement, including the establishment and maintenance of levies and charges as stipulated in the Urban Governance, Finance and Service Delivery Improvement Action Plan set out in Schedule 1 to the FFA, and shall not take or permit any action which would interfere with the performance of such obligations.	Loan Agreement, Article IV, Section 4.04	Complied with.
The Borrower shall exercise its rights under the financing arrangements with the State in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the loan.	Loan Agreement, Article IV, Section 4.05 (a)	Complied with.
No rights or obligations under the financing arrangements with the State shall be assigned, amended, abrogated, or waived without the prior concurrence of ADB.	Loan Agreement, Article IV, Section 4.05 (b)	Complied with.
Particular Covenants in Project Agreement		
The State through the executing agency shall carry out the Project with due diligence and efficiency, and in conformity with sound administrative, financial, engineering, environmental and urban development practices.	Project Agreement, Article II, Section 2.01 (a)	Complied with.
In the carrying out of the project and operation of the project facilities, the State through the executing agency shall perform all obligations set forth in the loan agreement to the extent that they are applicable to the State.	Project Agreement, Article II, Section 2.01 (b)	Complied with.
The State shall make available, promptly as needed, the funds, facilities, services, equipment, land, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project.	Project Agreement, Article II, Section 2.02	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
In the carrying out of the project, the State shall employ competent and qualified consultants and contractors, acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB.	Project Agreement, Article II, Section 2.03 (a)	Complied with.
Except as ADB may otherwise agree, all goods, works and consulting services to be financed out of the proceeds of the loan shall be procured in accordance with the provisions of Schedule 4 to the loan agreement. ADB may refuse to finance a contract where goods, works or consulting services have not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.	Project Agreement, Article II, Section 2.03 (b)	Complied with.
The State through the executing agency, shall carry out the project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. The State through the executing agency shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Project Agreement, Article II, Section 2.04	Complied with.
The State through the executing agency, shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance of project facilities, to such extent and against such risks and in such amounts as shall be consistent with sound practice.	Project Agreement, Article II, Section 2.05 (a)	Complied with.
Without limiting the generality of the foregoing, the State through the executing agency shall undertake, to insure, or cause to be insured, the goods to be imported for the project and to be financed out of the proceeds of the Loan against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such goods.	Project Agreement, Article II, Section 2.05 (b)	Complied with.
The State through the executing agency shall maintain, or cause to be maintained, records and accounts adequate to identify the goods, works and consulting services and other items of expenditure financed out of the proceeds of the loan, to disclose the use thereof in the project, to record the progress of the project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.	Project Agreement, Article II, Section 2.06	Complied with.
ADB and the State through the executing agency shall cooperate fully to ensure that the purposes of the loan will be accomplished.	Project Agreement, Article II, Section 2.07 (a)	Complied with.
The State through the executing agency shall promptly inform ADB of any condition which interferes with, or	Project Agreement,	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
threatens to interfere with, the progress of the project, the performance of its obligations under this project agreement or the financing arrangements, or the accomplishment of the purposes of the loan.	Article II, Section 2.07 (b)	
ADB and the State shall from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the project, the State, and the loan.	Project Agreement, Article II, Section 2.07 (c)	Complied with.
The State through the executing agency shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the loan and the expenditure of the proceeds thereof; (ii) the goods, works and consulting services and other items of expenditure financed out of such proceeds; (iii) the project; (iv) the administration, operations and financial condition of the State with respect to the project and the loan; and (v) any other matters relating to the purposes of the Loan.	Project Agreement, Article II, Section 2.08 (a)	Complied with.
Without limiting the generality of the foregoing, the State through the executing agency shall furnish to ADB quarterly reports on the execution of the Project and on the operation and management of the project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the quarter under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following quarter.	Project Agreement, Article II, Section 2.08 (b)	Complied with.
Promptly after physical completion of the project, but in any event not later than 3 months thereafter or such later date as ADB may agree for this purpose, the State through the executing agency shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by the State, of its obligations under this project agreement and the accomplishment of the purposes of the loan.	Project Agreement, Article II, Section 2.08 (c)	Complied with.
The State through the executing agency shall (i) maintain separate accounts for the project and for its overall operations; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; and (iii) furnish to ADB, promptly after their preparation but in any event not later than 9 months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion	Project Agreement, Article II, Section 2.09	Partly complied with, as timely submission was an issue. Submission of APFS were delayed on financial year endings (FYE): (i) 0-12 days or within 1-month FYE 2010 and FYE 2014 respectively (ii) 4.3 months FYE2012 (iii) 30-90 days or 1-3 months FYE 2015, FYE2016 and FYE2017 respectively

Covenant	Reference in Loan Agreement	Status of Compliance
<p>on the use of the Loan proceeds and compliance with the covenants of the loan agreement as well as on the use of the procedures for imprest account, SGIA, and statement of expenditures), all in the english language. The State through the executing agency shall furnish to ADB such further information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.</p>		<p>and (iv) 550-950 days or 18.7-30.8 months FYE2019 and FYE2018 respectively (acceptable APFS FYE2018). During the project implementation, except for three fiscal years (FYE2010, FYE2011 and FYE2015) all audit reports received are qualified audit reports. The auditors did not issue any management letters in FYE2010, 2011 and 2015. Revised management letters were issued in APFS for FYE 2018 and 2019. Per final APFS FYE2019, there are no outstanding issues concerning ADB disbursements.</p> <p>Note that the opinion on use of loan proceeds for intended purposes are available in audit reports of FYE2010, FYE2011 and FYE2018 and FYE2019. For other FYEs the required opinions in form of additional assurances such as use of loan proceeds for intended purposes, use of imprest procedures and SOE usage as mandated under section 2.09 of ADB project agreement, are not available. Final reconciliation between numbers reported in APFS and ADB's own disbursement records for overall disbursements are complete in FYE 2019 APFS report.</p>
<p>The State through the executing agency shall enable ADB's representatives to inspect the project, the goods and works financed out of the proceeds of the loan, all other plants,</p>	<p>Project Agreement, Article II, Section 2.10</p>	<p>Complied with.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
sites, properties and equipment of the State, and any relevant records and documents.		
The State through the executing agency shall, promptly as required, take all action within its powers to maintain IPMU's existence, to carry on its operations, and to acquire, maintain and renew all rights, properties, powers, privileges, and franchises which are necessary in the carrying out of the project or in the conduct of its business.	Project Agreement, Article II, Section 2.11 (a)	Complied with.
In relation to the project, the State through the executing agency shall at all times conduct its business in accordance with sound administrative, financial, environmental, and urban development practices, under the supervision of competent and experienced management and personnel.	Project Agreement, Article II, Section 2.11 (b)	Complied with.
In relation to the project, the State shall at all times ensure operation and maintenance of its plants, equipment, and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound administrative, financial, engineering, environmental, urban development, and maintenance and operational practices.	Project Agreement, Article II, Section 2.11 (c)	Complied with.
Except as ADB may otherwise agree, the State shall ensure that any of its assets are not sold, leased, or otherwise disposed of, the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under this project agreement.	Project Agreement, Article II, Section 2.12	Complied with.
Except as ADB may otherwise agree, the State shall cause the executing agency to apply the proceeds of the loan to the financing of expenditures on the project in accordance with the provisions of the loan agreement and this project agreement, and shall ensure that all goods, works and consulting services financed out of such proceeds are used exclusively in the carrying out of the project.	Project Agreement, Article II, Section 2.13	Complied with.
Except as ADB may otherwise agree, the State shall ensure that the executing agency and IPMU shall duly perform all respective obligations under the financing or other arrangements between the State and executing agency, and State and IPMU as applicable, and shall not take, or concur in, any action which would have the effect of assigning, amending, abrogating, or waiving any rights or obligations of the parties under such arrangements.	Project Agreement, Article II, Section 2.14	Complied with.
The State through the executing agency shall promptly notify ADB of any proposal to amend, suspend or repeal any provision of IPMU's basic documents, and will give ADB an adequate opportunity to comment on such proposal before taking any action thereon.	Project Agreement, Article II, Section 2.15	Complied with.

ADB = Asian Development Bank, EARF = environmental assessment and review framework, EIA = environmental impact assessment, EMP = environmental management plan, FFA = framework financing agreement, IEE = initial environmental examination, IPDF = indigenous peoples development framework, IPMU = investment program management unit, IPPMS = investment program performance monitoring system, O&M = operations and maintenance,

PFR = periodic financing request, PIU = project implementation unit, PMC = program management consultants, PPP = public-private partnership, RF = resettlement framework, SGIA = second generation imprest account, SIEE = summary initial environmental examination, UDD = Urban Development Department, UJS = Uttarakhand Jal Sansthan, ULB = urban local body, UPJN = Uttarakhand Pey Jal Nigam.

ECONOMIC ANALYSIS

A. Introduction

1. Project 1 of Uttarakhand Urban Sector Development Investment Program (UUSDIP) included: (i) water supply in Dehradun, Haridwar and Nainital and (ii) sewerage in Dehradun. In this Project Completion Report (PCR), the economic evaluation for project 1 completed under the loan and the unfinished works under the loan but were carried out by the government using different funding sources like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) scheme were carried out.¹ Economic re-evaluation also includes sensitivity analysis, at a 20% reduction of future benefits, 20% increase in future O&M costs and one year delay in benefits realization in accordance with the ADB's Guidelines.²

B. Economic Evaluation Methodology

2. The main approach of the economic analysis is to update the appraisal analysis carried out during loan processing (2007) through appropriate changes in the areas of project cost, implementation phasing, project coverage, and beneficiaries that happened during the implementation period up to completion stage. This is to facilitate the comparison of analysis results between appraisal and completion stages. Project analysis period followed during the processing stage is retained for the present completion analysis but with base year 2021.

3. For the purpose of economic analysis, the actual financial costs were first, re-evaluated at the base year 2021 prices to make them comparable with those at appraisal analysis then converted into economic costs by applying prescribed conversion rates, while adjusting for contingencies, and taxes and duties but excluding the financing costs (interest during construction and commitment charges). The project coverage and projected beneficiaries including the service level did not change during implementation. The project benefits considered during appraisal were used at re-evaluation. The parameters used to calculate benefits were adjusted to 2021 prices.

