Document of

The World Bank

FOR OFFICIAL USE ONLY

Report No: ICR00004941

IMPLEMENTATION COMPLETION AND RESULTS REPORT

IDA 47440 and 54310 (AF)

ON A

CREDIT

IN THE AMOUNT OF SDR7.75 MILLION

(US$12.0 MILLION EQUIVALENT)

AND AN ADDITIONAL CREDIT

IN THE AMOUNT OF SDR11.3 MILLION

(US$17.4 MILLION EQUIVALENT)

TO THE

KINGDOM OF BHUTAN

FOR THE

SECOND URBAN DEVELOPMENT PROJECT
DECEMBER 27, 2019

Urban, Resilience And Land Global Practice
Sustainable Development
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 27, 2019)

Currency Unit	=	Bhutanese Ngultrum (BTN)
BTN71.31	=	US$1
US$1.37	=	SDR 1

FISCAL YEAR
July 1 - June 30

Regional Vice President:	Hartwig Schafer
Country Director:	Mercy Miyang Tembon
Regional Director:	John A. Roome
Practice Manager:	Catalina Marulanda
Task Team Leader(s):	David Mason
ICR Main Contributor:	David Mason

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AF	Additional Financing
AHP	Affected Households and Persons
APA	Alternative Procurement Arrangement
BLSS	Bhutan Living Standards Survey
BTN	Bhutanese Ngultrum
BUDP-1	Bhutan Urban Development Project (Cr. 3310)
BUDP-2	Second Bhutan Urban Development Project
CAS	Country Assistance Strategy
CNDP	Comprehensive National Development Plan
CPF	Country Partnership Framework
CPLC	Cash Payment in Lieu of Land Compensation
CWSS	Central Water Supply Scheme
DAR	Digital Asset Registry
EMP	Environmental Management Plan
FM	Financial Management
FYP	Five Year Plan
GNHC	Gross National Happiness Commission
GRC	Grievance Redress Committee
GRM	Grievance Redressal Mechanism
IDA	International Development Association
IDF	Institutional Development Fund
ICRR	Implementation Completion and Results Report
IUFR	Interim Unaudited Financial Report
LAP	Local Area Plan
MLD	Million Liters per Day
MoF	Ministry of Finance
MoWHS	Ministry of Works and Human Settlements
MTR	Mid Term Review
NEC	National Environment Commission
NHSS	National Human Settlements Strategy
NLCS	National Land Commission Secretariat
O&M	Operations and Maintenance
OP/BP	Operational Policy/Bank Policy
PDO	Project Development Objective
PPD	Policy and Planning Division
PIU	Project Implementation Unit
PMU	Project Management Unit
RAP	Resettlement Action Plan
RGoB	Royal Government of Bhutan
RMS	Revenue Management System
SDRC	Social Development and Resettlement Cell
SIMP	Social Impact Management Plan

ToC	Theory of Change
TT	Thimphu Thromde
TSP	Thimphu Structure Plan
UPD	Urban Planning Department
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

TABLE OF CONTENTS

DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P090157	Second Urban Development Project
Country	**Financing Instrument**
Bhutan	Investment Project Financing
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Kingdom of Bhutan	Thimphu Thromde, Ministry of Works and Human Settlements

Project Development Objective (PDO)

Original PDO

The objectives are to: (i) support Bhutan's municipal reform program by strength ening municipal finance and management systems in Thimphu and Phuentsholing; and (ii) improve infrastructure services in northern Thimphu where no formal servic es are currently available.

Revised PDO

The objectives are to: (i) support Bhutan's municipal reform program by strengthening municipal finance and management systems in Thimphu and Phuentsholing; and (ii) improve infrastructure services in northern Thimphu where no formal services are currently available.

