Completion Report

Project Number: 44058-013
Loan Number: 2656
Grant Numbers: 0212, 0239
June 2020

Nepal: Kathmandu Sustainable Urban Transport Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency unit – Nepalese Rupees (NRe/NRs)

		At Appraisal	At Project Completion
		14 April 2010	30 June 2018
NRe1.00	=	$0.013	$0.009
$1.00	=	NRs71.53	NRs109.85

ABBREVIATIONS

ADB	–	Asian Development Bank
AQM	–	air quality monitoring
BLR	–	Bishnumati Link Road
CPS	–	country partnership strategy
DMF	–	design and monitoring framework
DOE	–	Department of Environment
DOR	–	Department of Roads
DOTM	–	Department of Transport and Management
DSC	–	Design and supervision consultant
DSY	–	Digo Sarbajanik Yatayat
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FNNTE	–	Federation of Nepalese National Transport Entrepreneurs
GEF	–	Global Environment Facility
GESI AP	–	gender equality and social inclusion action plan
GRM	–	grievance redress mechanism
HLPCC	–	high-level policy coordination committee
ITS	–	intelligent traffic system
JICA	–	intelligent traffic system
KM	–	kilometer
KMC	–	Kathmandu Municipal Corporation
KSUTP	–	Kathmandu Sustainable Urban Transport Project
MWCSW	–	Ministry of Women, Children, and Social Welfare
MOSTE	–	Ministry of Science, Technology, and Environment
MOU	–	memorandum of understanding
MPIT	–	Ministry of Physical Infrastructure and Transport
MTPD	–	Metropolitan Transport Police Division
PSC	–	project steering committee
PIU	–	project implementation unit
PMCO	–	project management and coordination office
PMCBC	–	project management and capacity building consultant
PPP	–	public–private partnership
PWD	–	person with disabilities
TDF	–	Town Development Fund
UTS		urban transport system

NOTES

(i) The fiscal year (FY) of the Government of Nepal and Ministry of Physical Infrastructure and Transport ends on 15 July. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2020 ends on 15 July 2020.

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

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CONTENTS

BASIC DATA

A. Loan Identification

1.	Country	Nepal
2.	Loan number and financing source	2656, Concessional OCR 0212, Asian Development Fund 0239, Global Environment Facility
3.	Project title	Kathmandu Sustainable Urban Transport Project
4.	Borrower	Government of Nepal
5.	Executing agency	Ministry of Physical Infrastructure and Transport
6.	Amount of loan and grant	$22.52 million [ADB Loan $10.00 million (SDR6.89 million), ADB Grant $10.00 million, GEF Grant $2.52 million]
7.	Financing modality	Project loan and grant

B. Loan/Grant Data

1.	Appraisal	
	– Date started	2656: 29 March 2010 0212: 29 March 2010 0239: 29 March 2010
	– Date completed	2656: 14 April 2010 0212: 14 April 2010 0239: 14 April 2010
2.	Loan/grant negotiations	
	– Date started	2656: 14 June 2010 0212: 14 June 2010 0239: 14 June 2010
	– Date completed	2656: 15 June 2010 0212: 15 June 2010 0239: 15 June 2010
3.	Date of Board approval	2656: 22 July 2010 0212: 22 July 2010 0239: 30 November 2010
4.	Date of the loan/grant agreement	2656: 26 October 2010 0212: 26 October 2010 0239: 22 July 2011
5.	Date of loan/grant effectiveness	
	– In loan/grant agreement	2656: 24 January 2011 0212: 24 January 2011 0239: 20 October 2011
	– Actual	2656: 5 January 2011 0212: 5 January 2011 0239: 7 November 2011

	– Number of extensions	2656: None 0212: None 0239: None
6.	Project completion date	
	– Appraisal	2656: 31 December 2014 0212: 31 December 2014 0239: 31 December 2014
	– Actual	2656: 31 December 2017 0212: 30 June 2018 0239: 30 June 2018
7.	Loan/grant closing date	
	– In loan/grant agreement	2656: 30 June 2015 0212: 30 June 2015 0239: 30 June 2015
	– Actual	2656: 31 December 2017 0212: 30 June 2018 0239: 30 June 2018
	– Number of extensions	2656: 2 0212: 3 0239: 3
8.	Financial closing date	
	– Actual	11 December 2019
9.	Terms of loan	
	– Interest rate	1% per annum during the grace period and 1.5% after that
	– Maturity (number of years)	32
	– Grace period (number of years)	8
10.	Terms of relending (if any)	Not applicable
	– Interest rate	
	– Maturity (number of years)	
	– Grace period (number of years)	
	– Second-step borrower	

11. Disbursements

a. Dates

2656

Initial Disbursement 5 July 2011	**Final Disbursement** 23 August 2018	**Time Interval** 85 months
Effective Date 5 January 2011	**Actual Closing Date** 11 December 2019	**Time Interval** 107 months

0212

Initial Disbursement 6 October 2011	**Final Disbursement** 31 July 2018	**Time Interval** 82 months
Effective Date 5 January 2011	**Actual Closing Date** 11 July 2019	**Time Interval** 102 months

0239

Initial Disbursement	Final Disbursement	Time Interval
7 March 2017	31 July 2018	17 months
Effective Date	**Actual Closing Date**	**Time Interval**
7 November 2011	11 July 2019	92 months

b. Amount ($ '000)

Category	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation (4=1+2–3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4–5)
Civil Works	8,397.80	-	4,316.57	4,081.23	3,588.36	492.87
Vehicles and Equipment	1,935.00	-	1,163.36	771.64	489.25	282.39
Consulting Services	3,823.30	-	-	3,823.30	3,524.72	298.58
TDF (Grants to purchase Electric Vehicles and Equipment)	3,800.00	-	-	3,800.00	863.37	2,936.32
Training and Capacity Building	316.40	-	15.26	301.14	15.78	285.34
Studies and Surveys	862.00	30.00	-	892.00	930.77	(38.77)
Advocacy	186.10	-	-	186.10	48.63	137.50
Project Management	175.20	156.88	-	332.08	325.73	6.35
Lease of Land for Terminals	16.40	-	-	16.40	-	16.40
Unallocated	2,919.80	-	2,750.73	169.07	-	169.06
Interest During Construction	88.00	-	1.51	86.48	86.48	
Total	**22,520.00**	**186.88**	**8,247.44**	**14,459.44**	**9,873.10**	**4,586.35**

Amount (SDR '000): 2656

Category	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation (4=1+2–3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4–5)
Civil Works	5,782.00	-	(3,288.87)	2,493.13	2,493.13	0

Vehicles and Equipment	386.00	-	(287.42)	98.58	98.58	0
Unallocated	657.00	-	(657.00)	-	-	0
Interest During Construction	61.00	-		61.00	61.00	0
Total	**6,886.00**	**-**	**(4,233.29)**	**2,652.70**	**2,652.70**	**0**

Amount ($ '000): 0212 & 0239

Category	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation (4=1+2–3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4–5)
Vehicles and Equipment	1,375.00	-	800.00	575.00	346.78	228.22
Consulting Services	3,823.30	-	-	3,823.30	3,524.72	298.58
TDF (Grants to purchase Electric Vehicles and Equipment)	3,800.00	-	-	3,800.00	863.37	2,936.62
Training and Capacity Building	316.40	-	15.26	301.14	15.79	285.34
Studies and Surveys	862.00	30.00	-	892.00	930.79	(38.79)
Advocacy	186.10	-	-	186.10	48.60	137.50
Project Management	175.20	156.88	-	332.08	325.73	6.35
Lease of Land for Terminals	16.40	-	-	16.40	-	16.40
Unallocated	1,965.60	-	1,871.62	93.97	-	93.97
Total	**12,520.00**	**186.88**	**2,686.88**	**10,020.00**	**6,055.80**	**3,964.20**

C. Project Data

1. Project cost ($'000)

Cost	Appraisal Estimate	Actual
Foreign exchange cost	11,399.40	4,639.20
Local currency cost	19,020.60	7,740.80
Total	**30,420.00**	**12,380.80**

2. Financing plan ($'000)

Cost	Appraisal Estimate	Actual
Implementation cost		
Borrower financed	7,900	2,507.71
ADB financed	20,000	8,851.40
Other external financing - GEF	2,520	1,021.69
Total implementation cost	**30,420**	**12,380.80**
Interest during construction costs		
Borrower financed	0	0
ADB financed	88	86.48
Other external financing	0	0
Total interest during construction cost	**88**	**86.48**

3. Cost breakdown by project component ($ million)

Component	Appraisal Estimate	Actual
A. Base Cost		
1. Public Transport Improvement	7.69	3.53
2. Traffic Management Improvement	12.27	4.79
3. Pedestrianization	4.99	2.34
4. Air Quality Improvement	0.34	0.17
5. Project management and capacity building	2.12	1.45
Subtotal (A)	**27.41**	**12.29**
B. Contingencies	2.92	-
C. Financing Charges	0.09	0.09
Total	**30.42**	**12.38**

4. Project schedule

Item	Appraisal Estimate	Actual
Project Management		
PMCO established (by MPPW) & PIU established (by DOTM, DOR, DOE, KMC, MTPD)	Q3 2010	Q4 2011
Appointment of Project Directors & Project Managers	Q3 2010	Q4 2011
Consultant Selection		
Recruitment of PMCBC consultant	Q1 2011	Q2 2012
Recruitment of DSCs	Q2 2011	Q2 2016
Rationalization Plan for the Public Transport Network	Q1 2011–Q4 2014	Q2 2012–Q1 2014
Implementation of Pilot Routes		
Detail Design of Pilot Route Infrastructure	Q4 2011–Q1 2012	Q2 2016–Q1 2017
Establishment of Bus Operating Companies	Q2 2011–Q1 2012	Q2 2015–Q1 2016
Negotiated Bus Operating Contract between Bus Operating Companies & DOTM	Q3 2011–Q1-2012	Q1 2016–Q3 2016
Subloan Agreement between TDF and Private Bus Operator	Q2 2012	Q2 2017
Construction of Depots, Terminals, Lay-Bys & Bus stops	Q3 2012	Q2 2017–Q1 2018
Operation of the Pilot Bus System	Q2 2012	Q2 2018
Mass Transit Options and Prioritization Study	Q2 2012	Q1 2017–Q2 2018
Improvement of Junctions along Bishnumati Link Road		
Detailed design and contract award	Q4 2011	Q2 2012–Q3 2014
Construction	Q4 2012	Q4 2014–Q4 2017
Improvement of Junctions in the City Center		
Detailed design and contract award	Q4 2011–Q2 2012	Q1 2013–Q1 2015

Construction	Q3 2012–Q2 2013	Q2 2015–Q3 2017
Capacity Development Program for Traffic Police	Q4 2011–Q4 2014	Q4 2014–Q2 2017
Awareness Campaign (driving behavior and transport safety)	Q1 2012–Q4 2014	Q2 2016–Q3 2017
Pedestrianization of Heritage Routes		
Detailed design and contract award	Q2 2011–Q4 2013	Q2 2012–Q4 2014
Construction	Q2 2012–Q1 2014	Q1 2015–Q3 2017
Improvement of Sidewalks in City Center		
Detailed design and contract award	Q3 2011–Q2 2012	Q3 2012–Q4 2014
Construction	Q3 2012–Q1 2013	Q1 2015–Q2 2017
Upgrading and Construction of 2 Pedestrian Bridges		
Detailed design and contract award	Q3 2011–Q2 2012	Q3 2014–Q4 2015
Construction	Q3 2012–Q1 2013	Q1 2016–Q3 2017
Procurement/ Installation of Solar Power Back-up Systems for 7 existing stations and four new mobile Monitoring Stations	Q2 2011	Q2 2013–Q1 2014
Procurement of Emission and Mechanical Testing Equipment	Q4 2011	Q4 2014

PMCO = project management and coordination office , MPPW = Ministry of Planning and Physical Works, PIU = project implementation unit, DOTM = Department of Transport and Management, DOR = Department of Roads, DOE = Department of Environment, KMC = Kathmandu Municipal Corporation, MTPD = Metropolitan Traffic Police Division, PMCBC = project management and capacity building consultant, TDF = Town Development Fund, DSC = design and supervision consultant

5. Project performance report ratings

	Ratings	
Implementation Period	**{Development Objectives}**	**{Implementation Progress}**
1 April 2011 to 30 June 2011		On Track
1 July 2011 to 31 March 2012		Potential Problem
1 April 2012 to 31 December 2012		On Track
1 January 2013 to 30 June 2013		Potential Problem
1 July 2013 to 30 September 2014		On Track
1 October 2014 to 31 December 2014		Potential Problem
1 January 2015 to 31 December 2016		On Track
1 January 2017 to 31 March 2017		Potential Problem
1 April 2017 to 31 December 2017		On Track
1 January 2018 to 31 March 2018		Potential Problem
1 April 2018 to 30 June 2018		Actual Problem

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Fact-Finding	29 March14 April 2010			
Special Loan Administration	30 June–2 July 2011		4	
Loan Inception	21–25 August 2012		4	
Review Mission	25–29 March 2013	2	8	m, a
Review Mission	22–26 July 2013	5	25	k, a, a, b, j
Review Mission	28–30 October 2013	2	6	k, a
Review Mission	3–6 December 2013	3	12	k, a, a
Review Mission	5–14 March 2014	4	24	k, a, j, d
Midterm Review Mission	13–22 April 2015	5	45	k, j, l, a, a
Review Mission	15–17 September 2015	2	4	k, a
Review Mission	24 August–28 September	2	30	a, b
Midterm Review Mission	17 May–7 June 2017	2	20	a, b

Note: a = project officer, b = project analyst, d = social development specialist, k= transport specialist, m = urban development specialist, j = social development specialist, l = environmental specialist

I. PROJECT DESCRIPTION

1. The Kathmandu Sustainable Urban Transport Project was designed to address Kathmandu Valley's urban challenges including congestion, inadequate mobility, inadequate transport service, and poor air quality.[1] In 2010, the Clean Air Initiative in Asia categorized Kathmandu as one of the least walkable Asian cities.[2]

2. The project aimed to improve the overall quality of urban life in the valley and eventually lead to higher local economic growth. The focus was on delivering a more efficient, safe, and sustainable urban transport system (UTS). It was part of a coordinated effort among development partners, including the Asian Development Bank (ADB), the World Bank, the Japan International Cooperation Agency (JICA), and the public–private partnership (PPP) team of the United Nations.[3]

3. ADB approved a grant of $10.00 million and a loan of $10.00 million (equivalent to SDR 6.89 million) for the project at the request of the Government of Nepal. The Global Environment Facility (GEF) provided a grant of $2.52 million to finance part of the project cost and ADB administered the grant. The project's envisaged impact was a more efficient and sustainable UTS in the Kathmandu Valley that would favor higher local economic growth while addressing climate change and mitigating air pollution emitted by vehicles. The expected outcome was improved urban public transport and walkability in the inner city by encouraging a modal shift from private vehicles and improving traffic conditions. The project had four components (i) improved and upgraded public transport and strengthened capacity of the Department of Transport Management (DOTM); (ii) improved traffic management to lessen congestion on the roads; (iii) improved walkability in the city center; and (iv) enhanced monitoring of air quality.

II. DESIGN AND IMPLEMENTATION

A. Project Design and Formulation

4. At the time of appraisal, the project was consistent with ADB's country partnership strategy (CPS) for Nepal, 2010–2012, and it remained consistent with CPS, 2013–2017.[4] It aligned with ADB's Sustainable Transport Initiative Operational Plan, mainly urban transport, climate change in urban transport, road safety, and social sustainability.[5] Support for urban transport, with an emphasis on cleaner modes of transport, was a core area for ADB support as per ADB's Strategy 2020.[6] The project was consistent with the government's National Urban Policy,[7] which specifically referred to improving the quality of life for urban dwellers by creating a clean, safe, and developed urban environment. The project design appropriately incorporated lessons from previous projects, such as involving stakeholders in project design from an early stage and providing capacity development support during project implementation.[8]

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[1] ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loan, Grant, and Administration of Grant for the Nepal Sustainable Urban Transport Project*. Manila.
[2] Clean Air Network Nepal, Clean Energy Nepal, and Clean Air Initiative for Asian Cities. 2010. *Walkability in Asian Cities. Assessment of Pedestrian Infrastructure and Services in Four Areas of Kathmandu City*. Kathmandu. http://www.cen.org.np/uploaded/Walkability%20in%20KV_MaYA%20Factsheet%202.pdf.
[3] Footnote 1, para. 8.
[4] ADB. 2009. *CPS: Nepal, 2010–2012*. Manila; and ADB. 2013. *CPS: Nepal*, 2013–2017, Manila.
[5] ADB. 2010. *Sustainable Transport Initiative Operational Plan*. Manila.
[6] ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.
[7] Government of Nepal. 2007. National Urban Policy. Kathmandu.
[8] Footnote 1, para. 7.

5. However, due diligence was insufficient during project preparation, resulting in unrealistic indicators. The project design could have benefited from a more robust assessment of the institutional capacity of implementing agencies during the due diligence process. Project coordination among the several agencies and local communities proved complex because the implementing agencies were affiliated with different ministries that were not within the jurisdiction of the executing agency, the Ministry of Physical Infrastructure and Transport (MPIT).[9] All agencies lacked institutional capacity and the project's efforts to strengthen capacity and coordination efforts were inadequate. The project was not ready for financing without first addressing underlying institutional challenges. Given these challenges, the project financing modality would have benefited from technical assistance (TA) to strengthen capacity development before project financing. The project design identified key risks and proposed mitigation measures, but these measures were too ambitious. Aside from issues on implementation arrangements, the design had other shortcomings: (i) implementation period was too short for such a complex project; (ii) cost estimates for some of the project's components were unrealistically low; (iii) MPIT and the implementing agencies lacked ownership of the project; (iv) a viability analysis for the deployment of electric buses was not conducted; and (v) procurement and contract management capacity of the implementing agencies did not match the complexity of the project. During the joint midterm review in 2015, ADB and the government did not adequately assess the feasibility of achieving the project results, despite very limited progress. In hindsight, given the limited institutional capacity of the implementing agencies, the private sector's reluctance to participate, the procurement challenges, and the impact of the 2015 earthquakes, a substantial reduction in project scope would have been justified. While the intent of the project justified ADB's continued engagement in Nepal's urban transport subsector, the project remained too complex to be implemented as originally designed, and was not adjusted based on constraints which emerged during implementation.

B. Project Outputs

6. The project had 4 outputs with 21 targets. At completion, the project achieved 4 targets (19%), partially achieved 10 targets (48%), and did not achieve 7 targets (33%). Appendix 1 lists the targets and achievements at project completion. No changes were made to the design and monitoring framework (DMF) during the midterm review in 2015.

1. Output 1: Public transport is improved and upgraded, and capacity of DOTM is strengthened

7. Of the eight targets in this output, two were achieved, three were partially achieved, and three were not achieved. The project planned to restructure DOTM and create a new public transport branch. This target was partly achieved. The restructuring plan was not approved by the Ministry of General Administration because of the significant resource implications such as the recruitment of a large number of staff to operate and manage bus operating contracts.[10] Instead, DOTM created a public transport section, where two key engineering positions remained vacant throughout the project period. While the project developed a policy on public transport restructuring and formulated associated guidelines in 2017, these were not implemented during the project period. Hence, the project did not achieve the planned target to rationalize public transport and assess the needs of public transport users, including vulnerable groups. Compared

[9] The implementing agencies were the DOTM, Department of Roads (DOR), Metropolitan Traffic Police Division (MTPD), Kathmandu Municipal Corporation (KMC), and Department of Environment (DOE). At the time of formulation, the executing agency was the Ministry of Physical Planning and Works, which became MPIT.