1. At Appraisal

4. The cost and benefit analysis at project appraisal covered 20-year period using 2007 domestic prices. Economic costs identified for the subprojects were project investment and operation and maintenance costs. Financial costs were converted to economic costs by the shadow exchange rate factor (SERF) estimated at 1.06 and the shadow wage rate factor (SWRF) estimated at 0.70 based on the minimum wage of unskilled labor and the rural labor wage of casual labor. Taxes and duties were excluded.

Table A10.1: Estimation of Shadow Exchange Rate Factor (SERF) at Appraisal

EXPORT			
(₹ in billion)	EXPORT (FOB)	Tax on Export	
2005-06	4,456.6	0.0	4,456.6
Key Indicator 2007, Asian Development Bank			
IMPORT			

¹ Haridwar water supply subproject was removed and implemented through GOI fund under JNNURM scheme. However, part of the original scope was implemented under the project. Hence, by adding both the cost, economic analysis was carried out for Haridwar water supply.

² (i) Guidelines for the Economic Analysis of the Projects (2017), (ii) Handbook for the Economic Analysis of Water Supply Projects (1999) and (iii) Guidelines for the Evaluation of Public Sector Operations (2016).

(₹ in billion)	IMPORT (CIF)	Tax on Import	Sales Price
2005-06	6,208.3	650.7	6,858.9
Key Indicator 2007, Asian Development Bank			
AD-HOC STANDARD CONVERSION FACTOR			
2005-05	0.942		
2005-06	1.06		

CIF = cost, insurance, and freight, FOB = freight on board, SERF = shadow exchange rate factor.

Note: Calculation Method based on the handout on Economic Analysis

5. The economic benefits, on the other hand, assumed the increase in the coverage of the respective services indicated in financial improvement action plan. The benefits of the water supply subprojects consisted of water tank cost saved amongst the new house connection users. For the sewerage project, the economic benefits included (i) disabilities days reduced due to improved sanitation, (ii) medical costs saved due to improved sanitation, (iii) septic tank and soak pit costs saved amongst new users, (iv) septic tank and soak pit maintenance costs saved amongst existing users, and (v) reduced extent of damages from floods due to better drainage. Following assumptions were followed for benefit estimation during the processing stage:

- (i) Savings in water tank cost: In 2007, a household with a house connection had access to water for 24-hours only by storing water in a water tank during limited supply hours. Once 24-hour water supply is achieved, any new consumer will not purchase a water tank, which was used to store water during a few hours of supply time.
- (ii) Savings in disability days: The World Health Organization's disability-adjusted life years (DALY) data of South Asia indicates that approximately, 5.2% of total DALY is derived from diarrhea diseases and schistosomiasis. These are considered typical waterborne diseases. The socioeconomic survey under TA4611-IND Uttarakhand Urban Sector Development Program showed that respondents lost 0.4 days per person per year on average due to water borne diseases. Using the same proportion, it is assumed that 0.011 days are derived from waterborne disease due to bad sanitation.
- (iii) Reduction in medical cost: The socioeconomic survey under TA4611-IND Uttarakhand Urban Sector Development Program indicates that respondents spent ₹110 per person per year on medical expenses. Using the same proportion in DALY, it was assumed that 5.2% of the annual average medical cost is spent on curing waterborne disease.
- (iv) Savings in construction of septic tanks for new connections: The new customers without a sanitation facility will not have to construct a septic tank and a soak pit where underground sewerage system is available. The equipment cost was estimated at ₹25,000.
- (v) Savings in maintenance of septic tanks: The new customers with a sanitation facility will not have to pay the maintenance costs of a septic tank and a soak pit once connected to the underground sewerage system. This will save ₹750 per year.
- (vi) Reduced extent of damages from floods due to better drainage: The socioeconomic survey under TA4611-IND Uttarakhand Urban Sector Development Program showed 27.7% of the respondents suffered from flood and spent ₹2,500 per year for recovery.

6. The selection criteria for the subprojects used for the UUSDIP were set, which required an EIRR exceeding economic opportunity cost of capital (EOCC) of 12% for investments under the Project 1. The results of the economic evaluation and the resultant EIRR (base case)³ were: (i) Dehradun water supply (36.6%) (ii) Nainital water supply (16.1%), Haridwar water supply (18.1%) and Dehradun sewerage (18.7%).

2. At Completion

7. The approach used during appraisal was the recalculation of the EIRR and its comparison with EOCC of 12%. EIRR for the entire project 1 was also calculated considering the entire project cost and assessed appraisal total benefits. Originally proposed Haridwar water supply during the processing stage was subsequently shifted and implemented by the government under JNNURM scheme. However, only replacement of 36 pumps and construction of one pumping station were implemented under UUSDIP. For analysis, the total cost under JNNURM and UUSDIP were considered for Haridwar water supply subproject.

8. Project scenarios under 'without project' and 'with project' scenarios adopted in the processing stage analysis were retained for PCR, except the changes happened during implementation like cost, phasing. Under 'without project' scenario, all water supply project towns had insufficient supply forcing the households to depend on other sources with more storage and water collection time issues. Similarly, in the sewerage subproject town, households were facing hygiene and health issues under 'without project' scenario, which include more disability days with income loss and higher household medical expenditure. Under 'with project' scenario, the project intervention in water supply subprojects were assumed to remove the construction cost of water storage facilities for the new connections. In line with the suggestions, the savings in water collection time from standposts is removed. Similarly, the sewerage subproject will avoid or reduce (i) the health expenditure for waterborne diseases, (ii) the earning loss during sick days due to waterborne diseases and flood days during rainy season, and (iii) savings in the construction and maintenance of septic tanks, under 'with project' scenario. Cost of constructing new overhead tank updated to 2021 price is assumed at ₹23,759.

9. The economic viability of the sectors is evaluated over a period as considered at appraisal. Cost benefit analyses were undertaken from completion of each subproject considering the actual cost of interventions. Financial costs actually incurred were first escalated to the 2021 constant price (base year). Economic cost was assessed by applying the same conversion factors considered at appraisal to the financial cost (Table A10.2). Taxes (12% VAT), SERF (1.04) for imported equipment and SWRF (0.89) for unskilled labor, both reworked at current values, were considered for converting financial cost into economic cost, as followed at the processing stage. Details of the SERF used in the completion stage analysis is given in Table A10.3. Applicable minimum wage for unskilled labor (₹338.1/day) from April 2020 and practiced wage of ₹300/day were used to arrive the SWRF of 0.89. In project cost, the house connection cost from other source (₹199.5 million) is added during the period 2016-2018 in Dehradun water supply. 39,500 house connections that were not implemented under project (of the target connections of 65,000, only 25,500 connections were provided under the project), was implemented with funding from other sources.

³ Results of three water supply subprojects (Dehradun, Nainital and Haridwar) had considered the total project cost incurred under Tranches 1 and 2.

Table A10.2: Details of Project Cost Phasing (Project 1)- 2021 Price
(₹ million)

Sub Projects	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
I. WATER SUPPLY											
A. Dehradun ^a											
Financial cost	18.2	41.0	36.4	18.9	326.1	355.6	246.5	322.3	288.9	261.3	1,915.3
Economic cost	15.9	35.9	31.8	16.5	284.9	310.8	215.4	281.6	252.4	228.3	1,673.5
B. Haridwar ^c											
Financial cost - USDIP	0.5	4.8	17.0	0.5	8.7	5.3	4.1	3.6	2.5	0.0	46.9
Financial cost - JNNURM	3.1	28.8	102.7	2.9	52.7	32.0	24.5	21.5	15.2	0.0	283.5
Financial cost - Total	3.6	33.6	119.7	3.4	61.4	37.3	28.5	25.0	17.8	0.0	330.5
Economic cost	0.0	29.6	105.4	3.0	54.1	32.8	25.1	22.0	15.6	0.0	287.6
C. Nainital											
Financial cost	14.7	77.9	68.9	42.8	115.6	165.3	121.6	87.4	136.7	113.2	944.1
Economic cost ^b	0.0	67.9	60.0	37.3	100.7	144.1	106.0	76.2	119.2	98.7	810.2
II. SEWERAGE											
D. Dehradun											
Financial cost	40.5	218.1	378.4	246.3	235.2	605.0	1,202.4	893.7	563.8	689.9	5,073.4
Economic cost ^b	0.0	194.9	338.2	220.1	210.2	540.7	1,074.5	798.6	503.8	616.5	4,497.5
Total- Financial Cost	73.8	341.9	500.8	308.5	685.6	1,131.2	1,574.6	1,306.9	991.9	1,064.3	7,979.6
Total- Economic Cost ^b	15.8	328.2	535.4	277.0	649.2	1,027.6	1,420.5	1,177.8	890.5	942.9	7,264.9

JNNURM = Jawaharlal Nehru National Urban Renewal Mission, UUSDIP = Uttarakhand Urban Sector Development Investment Program.

^a Costs and benefits for Dehradun water supply includes both projects 1 and 2.

Table A10.3: Shadow Exchange Rate Factor (SERF)

Details	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Average
Exports (\$ billion)	295.6	255.4	284.0	286.1	329.7	290.2
Imports (\$ billion)	426.7	370.6	395.8	438.8	513.5	429.1
Customs Duties (\$ billion)	29.3	31.3	33.3	18.9	18.6	26.3
Shadow Exchange Rate Factor	1.04	1.05	1.05	1.03	1.02	1.04

Source: (i) Reserve Bank of India. 2018. 'Handbook of Statistics on Indian Economy, 2018-2019, New Delhi; (ii) Government of India, Ministry of Finance, Budget Division, 2016, 'Receipt Budget 2016-2017 to 2018-2019, New Delhi

Note:

1. Calculated using the 'ADB. 2004. ERD Technical Note No. 11, 'Shadow Exchange Rates for Project Economic Analysis: Toward Improving Practice at the Asian Development Bank. Manila.