PDO as stated in the legal agreement

The revised PDO is to i) strengthen municipal finance and management systems in selected Thromdes; ii) improve infrastructure services in Thimphu; and iii) support implementation of the urbanization policies under the Recipients Eleventh Five Year Plan

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
IDA-47440	12,007,500	12,007,500	8,988,263
IDA-54310	17,400,000	17,400,000	15,780,832
Total	**29,407,500**	**29,407,500**	**24,769,095**
Non-World Bank Financing			
Borrower/Recipient	700,000	0	0
Total	**700,000**	**0**	**0**
Total Project Cost	**30,107,500**	**29,407,500**	**24,769,095**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
29-Apr-2010	24-Aug-2010	21-May-2013	31-Dec-2015	30-Jun-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
13-Aug-2014	5.97	Additional Financing Change in Project Development Objectives Change in Results Framework Change in Components and Cost

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Moderately Satisfactory	Moderately Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	09-Nov-2010	Satisfactory	Satisfactory	.69
02	01-Jun-2011	Satisfactory	Moderately Unsatisfactory	2.65
03	19-Dec-2011	Satisfactory	Moderately Satisfactory	2.65
04	24-Jun-2012	Satisfactory	Moderately Satisfactory	2.65
05	29-Dec-2012	Satisfactory	Moderately Satisfactory	3.75
06	17-May-2013	Satisfactory	Moderately Satisfactory	5.67
07	19-Nov-2013	Moderately Satisfactory	Moderately Satisfactory	6.58
08	23-May-2014	Moderately Satisfactory	Moderately Satisfactory	6.64
09	29-Nov-2014	Moderately Satisfactory	Moderately Satisfactory	7.05
10	18-Jun-2015	Moderately Satisfactory	Moderately Satisfactory	8.14
11	12-Aug-2015	Moderately Satisfactory	Moderately Satisfactory	8.24
12	01-Jun-2016	Moderately Satisfactory	Moderately Unsatisfactory	10.00
13	27-Sep-2016	Moderately Satisfactory	Moderately Unsatisfactory	10.72
14	17-Apr-2017	Moderately Satisfactory	Moderately Unsatisfactory	11.96
15	28-Jun-2017	Moderately Satisfactory	Moderately Satisfactory	11.96
16	20-Dec-2017	Moderately Satisfactory	Moderately Satisfactory	18.16
17	27-Jun-2018	Moderately Satisfactory	Moderately Satisfactory	22.47
18	02-Jan-2019	Moderately Satisfactory	Moderately Satisfactory	22.47
19	13-Sep-2019	Moderately Satisfactory	Moderately Satisfactory	25.46

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Energy and Extractives	**3**
Other Energy and Extractives	3
Social Protection	**88**
Public Administration - Social Protection	88
Transportation	**3**
Urban Transport	3
Water, Sanitation and Waste Management	**6**
Sanitation	3
Water Supply	3

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Public Sector Management	**16**
Public Administration	16
Administrative and Civil Service Reform	5
Municipal Institution Building	11
Urban and Rural Development	**84**
Urban Development	45
Urban Infrastructure and Service Delivery	23
Services and Housing for the Poor	22
Rural Development	39
Land Administration and Management	39

ADM STAFF		
Role	**At Approval**	**At ICR**
Regional Vice President:	Isabel M. Guerrero	Hartwig Schafer
Country Director:	Nicholas J. Krafft	Mercy Miyang Tembon
Director:	John Henry Stein	John A. Roome
Practice Manager:	William D. Kingdom	Catalina Marulanda
Task Team Leader(s):	Toshiaki Keicho	Zahed Hossain Khan, Dechen Tshering
ICR Contributing Author:		David Mason

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. **At the time of appraisal, Bhutan had experienced rapid social and economic growth and had recently completed a major political transition from an absolute to a constitutional monarchy.** The adoption of the 2008 Constitution initiated major shifts in the roles of the central and local governments. Prudent macroeconomic management, the beneficial exploitation of hydropower resources and support from development partners had contributed to rapid gains in growth and poverty alleviation. Bhutan faced development challenges, including reliance on subsistence agriculture, a small and highly dispersed population of around 670,000 distributed largely in remote, mountainous rural villages and small towns, making the circulation of people, goods and information expensive and time-consuming.