[10] The actual staffing requirement reflected the need to increase the number of employees from 451 to about 1,000. The proposed changes were not carried out by MPIT and DOTM because of resource implications.

with the target of two pilot routes, only one route—the S5—was successfully achieved, though with significant delays.[11] Consequently, the target was partially achieved.

8. The project aimed to form cooperatives and franchise low-carbon-emission buses that would operate on two pilot routes. As stated in para. 7, only one route continued to operate after project completion. Forming the cooperatives against the wishes of the transport operators proved challenging. For the S5 route, the project managed to merge two associations to form a bus operating company, Digo Sarbajanik Yatayat (DSY). It took a long time to agree to the service agreement with DSY and the financing arrangement with the Town Development Fund (TDF).[12] The target was partially achieved. The project aimed to introduce electric vehicles at a large scale. However, a comparative analysis by the project concluded that operating electric buses was not feasible and recommended using low-carbon-emission buses. This took additional time to decide which buses to procure. Because of delays in forming cooperatives and confirming the financing mechanism, 17 low-carbon-emission buses were procured compared with a target of 155.

9. The project planned to develop a preliminary design report on the reintroduction of trolleybuses in the Kathmandu Valley. However, the consultant's scope of work was revised to study different mass transit modes: conventional buses, rapid transit systems, light rail transit systems, metro rail etc. The reintroduction of trolleybuses was not included as an option. The draft prefeasibility report of the mass transit system on selected corridors was submitted at the end of 2018. As the target was never adjusted, it was not achieved. The project did achieve the target associated with capacity building by training staff from executing and implementing agencies on pro-poor and gender aspects of urban transport. The project organized a three-day orientation training in October 2017 for 116 participants on gender and social inclusion in public transport. Participants were public transport companies registered to operate the public buses on the S5 route, traffic police, transport workers, representatives of semigovernment and other transport companies, the MPIT, and the Ministry of Women, Children, and Social Welfare (MWCSW).

2. Output 2: Traffic management is improved

10. The improvement of traffic management had four targets, of which one was fully achieved, two partially achieved, and one was not achieved. The first target was to improve 14 junctions along the Bishnumati Link Road (BLR) and in the city centers, including the construction of two new bridges. The project engaged two groups of contractors. The first one took responsibility for constructing two bridges (Teku and Dallu) and improving four junctions along the BLR. At loan closure, about 70% of the work on the Teku Bridge was completed. The government agreed to finance the outstanding work after project completion. The contractor subsequently completed the bridge without the approval of the supervision engineers. The government did not accept the bridge, citing substandard construction that did not follow engineers' directives. The bridge has never been used and the government is considering dismantling it. Design negligence by the contractor was also evident in the construction of the Dallu Bridge. This contractor also did not complete road works on the Dallu–Teku road, the approach roads to the two bridges, and some of the junction improvement works. A second construction contract was awarded to improve 24 junctions in 3 road corridors, however the contractor could only complete 10 junctions. The other

[11] The project piloted two potential routes (S3 and S5) with low-carbon-emission vehicles. An operational plan was prepared based on passenger ridership and an origin–destination survey. S5 was found to be financially viable; S3 (Kirtipur to Chhapal karkhana, Ring Road) did not materialize as the two associations using the route could not agree to the provisions in the service agreement and financing arrangement.

[12] ADB could not transfer the fund directly to the TDF, as it had to go through the government's budgetary provision. With the approval of the Ministry of Finance, MPIT signed a memorandum of understanding (MoU) with the TDF in May 2017. The process took much longer than anticipated.

14 junctions were removed from the contract scope because of road widening works implemented by other government agencies.

11. The project design included the development and broadcasting of an awareness campaign to improve safe driving behavior and road safety. This target was achieved. The project (i) initiated a public road safety campaign on the Metro Traffic FM radio station, which continued even after the project's completion; (ii) produced and disseminated a video documentary in Nepali and English on the project's activities and progress; (iii) telecasted through national TV channels a three minute television song covering the four main components of the project to raise public awareness; (iv) conducted a one-week training for the drivers of the pilot route operators on safe driving and fuel economy; (v) updated the project website that included a running display of 32 slogans and jingles that promoted awareness of public transport, road safety, drivers' behavior, and air pollution; and (vi) trained 28 government staff on traffic control signs in 2016. The project produced a draft Manual of Transport Operations and Road Use Management Regulations (Nepal Road Rules) and conducted a workshop on the draft road rules in 2016.

12. The project had expected to prepare and implement a capacity development plan for the Metropolitan Transport Police Division (MTPD), including modules on gender aspects of urban transport. The focus of the plan was to introduce modern technology to strengthen traffic management. An institutional restructuring proposal for MTPD, with inputs from the traffic police, was prepared in 2013 with a baseline institutional assessment report. The project conducted a two-day training on road rules and user behavior, and a one-day IT training to MTPD staff. Equipment and accessories provided for the traffic management included servers, LED monitors, multimedia, laptop and desktop computers, video and still cameras, breathalyzers, road dividers, radar guns, power saws, metal cutters, and two surveillance vehicles. The project planned to implement an intelligent traffic system (ITS) and procure, install, and operate 21 closed circuit televisions with a control center, 8 traffic lights, and 21 police handsets. This target was not achieved because of procurement challenges such as repeated bidding and significantly higher bidding prices, leading to the cancellation of the bidding process.

3. Output 3: Walkability in the city center is improved

13. Of the five targets for the output, the project achieved one, partially achieved three, and did not achieve one. The project pedestrianized a 3.00 kilometer (km) heritage route, compared to a target of 8.00 km. It also developed the operational plans for civil works for improving sidewalks in the central city and pedestrian pathways within city core areas in 2015. However, civil works were cancelled following the 2015 earthquakes as the government's priorities changed and needs emerged outside the core areas. The plan was replaced by 3.00 km of pedestrian sidewalks in another area and civil works were completed in Prashuti Griha–Teku Dovan, along the right bank of the Bagmati River, and the Sankata and Bhadrakaki Temple areas. The operational plan for pedestrianizing Kathmandu's historical core areas was prepared in October 2017. The project also completed 16.09 km of sidewalks and walkways in the city center, which exceeded the target. These walkways and sidewalks can accommodate physically challenged, visually impaired, and differently abled pedestrians. Of the originally planned two new pedestrian bridges, only one new bridge was deemed necessary based on needs and priorities identified by the communities. Planned improvement of two bridges was completed. The Kathmandu Municipal Corporation (KMC) received PPP advisory services from specialists engaged by the project to identify locations that could provide additional parking space for a rapidly growing urban population. However, no PPP transaction materialized during the project. Because the project did not maintain a record of its consultation process, it is not possible to establish if and how the urban poor participated in the site selection process.

4. Output 4: Monitoring of air quality is enhanced

14. The project achieved one of the four targets of this output, it partially achieved one, and did not achieve two targets. The project procured emission testing equipment for DOTM comprising (i) two sets of gas analyzers (an emission testing instrument for vehicles using petroleum-based fuel) and (ii) two sets of smoke meters (an emission testing instrument for diesel vehicles). These were handed over to DOTM and are still in use. At project completion, only four of the seven air quality monitoring (AQM) stations were deemed repairable and brought into operation following minor repairs. The repaired four AQM stations were fitted with solar power backup equipment, and these are fully operational. While two new mobile AQM stations were planned for procurement, four stations were procured in 2016 at the advice of scientists. While the design assumed that DOTM would revise emission standards for vehicles, during project implementation DOTM decided that existing standards were still relevant and the related target was not met. The Department of Environment (DOE) could not use the procured AQM equipment because of a lack of human resources and operational budget. As a result, the project could not conduct the planned awareness campaign on the importance of air quality.

C. Project Costs and Financing

15. At appraisal, the project was expected to cost $30.42 million, comprising $20.00 million (65.7%) from ADB (50% grant and 50% loan), a $2.52 million grant from the GEF (8.3%), and the remaining $7.00 million from the government (23.0%). ADB funds were intended to finance part of the civil works, equipment, consulting services, implementation of pilot bus routes, recurrent costs, training and capacity building, awareness-raising campaigns, and interest charges during implementation. The GEF grant funds were slated to finance part of the public transport component related to climate change, specifically air pollution mitigation measures, such as a loan to purchase electric or low-emission vehicles to replace diesel microbuses operating on the pilot routes, and a feasibility study for the reintroduction of trolleybuses. At completion, the actual total cost was $12.38 million (40% of the appraisal estimate) because of non-achievement of some of the key outputs.[13] By cost category, 38.7% of the actual cost went toward traffic management improvement, 25.8% to public transport improvement, 18.9% to pedestrianization, 11.7% to project management and capacity building, and 1.4% toward air quality improvement. The financing charges accounted for 0.7% of the total cost. The low fund utilization was primarily associated with the very poor performance of one of the major contractors. Because of slow progress and at the request of the government, ADB cancelled $8.43 million from the loan and grant amounts.[14] In May 2015, ADB approved the government's request to reallocate the cancelled amount to support relief and reconstruction activities in the aftermath of the 2015 earthquakes. This first partial cancellation became effective from July 2015. Subsequent partial cancellations were done as the undisbursed balance would not be utilized. Appendix 2 contains the cost breakdown and Appendix 3 contains the project cost by financier.

D. Disbursements

16. The project design was complex and required effective coordination among five different agencies. Different project activities required active consultations with stakeholders throughout

[13] It comprised $8.85 million from ADB (71.5%), $1.02 million from the GEF (8.3%), and $2.51 million from the government (20.3%).

[14] ADB approved the loan and grant cancellation on 9 July 2015, 21 November 2017, and 11 December 2019. The total canceled amount comprised $4.82 million from civil works; $1.44 million from equipment and vehicles; and $2.16 million from consulting services, unallocated amounts, interest charges during construction, and training.

the implementation. The original disbursement projection proved unrealistic and impractical because some implementing agencies were not familiar with ADB's business practices. The project was not ready for advance contracting or retroactive financing because of limited capacity among the implementing agencies. Appendix 4 shows that actual disbursements and contract awards were much slower than projected. The divergence between the appraisal and actual disbursements was associated with the unsatisfactory progress by one of the major contractors responsible for the two bridges and four junctions. The achieved scope of the project, contract awards, and disbursement were adversely affected by factors such as a reduction in the number of junction improvements because of a lack of available sites, the unwillingness of bus operators to form a company to operate one of the two pilot bus routes, and the executing agency's unwillingness to award a higher priced bid for the ITS. Advance funds were provided to the executing agency, but the utilization remained very low and substantial amounts of advances were not liquidated on time for project completion. The executing agency refunded an unused advance. Appendix 4 shows projected and actual disbursement and Appendix 5 shows contract awards.

E. Project Schedule

17. The project became effective on 5 January 2011 with an original closing date of 31 December 2014. It required three extensions with a revised closing date of 30 June 2018 for both grants and 31 December 2017 for the loan. Slow implementation progress was the main reason for the extensions. Loan closing was extended until 31 December 2017 to complete unfinished works, but the project was not completed by that time. Some works remained unfinished despite the extension for loan closing. Ultimately, the government agreed to complete the remaining unfinished works with its own funding. Grants were extended until 30 June 2018 to complete the mass transit options study, which was accomplished after the submission of the final report by the consultant in December 2018. The project was financially closed on 11 December 2019. Financial closing was delayed by pending ineligible claims. The statement of expenditure review by ADB on advance account utilization resulted in an ineligible expenditure of $1,711.12. ADB requested that the government refund the ineligible amount. Because the project management and coordination office (PMCO) had already been disbanded, the Kathmandu Division Road Office was authorized to take custody of PMCO assignments. It required significant follow-up with government agencies to execute this transfer. This caused an 18-month delay in financial closing. Appendix 6 shows the appraisal and actual project schedule.

F. Implementation Arrangements

18. The government established a permanent high-level policy coordination committee (HLPCC) chaired by a member of the National Planning Commission, and an implementation committee chaired by the MPIT secretary to provide policy directions and interagency coordination for urban transport in the Kathmandu Valley. The HLPCC met four times in 2015, mainly to discuss reallocation of funds to the earthquake response. The implementation committee also functioned as the project steering committee (PSC).[15] The PSC met once for an introductory meeting on 12 August 2014.

[15] It comprised director generals of DOR and DOTM, the chief executive officer of KMC, deputy inspector general of the MTPD, development Commissioner of the Kathmandu Valley Development Authority, and the project director of KSUTP as member-secretary. Non-member attendees comprised representatives from the PIUs of DOR, DOTM, KMC, DOE, PMCBC, and DSCs for DOR and KMC.

19. The project implementation units (PIUs) were established in five agencies (i) DOTM for public transport; (ii) DOR for traffic management; (iii) MTPD for traffic control and enforcement; (iv) KMC for parking, facilitation of pedestrian improvements, and PPP initiatives; and (v) DOE for AQM. Weak capacity at DOTM led to partial achievement of the public transport output. The project was not able to convince the private bus operators and the Federation of Nepalese National Transport Entrepreneurs to operate through a formal institutionalized mechanism. Only one bus route—the S5—materialized. Poor contract management led to incomplete civil works. The lack of guidance from the HLPCC and PSC, and the high turnover of senior staff throughout the project duration, demonstrated weak ownership of the executing agency. The planned risk mitigation measures were not implemented properly. The 2015 earthquakes further compounded the problem, leading to longer delays.

G. Consultant Recruitment and Procurement

20. The project engaged 91.02 person-months of international consultants and 265.85 person-months of national consultants for project management and capacity building consultant (PMCBC) work and 293.96 person-months of national consultants for the design and supervision consultants (DSC) work. The original implementation period for PMCBC was 36 months. It had to be extended four times before it closed. The project also engaged three DSCs to work with the DOR, KMC, and the project itself. The contract with the first DSC (DOR) incurred cost increase and a 14-month extension. The contract with the second DSC (KMC) also required cost increase and a 33-month extension. The project recruited the third DSC for itself to speed up the implementation process. It completed the tasks within the specified period and contract value. The project also appointed another consultant to complete the mass transit options and prioritization prefeasibility study, which was completed on 14 December 2018. The procurement of all contracts financed by ADB and GEF followed the procurement plan and ADB's procurement guidelines. The consultant selection process experienced significant delays because of the executing and implementing agencies' lack of experience with ADB's consultant recruitment process. Likewise, the procurement process became protracted and the contractors' performance remained less than satisfactory, leading to significant implementation delays. Poor worksite management and noncompliance with the instructions from the supervision consultants were prevalent among the civil works contractors. In particular, one of the domestic joint venture's contractors had a less-than-satisfactory track record of quality and timely completion of contracts.

21. The project design was complex and involved multiple agencies that had limited experience collaborating with each other. The original contract award of subprojects was ambitious, and the implementation pace was much slower than initially anticipated (Appendix 5). Even with the extended loan closing date, key civil works remained incomplete. It was obvious that the project would not achieve its target, so some of the civil works had to be descoped. The executing agency's delayed decision-making on procurement packages like ITS and cranes mounted on flatbed trucks caused key procurements to be canceled. Consequently, actual progress remained far behind original projections, leading to partial achievement of the outputs for improved traffic management and walkability.

H. Gender Equity

22. The government had identified public transport challenges in Kathmandu, particularly for women, children, the elderly, and persons with disabilities (PWDs). Based on this analysis, the project aimed to develop two pilot routes with design standards that met their transport needs, such as suitable bus stops, safe boarding and exiting, women-only buses, and PWD-friendly pedestrian walkways. Hence, the project was categorized as effective gender mainstreaming. To

facilitate the access to women and PWDs, and to ensure the gender responsiveness and social inclusiveness of the UTS in the project sites, the project prepared a gender equality and social inclusion action plan (GESI AP). The implementation of the GESI AP was led by the PIUs with the assistance of the social development specialist of the PMCBC and was monitored by the PMCO. The lack of adequate road space, onset of the 2015 earthquakes, lack of support of private transport operators, cancellation of the bid for ITS, and emergence of social safeguard issues collectively resulted in a large portion of the project not being undertaken or completed. It significantly affected the completion of the GESI AP, with only 62% of 13 activities completed and 50% of 6 quantitative targets achieved. Hence, the project was not successful in achieving the intended gender results. GESI AP implementation is rated unsuccessful (Appendix 7).

I. Safeguards

23. **Environment Safeguards.** The project was classified as category B for environment, following the ADB Safeguard Policy Statement (2009). Accordingly, the executing agency conducted an initial environmental examination of the project and prepared an environmental management plan (EMP). All the construction contracts contained provisions for compliance with the EMP's requirements. However, compliance with the EMP during implementation continued to be weak, with contractors only partially complying. The EMP required contractors to take all measures necessary to protect the environment and to limit air and water pollution, noise and vibration, and to ensure workers' health and safety. However, the contractors never implemented the necessary compliance measures. Waste, including toilet waste from the labor camp, was directly discharged into the river. Construction materials and spoil were dumped haphazardly along the roadsides and footpaths, blocking traffic and pedestrian movement. Although the contractors prepared the workers' group insurance, other occupational health and safety measures were of dismally low quality. Safety gear was not sufficiently distributed to workers and their use was not mandatory. The labor camp was rudimentary without basic sanitation and facilities. Cooking gas was supplied in some contract packages, but the contractor also supplied fuelwood for cooking.[16] The supervision engineers regularly instructed the contractors and reported to the employer that urgent action was needed to make the contractors improve the quality of environmental compliance. However, the project could not take necessary measures and the contractors never improved the safeguards compliance. The project submitted semiannual environmental monitoring reports starting from 2015, which were disclosed on ADB's website as required.[17] No environmental complaints were open at the project's closure.

24. **Social Safeguards.** The project was classified as category B for involuntary resettlement and C for indigenous peoples at appraisal and remained the same at completion. ADB prepared the resettlement framework and a resettlement plan at appraisal and duly followed the resettlement framework while designing the project activities. However, the implementation of mitigation measures was not fully complied with. The resettlement plan that was prepared in June 2010 was updated in August 2013 to reflect changes in project scope, lowering the number of junctions to be completed. The revised scope reduced the impact of involuntary resettlement. The total number of affected households declined from 29 to 18, the number of affected persons was reduced from 195 to 79, the number of affected structures was reduced from 22 to 15, and the affected private land area was reduced from 572 square meters to 133 square meters.

[16] ADB. Nepal: Kathmandu Sustainable Urban Transport Project. The Government of Nepal prepared for ADB semiannual Environmental Monitoring Reports. The reports for August 2016, February 2017, January 2018, and June 2018 are referenced here.

[17] Safeguards reporting before 2015 was done through the quarterly progress report.

25. The implementation of the updated resettlement plan and mitigation measures was not satisfactory. Altogether three pieces of titled land were affected, of which two household structures were shifted and the owners compensated. One household that was affected by land acquisition did not accept the compensation that was offered. The executing agency has deposited the compensation in the compensation determination committee's account. Regarding the loss of structures, as titled land was not affected, compensation was not required. The government had no provision to compensate for structures erected on government land. The proposed allowances and other assistance remained uncompensated. The project failed to comply with involuntary resettlement requirements and the implementation of the resettlement plan. However, there was no significant impact on the livelihoods of the affected households.

26. The project authority consulted with affected persons, including indigenous people, prior to finalizing the resettlement plan. Information about the project, its activities, and ADB's grievance redress mechanism (GRM) was disseminated during consultations and fieldwork meetings. The plans were disclosed on ADB's website and the executive summary of the resettlement plan was translated and shared with affected persons for disclosure. The grievance redress committee was formed and three meetings were held. Nine people lodged grievances related to compensation, two of which were resolved. The pedestrianization of heritage routes and the sidewalk improvement work were implemented using the road's right-of-way and no land acquisition was required. Project conducted an indigenous people impact screening,and confirmed that there was no impact on indigenous people.