10. During the implementation of project 1, major water supply components in Haridwar were removed from UUSDIP and implemented by the government under JNNURM scheme; in Nainital water supply the bulk water provision was improved against the rehabilitation of the distribution network; and provision of household water meter connections in Dehradun and Haridwar were dropped. However, the major water supply and sewerage infrastructure components including distribution network, augmentation of treatment plant capacities were

substantially achieved without changing the coverage and beneficiary population.⁴ Also, due to COVID-19 related issues, detailed beneficiary confirmation could not be collected at project towns. Thus, the benefits estimated at processing stage were retained for analysis.

11. Subprojects benefits as assessed during appraisal updated to 2021 prices were adopted for at completion analysis. Due to COVID-19 and travel restrictions including local travel, any public surveys nor a detailed 'willingness to pay' survey were not able to be carried out. Based on these assumptions the water supply and sewerage subprojects were re-evaluated. Parameters assumed are drawn from the Report and Recommendation of the President (RRP) for UUSDIP, PFR for project 1, and information received by the project executing and implementing agencies.

C. Analysis and Re-evaluation

12. **Cost – Benefit Analysis - Main Evaluation:** Table A10.4 presents the results of the cost benefit analysis for the water supply and sewerage component in the project towns.

Table A10.4: Benefit - Cost Analysis for Project 1 Subprojects
(₹ million)

(₹ million)					
Details	Subprojects				Total
	Dehradun Water Supply ^c	Haridwar Water Supply	Nainital Water Supply	Dehradun Sewerage	
Present Value of Benefits ^{a,b}					
<i>Water Supply Sub Projects</i>					
Economic benefits	1,618.1	410.0	310.1		2,338.2
<i>Sewerage Sub Projects</i>					
Economic benefits				1,051.0	1,051.0
Present Value of Costs ^{a,b}					
Construction cost	622.3	152.4	353.4	1,807.8	2,936.0
O&M	23.8	17.3	16.9	61.5	119.6
Total Costs	646.1	169.7	370.4	1,869.3	3,055.5
Benefit – Cost Ratio	2.5	2.4	0.8	0.6	1.1

O&M = operation & maintenance.

^a Periodical subproject costs were updated to 2021 price.

^b 12% discount rate is used to arrive NPV to the base year price.

^c Costs and benefits for Dehradun water supply includes both Projects 1 and 2.

Source: Asian Development Bank

13. **Economic internal rate of return.** The benefits streams were compared with the cost streams at completion stage to determine the resulting EIRR for each subproject. Following the ADB guidelines during the processing stage, the EOCC was set at 12%. The results show base case EIRRs exceeding the EOCC for project 1 investment in the three project towns except Dehradun sewerage subproject and Nainital water supply subproject (24.6% for Dehradun water supply, 23.7% for Haridwar water supply, 10.0% for Nainital water supply, and 4.8% for Dehradun sewerage) with 13.5% for the overall project 1 subprojects combined. Table A 10.5 indicates EIRRs at base case and under adverse economic conditions. Economic returns in the sensitivity analysis are generally robust except for lower benefits

⁴ 39,500 house connections that were not implemented in Dehradun water supply under project (of the target connections of 65,000, only 25,500 connections were provided under the project), was implemented with funding from other sources. Cost of this additional house connections from other sources (Rs 199.5 million) is included in the project cost during the period 2016-2018 for analysis.

generation scenarios. Detailed cost benefit flow stream for all subprojects and combined are presented in Table A10.8 (i to v).

Table A10.5: EIRR and Sensitivity Analysis^a

(₹ million)

Sub Projects	Base Case		20% increase in O&M		20% decrease in benefits		1 year delay in benefits realization	
	EIRR %	NPV@12% (₹ million)	EIRR %	NPV@12% (₹ million)	EIRR %	NPV@12% (₹ million)	EIRR %	NPV@12% (₹ million)
I. WATER SUPPLY								
A. Dehradun	24.6%	1,003.0	24.5%	998.3	21.2%	662.2	22.6%	845.8
B. Haridwar	23.7%	247.6	23.6%	244.1	20.7%	164.1	20.9%	188.7
C. Nainital	10.0%	(55.7)	9.9%	(59.1)	7.3%	(118.7)	8.5%	(98.2)
II. SEWERAGE								
D. Dehradun	4.8%	(818.3)	4.7%	(830.6)	2.4%	(1,028.5)	3.6%	(962.4)
III. COMBINED	13.5%	376.5	13.4%	352.6	10.6%	(320.9)	10.6%	(330.5)

() = negative, EIRR = economic internal rate of return, NPV = net present value.

Notes:

^a Costs and benefits for Dehradun water supply includes both projects 1 and 2. This is in line with the processing stage analysis.

D. Conclusion

14. The main evaluation has shown that two water supply subprojects in three project towns under project 1 are found to be economically viable, with the calculated EIRR values exceeding the EOCC. The sensitivity analysis has demonstrated the robustness of these results, with all subprojects economically viable under most of the scenarios. However, the sewerage subproject in Dehradun and water supply in Nainital are found EIRR less than the EOCC of 12%. However, the combined investment under project 1 is found economically viable with EIRR (13.5%) exceeding the EOCC.

15. In comparison to the economic analysis results for the water supply and sewerage subprojects during the loan processing stage (2007), EIRRs have reduced at this PCR stage for all four subprojects. This reduction in viability results can be assigned mainly to cost overrun and the time delay in implementation including delayed subprojects start, as indicated in Table A10.6.

- (i) Dehradun water supply was found with cost reduction by 24.2% and Haridwar water supply with 12.7% cost reduction;
- (ii) Nainital water supply and Dehradun sewerage with cost overrun of 22.5% and 140.6% respectively;
- (iii) Against the planned project start year of 2008, all the subprojects started in 2010, with about 2 years delay in start; and
- (iv) Time overrun ranging 4 to 60 months (Table A10.5). Maximum time overrun of 60 months was observed for Dehradun sewerage subproject.

Table A10.6: Actual Implementation Period (Project 1)

Details	Dehradun water supply	Haridwar water supply	Nainital water supply	Dehradun Sewerage
Contract Start	Jan-10	Jul-10	Jul-10	Mar-10
Construction completion	Jan-18	Oct-14	Nov-17	Feb-18
Construction period (Months)	97	52	89	96
Planned construction period (Months)	48	48	48	36
Time overrun (months)	49	4	41	60

16. Against the target cost at processing periods of ₹1,969.8 million, the expenditure during implementation was found to be at ₹3,050.1 million at 2007 prices, witnessing about 54.8% cost increase. The time overrun for these subprojects was found to be significant, ranging between 8.3% and 166.7% (Table A 10.7). Thus, the cost overrun and the time delay in project implementation were found to be the major reasons for the reduction in EIRRs.

Table A10.7: Comparison of Water Supply & Sewerage Sub Projects Performance during Implementation Stage (Project 1)

Details	Dehradun water supply	Haridwar water supply ^d	Nainital water supply	Dehradun Sewerage	Combined
A. Project Cost (₹ million)					
(2007 price)					
i. Processing stage ^a	540.4	284.6	306.5	838.3	1,969.8
ii. Completion stage ^b	409.6	248.4	375.3	2,016.8	3,050.1
iii. Cost overrun %	(24.2%)	(12.7%)	22.5%	140.6%	54.8%
B. Implementation Period (Months)					
i. Processing stage ^a	48	48	48	36	180
ii. Completion stage ^b	97	52	89	96	334
iii. Time overrun - months	49	4	41	60	154
iv. Time overrun %	102.1%	8.3%	85.4%	166.7%	85.6%
C. EIRR (%)					
i. Processing stage ^a	36.6%	18.1%	16.1%	18.7%	NA
ii. Completion stage ^c	24.6%	23.7%	10.0%	4.8%	13.5%
D. NPV (₹ million)					
i. Processing stage ^a	1153	111.6	74.3	289	NA
ii. Completion stage ^c	1003.0	247.6	(55.7)	(818.3)	376.5

NA = not available, () = negative, EIRR = economic internal rate of return, NPV = net present value.

^a ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranchise Financing Facility to India for the Uttarakhand Urban Sector Development Investment Program*. Manila.

^b Based on the actual disbursement data during the implementation period.

^c Analysis at completion stage with 2021 as base year.

^d Originally proposed Haridwar water supply during the processing stage was subsequently shifted and implemented by the government under JNNURM scheme. However, only replacement of 36 pumps and construction of one pumping station were implemented under UUSDIP. For analysis, the total cost under JNNURM and UUSDIP were considered.

Table A10.8(i): Cost Benefit Analysis – Dehradun Water Supply
(₹ million)

Year	Base Case							
	Benefit				Cost			Net
	Labor cost saved (stand post user)	Overhead tank cost saved	Non- incremental benefit	Total	Investment	OM	Total	
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	16.0	0.0	16.0	-16.0
2010	0.0	0.0	0.0	0.0	36.1	0.0	36.1	-36.1
2011	0.0	0.0	0.0	0.0	32.1	0.0	32.1	-32.1
2012	0.0	0.0	0.0	0.0	16.7	0.0	16.7	-16.7
2013	0.0	0.0	0.0	0.0	286.9	0.0	286.9	-286.9
2014	0.0	0.0	0.0	0.0	313.0	0.0	313.0	-313.0
2015	0.0	0.0	0.0	0.0	216.9	0.0	216.9	-216.9
2016	0.0	0.0	0.0	0.0	283.6	0.0	283.6	-283.6
2017	0.0	0.0	0.0	0.0	254.2	0.0	254.2	-254.2
2018	0.0	0.0	0.0	0.0	229.9	0.0	229.9	-229.9
2019	36.6	612.8	0.0	649.5	0.0	14.7	14.7	634.8
2020	41.2	1,065.7	0.0	1,106.9	0.0	14.7	14.7	1,092.2
2021	45.8	722.4	0.0	768.1	0.0	14.7	14.7	753.5
2022	50.4	1,175.0	0.0	1,225.4	0.0	14.7	14.7	1,210.7
2023	55.0	831.5	0.0	886.4	0.0	14.7	14.7	871.8
2024	59.5	1,283.9	0.0	1,343.4	0.0	14.7	14.7	1,328.8
2025	64.1	940.2	0.0	1,004.3	0.0	14.7	14.7	989.7
2026	68.7	1,392.4	0.0	1,461.1	0.0	14.7	14.7	1,446.5
2027	73.3	1,048.5	0.0	1,121.8	0.0	14.7	14.7	1,107.1
2028	77.9	1,500.5	0.0	1,578.4	-168.5	14.7	-153.9	1,732.3
Total	572	10,573	0	11,145	1,517	147	1,663	9,482
NPV@12%	86	1,618	0	1,704	677	24	701	1,003
IRR								24.6%

IRR = internal rate of return, NPV= net present value, O&M = operation & maintenance.