J. Monitoring and Reporting

27. The loan and grant agreements contained 23 conditions and covenants of which the project complied with 14 (61%), partially complied with 5 (22%), failed to comply with 2 (9%), and found 2 (9%) not relevant (Appendix 8). None of the conditions or covenants were modified, suspended, or waived. The project did not establish a baseline, and it did not conduct any end line survey. The poor performance of the contractor and the nonachievement of substantial outputs resulted in noncompliance of two covenants. The reasons for five instances of partial compliance of conditions and covenants included the significant delay in obtaining approval from the High Powered Committee for Integrated Development of the Bagmati Civilization for some of the junctions' improvement, no baseline data was collected for project performance monitoring, pending compensation cases, and non-endorsement of DOTM's institutional reform. There were delays in compliance with two covenants because of the protracted approval process for the service agreement and financial agreement between the operator of the S5 bus route and the TDF, and a significant delay in establishing a fund flow mechanism. Two covenants were considered not relevant because (i) there was no need for resettlement of the families, and (ii), as planned, the GEF provided cofinancing and ADB declared the GEF grant effective on 7 November 2011. The noncompliance or partial compliance was the result of one of the contractors' poor performance. Given the nature of the project and the development interventions planned, all grant conditions and covenants remained relevant. The project did not conduct a perception survey but conducted interviews with a small group of passengers riding the S5 route.

28. The complex project design complicated implementation, including financial management. Nevertheless, the financial management practices adopted by the executing and implementing agencies were satisfactory. The borrower submitted loan and grant reimbursement applications on time. No financial irregularity was reported during the project implementation period. The

borrower submitted all but the final audited financial statements on time, and these were satisfactory to ADB.[18] The final audited project financial statement is being prepared.

III. EVALUATION OF PERFORMANCE

A. Relevance

29. The project design is assessed as *less than relevant*. It was relevant at the appraisal given the urban transport challenges in the Kathmandu Valley. However, it became less relevant during implementation and at completion. As stated in para. 4, the project was aligned with the policies, strategies, and development priorities of the government and ADB. The project components reflected a holistic approach to enhance Kathmandu's livability by introducing electric or low-carbon-emission public transport vehicles, monitoring air quality, reducing traffic congestion by improving traffic management, and improving walkability in the city's core areas. These interventions were deemed appropriate to improve public health, reduce traffic accidents, and enhance urban mobility. While the project was considered part of a coordinated effort among development partners—including ADB, the World Bank, JICA, and the PPP team of the United Nations—it lacked adequate coordination with those agencies.[19] Given the multidimensional support envisaged, the project financing modality was inappropriate at the time of the project's approval. A phased approach would have been more appropriate, starting with a TA project focusing on the policy changes for the public transport components and on readiness aspects of the investment project, such as detailed design, baseline surveys, and preparation of implementation arrangements. In phase two, the investment project would support the physical infrastructure, the technical equipment, and related capacity development and awareness raising.

30. The original DMF included pragmatic outcome and output indicators. The two impact indicators reflected higher-level results and were not achievable within the project timeframe and with available resources.[20] The DMF did not provide baseline values but assumed that these would be collected at the commencement of the project, which did not happen. Hence, any differential improvements in Kathmandu's urban environment could not be linked with certainty to project interventions. Moreover, the project missed an opportunity to adjust the scope by revising the targets and indicators and/or to simplify the implementation arrangements, given that the project was not progressing well and had encountered several challenges. The project design should have also identified contractor performance as one of the significant factors in the timely completion of civil works. The design lacked an effective coordination mechanism between MPIT and other implementing agencies. External factors such as the 2015 earthquakes and political instability, particularly during the early phase of the project, did not have a significant impact on the project design, although some damage from earthquakes was observed and addressed under the project's scope of work. Despite these shortcomings, the project had innovative features of combining energy efficient public transport, traffic management, air quality improvement, and walkability.

[18] ADB has been following up regularly with the executing agency for the submission of the final audited financial statement for FY2018 to report the total loan/grant disbursements until closing.

[19] Footnote 1, para. 8.

[20] The targets of increasing the per capita income of Kathmandu Valley residents by 10% by 2018 while decreasing carbon dioxide emissions and other air pollutants in the Kathmandu Valley by 10% (versus the baseline) were deemed unrealistic.

B. Effectiveness

31. The project is assessed as *ineffective* in delivering outcomes. The DMF contained six targets to assess achievement of the project outcomes. At completion, one target was exceeded, one was achieved, two were partially achieved, and two were not achieved. Kathmandu was rated as one of the 30 most walkable cities in Asia in 2018, against the target of being one of the 50 most walkable cities in Asia by 2015.[21] Partial achievements are related to the limited completion of project outputs. On the one pilot route established, the ridership increased by 36% in 2018–2019 based on 10 months of operation of low-carbon-emission buses, against a target of a 20% increase in two pilot routes. Rider satisfaction for this established pilot route exceeded the target. The completed infrastructure did meet the standards. The two targets that were not achieved relate to less congestion and fewer accidents on the roads in Kathmandu. While an established ITS would probably have helped, the number of registered vehicles increased by 350% from 2007 to 2017, which indicates that these targets were ambitious. As specified in para. 6, the majority of the targets were not achieved or at best partially achieved for all four outputs.

32. Overall, the GESI AP implementation is rated *unsuccessful* because of low completion and achievement rates—as stated in para. 22. From the gender and social inclusion perspective, the project was not effective in delivering the envisaged public transport design standards that meet the transport needs of women, children, the elderly, and PWDs. Some of the strategic GESI benefits (classified based on relevant GESI result areas mentioned in ADB's Strategy 2030[22]) of the completed activities and achieved quantitative targets suggested that in some areas the sidewalks were safer and more convenient for pedestrians, including physically challenged and visually impaired persons. The 17 buses on the S5 route were convenient for women, children, the elderly, and PWDs. Also, women were included as transport entrepreneurs by becoming shareholders of the company operating the buses on the S5 route. Furthermore, government transport agencies and transport operators received training in mainstreaming GESI in urban transport and in handling passengers with disabilities, the elderly, women, and children. GESI-relevant clauses on labor standards were integrated with bidding documents and contracts, and overall awareness about GESI-sensitive urban transport systems has increased. The project also could not fully comply with safeguard requirements. The implementation of the updated resettlement plan, and compliance with environmental safeguard requirements were not satisfactory. However, there was no significant impact on the livelihoods of the affected households, and no environmental complaints were open at the project's closure.

C. Efficiency

33. The project is assessed as *inefficient* in achieving outcomes and outputs. Several project activities could not be completed or implemented, which left limited visible results at completion. The economic internal rate of return (EIRR) could be computed only for public transport using low-carbon-emission buses on the S5 pilot route, and the measured EIRR of 2.48% corresponds to inefficient operation. The project's completion was delayed by 3.5 years and the majority of the outputs could not be achieved. Details are provided in Appendix 9. The 2.48% EIRR at completion is far less than the 13.20%–20.60% envisaged at appraisal. The wide divergence in EIRR is associated with a significant reduction in project benefits, as discussed in paras. 31–32. The inefficiency of the contractors along with high turnover of key responsible officials in the executing

[21] E. Lush and E.Veen, 2018. Asia On Foot: The Best Walkable Cities in Asia. 20 October. https://wander-lush.org/walkable-cities-in-asia/ (accessed 22 November 2019).

[22] ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

and implementing agencies contributed to the delay in project completion and substantially less achievement of planned outputs. The project was inefficient in terms of safeguards implementation.

D. Sustainability

34. The project is rated as *unsustainable*. The financial analysis of the pilot route was undertaken following ADB guidelines.[23] The financial internal rate of return (FIRR) of the S5 bus route's operation was estimated to be 10.05%, which is higher than the computed FIRR at the appraisal of 8.70%.According to the key informants, ADB noted that the S5 route encountered 25%–30% leakages in revenues from the bus operations.[24] The project can become sustainable if the buses are run profitably by increasing the number of viable routes, gaining significantly higher ridership numbers, reducing revenue leakages with the provision of functioning ticketing machines, and extending operational hours. An increase in bus fares may also be warranted. In addition, the bus operators need to allocate sufficient operations and maintenance (O&M) funds to ensure regular and efficient operations. The current allocation for O&M is not sufficient to account for any breakdowns or major repairs. The project's other outputs such as PWD-friendly sidewalks, emission testing equipment, and the O&M of air quality testing stations are not revenue generating and would require regular government budget for O&M. The low-emission buses have the potential to generate environmental benefits, but must be scaled up. Also, efforts are needed to replace polluting minibuses on the routes. At present, the environmental benefits are very limited as only one route—the S5 route—is being serviced by these low-emission buses. Furthermore, the institutional reform of DOTM, revision of vehicle emission standards, and monitoring of air quality standards are long overdue to ensure overall sustainability.

E. Development Impact

35. The development impact of the project at completion is assessed as *less than satisfactory*. At appraisal, the project had envisaged that urban transport services in the Kathmandu Valley would be more efficient and sustainable, favoring local economic growth while addressing climate change and mitigating air pollution. The per capita income of Kathmandu residents has increased over the project period, but that is not necessarily attributable to the project. However, the residents along the corridor of the S5 route have experienced somewhat less carbon exhaust from the vehicles as many inefficient minibuses have stopped servicing the route. Similarly, the low-emission buses have proven to be user-friendly to physically challenged and visually impaired passengers and women and children. However, the scale of operation is limited to only one route. Walkability in some city core areas has improved but to a very limited extent. There are too many sidewalks in Kathmandu that are still not convenient for pedestrians and PWDs. If managed under a proper business model, improved public transport has the potential to generate tangible benefits for passengers and pedestrians. Of the two impact indicators in the DMF, the first target of increased per capita income is potentially achieved based on inferences from the secondary data. Nepal's per capita income increased from $592 in 2010 and $793 in 2015 to $1,026 in 2018.[25] Province 3, to which the Kathmandu Valley belongs, reportedly accounts for 40% of the country's gross domestic product and leads other provinces in per capita income.[26] No baseline value was included. The second impact indicator has not been achieved. Nepal's CO_2 emissions increased from 5,057 kilotons in 2010 to 8,033 kilotons in 2014.[27] The baseline for CO_2 emissions was not

[23] ADB. 2019. *Financial Analysis and Evaluation*: *Technical Guidance Note*. Manila.
[24] Some of the revenue collected from passengers is pocketed by conductors and drivers.
[25] World Bank. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=NP (accessed 20 May 2020).
[26] nepalindata.com. https://nepalindata.com/insight/province-wise-gdp-of-nepal-2019/ (accessed 20 May 2020).
[27] World Bank. https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?locations=NP (accessed 20 May 2020).

established. However, the public perception is that the air quality in most of the cities in Nepal has worsened over the past 10 years, particularly in Kathmandu. The project has had very little influence on private sector development and the capacity development of executing and implementing agencies because of underqualified contractors and high turnover of managerial staff. The project has contributed to ADB's results framework by constructing 16.09 kilometers of safe sidewalks, 3.00 kilometers of pedestrian sidewalks along heritage routes, and one pedestrian bridge.[28]

F. Performance of the Borrower and the Executing Agency

36. The performance of the borrower and the executing agency is assessed as *less than satisfactory*. The executing and implementing agencies had different priorities and PMCO did not have adequate authority to strengthen coordination with other agencies and private sector operators. Overall, the ownership of the project was inadequate in all of the concerned agencies. The program lacked a proper coordination mechanism. The PSC was not effective in providing the necessary guidance to the project management team; it met only one time to introduce the project. The executing agency did not act on the recommendation to reform DOTM.

37. The project had nine project directors during the project implementation period, which did not help to steer the project on the right course. Also, the implementing agencies had high turnover of responsible staff, which complicated smooth communication among the concerned agencies. Less turnover would have facilitated more consistent follow-up on compliance with social and environmental safeguards. It would also have facilitated better contract management for contractors. Nevertheless, the borrower provided counterpart funds on time. It submitted the audited financial statements to ADB, and the project's overall financial management remained sound throughout. No financial irregularities were reported. The borrower prepared a project completion report, the quality of which was less than satisfactory.

G. Performance of Cofinancier

38. The GEF provided $2.52 million for several activities including air pollution mitigation measures. It was expected to enhance the capacity of DOE to monitor air quality regularly and disseminate air quality information to the public through mass media. The GEF's contribution complemented the efforts of ADB and other development partners to help the government address air pollution, including through improved public transport. The project used only $1.02 million (40%) of the GEF allocation.

H. Performance of the Asian Development Bank

39. The performance of ADB is assessed as *less than satisfactory*. It fielded 10 missions, including 5 special missions and 2 midterm review missions. ADB demonstrated flexibility and accommodated the requests from the borrower and executing agency and granted three extensions in anticipation of successful project completion. It guided the executing and implementing agencies, including through support with procurement processes, safeguards compliance, document approvals, disbursement requests, and financial management. However, ADB should have revised the DMF targets and/or the implementation arrangement in light of slow progress up to the midterm review and in the aftermath of the 2015 earthquakes. The project design was too complicated in that it tried to address multiple dimensions and involved several

[28] The project contributed to ADB Results Framework tracking indicator 4.1.2. Urban infrastructure assets established or improved.

implementing agencies that had no proven experience working together. Given the project's complexity and the limited capacity of the executing and implementing agencies, the project could have benefited from early delegation and administration by ADB headquarters to the Nepal resident mission for closer monitoring and support. ADB could not field the final PCR mission because PMCO and all the PIUs had already disbanded after the project closed on 30 June 2018.

I. Overall Assessment

40. Overall, the project is rated as *unsuccessful*. The project was assessed as less than relevant because of the poor design, even though it aimed to address one of the significant challenges faced by Kathmandu residents arising from traffic congestion, poor air quality, and inefficient traffic management. The project was ineffective because it achieved very few outcomes and outputs, which resulted in its significantly reduced scope. It was inefficient because of a low EIRR and a 3.5 year overrun beyond the original completion date. It was found to be unsustainable because of a lack of ownership, perceived revenue leakages, and resistance to reform DOTM for improved traffic management and efficient public transport. Because of significant underachievement of outputs and outcomes, the development impact of the project remained less than satisfactory.

Overall Ratings

Criteria	Rating
Relevance	Less than relevant
Effectiveness	Ineffective
Efficiency	Inefficient
Sustainability	Unsustainable
Overall Assessment	**Unsuccessful**
Development impact	Less than satisfactory
Borrower and executing agency	Less than satisfactory
Performance of ADB	Less than satisfactory

Source: Asian Development Bank.

IV. ISSUES, LESSONS, AND RECOMMENDATIONS

A. Issues and Lessons

41. ADB projects should be cautious in supporting intricate designs with multiple components and multiple implementing partners in countries where there is no experience with such projects. If such a design is deemed necessary, it is better to start with a TA project to strengthen policies and develop implementation and coordination mechanisms, before commencing with the actual preparation of the investment. The implementation arrangements need to match the capacity of the individual agencies and the joint agencies' ability to coordinate. This project suffered greatly from lack of coordination capacity and from the lack of decisiveness to adjust them. Therefore, an assessment of the implementation and coordination arrangements should be included in the midterm review of such a project to ensure that a holistic project assessment is conducted.

42. It is important that the employer has the capacity and sees the need to undertake robust due diligence during the consultant and contractor selection process, which should include records on timely delivery, quality of work, and safeguards compliance. One of the large local contractors, a joint venture between a national and international contractor, was overcommitted and did not have a good track record of timely and quality construction.

43. Proper urban transport planning should include realistic and flexible transport demand projections. These projections should be updated regularly in light of the socio-political situation in the country, and project interventions and assumptions need to accommodate these changes. In this project, the demand for mobility was grossly underestimated and was not adjusted during implementation, leading to unrealistic targets.

44. A project of this complexity—and all ADB projects—should not start without proper baseline data. One should not assume the data will be collected during the initial implementation stage. Baseline data will allow the project to be systematically assessed.

45. The contract agreement should clearly list the requirements for safeguards compliance, the protocol for corrective action, and the application of financial action during project implementation—including stoppage of work, penalties, blacklisting, and legal action by the employer for endangering workers' health and safety—in case of safeguards noncompliance despite repeated instructions. These should be strictly enforced. To avoid confusion, the government's policy on providing compensation for any structure built on government land needs to be clear and disseminated to the affected communities well in advance. A performance review of environmental and social safeguards should be a priority for ADB and the executing agency.

46. A comprehensive strategy to address traffic congestion, reduce air pollution from vehicles, and improve walkability in the Kathmandu Valley is needed to address urban transport and livability challenges in Kathmandu, otherwise uncoordinated, piecemeal, and counterproductive interventions will continue.

B. Recommendations

47. **General.** ADB projects should avoid supporting intricate designs with multiple components and multiple implementing partners in countries with low implementation capacity. ADB should also ensure that adequate due diligence is undertaken and baseline data are collected as a part of project readiness. If a complex project is not performing, the scope, implementation arrangements, contract awards, and disbursement projections should be adjusted during midterm review to match the capacity of the executing and implementing agencies.

48. **Future monitoring**. ADB should encourage the government to monitor the viability of S5 bus route operations, including revenue leakages, and the implementation of AQM by DOE. The government should disseminate air quality information to the public.

49. **Covenants.** ADB should maintain the covenants specific to DOTM's institutional reform, timely submission of annual audit reports, and GRM, with further clarity on compensation for affected persons using public lands.

50. **Further action or follow-up**. ADB should follow up with the relevant agencies on (i) the progress made in completing the planned-but-not-completed civil works within the project timeframe but carried out with the government's internal resources; (ii) continued provision of O&M budget for maintaining infrastructure; (iii) institutional reforms undertaken by MPIT to enhance the effectiveness and efficiency of DOTM; (iv) timely submission of the final audited project financial statement; and (v) GRM with more clarity on compensation for affected persons using public lands.