Table A10.8 (ii): Cost Benefit Analysis – Haridwar Water Supply
(₹ million)

Year	Base Case							
	Benefit				Cost			Net
	Labor cost saved (stand post user)	Overhead tank cost saved	Non-incremental benefit	Total	Investment	OM	Total	
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	29.6	0.0	29.6	-29.6
2011	0.0	0.0	0.0	0.0	105.4	0.0	105.4	-105.4
2012	0.0	0.0	0.0	0.0	3.0	0.0	3.0	-3.0
2013	0.0	0.0	0.0	0.0	54.1	0.0	54.1	-54.1
2014	0.0	0.0	0.0	0.0	32.8	0.0	32.8	-32.8
2015	0.0	0.0	0.0	0.0	25.1	0.0	25.1	-25.1
2016	0.0	0.0	0.0	0.0	22.0	0.0	22.0	-22.0
2017	0.0	0.0	0.0	0.0	15.6	0.0	15.6	-15.6
2018	0.0	224.8	0.0	224.8	0.0	9.1	9.1	215.8
2019	2.9	224.8	0.0	227.8	0.0	9.1	9.1	218.7
2020	3.5	140.6	0.0	144.0	0.0	9.1	9.1	135.0
2021	3.5	243.1	0.0	246.7	0.0	9.1	9.1	237.6
2022	4.0	158.6	0.0	162.6	0.0	9.1	9.1	153.6
2023	4.6	260.9	0.0	265.4	0.0	9.1	9.1	256.4
2024	5.1	176.1	0.0	181.1	0.0	9.1	9.1	172.1
2025	5.6	278.1	0.0	283.7	0.0	9.1	9.1	274.6
2026	6.2	192.9	0.0	199.2	0.0	9.1	9.1	190.1
2027	6.8	294.6	0.0	301.4	0.0	9.1	9.1	292.4
2028	7.6	209.2	0.0	216.8	-28.8	9.1	-19.7	236.5
Total	50	2,404	0	2,454	259	100	359	2,095
NPV@12%	7	410	0	417	152	17	170	248
IRR								23.7%

IRR = internal rate of return, NPV = net present value, O&M = operation & maintenance.

Table A10.8(iii): Cost Benefit Analysis – Nainital Water Supply
(₹ million)

Year	Base Case							
	Benefit				Cost			Net
	Labor cost saved (stand post user)	Overhead tank cost saved	Total cost	Total	Investment	OM	Total	
2,008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,010	0.0	0.0	0.0	0.0	67.9	0.0	67.9	(67.9)
2,011	0.0	0.0	0.0	0.0	60.0	0.0	60.0	(60.0)
2,012	0.0	0.0	0.0	0.0	37.3	0.0	37.3	(37.3)
2,013	0.0	0.0	0.0	0.0	100.7	0.0	100.7	(100.7)
2,014	0.0	0.0	0.0	0.0	144.1	0.0	144.1	(144.1)
2,015	0.0	0.0	0.0	0.0	106.0	0.0	106.0	(106.0)
2,016	0.0	0.0	0.0	0.0	76.2	0.0	76.2	(76.2)
2,017	0.0	0.0	0.0	0.0	119.2	0.0	119.2	(119.2)
2,018	0.0	0.0	0.0	0.0	98.7	0.0	98.7	(98.7)
2,019	1.9	174.0	0.0	175.9	0.0	10.4	10.4	165.5
2,020	2.2	158.1	0.0	160.2	0.0	10.4	10.4	149.8
2,021	2.4	189.8	0.0	192.2	0.0	10.4	10.4	181.8
2,022	2.7	173.8	0.0	176.5	0.0	10.4	10.4	166.1
2,023	2.9	205.5	0.0	208.4	0.0	10.4	10.4	198.0
2,024	3.1	189.5	0.0	192.6	0.0	10.4	10.4	182.2
2,025	3.4	221.1	0.0	224.5	0.0	10.4	10.4	214.1
2,026	3.6	205.1	0.0	208.7	0.0	10.4	10.4	198.3
2,027	3.9	236.6	0.0	240.5	0.0	10.4	10.4	230.1
2,028	4.1	220.5	0.0	224.6	(81.0)	10.4	(70.6)	295.2
Total	30.2	1,973.9	0.0	2,004.1	729.2	104.2	833.4	1,170.7
NPV@12%	4.5	310.1	0.0	314.6	353.4	16.9	370.4	(55.7)
IRR								10.0%

IRR = internal rate of return, NPV = net present value, O&M = operation & maintenance.

Table A10.8(iv): Cost Benefit Analysis – Dehradun Sewerage
(₹ million)

Year	Base Case									
	Benefit						Cost			Net
	Beneficiaries of the project	Civil Works (US\$)	Total cost		0	Total Benefits	Construction cost	O&M	Total Cost	
2,008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,010	0.0	0.0	0.0	0.0	0.0	0.0	194.9	0.0	194.9	(194.9)
2,011	0.0	0.0	0.0	0.0	0.0	0.0	338.2	0.0	338.2	(338.2)
2,012	0.0	0.0	0.0	0.0	0.0	0.0	220.1	0.0	220.1	(220.1)
2,013	0.0	0.0	0.0	0.0	0.0	0.0	210.2	0.0	210.2	(210.2)
2,014	0.0	0.0	0.0	0.0	0.0	0.0	540.7	0.0	540.7	(540.7)
2,015	0.0	0.0	0.0	0.0	0.0	0.0	1,074.5	0.0	1,074.5	(1,074.5)
2,016	0.0	0.0	0.0	0.0	0.0	0.0	798.6	0.0	798.6	(798.6)
2,017	0.0	0.0	0.0	0.0	0.0	0.0	503.8	0.0	503.8	(503.8)
2,018	0.1	0.5	321.9	67.4	77.8	467.8	616.5	32.2	648.7	(180.9)
2,019	0.1	0.6	321.9	77.2	89.1	488.9	0.0	32.2	32.2	456.7
2,020	0.2	0.7	321.8	86.9	100.4	509.9	0.0	32.2	32.2	477.7
2,021	0.2	0.7	321.7	96.7	111.6	530.9	0.0	32.2	32.2	498.7
2,022	0.2	0.8	321.7	106.4	122.9	552.0	0.0	32.2	32.2	519.8
2,023	0.2	0.9	321.6	116.1	134.1	573.0	0.0	32.2	32.2	540.8
2,024	0.2	0.9	321.5	125.9	145.4	594.0	0.0	32.2	32.2	561.8
2,025	0.3	1.0	321.4	135.6	156.7	615.0	0.0	32.2	32.2	582.8
2,026	0.3	1.1	321.4	145.4	167.9	636.0	0.0	32.2	32.2	603.8
2,027	0.3	1.2	321.3	155.1	179.1	657.0	0.0	32.2	32.2	624.8
2,028	0.3	1.2	321.2	164.8	190.4	678.0	(899.5)	32.2	(867.3)	1,545.3
Total	2.5	9.6	3,537.4	1,277.5	1,475.5	6,302.5	3,598.0	353.9	3,952.0	2,350.5
NPV@12%	0.4	1.5	614.9	201.5	232.7	1,051.0	1,807.8	61.5	1,869.3	(818.3)
IRR										4.8%

IRR = internal rate of return, NPV = net present value, O&M = operation & maintenance.

Table A10.8(v): Cost Benefit Analysis – Combined Subprojects
(₹ million)

Year	Base Case				
	Total Benefit	Project cost	O&M	Total cost	Net
2008	0.0	0.0	0.0	0.0	0.0
2009	0.0	16.0	0.0	16.0	(16.0)
2010	0.0	328.6	0.0	328.6	(328.6)
2011	0.0	535.7	0.0	535.7	(535.7)
2012	0.0	277.1	0.0	277.1	(277.1)
2013	0.0	651.9	0.0	651.9	(651.9)
2014	0.0	1,030.5	0.0	1,030.5	(1,030.5)
2015	0.0	1,422.6	0.0	1,422.6	(1,422.6)
2016	0.0	1,180.5	0.0	1,180.5	(1,180.5)
2017	0.0	892.9	0.0	892.9	(892.9)
2018	692.7	945.1	41.2	986.3	(293.7)
2019	1,542.0	0.0	66.3	66.3	1,475.7
2020	1,921.0	0.0	66.3	66.3	1,854.7
2021	1,737.9	0.0	66.3	66.3	1,671.6
2022	2,116.4	0.0	66.3	66.3	2,050.1
2023	1,933.2	0.0	66.3	66.3	1,866.9
2024	2,311.2	0.0	66.3	66.3	2,244.9
2025	2,127.5	0.0	66.3	66.3	2,061.2
2026	2,505.0	0.0	66.3	66.3	2,438.6
2027	2,320.7	0.0	66.3	66.3	2,254.4
2028	2,697.8	(1,177.8)	66.3	(1,111.5)	3,809.3
Total	21,905.5	6,103.0	704.3	6,807.3	15,098.2
NPV@12%	3,487.2	2,991.1	119.6	3,110.7	376.5
IRR					13.5%

IRR = internal rate of return, NPV = net present value, O&M = operation & maintenance.