51. **Timing of the project performance evaluation report.** No performance evaluation report is required for the project.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/ Indicators with Baseline	Achievement (2018)
Impact Sustainable and efficient UTS for Kathmandu Valley, favoring local economic growth, and addressing climate change and air pollution mitigation	By 2018: Per capita income of Kathmandu Valley residents increased by 10% CO_2 emissions and other air pollutants in Kathmandu Valley decreased by 20% (vs. baseline)	**Achieved**. Nepal's per capita income increased from $592 in 2010 and $793 in 2015 to $1,026 in 2018.[1] The Province 3 to which Kathmandu Valley belongs reportedly accounts for 40% of gross domestic product and leads other provinces in per capita income.[2] The RRP did not state the baseline value. **Not achieved**. Nepal's CO_2 emissions increased from 5.057 kilo tons in 2010 to 8,033 kilo tons in 2014.[3] The baseline CO_2 emissions was not established. General public perception is that the air quality in most of the cities in Nepal has worsened over the past 10 years.
Outcome In Kathmandu, public transport services and walkability are improved, favoring a modal shift from private vehicles and enhancing traffic conditions.	By 2015 Kathmandu Valley reaches group of the 50 most walkable cities in Asia Increase of ridership in pilot routes by 20% More than 50% of interviewed users are satisfied with pilot route services (coverage, frequency, comfort, etc.) Traffic congestion is reduced (average speed and travel time) Technical design standards for public spaces and public transport facilities under the project are friendly to the elderly, the disabled, children, and women	**Achieved**. Kathmandu is within 30 walkable cities of Asia.[4] **Partially achieved**. Only one route became viable and operational and that too was achieved with significant delays. Ridership in 2019 in one route (route no. S5) was 988 vehicle-kilometer. Baseline value was not established. However, as per the data provided by the Digo Sarbajanik Yatayat P. Ltd the daily passengers ridership in pilot Route S5 is 5,720 (13x 8x55) in average which is 36% more than the envisaged in the financial analysis. **Exceeded**. In 2019, service satisfaction on the project route was 70%, increase from 67% reported in the 2012.[5] **Not achieved.** Average peak vehicle running speed decreased from 20.8 km per hour in 2012 to 15.2 km per hour in 2019.[6] **Partially achieved**. Sidewalks at Lainchaur – Tripureswore road corridor and Narayanhiti Palace Museum (South Gate) – Bhadrakali road corridor have tactile for visually impaired pedestrians, curved stone, interlock block and railings. Teku and Dallu bridges have footpaths of 1.5 to 1.55 meter width for the pedestrians' safe walking. Sobhabhagwati-Teku road has 600 meters of disable-friendly kerb ramps at the carriageway edges, laying of interlocking blocks in the footpaths, traffic separators and other facilities including traffic crossing for children, women, and elderly. However, the project could not construct 600 meters of Bishumati link road because the proposed alignment came under

[1] World Bank. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=NP (accessed 20 May 2020).
[2] nepalindata.com. https://nepalindata.com/insight/province-wise-gdp-of-nepal-2019/ (accessed 20 May 2020).
[3] World Bank. https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?locations=NP (accessed 20 May 2020).
[4] E. Lush and E.Veen, 2018. Asia On Foot: The Best Walkable Cities in Asia. 20 October. https://wander-lush.org/walkable-cities-in-asia/ (accessed 22 November 2019).
[5] Clean Air Network Nepal and Clean Energy Nepal. 2012. Public Transport Service Quality Satisfaction Survey, Kathmandu.
[6] JICA. 2017. The Project on Urban Transport Improvement for Kathmandu Valley.

Design Summary	Performance Targets/ Indicators with Baseline	Achievement (2018)
		the scope of High Power Bagmati Civilizaiton Development Board. Also, signage at the Dallu Pedestrian Bridge for public awareness did not materialize because ramp could not be constructed. In the pilot route S5, the buses are disable friendly having provision of space for the wheel chair, allocated seats for disable person, elderly person, women and children.
	Traffic accidents are reduced by 20%	**Not achieved**. The number of road blackspots in Kathmandu increased from 23 in 2012[7] to 36[8] in 2019 and the number of accidents increased from 1,732 in 2012 to 8511 in 2019.
Outputs 1. Public transport is improved and upgraded, and capacity of DOTM is strengthened	By 2015 DOTM is restructured and new public transport branch created	**Partially achieved**. A revised structure of the DOTM was approved but it did not reflect the minimum manpower required by DOTM to adequately plan and manage Bus Operating Contracts. Additional manpower for DOTM was needed to implement the Pilot Bus Routes.[9] However, due to human resource implications, actual reform did not materialize and the proposed changes has not taken place. At project completion, DOTM had a Public Transport Section headed by a divisional engineer and a civil engineer. Both positions remained vacant.
	The plan to rationalize public transport is developed by DOTM, and assesses the needs of public transport users (including the elderly, the disabled, children, and women) in the selection of routing, fares, and service hours.	**Not achieved**. DOTM approved the "Route Determination Directives" in 2018 which will be implemented throughout the country based on three tiers of routes but it did not materialize during the project period. The project developed "Policy on Public Transport Restructuring" and reformulated associated guidelines in 2017 but still remain unapproved.
	The plan is tested through the implementation of two pilot routes, with features friendly to the elderly, the disabled, children, and women.	**Partially achieved**. Two pilot routes S5 and S3 were selected for implementation with features friendly to the elderly, the disabled, children, and women and required due diligence conducted. However, only S5 route proved financially viable and it was implemented in 2018 serviced by 17 low emission buses having having facilities for keeping the wheel chair in the bus and allocated seats to the elderly, the disabled, children, and women.
	Cooperatives are formed and franchised to operate the pilot routes.	**Partially achieved**. Only one route (S5) is operational. The two associations on S5 pilot route, namely Samakoshi Micro Association and Safa Tempo Association registered a new Company, Digo Sarbajanik Yatayat (DSY) P. Ltd. having 50 shareholders in the Company Registrar Office on 6th Feb 2017(Now the shareholders are 62). DOTM signed a Service Level Agreement with DSY for the operation of the buses on the pilot route S5 on 17 September 2017 and DSY signed a Financial Agreement with TDF for the same on 16 November 2017.

[7] The 2012 MTPD report identified 23 blackspots and there were at Gaushala, Gongabu, Kalanki, Sallaghari, Boudha, Sinamangal, Koteshwor, Kalimati, Kamalbinayak, Maharajgunj, Sanepa, Swoyambhu, Thankot, Bhaisepati, Nagdhunga, Durbar Marg, Singha Durbar, Pharping, Kamalpokhari, Satdobato, Gatthaghar, Sukedhara and Kirtipur.

[8] The report on analysis of vehicle accidents in 2018/19 identified 13 additional blackspots; Jawalakhel,Airport, Shorhakhutte, Budhanilkhantha, Thapathali Jansewa, Balkhu, Tokha, Kadhakhari, Kapan, Chapagau, Tilingetar, Mangalbazar

[9] "Institutional Strengthening of Department of Transport Management (DOTM)" was prepared in October 2012 and submitted to MPIT for approval which included Technical Division and Public Transport Division.

Design Summary	Performance Targets/ Indicators with Baseline	Achievement (2018)
	The fund to finance electric vehicles is established and managed by the TDF	**Achieved with delay**. On 30 January 2017 MOF provided the consent on the MOU for The Fund Flow Mechanism and the MOU between MPIT and TDF on 26 May 2017.
	155 electric buses are purchased through the fund and are operated on the pilot routes.	**Not achieved**. Since only S5 pilot route was implemented. For S5 pilot route only 17 low emission diesel buses having 50 passenger capacity each were required as per Operational and Business Plan. DSY signed agreement with the supplier on 10 December 2017 for the purchase of 17 buses through TDF and DSY received the delivery of buses on 3 August 2018.
	A preliminary design report on the reintroduction of trolleybus services is completed	**Not achieved**. The scope of work broadened from reintroduction of trolleybus services to include other options including mass transit modes comprising conventional buses, rapid transit, light rail transit, metro rail and cable-ways. The project conducted a workshop on policy, regulation and Institutional Issues related to implementing Mass Transit in the Kathmandu Valley on 26 June 2018 and another workshop on Mass Transit Options for the Kathmandu Valley on 28 June 2018. The consultant submitted the pre-feasibility assessment of the mass transit services on the selected corridor on14 December 2018. The project achievements differed substantially from what was originally envisaged. The decision to undertake the mass transit mode study came much later towards in the project cycle. It was not explicit on the future of trolleybus services.
	Training of executing and implementing agency staff on pro-poor and gender aspects in urban transport is carried out	**Achieved**. The project organized a three-day orientation training in October 2017 for 116 participants on Gender and Social Inclusion in Public Transport to the stakeholders comprising public transport company currently registered with the government to operate the public in S5 Route, traffic police, transport workers and represent of semi government and other private public transport companies, MPIT, and MWCSW.
2. Traffic management is improved	By 2015 : 14 junctions along the BLR and in the city center are improved, including 2 new bridges	**Partially achieved with delay and without compliance to agreed contract design.** The contractor ignored contract specification and supervision engineer's advice including the notice to correct defects. Teku and Dallu bridges did not meet design specification. In addition, the contractor did not complete the approach roads to both bridges. The same contractor was responsible for four junctions but it did not complete the required works. A second contractor was responsible to execute works on 24 junction improvements in three corridors of the central Kathmandu Metropolitan City. In order to comply with ADB Social Safeguard provisions applicable after Kathmandu Valley Development Authority road widening works in the Ramshahpath Corridor, 9 junctions in the Ramshahpath Corridor were removed from the scope of work reducing the number of intersections to 15. However, 5 Junctions (Lainchaur, Kesharmahal, Narayanhity Place Museum (south gate), Tripureshwor and Mahendra statue Tindhara junctions) also not improved due to the action not taken by GON for shifting of Royal Place Museum west boundary wall, shifting of solar light poles on Durbar Marg and road widening executed by DOR, Kathmandu Valley Development Authority. Thus, the total number of junctions improvement executed by the contractor is 10 only.

Design Summary	Performance Targets/ Indicators with Baseline	Achievement (2018)
	21 CCTVs with a control center, 8 traffic lights, and 21 police handsets are procured, installed, and operational	**Not achieved.** Various factors contributed to the non-achievement including the two earthquakes of 2015, procurement difficulties (unqualified/ ineligible/incomplete bidders, and time taken for rebidding leading to cancellation of bidding).
	A capacity development plan for MTPD is prepared and training is conducted (including modules on gender-related aspects of urban transport).	**Partially achieved.** The project prepared Institutional Strengthening of Metropolitan Traffic Police Division (MTPD) in May 2013 and the final report on baseline assessment of institutional capacity and institutional strengthening of MTPD in November 2013. A two- day training course on road rules and user behaviour including modules on gender-related aspects of urban transport was conducted by the PMCBC Traffic Management Specialists on 1-2 October 2013 and IT training to MTPD staff on Red Hat Enterprise Linux System Administration and Cisco Network Administration. In addition, the project also procured capacity development related equipment and accessories for MTPD including servers, LED monitors, multi-media, laptops and desktop computers, video and still cameras, breathalyzers, radar guns, power saws, metal cutters and two surveillance vehicles). However, the institutional strengthening plan of MTPD was not implemented.
	An awareness campaign is developed to improve safe driving behavior, road safety, and broadcasted through various media platforms	**Achieved**. The related initiatives include (i) the project-initiated public road safety campaign on Metro Traffic FM radio station is continuing, (ii) a video documentary on KSUTP's activities and progress update both in Nepali and English languages produced and disseminated, (iii) a three minute TV song covering the four main components of KSUTP had been produced as public awareness material and telecasted through national TV channels, (iv) a one-week training for the drivers of the pilot route operators from 25 to 31 Oct 2017 was conducted on Safety & Fuel Economy Driving, (v) the project website updated and include running display of 32 slogans/jingles covering public awareness message on promotion of public transport, road safety, drivers' behaviour and air pollution, and (vi) 28 person received training on traffic control signs in 2016. The project also produced draft Manual of Transport Operations and Road Use Management Regulations (Nepal Road Rules) and conducted a workshop on draft Road Rules in 2016.
3. Walkability in the city center is improved	By 2015 : 8 km of heritage routes are pedestrianized	**Partially achieved**. The operational plan for civil works for sidewalk Improvement in central city and Pedestrian pathways improvement within city core area were developed in 2015 civil works were dropped due to the earthquakes in 2015. The plan was replaced by 3 km pedestrian sidewalks in another area and civil works completed in Prashuti Griha-Kalmochan-Teku Dovan along the right bank of the Bagmati River and Sankata and Bhadrakaki Temple areas. The Operational Plan for pedestrianisation of the Historic Core area of Kathmandu was prepared in October 2017.
	15 km of safe sidewalks are improved	**Achieved.** The contractors completed improvement of 16.09 km sidewalks (12 locations in the Kathmandu Valley) (100% achievement). The walkways/sidewalks are disable-friendly for visually impaired and physically challenged pedestrians
	2 pedestrian bridges are upgraded and 2 new are built	**Partially achieved.** One pedestrian bridge was deemed not necessary and the project focused on improvement of existing pedestrian bridges and construction of one bridge. The certificate of completion was issued to the contractor on 1 April 2018.

Design Summary	Performance Targets/ Indicators with Baseline	Achievement (2018)
	PPP advisory and transaction support is provided to KMC for parking projects and redevelopment of the old bus park Participatory consultation with the urban poor is carried out regarding site selection for urban infrastructure (33% target for women's participation).	**Partly achieved.** The Kathmandu Metropolitan City received PPP advisory services from the specialists engaged by the project. The main focus was to alleviate parking problem by suggesting appropriate options and locations. Transaction support did not materialize under the project. **Not achieved.** 12 local community members—including 6 (50%) women—consulted on one section of the project (the Kalamochan-Tekudovan walkability section) and their experience and issues related to the project. [10]
4. Monitoring of air quality is enhanced	By 2015: 6 existing stations are provided with solar-powered backup systems, and 2 new mobile stations are procured and operational Emission standards for vehicles are revised 2 emission testing set of equipment are provided Awareness campaign with information and data dissemination is launched on air quality, together with associated impacts on social, gender, and health-related issues	**Partially achieved.** Four of the seven existing AQM stations were deemed repairable and were made operational immediately with minor replacement of spare parts. The project procured the solar-powered backups for these four stations. Following consultations with MOSTE and other stakeholders the project procured four (against a target of two) new mobile stations. These were commissioned in 2016 and responsible personnel received training in operation and maintenance. These were operational at project completion. **Not achieved.** The Emission standard for vehicles since 2012 has not been revised as deemed not necessary by DOTM. **Achieved.** The Emission testing equipment for the DOTM comprising (i) two sets of gas analyser (vehicle emission testing instrument for Petrol and Liquefied LPG Vehicles) and (ii) two sets of smoke meter (Vehicle Emission Testing instrument for Diesel Vehicles) were procured and handed over to DOTM and were in use by DOTM at project completion. **Not achieved**. Till the closing of the project, DOE had not made the AQM equipment operational and air quality data was not available for public dissemination. As a result, the awareness campaign could not be performed within the project period. Public Services Announcement (PSA) and radio jingles with nine different types of information on air pollution control played for 16 months period. However, the information provided did not include key social, gender, and health-related issues apart from sexual harassment in public transport.

10 This target was assessed as not achieved because consultation with 12 community members (representing the urban poor) in one walkability section was considered inadequate.

PROJECT COST AT APPRAISAL AND ACTUAL
($'000)

Item	Appraisal Estimate			Actual		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Base Cost						
1. Public Transport Improvement	5,573.42	2,118.88	7,692.3	2,175.96	1,359.46	3,535.42
2. Traffic Management Improvement	3,571.26	8,692.44	12,263.8	1,741.91	3,052.71	4,794.53
3. Pedestrianization	1,309.90	3,683.80	4,993.7	565.39	1,774.24	2,339.63
4. Air quality Improvement	155.16	183.14	338.3	82.84	86.81	169.65
5. Project Management and Capacity Building	269.27	1,854.93	2,124.1	155.86	1,299.14	1,454.93
Subtotal (A)	**10,879.00**	**16,533.20**	**27,412.2**	**4,721.95**	**7,572.37**	**12,294.32**
B. Contingencies						
Subtotal (B)	**520.40**	**2,399.40**	**2,919.8**	**0.00**	**0.00**	**0.00**
C. Financing Charges During Implementation						
Subtotal (C)	**0.00**	**0.00**	**88.00**	**0.00**	**86.49**	**86.49**
Total (A+B+C)	**0.00**	**0.00**	**30,420.0**	**4,721.95**	**7,658.85**	**12,380.81**

Numbers may not sum precisely because of rounding.
Source: Asian Development Bank

PROJECT COST BY FINANCIER

Table A3.1: Project Cost at Appraisal by Financier

Item		ADB Loan Amount {A}	ADB Loan % of Cost Category {A/D}	ADB Grant Amount {B}	ADB Grant % of Cost Category {B/D}	GEF Grant Amount {C}	GEF Grant % of Cost Category {C/D}	Government Amount	Government % of Cost Category	Total Cost[a] Amount {D}	Total Cost[a] Taxes and Duties {E}
A.	**Investment Costs**										
	1. Land acquisition and Resettlement	-	0.00%	-	0.00%	-	0.00%	2.16	7.10%	2.16	0
	2. Civil works	8.39	27.58%	-	0.00%	-	0.00%	3.95	12.98%	12.35	0
	3. Vehicles and Equipment	0.56	1.85%	1.37	4.50%	-	0.00%	0.75	2.47%	2.68	0
	4. Consulting Services	-	0.00%	3.82	12.56%	-	0.00%	0.47	1.54%	4.3	0
	5. TDF (Grants to purchase Electric Vehicles and Equipment)	-	0.00%	1.80	5.92%	2.00	6.57%	-	0.00%	3.80	0
	6. Training and Capacity Building	-	0.00%	0.32	1.05%	-	0.00%	0.04	0.13%	0.36	0
	7. Studies and Surveys	-	0.00%	0.34	1.12%	-	0.00%	0.008	0.03%	0.87	0
	8. Lease of Land for Terminals	-	0.00%	0.02	0.07%	0.52	1.71%	0.002	0.01%	0.022	0
	Subtotal (A)	**8.95**	29.43%	**7.67**	25.21%	**2.52**	8.28%	**7.38**	**24.26%**	**26.54**	**0**
B.	**Recurrent Costs**										
	1. Project Management	-	0.00%	0.17	0.56%	-	0.00%	0.49	1.61%	0.67	0
	2. Advocacy	-	0.00%	0.19	0.63%	-	0.00%	0.02	0.07%	0.21	0
	Subtotal (B)	**0**	0.00%	**0.36**	1.19%	**0**	0.00%	**0.51**	**1.68%**	**0.88**	**0**
	Total Base Cost (A+B)	**0**	0.00%	**8.03**	26.40%	**2.52**	8.28%	**7.90**	**25.98%**	**27.42**	**0**
C.	**Contingencies**	**0.95**	3.14%	**1.96**	6.43%	**-**	**0.00%**	**-**		**2.91**	**0**
D.	**Financial Charges During Implementation**	**0.09**	0.30%	**-**	0.00%	**-**	**0.00%**	**-**		**0.09**	**0**
	Total Project Cost (A+B+C+D)	**10.00**	0.00%	**10.00**	32.87%	**2.52**	**8.28%**	**7.90**	**25.98%**	**30.42**	**0**
	% Total Project Cost		**32.87%**		**32.87%**		**8.28%**		**25.98%**		

Numbers may not sum precisely because of rounding.
Source: Asian Development Bank

Table A3.2: Project Cost at Completion by Financier

Item		ADB Loan Amount {A}	ADB Loan % of Cost Category {A/D}	ADB Grant Amount {B}	ADB Grant % of Cost Category {B/D}	GEF Grant Amount {C}	GEF Grant % of Cost Category {C/D}	Government Amount	Government % of Cost Category	Total Cost[a] Amount {D}	Total Cost[a] Taxes and Duties {E}
A.	**Investment Costs**										
	1. Land acquisition and Resettlement	-	0.00%	-	0.00%	-	0.00%	-		-	0
	2. Civil works	3.58	28.92%	-	0.00%	-	0.00%	1.69	13.65%	5.28	0
	3. Vehicles and Equipment	0.15	1.21%	0.35	2.83%	-	0.00%	0.19	1.53%	0.68	0
	4. Consulting Services	-	0.00%	3.52	28.43%	-	0.00%	0.44	3.55%	3.96	0
	5. TDF (Grants to purchase Electric Vehicles and Equipment)	-	0.00%	0.40	3.23%	0.46	3.72%	-		0.86	0
	6. Training and Capacity Building	-	0.00%	0.015	0.12%	-	0.00%	0.002	0.02%	0.018	0
	7. Studies and Surveys	-	0.00%	0.37	2.99%	0.56	4.52%	0.009	0.07%	0.94	0
	8. Lease of Land for Terminals	-	0.00%	-	0.00%	-	0.00%	-		-	0
	Subtotal (A)	**3.73**	30.13%	**4.65**	37.56%	**1.02**	8.24%	**2.33**	18.82%	**11.74**	**0**
B.	**Recurrent Costs**										
	1. Project Management	-	0.00%	0.32	2.58%	-	0.00%	0.17	1.37%	0.50	0
	2. Advocacy	-	0.00%	0.05	0.40%	-	0.00%	0.006	0.05%	0.05	50
	Subtotal (B)	**0**	0.00%	**0.37**	2.99%	**0**	0.00%	**0.18**	1.45%	**0.55**	**0**
	Total Base Cost (A+B)	**3.73**	30.13%	**5.02**	40.55%	**1.02**	8.24%	**2.51**	20.27%	**0**	**0**
C.	**Contingencies**	**0**	0.00%	**0**	0.00%	**0**	**0.00%**	**0**		**0**	**0**
D.	**Financial Charges During Implementation**	**0.09**	0.77%	**0**	0.00%	**0**	**0.00%**	**0**		**0.09**	**0**
	Total Project Cost (A+B+C+D)	**3.81**	30.76%	**5.02**	40.55%	**1.02**	8.24%	**2.51**	**20.27%**	**12.38**	**0**
	% Total Project Cost		**30.76%**		**40.55%**		**8.24%**		**20.27%**		