FINANCIAL ANALYSIS

A. Introduction

1. Under project 1 of Uttarakhand Urban Sector Development Investment Program (UUSDIP) the investment was made in the following sectors: (i) water supply in Dehradun, Haridwar and Nainital and (ii) sewerage in Dehradun. At project completion report (PCR) stage, all the water supply and sewerage subprojects are completed. However, the water supply project in Haridwar was removed from UUSDIP and implemented with national government support.¹ With this background, the financial analysis for the present PCR was conducted for the revenue earning water supply and sewer sub projects in the three project towns under project 1 in accordance with ADB's Guidelines '*Financial Management and Analysis of Projects (2005)*' and '*Financial Analysis and Evaluation – Technical Guidance Note (2019)*'.

B. Analysis at Appraisal

2. Financial viability evaluation of all four subprojects and financial sustainability analysis of the agencies responsible for O&M for all subprojects were carried out during the MFF appraisal. The financial analysis prepared at the appraisal stage (2007) assessed the ability of the subprojects to meet future costs including capital expenditure, operation and maintenance (O&M) cost, and if appropriate, debt servicing and depreciation or re-investment margins. The weighted average cost of capital (WACC) was considered at 3.6%.²

3. The financial evaluation at MFF appraisal for water supply subprojects considered water tariffs (based on a financial improvement action plan, FIAP), water demand assessment, the number of connections, and the gradual reduction of nonrevenue water (NRW). The base financial internal rate of return (FIRR) was assessed to be (i) 17.0% for water supply in Dehradun, (ii) 8.2% for water supply in Haridwar, (iii) 4.0% for water supply in Nainital, and (iv) 6.2% for sewerage in Dehradun. The evaluation also considered sensitivity analysis under situations of (i) capital cost + 10%, (ii) O&M Cost + 10% and (iii) incremental revenue -10%.

4. The sustainability analysis at appraisal concluded that O&M costs for all water supply and sewerage subprojects would be fully covered by the proposed tariff in the FIAP. The analysis further concluded that for the subprojects the FIRRs are the most sensitive to decrease in incremental revenues, hence, the FIAP further proposed for improvement in revenue collection, increase in coverage, and tariff revisions to make the subprojects financially sustainable.

C. Analysis at Completion

5. Reassessment of the financial analysis was conducted at project completion for the water supply and sewer subprojects under project 1. The main approach of this financial analysis was to update the appraisal stage analysis through appropriate changes in the areas

¹ Considering the delay in the loan effectiveness for UUSDIP, the executing agency had to carry out the water supply improvements in Haridwar to meet the water supply demand for the historic Kumbmela Festival (2010) with grant fund from the Government of India through the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Accordingly, with the request of the executing agency, Haridwar Water Supply component removed from UUSDIP. However, only replacement of 36 pumps and construction of one pumping station were implemented under USDIP. (Source: ADB Memorandum dated 25 March 2009).

² ADB. 2007. UUSDIP RRP Appendix 10. Manila 2007 and ADB 2007 UUSDIP: Project 1 Periodic Financing Request. Manila.

of project cost, project coverage, revenues, implementation period and others, which had occurred during the implementation up to the project completion stage. For this reassessment at PCR, the base year is changed to 2021 and accordingly, all the financial analysis parameters were updated to 2021 base year. Project analysis period followed during the appraisal stage were retained for the present analysis.

6. In the reassessment of the financial analysis, project analysis was carried out first, by incorporating all the changes happened during the implementation including cost, phasing, tariff revision etc., to estimate the FIRR at subproject level. For this, the analysis parameters followed during the appraisal stage including the base year (2021), analysis period (2007-2028), WACC (4.8%)³, tariff revision during the operation period (15% once in 3 years) and the project cost escalated to 2021 base year were updated. The project cost spent during the implementation period was recalculated at the base year (2021) price. This was followed with an 'O&M cost recovery analysis' in which subproject level O&M recovery capacity from its tariff revenue was assessed. Following the O&M recovery analysis, the operating entity's capacity (UJS, the state level operating entity for water supply and sewer) was assessed from time series data, whether it can sustain the O&M of subprojects during the operation period. Finally, the financial capacity of the state government of Uttarakhand, who is providing budgetary support to UJS for operating all the water and sewer project in the state, was assessed based on the past time series data and its projection.

7. The financial costs included base costs, consultancy, project implementation, project monitoring, financing charges, taxes & duties, "but excluding price contingency. Also, "physical contingencies are likewise excluded as actual costs are used during re-evaluation. Using the wholesale price index (WPI) for non-food commodities group, the year-wise actual disbursement was discounted to the base year. Table A11.1 shows actual cost and discounted cost details.

Table A11.1: Distribution of Project Cost (Current price and 2021 Constant Price)
(₹ million)^a

Sub Projects	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
I. Water Supply											
A. Dehradun ^b											
(i) Actual cost	10.8	26.9	26.1	14.6	267.1	302.5	203.9	215.8	194.1	177.1	1,439.0
(ii) Escalated cost (2021)	18.2	41.0	36.4	18.9	326.1	355.6	246.5	255.8	222.4	194.7	1,715.7
B. Haridwar ^c											
(i) Actual cost	0.3	3.1	12.2	0.4	7.2	4.5	3.4	3.0	2.2	0.0	36.2
(ii) Escalated cost (2021)	0.5	4.8	17.0	0.5	8.7	5.3	4.1	3.6	2.5	0.0	46.9
C. Nainital											
(i) Actual cost	8.8	51.0	49.3	33.0	94.7	140.6	100.6	73.7	119.3	103.0	774.0
(ii) Escalated cost (2021)	14.7	77.9	68.9	42.8	115.6	165.3	121.6	87.4	136.7	113.2	944.1
II. Sewerage											
D. Dehradun											
(i) Actual cost	24.2	142.8	271.2	189.8	192.7	514.5	994.6	754.0	492.0	627.4	4,203.2
(ii) Escalated cost (2021)	40.5	218.1	378.4	246.3	235.2	605.0	1,202.4	893.7	563.8	689.9	5,073.4
Total - Actual Cost	44.1	223.8	358.8	237.8	561.7	962.0	1,302.5	1,046.5	807.7	907.5	6,452.3

³ WACC was recalculated using revised parameters relevant to the completion stage.

Sub Projects	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Total Escalated cost (2021)	73.8	341.9	500.8	308.5	685.6	1,131.2	1,574.6	1,240.4	925.4	997.8	7,780.1

Notes:

^a Periodical subproject costs were escalated to the Base Year (2021) using the wholesale price index WPI.

^b Costs and benefits for Dehradun water supply includes both Projects 1 and 2.

^c Originally proposed Haridwar water supply during the processing stage was subsequently shifted and implemented by the government under JNNURM scheme. However, only replacement of 36 pumps and construction of one pumping station were implemented under UUSDIP. For analysis, the total cost under JNNURM and UUSDIP were considered.

Source: Analysis based on the data provided by PMU.

8. The revenues from water and wastewater were considered as per the actual increase due to tariff revision during the period 2007-2018. Tariff revision is centralized at state level and will be common for all project towns. Last two revisions for water and sewer tariffs happened in 2013 and 2020, with average annual growth of 9.1% during 2007-2020. The household tariff for water was ₹100 per month (2007) and this was revised to ₹309 per month (2020).⁴ Monthly sewerage tariff of ₹20 per household in 2007 (with rental value more than ₹2,000) is revised to ₹123 in 2020, with average annual growth of 15% during 2007-2020. With this background, the achieved tariff growth rate during 2007-2020 and the earlier tariff revision assumption of 15% at every three years at processing stage for the period beyond 2020 were used in PCR analysis. This tariff revision had confirmed the affordability of water and sewer tariff during the analysis period (Table A11.2). The tariff was applied on the number of connections for assessing the incremental revenue. The WACC was assessed at 3.6%, that was followed during the processing stage. Except for the changes that happened during implementation including the project cost, phasing, number of connections achieved and tariff rates for water supply and sewerage, all the remaining parameters in the analysis during the processing stage (2007) were retained for the analysis at completion.

Table A11.2: Tariff Affordability

Particulars	Dehradun		Haridwar		Nainital	
	2011-2012	2018-2019	2011-2012	2018-2019	2011-2012	2018-2019
Persons per Household ^a	4.8	4.8	5.8	5.8	4.5	4.5
Average earning persons / household ^b	1.5	1.5	1.5	1.5	1.5	1.5
Average household income/month, ₹ ^c	12,538	19,394	12,538	19,394	12,538	19,394
Tariff (water + sewer)/month, ₹	227	432	227	432	227	432
Average monthly HH Bill for water, ₹ ^d	167	309	167	309	167	309
Average monthly HH Bill for sewer, ₹ ^d	60	123	60	123	60	123
Income spent for water & sewer (%) ^e	1.8%	2.2%	1.8%	2.2%	1.8%	2.2%

Notes:

^a Census, 2011. Uttarakhand State

^b Based on similar studies in India.

^c Estimated using the per capita income published in Reserve Bank of India publications (Handbook of Statistics on Indian Economy, 2019-2020) and the average earning members in a family

^d Tariff rates published by Uttarakhand Jal Sansthan, Dehradun.

^e Tariffs are deemed affordable at about 5% of average household income.

Source: Asian Development Bank estimates.

⁴ Before UUSDIP implementation (2007), water tariff was based on 'flat' system on monthly basis in project towns. Under UUSDIP, the implementation of household metering component was dropped and so the existing 'flat' tariff system only followed with revised rates in project towns.

D. Re-evaluation at Completion

9. FIRR at completion stage was found to be negative for Dehradun sewerage subproject with NPV assessed at WACC. Considerable increase in project cost (141% for Dehradun sewerage), and implementation delay (167% for Dehradun sewerage) have resulted in lower FIRR compared to appraisal estimate. The incremental revenue was not enough to meet the operation and maintenance cost for a short period (2018-2020). The revised tariff in 2020, helps to achieve full O&M recovery for Dehradun sewerage subproject. Dehradun water supply subproject was found financially viable with FIRR higher than the WACC. Considerable cost reduction (26%) and considerable increase in tariff revenue by changing the volumetric system used at appraisal to the current flat tariff system presently for household (while maintaining volumetric for non-domestic users) are the major reasons for the increased FIRR for Dehradun water supply. Also, the incremental revenue was projected to cover the incremental operation and maintenance costs for Dehradun water supply subproject.

10. Nainital water supply, subproject was found to be financially nonviable with FIRR less than WACC. Considerable increase in project cost (at 23%), higher O&M due to geographical reasons and implementation delays (at 85%) have resulted in lower FIRR at completion relative to appraisal estimate. Nainital water supply revenues could not cover the incremental O&M despite the revised tariff for 2020, including the proposed tariff structure for succeeding period. Nainital water supply will require government subsidy to recover the high O&M requirement.

11. Haridwar water supply implemented with Government of India funding (JNNURM) was found with marginal decrease in FIRR compared to appraisal estimate.

12. Tariff increase in 2020 and the subsequent periodical revision of 15% once in three years, when converted to real terms, were not adequate to generate a positive FIRR equivalent to or more than WACC for Dehradun sewerage and Nainital water supply. Table A11.3 presents the FIRR and sensitivity analysis results. Among the four subprojects considered, only Dehradun water supply and Haridwar water supply subprojects found to have robust FIRR more than WACC in all sensitivity scenarios. Remaining three subprojects are found with FIRR less than WACC in the base case and all sensitivity scenarios there by indicating unviability for full cost recovery. A comparison of FIRRs at appraisal and at completion is in Table A11.4. Detailed cash flow analyses for the subprojects and for overall are in Tables A11.5 (i) to A11.5 (v).

Table A11.3: Sub Projects FIRR and Sensitivity Analysis Results

Details	Dehradun Water supply			Nainital Water supply			Haridwar Water Supply		
	FIRR	FNPV	SV	FIRR	FNPV	SV	FIRR	FNPV	SV
Base Case	14.2%	1,639		(4.7%)	(463)		7.6%	74	
O&M Cost plus 10%	14.1%	1,633	5,092%	(4.9%)	(474)	(220%)	7.4%	69	417%
Revenue less 10%	12.9%	1,344	101%	(5.8%)	(498)	(51%)	6.5%	41	55%
NRW Assumption Higher by 10%	5.6%	84.7		NR	(691)		(3.6%)	(99.8)	
Demand Assumption Lower by 10%	4.7%	(10.2)		NR	(679)		(7.6%)	(128.3)	
Details	Dehradun Sewerage			Combined					
	FIRR	FNPV	SV	FIRR	FNPV				
Base Case	(20.2%)	(3,193)		0.2%	(1,943)				
O&M Cost plus 10%	(20.5%)	(3,209)	(541%)	0.1%	(1,982)				

Revenue less 10%	(21.5%)	(3,243)	(159%)	(1.0%)	(2,356)
NRW Assumption Higher by 10%	NR	(3,209)		0.2%	(706)
Demand Assumption Lower by 10%	NR	(3,243)		(0.7%)	(818)

FIRR = financial internal rate of return, FNPV = financial net present value discounted at WACC in ₹ million,

SV = switching value, () = negative value, NR = no result, WACC = weighted average cost of capital.

Note: Haridwar water supply subproject was shifted from UUSDIP and implemented under JNNURM by Government of Uttarakhand. Hence, Haridwar water supply was considered with JNNURM cost for financial analysis.

Source: Asian Development Bank estimates

Table A11.4: Comparison of FIRR

Details	Appraisal Stage		Completion Stage	
	FIRR %	NPV (₹ million)	FIRR %	NPV (₹ million)
I. Water Supply				
A. Dehradun	17.0%	1,282	14.2%	1,639
B. Haridwar	8.2%	206	7.6%	74
C. Nainital	4.0%	21	(4.7%)	(463)
II. Sewerage				
A. Dehradun	6.2%	1,259	(20.2%)	(3,193)
Combined	NA	NA	0.2%	(1,943)

FIRR = financial internal rate of return, NA = not available, NPV = net present value.

Table A11.5(i): Details of Cash Flow for FIRR Calculations - Haridwar Water supply
(₹ million)

Particulars			2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2021- 2022	2023- 2024	2025- 2026	2027- 2028
I. Haridwar Water Supply																		
FIRR Calculation (Water)	@ WACC	4.8%																
Capital Costs (₹ million)			2.7	25.3	90.0	2.6	46.2	28.0	21.4	18.8	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental O&M Costs (₹ million)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Total Outflow			2.7	25.3	90.0	2.6	46.2	28.0	21.4	18.8	13.4	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Incremental Revenue (₹ million)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.3	30.5	31.6	56.3	66.6	70.3	81.6
Salvage Value	NPV	FIRR																
Net Cash Inflow (Outflow) - Base Case	74	7.6%	(2.7)	(25.3)	(90.0)	(2.6)	(46.2)	(28.0)	(21.4)	(18.8)	(13.4)	20.2	21.4	22.6	47.2	57.5	61.2	132.8
Sensitivity Analysis	0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Inflow (Outflow) - Capital Costs Increased by 10%	54	6.7%	(3.0)	(27.8)	(99.0)	(2.8)	(50.8)	(30.8)	(23.6)	(20.7)	(14.7)	20.2	21.4	22.6	47.2	57.5	61.2	132.8
Net Cash Inflow (Outflow)- O&M Costs Increased by 10%	69	7.4%	(2.7)	(25.3)	(90.0)	(2.6)	(46.2)	(28.0)	(21.4)	(18.8)	(13.4)	19.3	20.5	21.7	46.3	56.6	60.3	131.9
Net Cash Inflow (Outflow) - Incremental Revenue Decreased by 10%	41	6.5%	(2.7)	(25.3)	(90.0)	(2.6)	(46.2)	(28.0)	(21.4)	(18.8)	(13.4)	17.3	18.4	19.4	41.6	50.9	54.2	118.7
NRW Assumption Higher by 10%	(100)	-3.6%	(2.7)	(25.3)	(90.0)	5.0	(38.0)	(17.0)	(10.0)	(6.9)	(1.1)	3.4	3.6	3.7	11.4	13.7	13.7	15.7
Demand Assumption Lower by 10%	(128)	-7.6%	(2.7)	(25.3)	(90.0)	4.0	(39.1)	(18.8)	(11.8)	(8.8)	(3.0)	1.4	1.6	1.7	7.1	8.8	8.7	10.1

FIRR = financial internal rate of return, NPV = net present value, NRW = nonrevenue water, O&M = operation & maintenance, WACC = weighted average cost of capital.

Table A11.5(ii): Details of Cash Flow for FIRR Calculations - Dehradun Water supply
(₹ million)

Particulars			2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2021- 2022	2023- 2024	2025- 2026	2027- 2028
I. Dehradun Water supply																		
FIRR Calculation (Water)	@ WACC	4.8%																
Capital Costs (₹ million)			18.2	41.0	36.4	18.9	326.1	355.6	246.5	255.8	222.4	194.7	0.0	0.0	0.0	0.0	0.0	0.0
Incremental O&M Costs (₹ million)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	14.7	14.7	14.7	14.7
Total Outflow			18.2	41.0	36.4	18.9	326.1	355.6	246.5	255.8	222.4	194.7	0.0	14.7	14.7	14.7	14.7	14.7
Incremental Revenue (₹ million)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	175.1	194.8	531.2	717.9	823.4	1,153.5
Salvage Value	NPV	FIRR																
Net Cash Inflow (Outflow) - Base Case	1,639	14.2%	(18.2)	(41.0)	(36.4)	(18.9)	(326.1)	(355.6)	(246.5)	(255.8)	(222.4)	(194.7)	175.1	180.2	516.6	703.2	808.8	1,138.9
Sensitivity Analysis	0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Inflow (Outflow) - Capital Costs Increased by 10%	1,514	13.0%	(20.0)	(45.2)	(40.1)	(20.8)	(358.7)	(391.2)	(271.2)	(281.4)	(244.6)	(214.2)	175.1	180.2	516.6	703.2	808.8	1,138.9
Net Cash Inflow (Outflow) - O&M Costs Increased by 10%	1,633	14.1%	(18.2)	(41.0)	(36.4)	(18.9)	(326.1)	(355.6)	(246.5)	(255.8)	(222.4)	(194.7)	175.1	178.7	515.1	701.8	807.3	1,137.4
Net Cash Inflow (Outflow) - Incremental Revenue Decreased by 10%	1,344	12.9%	(18.2)	(41.0)	(36.4)	(18.9)	(326.1)	(355.6)	(246.5)	(255.8)	(222.4)	(194.7)	157.6	160.7	463.4	631.4	726.4	1,023.5
NRW Assumption Higher by 10%	85	5.6%	(18.2)	(41.0)	(36.4)	(21.5)	(323.0)	(291.9)	(179.1)	(185.1)	(148.9)	(118.7)	82.9	74.3	213.7	271.2	289.1	380.1
Demand Assumption Lower by 10%	(10)	4.7%	(18.2)	(41.0)	(36.4)	(24.6)	(326.2)	(297.4)	(184.8)	(191.0)	(154.9)	(124.9)	76.5	67.6	200.1	254.6	271.5	357.6

FIRR = financial internal rate of return, NPV = net present value, NRW = nonrevenue water, O&M = operation & maintenance, WACC = weighted average cost of capital.