Numbers may not sum precisely because of rounding.
Source: Asian Development Bank

DISBURSEMENT OF ADB LOAN AND GRANT PROCEEDS

Table 4.1: Annual and Cumulative Disbursement of ADB Loan Proceeds

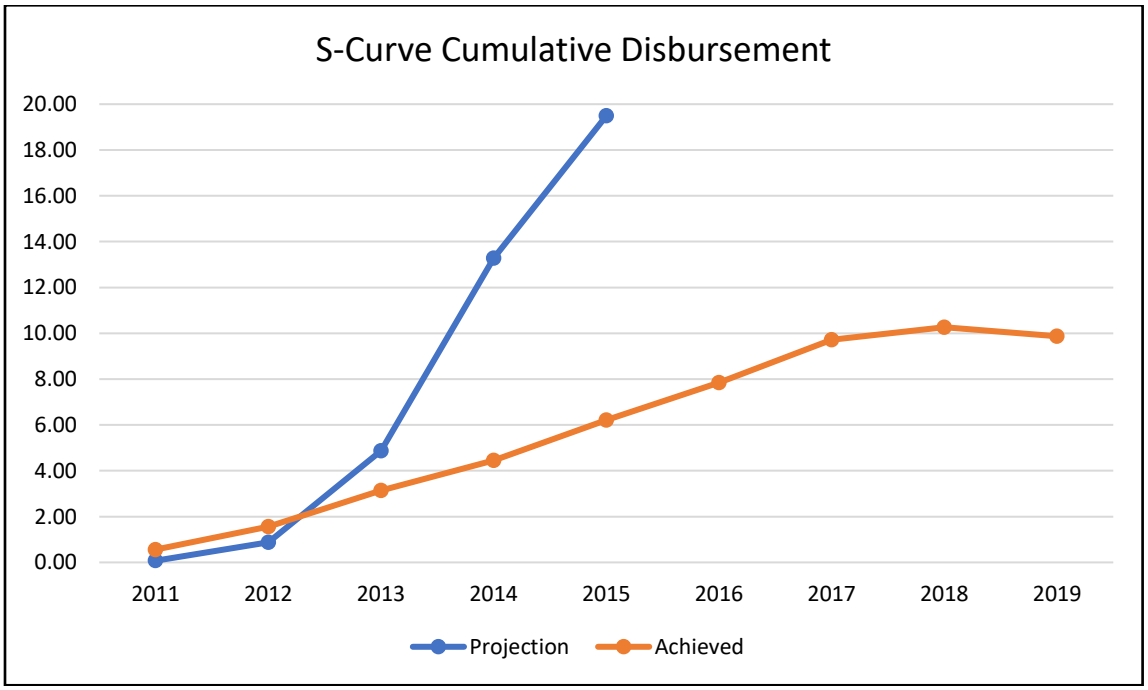
($ million)

	Annual Disbursement		Cumulative Disbursement	
Year	**Amount** ($ million)	**% of Total**	**Amount** ($ million)	**% of Total**
2011	0.560	5.67%	0.560	5.33%
2012	1.000	10.13%	1.560	15.80%
2013	1.576	15.97%	3.136	31.77%
2014	1.310	13.27%	4.447	45.04%
2015	1.771	17.94%	6.218	62.98%
2016	1.632	16.53%	7.850	79.52%
2017	1.863	18.88%	9.713	98.39%
2018	0.552	5.59%	10.265	103.99%
2019	-0.394	-3.99%	9.872	100.00%
Total	**9.872**	**100.0%**		

Source: Asian Development Bank.

Figure 4.1: Projection and Cumulative Disbursement of ADB Loan Proceeds

($ million)



CONTRACT AWARDS OF ADB LOAN AND GRANT PROCEEDS

Table 5.1: Annual and Cumulative Contract Awards of ADB Loan Proceeds

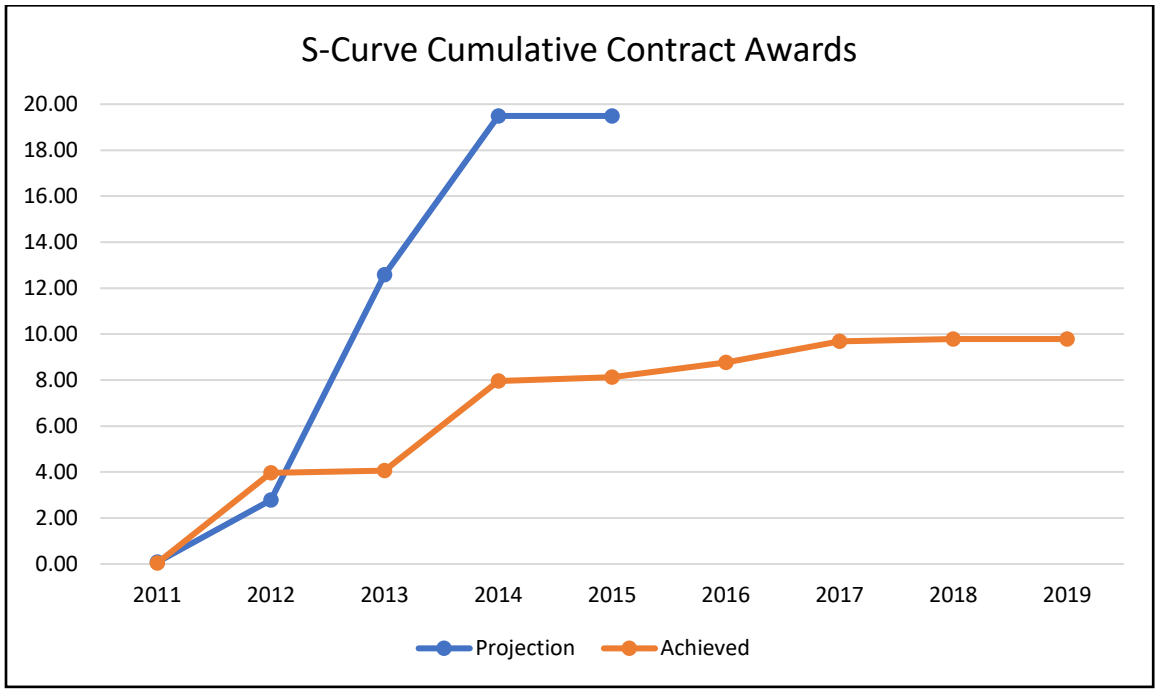
($ million)

	Annual Contract Awards		Cumulative Contract Awards	
Year	Amount ($ million)	% of Total	Amount ($ million)	% of Total
2011	0.038	0.39%	0.038	0.39%
2012	3.923	40.09%	3.962	40.48%
2013	0.097	0.99%	4.059	41.48%
2014	3.906	39.92%	7.965	81.40%
2015	0.166	1.70%	8.131	83.40%
2016	0.632	6.46%	8.764	89.56%
2017	0.914	9.34%	9.678	98.90%
2018	0.107	1.10%	9.785	100.00%
2019	0.000	0.00%	9.785	100.00%
Total	**9.785**	**100.0%**		

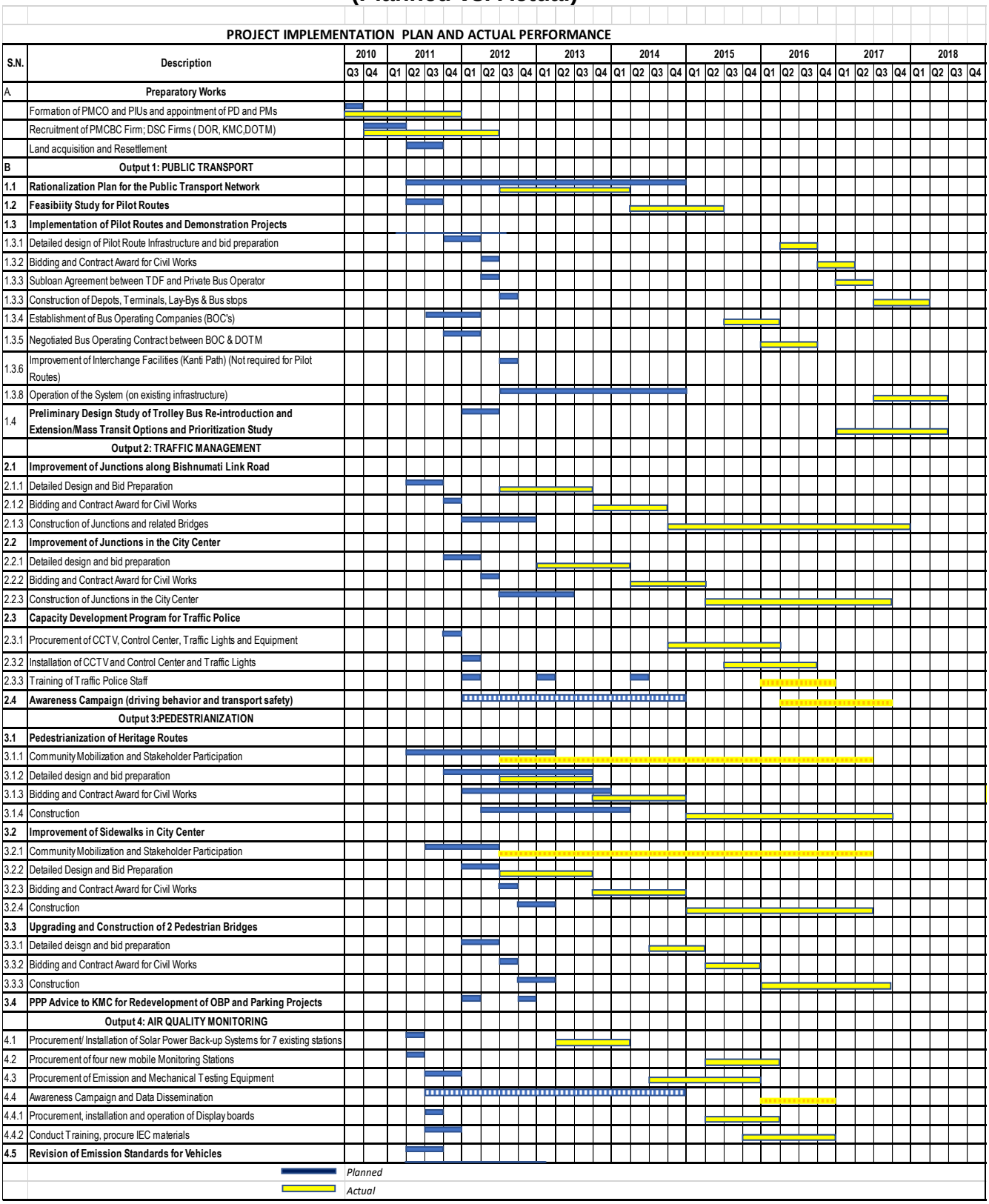
Source: Asian Development Bank.

Figure 5.1: Projection and Cumulative Contract Awards of ADB Loan Proceeds

($ million)



PROJECT IMPLEMENTATION SCHEDULE
(Planned vs. Actual)



IMPLEMENTATION OF GENDER EQUALITY AND SOCIAL INCLUSION ACTION PLAN AND ACHIEVEMENTS

A. Introduction

1. The **Kathmandu Sustainable Urban Transport Project** aimed to improve the quality of urban life in Kathmandu, the capital city of Nepal, by delivering a more efficient, safe, and sustainable urban transport system.[1] The project was conceived in the context of serious traffic congestion in Kathmandu and the gap created by the termination of government-operated transport services. These problems, at the time of project conceptualization, were assessed to have significant costs in terms of lost time, missed appointments, fuel wastage, pollution, and aborted journeys. In addressing these problems, the project was envisaged to favor local economic growth, reduce local air pollution and CO_2 emission, and mitigate the impact of climate change.

2. These issues and the project's purpose were considered to have significant relevance to and impact on women's safety and mobility in the public space. Hence, the Project was categorized *effective gender mainstreaming* . As such, the project design required the involvement of women and vulnerable groups (e.g., persons with disabilities) in the development of the design of the urban transport system and the inclusion of project features that sought to address the distinct transport needs of women and persons with disabilities (PWDs). To facilitate the participation of women and PWDs and ensure the gender responsiveness and social inclusiveness of the urban transport system, the project prepared a gender equality and social inclusion action plan (GESI AP).

3. These project objectives were in line with the government's National Urban Policy, specifically with one of its priorities (improvement of quality of life of urban inhabitants through the creation of a clean, safe, and developed urban environment) and Three-Year Interim Plan, FY2010–FY2012. The project was part of ADB's country partnership strategy (CPS), 2010-2012, for Nepal.

B. Gender Equality and Social Inclusion Issues

4. In 2010, in an ADB Transport Forum in Manila, the Ministry of Physical Planning & Works (MPPW) of the Government of Nepal described the public transport in Kathmandu Valley as, among others, disorganized with unrestricted vehicle movement, chaotic and congested traffic, and worsening air quality.[2] This was corroborated by a survey done by the Department of Roads of the MPPW Transport Management in 2012, which said that overcrowding, left-off passengers, and malfunction of fleets were daily events and the vehicles used for public transport were old and their total number was not sufficient.[3] These problems affected women more than men.

- A study of Clean Energy Nepal and Clean Air Network Nepal in 2012 found that 59.7% of female respondents (against 49.2% of male respondents) perceived public transport as

[1] ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loan, Grant, and Administration of Grant to the Government of Nepal for the Kathmandu Sustainable Urban Transport Project.* Manila.

[2] K. Pande. 2010. *Kathmandu Sustainable Urban Transport Project*: A Presentation during the ADB Transport Forum in Manila on 25-27 May 2010. https://cleanairasia.org/wp-content/uploads/portal/files/presentations/Kamal_Pande.pdf

[3] Department of Roads Ministry of Physical Planning, Works and Transport Management. 2012. *Data Collection Survey on, Traffic Improvement in Kathmandu Valley: Final Report*. http://open_jicareport.jica.go.jp/pdf/12082459_01.pdf

unsafe at night time and 61.7% of female respondents (against 56.3% of male respondents) felt uncomfortable in the public space because of overcrowding.[4]

- A study of the World Bank in 2013 found that though both women and men experienced the problem of overcrowding, the smaller-sized and physically less strong, especially women and girls, suffer more from being pushed, crushed and not having handles/bars at the right height to hang on to.[5] Overcrowding leads to conditions for opportunistic pickpocketing, 'inappropriate touching' and arguments which lead to the feelings of insecurity" especially of women. In particular, women are twice more likely than men (33% women compared to 16% men) to mention personal insecurity (e.g., fear of pickpockets, personal injury as well as various forms of sexual harassment) and women aged 19-25 years were nine times more likely than men of the same age group to identify personal insecurity as a concern-- 43% women versus 7% men of this age group noted insecurity. One in four women and one in ten men, who mentioned insecurity as an issue, directly experienced 'inappropriate touching' while using public transport.
- A survey of 238 college-age women in Kathmandu found 97% of the respondents to have experienced at least one or more incidents of sexual harassment while using public transportation, which, as the study concluded, suggests that sexual harassment in public transportation is a virtually ubiquitous experience for women in Kathmandu.[6]
- Also affected severely by the public transport problems in Kathmandu were the children, elderly, and persons with disabilities.

C. Gender Equality and Social Inclusion Features

5. In response to the identified gender and social (or accessibility) issues, the GESI AP incorporated the following activities and targets:

- Development of public transport design standards that meet the transport needs of women, children, elderly, and persons with disabilities (e.g., suitable bus stops, safe boarding and exiting, women-only buses) as identified during consultations with their representatives, and applying these design standards in two pilot routes;
- Capacity development of the Metropolitan Traffic Policy Division (MTPD), Department of Roads (DOR), and transport workers (drivers and conductors from different public transport groups) in GESI-responsive urban transport systems, including the handling of the elderly and passengers with disabilities and public communication;
- Improvement of walkability in the city center through the development and enhancement of infrastructures and facilities for pedestrians, such as footpaths, crossings, sidewalks, ramps, bridges, traffic signages, and traffic management;
- Public awareness campaigns to (i) improve attitudes and behaviors (e.g., anti-sexual harassment, safety measures) supportive of women and disabled friendly environment in urban public transport, (ii) promote walkability in the city center, and (iii) create awareness on air quality and its social, gender, and health impacts; and
- Promotion of equal employment opportunities and equal wages (for work of equal value) of women and men in the pilot routes transportation systems.

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[4] S. Udas. 2012. Public Transport Quality Survey. Kathmandu: Clean Energy Nepal and Clean Air Network Nepal . http://www.cen.org.np/uploaded/Public%20Transport%20Survey%20report.pdf

[5] The World Bank Group. 2013. *Gender and Public Transport, Kathmandu, Nepal*. Kathmandu. p. 1. https://www.worldbank.org/content/dam/Worldbank/document/SAR/nepal/Gender-and-Public-Transport-in-Nepal-Report.pdf

[6] G. Neupane and M. Chesney-Lind. 2013. Violence Against Women on Public Transport in Nepal: Sexual Harassment and the Spatial Expression of Male Privilege. *International Journal of Comparative and Applied Criminal Justice*, DOI: 10.1080/01924036.2013.794556

D. Implementation, Monitoring, Reporting Arrangements

6. For the implementation of the project sub-components, Project Implementation Units (PIUs) were established in five implementing government organizations.[7] A dedicated Project Management and Coordination Office (PMCO) was established under the MPIT with the responsibility for coordinating the implementation and monitoring of the Project. The Project Management and Capacity Building Consultant (PMCBC) assisted the PMCO in overall planning, management, implementation, monitoring including meeting the relevant requirements of ADB and the Government for project implementation. The PMCBC also assisted each of the five PIUs in implementing project related activities. The social development specialist in the PMCBC supported the PIUs in implementing the GESI AP. The monitoring of the GESI AP was carried out by the PMCO with assistance of the PMCBC. Project progress was documented through quarterly progress reports, which were submitted to ADB.

E. Gender Equality and Social Inclusion Achievements

7. As shown in Table 1, a large portion of the project was not done or completed due to varied factors. These include the following:

- Bus stops needed foremost by women, children, elderly, and persons with disabilities were not provided because of lack of adequate road space.
- Due to the earthquake in April 2015, pedestrianization in the City Core areas and heritage routes, except in the Tebahal area, was dropped due to safety risks.
- The proposed sidewalk in ICB 02 Bishnumati link road was not constructed because the proposed alignment was under the scope of High Power Bagmati Civilization Development Board or outside of the control of the project.
- The cancellation of the original bidding and limited project time for rebidding led to the dropping of the bid for supply and installation of traffic signal with control room.[8]
- The second pilot route (S3) was dropped because the associations of private operators agreed to remove their small vehicles only when the project was about to close.
- The safeguard issue of the road widening along the Ramshah Path resulted in the reduction of the original scope from 17 to 8 junctions.

8. Due to the above factors, only 62% of 13 activities of the GESI AP were completed and only 50% of 6 quantitative targets were achieved. Hence, the GESI AP implementation was rated not successful. With these shortcomings, the KSUTP did not substantially address the public transport problems as well as the lack of transport safety and security of women and other vulnerable groups in the public spaces of Kathmandu. This report could not also fully capture the gender-related achievements of the project due to lack of sex-disaggregated data on the participants of its consultations and training workshops.

[7] (i) Department of Transport Management (DOTM)for public transport; (ii) Department of Roads (DOR) for traffic management; (iii) Metropolitan Traffic Police Division (MTPD) for traffic control and enforcement; (iv) Kathmandu Metropolitan City (KMC) for parking, facilitation of pedestrian improvements and (PPP initiatives; and (v) Ministry of Science, Technology and Environment (MOSTE), Department of Environment (DoEn) for air quality monitoring

[8] The original bidding was cancelled because ADB assessed the proposed budget for the supply and installation of traffic signal with control room to be too high.

9. Still, it is important to highlight the achievements of KSUTP. These include the following:

- Procurement of 17 fleet of low carbon emission buses with seating arrangement friendly to women, children, elderly, and persons with disabilities was completed and these public buses started to operate in pilot S5 route in July 2018.
- Civil works for ICB packages (ICB-01 for walkability improvement and ICB-03 junction improvement at city center) were substantially completed.
- Procurement of movable air quality monitoring equipment and the electronic display boards was completed.
- Sidewalk improvement works in the city center were also substantially completed.
- With the beginning of bus in the S5 route, the women drivers of electric three wheelers' received opportunities to become shareholders or transport entrepreneurs of the new registered company.
- GESI relevant clauses (e.g. equal pay for work of equal value, safety in working place, working opportunities for local people especially female workers, first aid and group insurance, separate toilets for female workers, day care facilities for working mother) were integrated in the labor standards in bidding documents.
- Staff of all stakeholders including implementing agencies and private operators were trained on the GESI aspects of urban transport.
- Study on mass transit options in Kathmandu Valley was substantially completed.

10. The achievements listed in para. 9 resulted in the following strategic GESI benefits for women and other vulnerable groups.

- Gender equality and social inclusion in human development:
  - Safer and more convenient walk in sidewalks in Durbarmarg, Tripereshwor, and Lazimpat, especially for pedestrians with visual disability and in Singhadurbar-Bhadrakali section for pedestrians with orthopedic disability; and
  - Safer and more convenient ride in 17 public buses plying the S5 route for women, children, elderly, and persons with disabilities.

- Women's economic empowerment.
  - Women's proactive inclusion as transport entrepreneurs by becoming shareholders of company operating in S5 route.

- Institutional capacity development in mainstreaming gender equality and social inclusion in transport design and operations
  - Government transport agencies and transport operators trained in mainstreaming GESI in urban transport and in handling passengers with disabilities and elderly;
  - GESI-relevant clauses on labor standards integrated in bidding documents and contracts;

Public awareness campaigns on GESI sensitive urban transport system.

Table 1. Gender Equality and Social Inclusion Achievements Matrix

Activities	Achievements	Assessment
Output 1. Public Transport improved and capacity of DOTM strengthened		
Activity . Address the needs of women and disabled persons in public transport. Activity 1. Design standards that meet the needs of women and physically disabled persons assessed and reflected in the pilot bus routes. Activity 2. Consultations with representatives of different organizations of persons with disabilities and women during the technical design period held and their recommendations included in the bid document.	• Consultation meeting were held with 34 representatives of the National Association of Differently Abled (DNA), Nepal Deaf Association (NDA) and Nepal Blind Association (NBA). Their remarks, needs, feedbacks were incorporated in the project design works of pilot routes. • Seating arrangements in 17 public buses that ply the S5 pilot route were made friendly to the EWCD. However, the design standards of the S5 route itself do not reflect the assessed needs of EWCD due to lack of space for bus stops and inadequate project resource for traffic lights. • The second pilot route (S3) was dropped because the associations of private operators agreed to remove their small vehicles only when the project was about to close.	Activity 1 and 2 not completed
Aligned with Design and Monitoring Framework (DMF) Output 1.2: Plan to rationalize public transport developed by the Department of Traffic Management (DOTM), and the needs of public transport users, including the elderly, women, children, and disabled (EWCD), assessed during the selection of routing, fares, and service hours.		
Target 1. DMF Output 1.3: The plan is tested through the implementation of two pilot routes, with features friendly to the EWCD.		Target 1 partially achieved
Activity 3. DMF Output 1.8 (not in the GESI AP): Training of executing and implementing agency staff on pro-poor and gender aspects of urban transport is carried out.	The project organized a three-day orientation training in October 2017 for more than 116 participants on GESI in Public Transport to the stakeholders comprising public transport to operate in S5 Route, traffic police, transport workers and representatives of semi government and other private public transport companies, MPIT, and MWCSW.	Activity 3completed
Output 2. Improved Traffic Management and DOTM Capacity Building		
Activity 4. Develop manuals and conduct training with modules on gender and social differences in urban transportation service needs (with focus on policy and technical requirements**).** **Target 2.** Training of staff from DOTM, Kathmandu Metropolitan City (KMC) and Metropolitan Traffic Police Department (MTPD) [≥50 people in 2 years, including women participants].	• The Project Management and Capacity Building Consultant (PMCBC) prepared a capacity development plan and training manual on gender equality and social inclusion (GESI) guidelines for MTPD, DOTM, KMC, Public Transport Operating Associations (PTOA), and other stakeholders. • 116 staffs, of whom 23 or 20% were women, of DOTM, KMC, MTPD, PTOA and other stakeholders were trained in GESI mainstreaming in transport.	Activity 4 completed Target 2 achieved
Aligned with DMF Output 2.3: A capacity development plan for MTPD is prepared and training is conducted (including modules on gender-related aspects of urban transport).		
Target 3. Training of staff of PTOA and Federation of Nepalese National Transport Entrepreneurs (FNNTE) for the application of technical and social requirements [≥50 people in 2 years].[1]	67 public transport workers, of whom 12 (18%) women, trained in public communication, handling of disabled and aged passengers, and	Target 3 achieved

[1] Training of PTOA and FNNTE was not conducted due to difficulty in coordinating with these large public transport workers' organizations. Alternatively, public transport workers of other organizations were trained. The project considered this as acceptable. Hence, the target was considered as achieved.

Activities	Achievements	Assessment
	vehicle management skills (heavy bus driving, heavy bus conductor, heavy bus maintenance), and in GESI mainstreaming in transport.	
Activity 5. Develop materials and conduct awareness campaigns to improve attitude and behaviors for creating women and disabled friendly environment in urban transport system. **Activity 6**. Information on safety measures and gender harassment in public transport services included in awareness programs to be aired through media (FM & TV Channels).	Public Services Announcement (PSA) and radio jingles on GESI and traffic and road safety were aired through Metro Traffic FM (95.6 MHz) from March 24, 2015 for a period of 16 months.[2]	Activity 5 completed Activity 6 completed
Output 3. Walkability in the city center improved		
Activity 7. Develop and enhance infrastructure design for pedestrian facilities to provide safe and comfortable mobility for women and disabled. • Design standards are to be included in the specifications for the construction of urban infrastructure (such as footpaths, crossings, sidewalks, bridges, traffic signal and traffic management).	• Sidewalks (constructed around Durbarmarg and Tripureshwor to Lazimpat) have tactile, curved stone, and interlock block for pedestrians with visual disability. • Prasuti Griha, Kalmochan (Thapathali) to TekuDovan (right bank of Bagmati River), Sankata temple area, and Bhadrakali temple area were improved with stone paving works. • Due to the earthquake in April 2015, the pedestrianization works in the City Core areas, except in the Tebahal area, were dropped. • The proposed sidewalk in ICB 02 Bishnumati link road was not constructed because the proposed alignment was under the scope of High Power Bagmati Civilization Development Board.	Activity 7 not completed
Activity 8. Pedestrian's opinion on safety and mobility will be assessed right before the construction. • Survey findings identified perception of women and disabled on the provision services and recommendations for improvement.	• According to the survey results: o Pedestrians (including persons with disabilities) found the Singhadurbar-Bhadrakali section comfortable for walking due to smooth surface, adequate width for walking, and convenience in operating wheel chairs. o Women's preference included wide footpaths; wide body buses with enough spaces; law to regulate overcrowding in public transports to minimize pick pockets, sexual and physical harassment; behavioral change of public transport operators; and general safety and comfort of women and girls. • The type of tactile requirement for visually impaired persons was pretested and finalized with pedestrians' support.	Activity 8 completed
Activity 9. Generate community awareness on walkability. • Develop and disseminate pedestrian friendly IEC- materials with gender focus.	• The Project Management and Coordination Office(PMCO) published and distributed 10,000 IEC materials (including on women's participation in and benefit from the project) to the pedestrians (including women) through contractors, NGOs, local resource	Activity 9 completed

[2] The topics and number of materials used for PSA and jingle included (i) driving behavior (22 materials) ;(ii) traffic safety (14); (iii) pedestalization and walk ways (6); (iv) air pollution control (9); and (v) promotion of public transport (3). A 20-minute video was also telecasted over Nepal television.

Activities	Achievements	Assessment
Target 4. Conduct awareness campaign with focus on all pedestrians in the project areas (33% women).	persons, and project clusters; and to institutional stakeholders of KSUTP (e.g. ministries, department, section, branches of relevant government and semi-government offices, and contractors). • Mass awareness campaigns were aired through FM and TV channels covering 33% women in the project areas (footnote 2).	Target 4 achieved
Target 5. DMF Output 3.5: Participatory consultation with the urban poor is carried out regarding site selection for urban infrastructure (33% target for women's participation.	• 12 local community members—including 6(50%) women—consulted on one section of the project (the Kalamochan-Tekudovan walkability section) and their experience and issues related to the project.	Target 5 not achieved[3]
Output 4. Project Management and Capacity Building		
Activity 10. Promote equal employment opportunities and wages for women and men on the pilot routes transportation systems. **Target 6.** Employment opportunities (including as public transport drivers and conductors) for women encouraged (at least 33% women).	• Inclusion of women as shareholders in the new operating companies and as employees in the new companies was encouraged in the Bus Operating Contracts. • Based on the applications submitted to the PMCBC for Public Transport Company registration under S5 route, 13 (21%) of 61 transport entrepreneurs were women (tempo 35 and microbus 26).	Activity 10 completed Target 6 not achieved
Activity 11. Include gender relevant clauses of labor standards in the bidding documents (e.g. equal pay for work of equal value). • Enforcement of relevant gender-specifics causes on labor standards in bidding documents of all contracts.	• Gender relevant clauses (e.g. equal pay for work of equal value, safety in working place, working opportunities for local people especially female workers, first aid and group insurance, separate toilets for female workers, day care facilities for working mother) were integrated in the labor standards in bidding documents.	Activity 11 completed
Activity 12. Conduct regular consultation meetings with MTPD, PTOA and DOTM, FNNTE to introduce or include GESI concepts in public transport management and to build consensus for implementation, roles and responsibilities. • Proper records of meetings prepared. Suitable action and reporting carried out on the suggestions and comments received (1-2 meetings / year).	• Consultations on GESI concept and issues conducted with PIU, contractors, consultants, and transport operators. • Records of meetings and other awareness raising activities are maintained at the PMCBC/PMCO; however, no suitable actions were done on recommendations.	Activity 12 not completed
Activity 13. DMF Output 4.4 (not in the GESI AP): Awareness campaign with information and data dissemination is launched on air quality, together with associated impacts on social, gender, and health-related issues.	Public Services Announcement (PSA) and radio jingles with nine different types of information on air pollution control played for 16 months period. However, the information provided did not include key social, gender, and health-related issues apart from sexual harassment in public transport.	Activity 13 not completed
Overall GESI AP Assessment: Unsuccessful[4]		

DOR = Department of Roads; DOTM = Department of Traffic Management; EWCD = elderly, women, children, and disabled; IEC = information and education campaigns; FNNTE = Federation of Nepalese National Transport Entrepreneurs; GESI = gender equality and social inclusion; KMC = Kathmandu Metropolitan City; KSUTP = Kathmandu Sustainable Urban Transport Project; MTPD = Metropolitan Traffic Policy Division; NGO = nongovernment organization; PMCBC=Project Management and Capacity Building Consultant; PMCO = Project Management and Coordination Office; PTOA = Public Transport Operating Associations.

[3] This target was assessed as not achieved because consultation with 12 community members (representing the urban poor) in one walkability section was considered inadequate.

[4] 8 (62%) of 13 activities completed and 3 (50%) of 6 quantitative targets achieved.

Evidence of Project Gender Equality and Social Inclusion Outcomes

11. Testimonials of interviewed beneficiaries show that women, the elderly, persons with disabilities, and children benefitted from project outputs in the areas of S5 bus routes. The improved bus system provided better and safer ride to public and supported economic empowerment and human capital development of women vehicle operators.

Gender equality and social inclusion in human development

Box 1. Greater mobility and security for elderly, women, children and differently abled
"I am one of the affected vehicle operators from S5 pilot route. Now I am one of shareholders of registered company operating KSUTP buses and the secretary of the executive committee. The change brought by 17 buses in the pilot route is more applaudable when we see women, children, elderly and passengers with disabilities travelling comfortably. Earlier, micro buses in the route were not able to provide easy ride because they were small, overcrowded and not friendly to people with disabilities. Now the buses have wide body with enough spaces and separate seats for women, elderly and children so they travel safe in the buses. There are no reports of sexual or physical harassment or pick pockets up till now. Also, drivers and conductors are trained to assist these passengers including people with disabilities. Two of the wheel chaired people of this route are regular passengers of our bus. I feel very happy our buses are able to serve them for their greater and safer mobility." **Lal Prasad Guragain** (Shareholder, Digo Sarwajanik Yatayat Pvt. Ltd. Company*)*

Women's economic empowerment

Box 2. From driver to shareholder of a company
"I used to drive electric tempo (three-wheeler) in S5 route since 2010. After KSUTP brought new buses in the route, I and others in the route driving electric tempos had to discontinue our work. Our association surrendered our route permits. However, Digo Sarwajanik Yatayat (DSY) Pvt. Ltd. Company was registered and all 61 of us (35 tempo and 26 microbus operators) became shareholders of the company. We are 13 women in the company among 61 entrepreneurs. While I didn't get to drive tempo for 3 months, I began driving in another route after that. I also got the opportunity to participate in awareness and trainings held by the project for women public transport operators or entrepreneurs. Though short, such interventions helped me to understand the project as well as other GESI issues in public transport. Now I am earning as a tempo driver in another route and a shareholder of the new company." **Tirtha Maya Lama,** (*40 years old, female tempo driver, project affected person, KSUTP*)

F. Conclusions and Lessons

12. The project objectives and features offered a promise of great relief from the ills of poor transport system for the people, especially the elderly, women, children, and persons with disabilities, of Kathmandu. Project held consultation meetings with representatives of the National Association of Differently Abled (NADA) and the Nepal Blind Association (NBA) to ensure the inclusion of the needs of persons with disabilities. Through such consultations, the project planned for designs to include convenient and comfortable waiting place at bus-stops, proper lighting, timetable display boards, toilets and telephone booths at bus terminals, footpaths and footbridges, kerb-ramp and audio-tactile at road crossings and signages whichever will be feasible, and the inclusion of GESI relevant clauses in bidding documents. However, the project failed to fully realize this promise due to internal and external factors. The project had design shortcomings, and this was compounded by the devastating earthquake in 2015 and the lack of adequate time and concerted efforts to gain the support of private transport operators. While the project proved to be ineffective, its relevance remains undisputable.

STATUS OF GRANT AND LOAN COVENANTS

Para/Clause	Grant and Loan Condition/Covenant	Status of compliance
FA, Section 3.04	Withdrawals from the Loan Account and the Grant Account in respect of Goods, Works and consulting services shall be made only on account of expenditure related to a) Goods which are produced in and supplied from the works and consulting services which are supplied from such member countries of ADB as shall have been specified by ADB from time to time as eligible sources for procurement, and b) Goods, works and consulting services which meet such other eligibility requirement as shall have been specified by ADB from time to time.	**Complied with.** Withdrawals from the Loan account and the Grant account in respect of Goods, Works and consulting services were made only from eligible sources for procurement specified by ADB.
FA, Section 4.03	The Beneficiary shall enable ADB's representatives to inspect the Project, the Goods financed out of the proceeds of the Loan and the Grant, and any relevant records and documents.	**Complied with.** There was no issue to inspect the Project, the Goods financed out of the proceeds of the Loan and the Grant, and any relevant records and documents by ADB. ADB did SOE review of expenses of both Grant and Loan imprest account during the implementation.
FA, Schedule 5, para 3	The Beneficiary is fully committed to the Project and shall ensure that all ministries and the Project Implementing Agencies that are involved in the implementation of the Project give their full cooperation to ensure its smooth implementation.	**Not complied with.** The executing agency, MPIT, had lesser priority towards the project**.** The project lacked an effective coordination mechanism and ownership across its executing and implementing agencies.
Environmental covenants		
FA, Schedule 5, Para. 12	**1. Environment.** The Beneficiary, MPIT and each of the Project Implementing Agencies shall ensure that the Project shall be carried out in accordance with the IEE and the EMP prepared under the Project, and approved by ADB, and shall comply with the Beneficiary's environmental laws and regulations and ADB's Safeguard Policy Statement (2009). MPIT and each of the Project Implementing Agencies shall implement the environmental mitigation and management measures, and other recommendations specified in the EMP to minimize any adverse environmental impacts arising from the implementation of the Project. The requirements of the EMP shall be incorporated in the bidding documents and included as part of the Works contract documents. MPIT and the Project Implementing Agencies shall be responsible for ensuring compliance by the contractors with requirements of the EMP and for monitoring environmental compliance by the contractors	**Complied with**. An Initial Environmental Examination (IEE) of the project for DOR component was approved on 28 May 2014. The environmental management plan (EMP) for general impacts and site-specific impacts have been prepared and incorporated in all bidding documents. However, due to the lack of an environmental specialist with the supervision team, compliance monitoring suffered. Despite this limitation, the project submitted Environmental Monitoring Report to ADB annually.
Social covenants		
FA, Schedule 5, Para. 16	**1. Gender.** The Beneficiary shall ensure that the Project is carried out in accordance with ADB's *Policy on Gender and Development (1998)* and the gender strategy contained in the GESI action plan that has been prepared and agreed between the Beneficiary and ADB.	**Complied with**. Gender and Social Inclusion (GESI) Action Plan was prepared and agreed between MPIT and ADB. This action plan was reviewed on a quarterly basis.