Table A11.5(iii): Details of Cash Flow for FIRR Calculations - Nainital Water supply
(₹ million)

Particulars			2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2021- 2022	2023- 2024	2025- 2026	2027- 2028
I. Nainital Water supply																		
FIRR Calculation (Water)	@ WACC	4.8%																
Capital Costs (₹ million)			14.7	77.9	68.9	42.8	115.6	165.3	121.6	87.4	136.7	113.2	0.0	0.0	0.0	0.0	0.0	0.0
Incremental O&M Costs (₹ million)			0.0	0.0	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Total Outflow			14.7	77.9	79.3	53.2	126.0	175.7	132.0	97.8	147.2	123.6	10.4	10.4	10.4	10.4	10.4	10.4
Incremental Revenue (₹ million)			0.0	0.0	3.3	9.7	10.7	7.4	8.5	9.8	10.8	12.6	13.7	14.9	56.1	65.3	72.8	82.2
Salvage Value	NPV	FIRR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	102.1
Net Cash Inflow (Outflow) - Base Case	(463)	(4.7%)	(14.7)	(77.9)	(75.9)	(43.5)	(115.3)	(168.3)	(123.5)	(88.0)	(136.3)	(111.0)	3.3	4.5	45.7	54.9	62.3	173.9
Sensitivity Analysis	0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Inflow (Outflow) - Capital Costs Increased by 10%	(533)	(5.5%)	(16.1)	(85.7)	(82.8)	(47.8)	(126.9)	(184.9)	(135.7)	(96.8)	(150.0)	(122.3)	3.3	4.5	45.7	54.9	62.3	173.9
Net Cash Inflow (Outflow) - O&M Costs Increased by 10%	(474)	(4.9%)	(14.7)	(77.9)	(77.0)	(44.6)	(116.3)	(169.4)	(124.5)	(89.1)	(137.4)	(112.1)	2.2	3.4	44.7	53.8	61.3	172.8
Net Cash Inflow (Outflow) - Incremental Revenue Decreased by 10%	(498)	(5.8%)	(14.7)	(77.9)	(76.3)	(44.5)	(116.4)	(169.1)	(124.3)	(89.0)	(137.4)	(112.3)	1.9	3.0	40.1	48.3	55.1	155.5
NRW Assumption Higher by 10%	(691)	NR	(14.7)	(77.9)	(79.3)	(48.2)	(120.5)	(172.2)	(128.1)	(93.3)	(142.2)	(118.0)	(4.5)	(4.1)	13.9	15.7	16.6	17.8
Demand Assumption Lower by 10%	(679)	NR	(14.7)	(77.9)	(79.3)	(47.8)	(120.0)	(172.2)	(128.1)	(93.2)	(142.1)	(118.0)	(4.4)	(4.0)	16.8	18.5	19.5	20.5

FIRR = financial internal rate of return, NPV = net present value, NR = no result, NRW = nonrevenue water, O&M = operation & maintenance, WACC = weighted average cost of capital.

Table A11.5(iv): Details of Cash Flow for FIRR Calculations - Dehradun Sewerage
(₹ million)

Particulars	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2021-2022	2023-2024	2025-2026	2027-2028
I. Dehradun Sewerage																
FIRR Calculation @ WACC (Water)	4.8%															
Capital Costs (₹ million)		0.0	40.5	218.1	378.4	246.3	235.2	605.0	1,202.4	893.7	563.8	689.9	0.0	0.0	0.0	0.0
Incremental O&M Costs (₹ million)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.2	36.2	36.2	36.2
Total Outflow		0.0	40.5	218.1	378.4	246.3	235.2	605.0	1,202.4	893.7	563.8	689.9	36.2	36.2	36.2	36.2
Incremental Revenue (₹ million)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7	43.4	37.5	100.8	113.7	118.3	141.0
Salvage Value	NPV	FIRR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Inflow (Outflow) - Base Case	(3,193)	(20.2%)	0.0	(40.5)	(218.1)	(378.4)	(246.3)	(235.2)	(605.0)	(1,202.4)	(893.7)	(531.0)	(646.5)	1.3	64.6	77.6
Sensitivity Analysis	0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Inflow (Outflow) - Capital Costs Increased by 10%	(3,546)	(20.5%)	0.0	(44.5)	(239.9)	(416.3)	(270.9)	(258.7)	(665.5)	(1,322.7)	(983.1)	(587.4)	(715.5)	1.3	64.6	77.6
Net Cash Inflow (Outflow) - O&M Costs Increased by 10%	(3,209)	(21.5%)	0.0	(40.5)	(218.1)	(378.4)	(246.3)	(235.2)	(605.0)	(1,202.4)	(893.7)	(531.0)	(646.5)	(2.3)	61.0	74.0
Net Cash Inflow (Outflow) - Incremental Revenue Decreased by 10%	(3,243)	(21.2%)	0.0	(40.5)	(218.1)	(378.4)	(246.3)	(235.2)	(605.0)	(1,202.4)	(893.7)	(534.3)	(650.8)	(2.4)	54.6	66.2

FIRR = financial internal rate of return, NPV = net present value, NRW = nonrevenue water, O&M = operation & maintenance, WACC = weighted average cost of capital.

Table A11.5(v): Details of Cash Flow for FIRR Calculations - Combined for Four Subprojects
(₹ million)

Particulars		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2021-2022	2023-2024	2025-2026	2027-2028
I. Combined for Four Subprojects																	
FIRR Calculation (Water)	@ WACC	4.8%															
Capital Costs (₹ million)			35.6	184.7	413.4	442.8	734.1	784.2	994.6	1,564.4	1,266.2	871.7	689.9	0.0	0.0	0.0	0.0
Incremental O&M Costs (₹ million)			0.0	0.0	10.4	10.4	10.4	10.4	10.4	10.4	19.5	19.5	70.3	70.3	70.3	70.3	70.3
Total Outflow			35.6	184.7	423.9	453.2	744.5	794.6	1,005.0	1,574.8	1,276.6	891.2	709.4	70.3	70.3	70.3	70.3
Incremental Revenue (₹ million)			0.0	0.0	3.3	9.7	10.7	7.4	8.5	9.8	10.8	74.6	262.7	278.8	744.4	963.5	1,458.2
Salvage Value	NPV	FIRR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	102.1
Net Cash Inflow (Outflow) - Base Case	(1,943)	0.2%	(35.6)	(184.7)	(420.5)	(443.5)	(733.9)	(787.2)	(996.5)	(1,565.1)	(1,265.8)	(816.6)	(446.7)	208.6	674.1	893.2	1,014.5
Sensitivity Analysis																	
Net Cash Inflow (Outflow) - Capital Costs Increased by 10%	(2,513)	-0.8%	(39.1)	(203.2)	(461.8)	(487.8)	(807.3)	(865.6)	(1,095.9)	(1,721.5)	(1,392.4)	(903.7)	(515.7)	208.6	674.1	893.2	1,014.5
Net Cash Inflow (Outflow) - O&M Costs Increased by 10%	(1,982)	0.1%	(35.6)	(184.7)	(421.5)	(444.5)	(734.9)	(788.3)	(997.5)	(1,566.1)	(1,266.8)	(818.5)	(448.6)	201.5	667.1	886.2	1,007.5
Net Cash Inflow (Outflow) - Incremental Revenue Decreased by 10%	(2,356)	-1.0%	(35.6)	(184.7)	(420.8)	(444.5)	(734.9)	(788.0)	(997.3)	(1,566.0)	(1,266.9)	(824.0)	(473.0)	180.7	599.7	796.9	906.0
NRW Assumption Higher by 10%	(706)	0.2%	(35.6)	(144.3)	(205.7)	(64.7)	(481.6)	(481.1)	(317.2)	(285.3)	(292.2)	(233.3)	82.0	74.0	239.0	300.6	319.4
Demand Assumption Lower by 10%	(818)	-0.7%	(35.6)	(144.3)	(205.7)	(68.4)	(485.3)	(488.4)	(324.7)	(293.0)	(300.0)	(241.4)	73.6	65.3	224.1	281.9	299.7

FIRR = financial internal rate of return, NPV = net present value, NRW = nonrevenue water, O&M = operation & maintenance, WACC = weighted average cost of capital.

E. Sustainability

13. The subprojects are considered viable if the resulting FIRR is greater than the WACC, and cost recovery tariffs within consumer affordability. Additionally, operating ratio will need to be maintained lower than 'unity' throughout the project period to ensure sustainability. Initial spreadsheet iterations reveal that the Nainital water supply subproject operations will not be sustainable with O&M expenditures exceeding tariff revenues. However, under the present arrangements the capital cost of ADB loan and government contribution being passed on 'grant' basis to operating entities in the project towns, the burden of loan repayment will be removed. With this background, the sustainability level can be diluted to the level of recovering O&M along with possible partial capital cost recovery to meet the periodical replacement requirements. Even with this approach, only two sub projects (water supply and sewerage subprojects in Dehradun) can be sustainable for O&M recovery (Table A11.6). However, all three project 1 subprojects together under UUSDIP are estimated to achieve full O&M recovery from 2020-21, as estimated at the processing stage analysis. Also, the government has completed all left out works under the original scope in the water supply subprojects (Dehradun and Haridwar)⁶ and the sewerage subproject in Dehradun.⁷

Table A11.6: Details of O&M Cost Recovery

Details	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
I. Dehradun Water Supply										
A. Project revenue (₹ million)	231.6	243.8	402.2	424.4	446.9	525.9	553.0	581.8	687.4	760.5
B. Project O&M (₹ million)	250.2	261.7	273.6	285.9	298.5	311.5	324.9	338.7	352.9	367.6
C. Net Surplus / (Deficit)	(18.6)	(17.9)	128.6	138.6	148.3	214.3	228.1	243.0	334.5	392.9
D. Operating Ratio	1.1	1.1	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5
II. Nainital Water Supply										
A. Project revenue (₹ million)	36.6	37.1	62.1	62.2	62.3	70.8	70.9	71.0	80.8	80.9
B. Project O&M (₹ million)	133.9	140.1	146.5	153.1	159.8	166.8	174.0	181.3	189.0	196.8
C. Net Surplus / (Deficit)	(97.4)	(103.1)	(84.3)	(90.8)	(97.5)	(96.0)	(103.0)	(110.3)	(108.1)	(115.8)
D. Operating Ratio	3.7	3.8	2.4	2.5	2.6	2.4	2.5	2.6	2.3	2.4
III. Haridwar Water Supply										
A. Project revenue (₹ million)	88.2	88.4	179.7	180.0	180.3	207.5	207.9	208.2	239.6	240.1

⁶ As indicated in the approved scope change memo, the water supply works in Haridwar were completed through funding from the JNNURM scheme, which constructed water supply networks and provided 42,413 HSCs (exceeding the original targets of 24,000 connections).

⁷ After the project completion, the state government had continued the works for sewerage system development in Dehradun and has provided 5,201 connections using its own resources.

Details	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
B. Project O&M (₹ million)	76.4	79.9	83.6	87.3	91.2	95.1	99.2	103.5	107.8	112.3
C. Net Surplus / (Deficit)	11.8	8.4	96.1	92.7	89.2	112.4	108.6	104.8	131.8	127.8
D. Operating Ratio	0.9	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
IV. Dehradun Sewerage										
A. Project revenue (₹ million)	30.5	26.6	65.7	73.0	81.1	84.0	86.5	89.2	105.2	108.3
B. Project O&M (₹ million)	36.2	38.3	40.6	43.1	45.6	48.4	51.3	54.4	57.6	61.1
C. Net Surplus / (Deficit)	(5.7)	(11.7)	25.1	29.9	35.4	35.6	35.3	34.8	47.5	47.3
D. Operating Ratio	1.2	1.4	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
V. Combined										
A. Project revenue (₹ million)	386.8	395.8	709.7	739.7	770.6	888.2	918.4	950.2	1,113.1	1,189.9
B. Project O&M (₹ million)	496.7	520.1	544.3	569.3	595.2	621.8	649.4	677.9	707.3	737.7
C. Net Surplus / (Deficit)	(109.8)	(124.3)	165.4	170.4	175.4	266.3	269.0	272.3	405.8	452.1
D. Operating Ratio	1.3	1.3	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6

(-) = Negative, O&M = operation & maintenance.

Notes:

1. Higher O&M for Nainital water supply subproject due its hilly terrain with more power consumption is the major reason for the negative net surplus during the operation.
2. 80% of water tariff as sewer tariff for all properties was discontinued from 2008 and flat sewer tariff based rental value for properties with sewer connections was introduced. This had resulted in reduction of sewer revenue.

Source: Asian Development Bank estimates.

14. During the processing stage, it was considered that all the assets created under UUSDIP will be transferred to urban local bodies (ULBs) for operation. With this background, the financial capacity of the ULBs in the project towns were assessed at appraisal for supporting the O&M of subprojects. However, this did not happen and UJS is the entity operating the completed projects.⁸ In UJS, under the ongoing system, all revenue from periodically revised tariff structure for water supply and sewerage will be deposited to the government and in turn the government will provide the required O&M for all projects through budget allocations. In other words, the government is absorbing all the O&M deficits, if required, through budget provisions for project sustainability. Analysis of the revenue account for O&M of UJS for three years (2017-18 to 2019-20) indicate that the government support for O&M was in the range of ₹2,197million in 2017-18 and ₹1,146million in 2019-20 (Table A11.7). During this period, the government support is found reducing and this will further reduce with

⁸ "Uttarakhand Jal Sansthan" constituted under Section 18 of the Principal Act having jurisdiction throughout the state of Uttarakhand on 26th August 2002, to plan, promote and execute schemes and operate water supply and sewerage.

the implementation of tariff revision in 2020.

Table A11.7: Revenue Account Income and expenditure of UJS
(₹ million)

Details	2017-2018	2018-2019	2019-2020
Revenue expenditure for water supply & sanitation	4,429.0	4,347.2	3,585.9
Revenue income for water supply & sanitation	2,232.1	2,492.9	2,439.8
Total surplus / (Deficit)	(2,196.8)	(1,854.3)	(1,146.1)

() = Negative, UJS = Uttarakhand Jal Sansthan.

Sources: Reserve Bank of India, 2021. 'State Finances - Study of State Budgets 2020-2021 Mumbai; and Uttarakhand Jal Sansthan, 2021.

15. The analysis of state government finance for the government (Table A11.8) shows that during the last four years, it has maintained a favorable revenue surplus and the operating ratio (operating expense / operating revenue) were below 1.0 from 2019-20. A ratio below 1.0 means the government revenues are enough to meet the O&M expenses of all infrastructure of the State, including those being created using funds of ADB under project.

Table A11.8: Financial Performance of Government of Uttarakhand (2017-18 to 2027-28)
(₹ million)

Details	2017-2018 Actual	2018-2019 Actual	2019-2020 Revised Budget	2020-2021 Budgeted	Projection ^e						
					2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
I. REVENUE ACCOUNT											
A. Receipts	271	312	355	424	486	557	640	738	851	985	1,142
1. State's Own Tax	102	122	124	138	153	170	188	209	232	257	286
2. State's Own Non-Tax	18	33	49	35	42	51	61	73	88	106	127
3. Share in Central Taxes	71	80	75	87	93	99	106	113	121	130	139
4. Grants-in-aid from Centre	81	77	106	165	198	237	285	342	410	492	591
B. Expenditure ^a	291	322	355	424	479	541	612	691	781	883	997
C. Revenue Account surplus / Deficit	(20)	(10)	0	0	7	16	29	46	70	103	145
D. Operating Ratio	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
II. CAPITAL ACCOUNT											
A. Receipts ^b	137	155	65	100	105	110	116	121	127	134	140
1. Borrowings	135	154	65	100	104	110	115	121	127	133	140
2. Other receipts	3	0	0	0	0	0	0	0	0	0	0
B. Expenditure ^{c,d}	116	147	80	94	104	115	128	142	158	176	197
1. Debt Repayment	77	102	29	35	37	39	41	43	45	47	49
2. Interest Payments	40	45	51	59	67	77	87	100	113	129	147
C. Capital Account surplus / Deficit	21	8	(15)	6	1	(5)	(12)	(21)	(31)	(42)	(56)

Details	2017-2018 Actual	2018-2019 Actual	2019-2020 Revised Budget	2020-2021 Budgeted	Projection ^e						
					2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
III. TOTAL											
A. Total Receipts	408	467	420	524	590	667	756	859	979	1,119	1,283
B. Total Expenditure	407	469	435	518	583	656	739	833	939	1,059	1,194
C. Total Surplus / Deficit	1	(2)	(15)	6	8	11	16	26	40	60	89

() = negative.

^a Revenue receipts includes own tax, own non-tax, share in central tax and grant from central government.

^b Revenue receipt includes borrowing and other receipts.

^c Revenue expenditure includes payment of salaries, pensions, and interests, among others.

^d Capital expenditure includes expenditure affecting the assets and liabilities of the state, such as: (i) capital outlay, i.e., expenditure which leads to creation of assets (such as bridges and hospitals), and (ii) repayment and grant of loans by the state government.

^e Based on the observed growth trend during 2017-18 to 2020-21, projection up to 2027-28 is carried out. In this, the maximum growth rate is restricted to 20% and minimum is at 5%.

Source: The government Annual Financial Statements of 2019-20 and 2020-21, PRS Legislative Research. [Uttarakhand Budget Analysis](#).

16. In summary, the financial sustainability of the three subprojects can be justified, based on the following:

- (i) Water and sewer tariff revision in 2020 has improved the O&M recovery for Dehradun (water supply and sewerage subprojects) from FY2020-21 in terms of the operating ratio (OR) of less than 1;
- (ii) Higher O&M for Nainital water supply due its terrain conditions, make the subproject unviable for O&M recovery. However, the state government has committed to compensate the shortfall through budget provisions to UJS;
- (iii) Overall UJS financial position has been improving during the review period of FY 2018-2020. With the introduction of 2020 tariff revision, UJS financial position is expected to further improve with further reduction in operating deficit;
- (iv) UJS which is operating all the three subprojects can operate these subprojects without the state government budget support, through cross subsidy;
- (v) The government financial position has also improved in recent years with the state budget in surplus in FY 2021; and
- (vi) Based on the two tariff revisions (2013 & 2020), average annual revision rate was found to be at 7.5% during the period of 2007-2020.⁹ Though the revision rate is higher, it is not regular. Hence adopting a lower tariff revision rate of 5% annual or 15% once in 3 years is logical and conservative approach.

F. Conclusion

17. Analysis findings indicate that the Dehradun water supply is financially viable for full cost recovery of O&M and capital cost with FIRR more than the WACC. But Dehradun sewerage is sustainable for full O&M recovery along with the partial capital cost recovery from 2020-21 on two conditions: (i) required periodic tariff increases (herein assumed every three years); and (ii) improving the collection efficiency. This assumes viability gap funding requirement for the operating entity of UJS to be provided by the government of Uttarakhand. The government of Uttarakhand support for O&M gap found reducing during the last three

⁹ Water tariff rate is found increased from ₹4.2/kiloliter (KI) in 2007 to ₹10.5/KI in 2020, with a compounded annual growth rate of 7.5%.

years and it will further reduce, provided the financial improvement actions proposed during the processing stage are implemented.¹⁰ Also, the revenue account of the government of Uttarakhand found improving by reducing the revenue deficits. Fiscal reforms and policies at both the government level and UJS levels, and innovative user charges at the UJS levels could be leveraged to strengthen urban services delivery and governance, including for the subprojects created under project 1 of UUSDIP.

¹⁰The FIAP at the Appraisal Stage suggested (i) increase property tax base by reassessment or mapping and computerized data base, (ii) introduction of connection fee with exemption to poor population for water supply and sewerage, (iii) gradual increase in user charges, (iv) connections coverage (iv) improvement in collection efficiency to 85% and reduction of nonrevenue water. Based on the institutional capacity building support to the project, most of the improvements including introduction / revision of tariff, reduction of NRW and improved collection efficiency were happened.

CONTRIBUTION OF THE PROJECT TO ADB STRATEGY 2030

Operational Priority No.	Indicators	Actual Project Contribution
OP 4.1.	People benefiting from improved services in urban areas (number)	0.99 million population benefited from increased access to improved water supply services in Dehradun, before the 2018 city re-boundary. (Nainital and Haridwar)
OP 4.1.1.	Service providers with improved performance (number)	2 municipal corporations (Dehradun and Nainital)
OP 4.1.2.	Urban infrastructure assets established or improved (number)	water supply pipes installed or upgraded (length of network in km) = 193.67
		sewer lines installed or upgraded (length of network in km) = 132.25
		One sewerage treatment plant (Dehradun)
		62 pump houses (Nainital and Haridwar)
		Four tube wells (Nainital)
		22 ground/underground level service reservoirs (Nainital)
		Three chlorinators (Dehradun)
		Two softening plants (Dehradun and Nainital)
		One weir (Dehradun)
		Seven mobile generators for water supply systems (Dehradun)

km = kilometers OP = operational priority.