FA, Schedule 5, Para. 13	**2. Resettlement.** The Beneficiary shall ensure that land acquisition and involuntary resettlement for junction improvements along the BLR, are carried out and managed in accordance with the RP and RF agreed between the Beneficiary and ADB, the Beneficiary's laws and regulations on land acquisition and resettlement and ADB's Safeguard Policy Statement (2009). Approval from the Beneficiary and ADB shall be obtained prior to any commencement of construction in the concerned area. MPIT shall ensure that DOR shall update the RP during the detailed design stage, and implement the final RP.	**Partially Complied with**. An updated resettlement plan was approved and disclosed in August 2013. However, the junction improvements along BLR was removed from the scope of work of one of the contractor because the Bagmati Civilization Integrated Development Committee took over the road widening works and started construction of sewage system placing pipes along left bank of Bishnumati River.
FA, Schedule 5, Para. 14	**3. Resettlement.** In the event land acquisition is unavoidable for the construction of terminals under the pilot bus routes, the Beneficiary shall ensure that Works contractors shall not be issued notices to commence for any terminal involving land acquisition and resettlement, to begin construction work unless the Beneficiary has (a) prepared a satisfactory RP, in accordance with the RF agreed between the Beneficiary and ADB; (b) satisfactorily completed, in accordance with the approved RP, compensation payment and relocation to new sites; (b) ensured that rehabilitation assistance is in place; and (c) the area required for Works is free of all encumbrances.	**Not relevant**. The operator M/S Digo Sarbajanik Yatayat Private Limited has leased land for 10 years but no civil work or bus terminal has been set up.
FA, Schedule 5, Para. 11	**4. Labor.** The Beneficiary, MPIT and each of the Project Implementing Agencies shall ensure that Works contractors engaged under the Project (i) provide for equal pay for equal work regardless of gender, ethnicity or caste and make prompt payment of wages; (ii) provide safe working conditions, water and sanitation facilities for male and female workers; and (iii) do not violate any prohibitions against child labor under the Beneficiary's laws and international treaty obligations. Specific provisions to this effect shall be included in bidding documents and Works contracts, and compliance shall be monitored by MPIT.	**Complied with**. All contract documents have provision for labor conditions. Nepal's Labor Act ensures that these conditions are fulfilled. The project and contractors adopted equal pay policy for both men and women and provided safe working conditions including water and sanitation facilities for both men and women. There are no reported cased of child labor or sexual exploitation of female workers at the project sites.
Covenants related to Project Management and Administration		
FA, Schedule 5, Para. 6	**1. Project Performance and Monitoring.** Within 6 months from the Effective Date, MPIT shall develop a set of indicators for monitoring performance and for preparing benchmark information, which shall be submitted to ADB, for concurrence. The baseline data for output and outcome indicators shall be gathered during the detailed design stage, within [9] months of the Effective Date, disaggregated by income levels, sex, caste, and ethnicity. Throughout Project implementation period, MPIT shall prepare annual Project Performance Monitoring System reports and submit to ADB.	**Partially complied with delay**. The project established a Project Performance Management System in November 2012 which included a Monitoring and Evaluation Framework having Performance targets, Key Performance Indicators , Frequency and Data Source in November 2012. However, the project did not gather and establish baseline data.

FA, Schedule 5, Para. 5	**2. Grievance Redress Mechanism.** Within 6 months of Effective Date, MPIT, through PMCO, shall prepare a GRM for the Project, acceptable to ADB, and establish a task force at the PMCO to receive and resolve complaints and grievances or act upon reports from stakeholders on misuse of funds and other irregularities, including grievances due to resettlement and environmental issues. The task force shall (i) make public the existence of this GRM, through a public awareness campaign, (ii) review and address grievances of stakeholders of the Project, in relation to either the Project, any of the service providers, or any person responsible for carrying out any aspect of the Project; and (iii) proactively and constructively respond to them.	**Partially Complied with**. Land Acquisition for the project was carried out through formal process by disclosing acquisition plan to the project-affected families in accordance to Land Acquisition Act 1977 of Nepal. Accordingly, the project prepared a Resettlement Plan (RP) in compliance with ADB Safeguard Policy Statement 2009 and the government Act. Both ADB and the government approved the RP in June 2014, and it was uploaded on ADB website. The summary copy of approved RP (translated in Nepali) was disclosed to the affected families through respective ward offices. A Compensation Determination Committee was formed in accordance to Land Acquisition Act which determined compensation rate for different types of affected assets. A Grievance Redressal Mechanism for the RP was established in accordance to Land Acquisition Act and ADB 2009. Of the total nine (9) affected households (HHs), KSUTP has just been able to compensate only two (2) households for the impact on their private land and structures. The project however, not been able to compensate 7 households having their affected residential structure/sheds in the Government land (proposed site for junction improvement at Teku). KSUTP had set aside NRs8,850,970 for compensation of which NRs2,468, 699 (21%) had been distributed to the affected families comprising 75% for affected land and 25% for private structures. Seven households have their structures on government land in Teku junction improvement area and are not willing to leave without getting their
FA, Schedule 5, Para. 4	**3. Website.** Within 6 months of the Effective Date, MPIT shall create a project website, which shall be linked to the Project Implementing Agencies' websites, to disclose information about various matters on the Project, including procurement. With regard to procurement, the website shall include information on the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted amount of contract awarded, and the list of goods/services	**Complied with**. Project website created.

FA, Schedule 5, Para. 17	**4. Anticorruption.** The Beneficiary shall comply with, and shall cause MPIT and each of the IAs to comply with ADB's Anticorruption Policy (1998, as amended to date) and the Policy relating to *Enhancing ADB's Role in Combating Money Laundering and the Financing of Terrorism* (2003). The Beneficiary (i) acknowledges ADB's right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; (ii) agrees to cooperate fully with and to cause MPIT and each of the IAs to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation; and (iii) agrees to refrain, and cause MPIT and each of the IAs to refrain, from engaging in money laundering activities or financing of terrorism and shall allow, and cause MPIT and each of the IAs to allow, ADB to investigate any violation or potential violation of these undertakings.	**Complied with**. The requirement was explained and reminded to PMCO and IAs during every mission. Clause 15.6 of GCC of all ICB construction contracts (Contract No.KSUTP/W/KMC/ICB-01, KSUTP/W/DOR/ICB-02, KSUTP/W/DOR/ICB-03) includes Corrupt or Fraudulent Practice as per requirement of ADB policy. Similarly, Clause 1.11 of GCC of all Consulting contracts (KSUTP/S/QCBS/1, KSUTP/S/QCBS/2 and KSUTP/S/QCBS/3) includes the ADB's Anti-corruption policy. ADB has not received any report on corruption cases.
FA, Schedule 5, Para. 18	**5. Anticorruption.** Without limiting the generality of the preceding paragraph, the Beneficiary shall (a) ensure that MPIT and each IAs conduct periodic monitoring inspections on all contractors' activities related to fund withdrawals and settlements and (b) ensures that, and shall cause MPIT and each IAs to ensure that, all contracts financed by ADB in connection with the Project include provisions specifying the right of ADB to audit and examine the records and accounts of MPIT, each IAs and all contractors, suppliers, consultants and other service providers as they relate to the Project.	**Complied with**. The requirement was explained and reminded to PMCO and IAs during every mission. There was a provision of Inspections and Audit by Bank in Clause 1.15 of General Condition of Contracts for Contract.
FA, Schedule 5, Para. 1	**6. Implementation arrangements.** The Beneficiary, the Project Executing Agency, and the Project Implementing Agencies shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Beneficiary and ADB. In the event of any discrepancy between the PAM and this Financing Agreement, the provisions of this Financing Agreement shall prevail.	**Complied with**. The project implementation followed the original PAM which was updated in 2015. There is no deviation in implementation arrangements from PAM during implementation.

FA, Section 4.02; GA for GEF, Section 4.02	**7. Audits.** The Beneficiary shall (i) maintain, or cause to be maintained, separate accounts for the Project, including separate accounts for the Loan and the Grant; (ii) have such accounts and related financial 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; (iii) furnish to ADB, as soon as available but in any event not later than 9 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and the Grant proceeds and compliance with the financial covenants of this Financing Agreement as well as on the use of the procedures for imprest account/statement of expenditures), all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.	**Partially complied with**. Project maintained separate accounts, including separate accounts for the ADB loan and ADB and GEF grants. Accounts and related financial statements have been audited annually by the Office of Auditor General of Nepal. The Auditor's reports have been furnished to ADB for the fiscal years 2011 to 2017 in an average 2.5 months late from the due date of submission to ADB, with the exception of the last APFS for 2018 which is still pending. During the overall implementation, 6 unqualified and 1 qualified APFS were submitted. Project office already disbanded in end of FY 2017-18. No response could be received from executing/implementing agencies.
PA, Section 2.09	**8. Audits.** KMC shall (i) maintain separate accounts for the Project; (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 on the use of the Grant proceeds and compliance with the covenants of the Financing Agreement), all in the English language. KMC 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.	**Complied with**. The KMC report was received by PMCO and consolidated annually in the annual audit reports.

PA, Section 2.08	**9. Project Reporting.** (a) KMC shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Grant and the expenditure of the proceeds thereof; (ii) the goods and services and other items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of KMC; and (v) any other matters relating to the purposes of the Grant. (b) Without limiting the generality of the foregoing, KMC 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. (c) Promptly after physical completion of the Project, but in any event not later than three (3) months thereafter or such later date as ADB may agree for this purpose, shall prepare and furnish to ADB, through MPIT, 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 KMC of its obligations under this Project Agreement and the accomplishment of the purposes of the Loan and the Grant.	**Generally complied with**. KMC provided reports to ADB when requested. KMC provided their inputs on progress of relevant component with respect to physical achievement, financial progress, and safeguard monitoring to PMCO on a quarterly basis and these were consolidated by PMCO for submission to ADB. Quarterly reports were submitted with some delay. Though the ADB loan has been closed, the Contracts have not been finalized. However, ADB has not requested any report to MPIT.
FA, Schedule 3B, Para. 6	**10. Conditions for Withdrawals from Grant Account.** Notwithstanding any other provision of the Financing Agreement, no withdrawals shall be made from the Grant Account for the pilot bus routes activities under Part A of the Project until the following conditions have been satisfied: (a) The conditions stated in paragraph 7 (a), (b) and (c) of schedule 5 to this Financing Agreement shall have been satisfied; and (b) The TDF draft loan and grant agreements for the provision of loans and/or grants to the private bus operator under the pilot bus routes shall have been provided to ADB for review and endorsement.	**Complied with delay.** Withdrawals have been made from the Grant Account for the pilot bus routes activities under Part A of the project after fulfilling the conditions stated in paragraph 7 (a), (b) and (c) of schedule 5 to the Financial Agreement as specified in Technical covenants –(3) Public Transport / DOTM. The Service Level Agreement between the operator of the Pilot Bus Route S5, Digo Sarbajanik Yatayat P. Ltd and DOTM was signed on 17 September 2017 and a copy of the signed agreement was provided to ADB. The draft financial agreement between the operator of the Pilot Bus Route S5, Digo Sarbajanik Yatayat P. Ltd (DSY) and TDF was reviewed by ADB. Accordingly, the Financial Agreement between the operator of the Pilot Bus Route S5, DSY and TDF was signed on 16 November 2017 and a copy was provided to ADB.

FA, Schedule 4, Para. 7	**11. Selection of Consulting Services.** Except as ADB may otherwise agree, the Beneficiary shall apply quality- and cost-based selection for selecting and engaging consulting services.	**Complied with**. Four consultants were selected and engaged applying quality and cost-based selection with the approval of ADB: (i) DSC-DOR: M/S Soil Test (P.) Limited in joint venture with Welink Consultants (P) Ltd., (ii) DSC-KMC: M/S Sustainable Infrastructure Development Foundation (SIDeF) & BEAM Consultants P. Ltd., (iii) DSC-KSUTP: M/S ITECO Nepal (P) Ltd and ERMC (P) Ltd JV, and (iv) "Mass Transit Options and Prioritization Study": PADECO Company Ltd. (Japan) In association with Full Bright Consultancy P. Ltd.
FA, Schedule 4, Para. 10	**12. Procurement.** Contracts procured under international competitive bidding procedures and contracts for Consulting Services shall be subject to prior review by ADB, unless otherwise agreed between the Beneficiary and ADB and set forth in the Procurement Plan.	**Complied with**. Contracts procured under international competitive bidding procedures and contracts for Consulting Services were reviewed by ADB and the executing agency received ADB's consent. Recruitment followed procurement plan after ADB's approval.
Financial covenants		
FA, Schedule 5, Para. 2	**1. Counterpart funding.** The Beneficiary shall provide counterpart funds for Project implementation on time. MPIT and each of the Project Implementing Agencies shall make timely submission of annual budgetary appropriation request and MOF shall ensure prompt disbursement of appropriated funds during project implementation.	**Complied with**. ADB explained and reminded the counterpart fund requirement as per grant and loan agreements during the missions. The government provided 22% of the total project costs.
FA, Schedule 5, Para. 15	**2. Cofinancing.** In the event the funding from GEF cannot be obtained, part of the activities to be financed by GEF shall not be financed under the Project. Alternatively, the Beneficiary may make alternative arrangements, satisfactory to ADB, necessary to cover the funding shortfall resulting from the lack of the GEF Grant.	**Not relevant**. Funding from the GEF was endorsed by GEF CEO on 30 November 2010. ADB declared the GEF grant effectiveness on 7 November 2011
Technical covenants		
FA, Schedule 5, Para. 10	**1. BLR.** The Beneficiary shall ensure that it shall, in parallel to this Project, carry out the construction of the BLR southern extension. The Beneficiary shall ensure that adequate budget for the construction of the BLR southern extension has been included DOR's budget for FY2010/2011.	**Not complied with. The Department of Roads (**DOR) had started the construction of BLR southern extension which was supervised by PIU – DOR. Due to the non- performance of the Contractor it could not be succeeded.
FA, Schedule 5, Para. 9	**2. O&M.** The Beneficiary shall ensure, and shall cause MPIT and each of the IAs to ensure that sufficient fund shall be earmarked in their respective operation and maintenance budget, allocated and released on timely basis, for the maintenance and rehabilitation of the Project facilities. Specifically, (i) DOR and KMC shall earmark at least 2% of the Project respective sub- components construction cost per year, (ii) MTPD shall include the equipment O&M cost in the contract with the suppliers and shall also earmark 5% of the equipment cost per year, and (iii) MOE shall outsource O&M of the repaired air quality monitoring stations to private sector, and the corresponding budget shall be included in the MOE's Air quality Monitoring Action Plan 2010 – 2013.	**Not complied with.** MPIT and IAs did not allocate adequate fund for O&M in line with the loan and grant requirements because of lack of adequate ownership of the project by EA and the IAs. There were frequent changes in the EA and IA leaderships and in the process allocation of O&M was overlooked and not included in the annual budget. MOE did not allocate funds for O&M because the air quality monitoring regime got delayed and only partially became operational in the later years.

FA, Schedule 5, Para. 7	**3. Public transport / DOTM.** The Beneficiary shall ensure that: (a) within 9 months after the Effective Date, DOTM, with the help of the PMCO consultants, prepares a plan, acceptable to ADB, to strengthen and restructure DOTM. Within 12 months after the Effective Date, MOLT and DOTM shall adopt and implement the recommendations made under the study and plan; (b) within 12 months after the Effective Date, with the help of the PMCO consultants, DOTM prepares and finalize a reorganization plan of the PT network, and a feasibility study on the pilot bus routes, and implement the pilot bus routes; (c) within 12 months after the Effective Date or upon satisfaction of (a) and (b) above, whichever is later, have entered into an agreement with TDF, that is acceptable to ADB, for the provision of loans and grants to the private bus operators for the pilot bus routes and the agreement shall have been declared effective; and (d) the funds required for the maintenance and rehabilitation of the pilot bus routes are allocated annually and released on a timely basis.	**Partially complied with significant delay.** The executing agency did not endorse the Institutional Strengthening of Department of Transport Management (DOTM) proposal of October 2013 due to heavy staff requirement. DOTM included an alternate option of creating a section for Public Transport. Road Safety, and Transport Strengthening. It does not have even minimum staff. DOTM with the support of the consulting team prepared the Report on Public Transport Restructuring in 2014. It was reviewed and proposed two bus routes were piloted in 2017. Only one route (S5) was successful in gaining support from stakeholders which is currently implemented. Government institutions. These revisions can be considered as a short-term modification to the previous route structure. Once sufficient human and financial resources are in place to implement the proposed Primary Route Network, the need for these interim routes will lapse and the route network can revert to the concepts presented in the February 2014 report. The type of vehicle, and fuel choice, most appropriate for the pilot routes was investigated and specifications for vehicles to operate on each pilot route were documented in the report "Recommended Bus Types and Specifications for KSUTP Pilot Routes, September 2014". The MOU between MPIT, MOF and TDF for the Fund Flow Mechanism for Utilization of ADB and the GEF Funds for Implementation of the project Pilot Routes in the Kathmandu Valley has been signed on 26/05/2017 and was effective.
FA, Schedule 5, Para. 8	**4. Public Transport / Pilot bus routes.** Within 12 months after the Effective Date, the Beneficiary, through MPIT, shall develop and implement a plan, acceptable to ADB, on the reorganization and rationalization of the PT network, which include the plan on pilot bus routes operated with electric or low emission vehicles. The plan shall, among others cover (i) the arrangements between the Beneficiary and TDF for the management of the $3.8 million grant, (ii) the agreement between DOTM and the FNNTE on the operation of the pilot bus routes, (iii) the financing mechanism for the $3.8 million grant to be provided, through TDF, to legally registered transport entities to purchase the electric or other low emission vehicles and upgrade the existing public transport fleet, and, (iv) the arrangements among DOTM, the FNNTE and TDF for the eligibility criteria, registration and licensing, the importation of the electric or other low emission vehicles.	**Complied with delay. As per design, fund flow mechanism based on the MOU** was signed on 26 May 2017 between DOTM and TDF. On 17 September 2017, the Service Level Agreement between DSY and DOTM was signed. On 18 November 2017, DSY and TDF signed an agreement for financing the purchase of 17 low emission buses. For the pilot route. On 16 November 2017, DSY and TDF signed a financing agreement for the purchase of the 17 buses to ply on the S5 route. And, on 17 December 2017, DSY signed an agreement with the supplier Sipradi Motors Private Limited and DSY to purchase the buses.

Source: Asian Development Bank, Manila.

ECONOMIC ANALYSIS

A. Introduction

1. The project was expected to improve the urban transport system through rationalization of public transport, with investments in pilot routes, implementation of traffic management measures, pedestrianization of heritage routes within the city center, and air quality monitoring.

2. During the design period the economic analysis was limited to the two major outputs of the project: (i) improvements to Bishnumati Link Roads (BLR) junctions, and (ii) public transport improvement through operation of electric or low emission buses on pilot routes in the city center.

3. Improvements to BLR junctions such as upgrading of the link road from Dallu to Teku is completed but improvements of junctions at Shova Bhagawati, Dallu, Bhisensthan and Teku and constructions of two road bridges in Teku and Dallu are not in operation due to disputes with contractors.

4. Designs and operational plans of two pilot routes namely, New Bus Park via Samakhusi and the central business district (CBD) to Sinamangal and Naya Bazaar, Kirtipur via CBD to Chappal Karkhana, Ring Road were prepared during implementation phase. Both the routes were technically and financially feasible. However, operation of the pilot route New Bus Park via Samakhusi and the CBD to Sinamangal only could be implemented which is now in operation. The other route could not be implemented due to no willingness of the operators and subsequently expiry of the projection completion date.

B. The project

5. For the operation of the pilot route, 26 microbuses operating from the New Bus Park, Gongabu to CBD section of the route and 35 Safa tempos operating from CBD to Sinamangal section of the route were replaced by 17 midsized buses for operation in the entire route.

6. In ‘without project’ scenario, traffics in the route were increasingly congested and average traffic speeds were low. The observed average vehicle speeds on the New Bus Park to CBD and CBD to Sinamangal sections during feasibility study were 7.5 km/hour and 11.2 km/hour respectively having average speed of 9.72 km/hour in the entire route. In the off-peak period speed was not significantly different from the peak period in both the sections of the route.

7. In ‘with project’ scenario, the introduction of buses had replaced 388 trips of microbuses and 682 trips of tempos with only 160 trips of the buses. The reductions in the trips have reduced traffic congestions in route which have increased vehicle speeds. The current vehicle speeds after the operation of pilot route are found to be 10.5 km/hour and 17.8 km/hour respectively in the sections having average speed of 14.88 km/hour in the entire route. The off-peak period speed after the pilot route operation is also not significantly different from the peak period in both the sections of the route.

8. To derive economic benefits from vehicle operation cost (VOC) savings traffic data of 2017 surveys (conducted by the project) are used to estimate total number of vehicles per day on the pilot route sections leading into central Kathmandu before and after the project.

9. Traffic growth rate of 5% for trucks and 7% for other vehicles used during design period are used for traffic projections for current economic analysis as well for consistency. The projected vehicle traffics for 2019 for ‘without project’ and ‘with project’ scenarios are shown

in Table 1. The projected traffic for with project situation are estimated by replacing 388 trips of microbuses and 682 trips of Safa tempos by 160 trips of buses.

Table 1: Annual Average Daily Traffic (AADT)

Vehicle	2019 AADT (without project)	2019 AADT (with project)
Motor Cycle	22463	22463
Car	7854	7854
Bus	369	529
Mini Bus	496	496
Micro Bus	3056	2668
4WD	975	975
Utility	822	822
Truck	46	46
Mini Truck	126	126
Tempo	2143	1461
Total	38350	37442

Source: Field Survey and Feasibility Study of Pilot Route

C. Methodology

10. The economic analysis of the project is carried out in accordance with Asian Development Bank guidelines.[1] The analysis is carried out by comparing with- and without-project situation. The economic evaluation has calculated the economic rate of return (EIRR) by considering the economic costs and benefits over the implementation period plus 20 years of operation. The economic benefits are estimated by comparing VOCs in 'with project' and 'without project' scenarios. The VOCs are calculated by using Highway Design and Maintenance Standards Model (HDM 4) model as used during design period. All costs and benefits in the analyses are expressed in 2019 constant prices.

D. Economic costs

11. The total economic costs of the project are derived from the actual total financial costs of the project implementation. The economic costs are obtained by applying a standard conversion factor of 0.90[2] to the financial costs to exclude taxes and duties, shadow price of unskilled labour, shadow price foreign components etc. as used during the design period. Maintenance costs are assumed to be 2% of total investment since only pilot route is in operation. The life of midsized buses is generally 10 years. Hence, total replacement cost of buses is considered in the eleventh year of operation.

E. Economic benefits

12. As mentioned above most of the sub-components of the project could not be completed and bring into operation except implementation of one pilot route. Benefits from uncompleted sub-components are not considered for economic analysis. Only, the benefits from the implementation of the pilot route New Bus Park via Samakhusi and the CBD to Sinamangal are considered for the analysis.

13. The economic benefits are the reduction in VOCs due to the reduction in the traffic congestion and improved traffic flow. The annual economic benefits are calculated by

[1] ADB 2017. *Guidelines for the Economic Analysis of Projects.* Manila.
[2] The Standard Coefficient Factor of 0.9 is consistent with other recent projects in Nepal.

deducting total of annual VOCs of all vehicles after the project implementation from the total before the project. VOCs for different vehicle types operating at urban stop-start conditions along the pilot route before and after the project have been calculated using the HDM-4. The model requires various input data for predicting the VOCs. The input data comprises characteristics of route and prices of vehicles, tires, fuel and oil, costs of crew members and maintenance labour. The data on characteristics of roads are collected through observation. The prices are obtained from dealers of vehicles, dealers of tires and Nepal Oil Corporation in Kathmandu prevailed during October 2019. All the duties, taxes and subsidies are excluded from the financial prices to estimate economic prices. The costs of crew members such as drivers, helpers and maintenance labour are obtained from drivers and workshops also prevailed in during October 2019. The model with all the input data has calculated VOCs for different vehicles. VOC of Safa tempo has been calculated based on interviews with the operators. The VOCs of different vehicle type based on varying speed conditions are shown in Table 2.

Table 2: Urban Vehicle Operating Costs "Stop-Start" Conditions (NRs/km)

Speed (KM/Hour)	Motorcycle	Car Small	Four-Wheel Drive	Utility	Truck Light	Truck Medium	Microbus	Bus Light	Bus Medium
10.00	8.50	31.93	45.12	57.63	58.97	84.43	77.97	54.58	84.92
15.00	7.61	28.54	40.19	51.87	52.84	75.96	69.47	49.18	75.81
20.00	6.72	25.16	35.27	46.10	46.70	67.48	60.97	43.78	66.70
25.00	5.83	21.77	30.34	40.34	40.57	59.01	52.48	38.38	57.59
30.00	4.94	18.39	25.42	34.57	34.44	50.53	43.98	32.98	48.48
35.00	4.05	15.00	20.49	28.81	28.31	42.06	35.49	27.58	39.37
40.00	3.16	11.61	15.57	23.04	22.17	33.58	26.99	22.18	30.26
45.00	2.27	8.23	10.65	17.27	16.04	25.11	18.50	16.78	21.15
50.00	1.38	4.84	5.72	11.51	9.91	16.63	10.00	11.37	12.04

Source: HDM 4 Model and VOC input prices at 2019 prices.

F. Economic internal rate of return

14. The calculated EIRR is -2.48%. Details of analysis are shown in Table 3.

G. Conclusion

15. The EIRR shows that the project is economically not feasible. The is expected since, many components of the project could not be implemented. And, those implemented could not be operated efficiently. As a result, benefits decreased extensively.

Table 3: Cost Benefit Analysis of Kathmandu Sustainable Urban Transport Project [NRs (in million)]

Year	Without Project			With Project				
	Maintenance Cost	Total VOC	Total Cost	Capital Cost	Maintenance Cost	Total VOC	Total Cost	Net Benefit
2013	0.00	0.00	0.00	191.55	0.00	0.00	191.55	-191.55
2014	0.00	0.00	0.00	408.63	0.00	0.00	408.63	-408.63
2015	0.00	0.00	0.00	332.01	0.00	0.00	332.01	-332.01
2016	0.00	0.00	0.00	280.94	0.00	0.00	280.94	-280.94
2017	0.00	0.00	0.00	53.63	0.00	0.00	53.63	-53.63
2018	0.00	0.00	0.00	10.22	0.00	0.00	10.22	-10.22
2019	0.00	314.23	314.23	0.00	25.54	227.74	253.28	60.95
2020	0.00	314.44	314.44	0.00	25.54	260.73	286.27	28.17
2021	0.00	314.66	314.66	0.00	25.54	260.92	286.46	28.21
2022	0.00	314.88	314.88	0.00	25.54	261.10	286.64	28.24
2023	0.00	315.10	315.10	0.00	25.54	261.28	286.82	28.28
2024	0.00	315.32	315.32	0.00	25.54	261.46	287.00	28.32
2025	0.00	315.53	315.53	0.00	25.54	261.64	287.18	28.35
2026	0.00	315.75	315.75	0.00	25.54	261.82	287.36	28.39
2027	0.00	315.97	315.97	0.00	25.54	262.00	287.54	28.43
2028	0.00	316.19	316.19	0.00	25.54	262.19	287.73	28.47
2029	0.00	316.41	316.41	0.00	65.78	262.37	328.15	-11.74
2030	0.00	316.63	316.63	0.00	25.54	262.55	288.09	28.54
2031	0.00	316.85	316.85	0.00	25.54	262.73	288.27	28.58
2032	0.00	317.07	317.07	0.00	25.54	262.92	288.45	28.61
2033	0.00	317.29	317.29	0.00	25.54	263.10	288.64	28.65
2034	0.00	317.51	317.51	0.00	65.78	263.28	329.06	-11.55
2035	0.00	317.73	317.73	0.00	25.54	263.46	289.00	28.72
2036	0.00	317.95	317.95	0.00	25.54	263.65	289.19	28.76
2037	0.00	318.17	318.17	0.00	25.54	263.83	289.37	28.80
2038	0.00	318.39	318.39	-306.48	25.54	264.01	-16.92	335.31
Present Value		1873.05	1873.05	1071.92	168.25	1533.57	2773.73	-900.68
					Net Present Value @ 12% Discount Rate [NRs (in million)]			-900.68
							EIRR (%)	-2.48

FINANCIAL ANALYSIS OF PILOT ROUTE OPERATION

A. Introduction

1. Kathmandu Sustainable Urban Transport Project (KSUTP) funded by the Asian Development Bank was implemented to improve public transport and walkways, and consequently improve air quality in Kathmandu Valley.

2. Under the sub-sector public transport, one of the tasks was defined as "Development and implementation of two pilot bus routes using electric or low emission buses." In specific, the terms of reference require the Project Management and Capacity Building Consultants (PMCBC) to:

- Conduct feasibility studies on the pilot routes;
- Assist Department of Transport Management (DOTM) in implementing the two pilot bus routes to demonstrate profitability of Public Transport Route Restructuring;
- Fine tune the financing mechanism with the Town Development Fund (TDF) to provide loan and grants to the private operators to purchase the electric or other low emission vehicles to be operated on the pilot routes; and
- Work closely with Federation of Nepalese National Transport Entrepreneurs (FNNTE) in order to assist the private bus operators in exploring options, preparing business plans and forming appropriate entities during implementation.

3. Two Pilot Routes were selected to demonstrate that route restructuring will allow continued profitable operations for public transport entrepreneurs, whilst providing safe and affordable public transport at improved level of service for the users.

4. In February 2014, following two pilot routes were approved by DOTM for implementation:

- Route S5: New Bus Park Gongabu – Thamel – Bagbazaar – Putali Sadak – Dilli Bazaar – Old Baneshwor – Sinamangal Airport and
- Route T30: Balkhu – Sanepa – Jhamsikhel – Pulchwok – Mangal Bazar – Gwarko

5. Operational plans for the two routes were prepared, followed by financial modeling of the viability of the routes. The plans and viability analyses were documented and submitted to the DOTM under the title "*Operational and Business Plan of KSUTP Bus Pilot Routes"* dated June 2015. The viability analyses found that route S5 was financially viable and DOTM agreed to implement the operation of the route.

6. Route II (T30) was found to be financially not feasible and was excluded from further analysis. Instead another route S3: Naya Bazaar, Kirtipur to Chappal Karkhana, Ring Road was chosen as one of the pilot routes to be implemented. Operational and Business Plan of the route was prepared and found financially viable. DOTM agreed to implement operation of the route but due to less willingness of the operators in the route initially and end of grant period of the project was coming near, the operation of the route could not be implemented.

7. The route S5 starts from the New Bus Park at Gongabu and ends at Sinamangal in the Ring road near the Tribhuvan Airport. Owing to the fact that one-way traffic movement is involved in the portion of this route, the length of the inbound and outbound trip differs.

8. The outbound route trip from New Bus Park to Sinamangal is 8.9 km, traversing through Ring Road/Gongabu Chowk intersection from where the route turns right to Samakhushi Marga all the way till it take a right-turn again at Golkopakha Marga to meet

Lainchaur. From there, the trip continues through Jamal, Tindhara, Ghantaghar, Kamaladi Ganesh, Hatisar, Maitidevi, Old Baneshwor to finally terminate in the vicinity of Sinamangal intersection, near the Tribhuvan Airport.

9. The inbound trip, which is 10.2 km, takes the common path till Maitidevi Intersection but from there the trip route continues straight through Dilli Bazar Sadak, Bagh Bazar, Ratna Park, Bhadrakali, Shahid Gate, Kanti Path all the way to Lainchaur intersection where the route takes left turn through Lekhnath Marg. From Lekhnath Marga, the route takes a right turn at Golkopakha/Lekhnath Intersection and continues through Samakhushi Marga all the way to the Samakhushi/Ring Road Intersection to take a left turn to reach New Bus Park.

10. For the operation of buses in the pilot route a company named Digo Sarbajanik Yatayat (DSY) P. Ltd. was registered in Company Registrar Office on 6th Feb 2017.

11. DOTM and DSY signed a Service Level Agreement on 17 September 2017. As per requirement the DSY received 17 numbers of TATA company buses in June 2018 through TDF loan. Bus depot on the south of New Bus Park was leased out and upgraded and 12 bus stops (shelters) along the route were completed by the end of 2018. In the same time E-ticketing machines, GPS tracking equipment and communication sets were supplied to the DSY.

12. The operation of bus service in the pilot route formally started in July 2018.

B. Methodology

13. The financial analysis of the pilot route has been undertaken in accordance with ADB guidelines on financial analysis. Financial internal rate of return (FIRR) has been calculated to identify the financial viability of the operation of the Pilot Route.

14. The financial analysis is carried out for a period of 10 (ten) years at constant 2018 prices. A discount rate of 12% considered based on the opportunity cost of capital. Loan period is for five years and annual interest payment to TDF is 5% annually. Revenues from passenger fares are assumed to increase by 7% annually as used during feasibility study (for consistency). It was assumed that rate of passenger fares are related to the price of fuel. Hence, annual increment in passenger fare was based on Consumer Price Index (CPI) of fuel price. Fees from vehicle services provided to other vehicles from the company's garage are assumed to increase by 7% annually as used during feasibility study which was based on CPI of wage rate. Similarly, the O&M cost is assumed to increase based on increase in diesel and lubricant costs and wage rate by 7% similar to the rate used during feasibility which was based on CPI of fuel prices and wage rate.

C. Investment Cost

15. The total investment cost for the operation of the pilot Route S5 is NRs73.05 million. Table 1 shows the investment costs.

Table 1: Investment Cost of Route S5 Operation

Cost	NRs (in million)
Vehicles and equipment	53.99
Construction of Garage	19.10
Total	73.09

Source: Digo Sarbajanik Yatayat (DSY) P. Ltd., November 2019

D. Annual Operation and Maintenance Cost

16. Total annual operation and maintenance (O&M) cost for the operation of the pilot route is NRs30.10 million. Table 2 shows the investment costs.

Table 2: Annual O&M Cost of Pilot Route Operation

Operation and Maintenance	NRs (in million)
Diesel and lubricants	13.39
Bus maintenance	1.74
Salary and perks of drivers and helpers	5.97
Salary and perks of office staffs	1.43
Rent of land (garage and office)	1.08
Interest	2.79
Others	3.70
Total	**30.10**

Source: Digo Sarbajanik Yatayat (DSY) P. Ltd., November 2019

E. Annual Revenue collection from Operation

17. Total annual revenue collection from operation of the pilot route is NRs37.13 million. Table 3 shows the annual revenue collections from different sources.

Table 3: Annual Revenue Collection from the Pilot Route Operation

Revenue	NRs (in million)
Operation of buses	35.84
Parking for other buses (in the garage)	0.50
Rent (shutters)	0.48
Servicing fee for other buses	0.10
Others	0.21
Total	**37.13**

Source: Digo Sarbajanik Yatayat (DSY) P. Ltd., November 2019

18. Weighted Average Cost of Capital (WACC) is calculated in real terms for the pilot route operating company. Funding ratios for the company are the ADB and Global Environment Facility loan and grant (at 80%) and the counterpart financing (at 20%) by operator company. The TDF will disburse the amounts to the company as a soft 'loan' to be effectively linked with performance-based contracts at 5% interest rate. The local inflation rate is assumed to be at 6% and international inflation rate at 1.0%. Local financial opportunity cost of capital is assumed to be at 12%. The WACC is computed at 3.49%. The calculation of WACC is shown in Table 4.

Table 4: Calculating Weighted Average Cost of Capital

Item	TDF	Equity	Total
A. Amount [amount of funds per financier; NRs (in million)]	58.47	14.61	73.09
B. Weight [funding per financier/total project cost]	80.00%	20.00%	100.00%
C. Nominal cost of capital	5.00%	12.00%	
D. Tax rate	13.00%	13.00%	
E. Tax-adjusted nominal cost	4.35%	10.44%	
F. Inflation rate	1.00%	6.00%	

G. Real cost	3.32%	4.19%	7.51%
WACC (in real terms)	2.65%	0.84%	3.49%

WACC = weighted average cost of capital
Source: ADB estimates.

F. Results of Financial Analysis

19. The financial analysis of the operation of the pilot route shows the FIRR is 10.05% before interest and tax. Details of cash flow analysis are presented in Table 5.

G. Conclusion

20. The calculated FIRR is positive, indicating that the operation of the pilot route S5 is financially viable and will not constitute a burden on the government. The FIRR is positive at the rate of 10.05%, which is higher than the WACC (3.49%). Thus, this subproject will be able to recover both capital investment and O&M costs and require no subsidy for the capital investment and O&M cost recovery. The interview with the bus company indicated that there was some leakage in fare collection (around 25-30%).[1] It was observed that the conductors are not using ticketing machines provided to the company by the project which may be the reason behind the leakage. The leakages could be minimized, if the conductors are forced to use the ticketing machines. The New Bus Park to Jamal section has very good passenger occupancy whereas, the Jamal to Sinamangal section has not so good passenger occupancy making lower revenue collections. Hence, to improve the revenue collections, increment in passenger fare could be one option. But DOTM is not authorized to increase passenger fare.

[1] Since, information on the leakage was just perceptions of the operator but there is no established evidence of such leakage. Hence, the value of the leakage is not considered for FIRR computation. The others expenses include refreshments costs and allowances for members, traffic fines, donations to the local clubs, institutions etc.

Table 5: Financial Analysis of Digo Sarbajanik Yatayat Pvt. Ltd. [NRs (in million)]

	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	0	1	2	3	4	5	6	7	8	9	10
1. Cash Inflows from Revenues											
Operation of buses		35.84	38.35	41.03	43.90	46.98	50.27	53.79	57.55	61.58	65.89
Parking for other buses (in the garage)		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Rent (shutters)		0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Servicing fee for other buses		0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.18	0.19
Others		0.21	0.23	0.24	0.26	0.28	0.30	0.32	0.34	0.37	0.39
Total Cash Inflows		**37.13**	**39.66**	**42.37**	**45.26**	**48.36**	**51.68**	**55.23**	**59.03**	**63.09**	**67.44**
2. Cash Outflows											
Cost											
Vehicles and equipment	53.99										
Construction of Garage	19.10										
Sub-total	**73.09**										
Operation and Maintenance											
Diesel and lubricants		13.39	14.33	15.33	16.40	17.55	18.78	20.10	21.50	23.01	24.62
Bus maintenance		1.74	1.86	1.99	2.13	2.28	2.44	2.61	2.79	2.99	3.20
Salary and perks of drivers and helpers		5.97	6.39	6.83	7.31	7.82	8.37	8.96	9.58	10.25	10.97
Salary and perks of office staffs		1.43	1.53	1.64	1.75	1.88	2.01	2.15	2.30	2.46	2.63
Rent of land (garage and office)		1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Others		3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Sub-total		**27.31**	**30.91**	**32.72**	**34.65**	**36.72**	**38.93**	**41.30**	**43.83**	**46.54**	**49.44**
Total Cash Outflows	**73.09**	**27.31**	**30.91**	**32.72**	**34.65**	**36.72**	**38.93**	**41.30**	**43.83**	**46.54**	**49.44**
3. Net Cash Inflows	**-73.09**	**9.81**	**8.75**	**9.65**	**10.61**	**11.65**	**12.75**	**13.93**	**15.20**	**16.55**	**18.00**
FIRR											**10.05%**

Source: ADB PCR mission computation.