2. **This social and economic transition was paralleled by rapid urbanization**. Since 2000, the urban population in Bhutan was estimated to have grown by about 4.7 percent per year - among the fastest in the region. In 2010, about one-third of the population was urban, with the expectation that this would reach 50 percent by 2020.[1] Meeting the challenges of urban development, management and finance had become a key development agenda for the Royal Government of Bhutan (RGoB) and development partners, as reflected in the 10th Five-Year Plan (FYP, 2008-13). The goals of managing sustainable urban development, increasing housing supply and supporting decentralized governance were explicitly outlined in the FYP.[2]

3. **Thimphu municipality, the country's capital and by far the biggest city in Bhutan, had the most urgent urbanization challenges.[3]** The city's population was growing rapidly at an estimated 7 to 10 percent per annum in the decade to 2005. To accommodate this growth, the city boundaries were expanded, and the nation's first comprehensive Structural Plan was adopted in 2004 for the greater Thimphu municipal area (the Thimphu Structure Plan or TSP). Implementation was laid out in a series of detailed Local Area Plans (LAPs) which are neighborhood-level master plans that define land uses, lay out plots and include rights-of-way and the location of infrastructure facilities to serve a projected future population at full build-out. While the Structural Plan provided a long-term framework, Thimphu municipality had been struggling to manage immediate urban expansion pressures, particularly in the northern and southern edges of the city. Water and sewerage services were competently provided only in the core areas. As the population grew quickly, the city faced additional congestion pressures and a greater demand for housing stock. The implementation of LAPs was a way to alleviate development pressures by providing serviced plots for housing to accommodate new population growth in order to avoid the potential emergence of informal settlements.

4. **Apart from the increasing demand for urban housing and basic services, Thromdes (municipalities) had limited capacity to efficiently manage municipal finances.[4]** At the time of appraisal, newly-enacted laws[5] had delegated Thromdes with basic service delivery responsibilities and the power to collect and manage own-source revenues.

[1] Gross National Happiness Commission. 1999. *Bhutan 2020: A Vision for Peace Prosperity and Happiness*
[2] The 10th FYP, pg. 33.
[3] At appraisal the city had 80,000 residents. The population in 2019, at the time of this ICRR, exceeds 120,000.
[4] A Thromde is a type of local government equivalent to a municipality or city corporation. There are 20 Thromdes in Bhutan, of which four are designated as Class "A" Thromdes, which according to the Local Government Act of 2009 affords them certain administrative and service delivery powers. The others are "Class B" Thromdes that function as administrative centers for their respective District (Dzongkhag) or yenlag Thromdes, which are smaller towns of between 1,500-5,000 people.
[5] These include the 1999 Bhutan Municipal Act, the 2007 Local Government Act, and the 2007 Public Finance Act.

However, Thromdes had limited experience and technical capacity to manage these activities, and relied primarily on transfers from the central government, and implementation support from line ministries. At appraisal, for example, the two Thromdes, Thimphu and Phuentsholing, relied on paper-based budgeting, accounting systems and tax rolls, and staff had limited working knowledge of municipal finance principles.

5. **The project built on the lessons of the previous Bank operation, the Bhutan Urban Development Project (BUDP-1), which closed in 2007.** Based on results and experience from the BUDP-1, the government and the World Bank agreed to focus on capacity building and urban finance and management capacity building for Thromde governments (Thimphu and Phuentsholing). Whereas the previous project had financed basic infrastructure in ten smaller settlements across the country, the Second Bhutan Urban Development Project (BUDP-2) would focus on investments in basic infrastructure in Thimphu where population growth concerns were most urgent. Thimphu had experienced rapid population growth and needed urgent support to implement the recently issued LAPs under the TSP. In order to avoid the potential for informal settlement growth in the city, the government proactively sought to manage urban expansion by providing planned and serviced land to accommodate new development in a financially sustainable manner.

6. The Asian Development Bank (ADB) had agreed to support LAP implementation in the southern part of Thimphu, with the World Bank focusing on northern Thimphu. In addition to financing selected infrastructure investments, the project would build on the lessons of BUDP-1 by providing support to deepen capacity and for systems development for the Thromdes and of the Ministry of Works and Human Settlement (MoWHS), the line ministry, for service delivery and urban management.

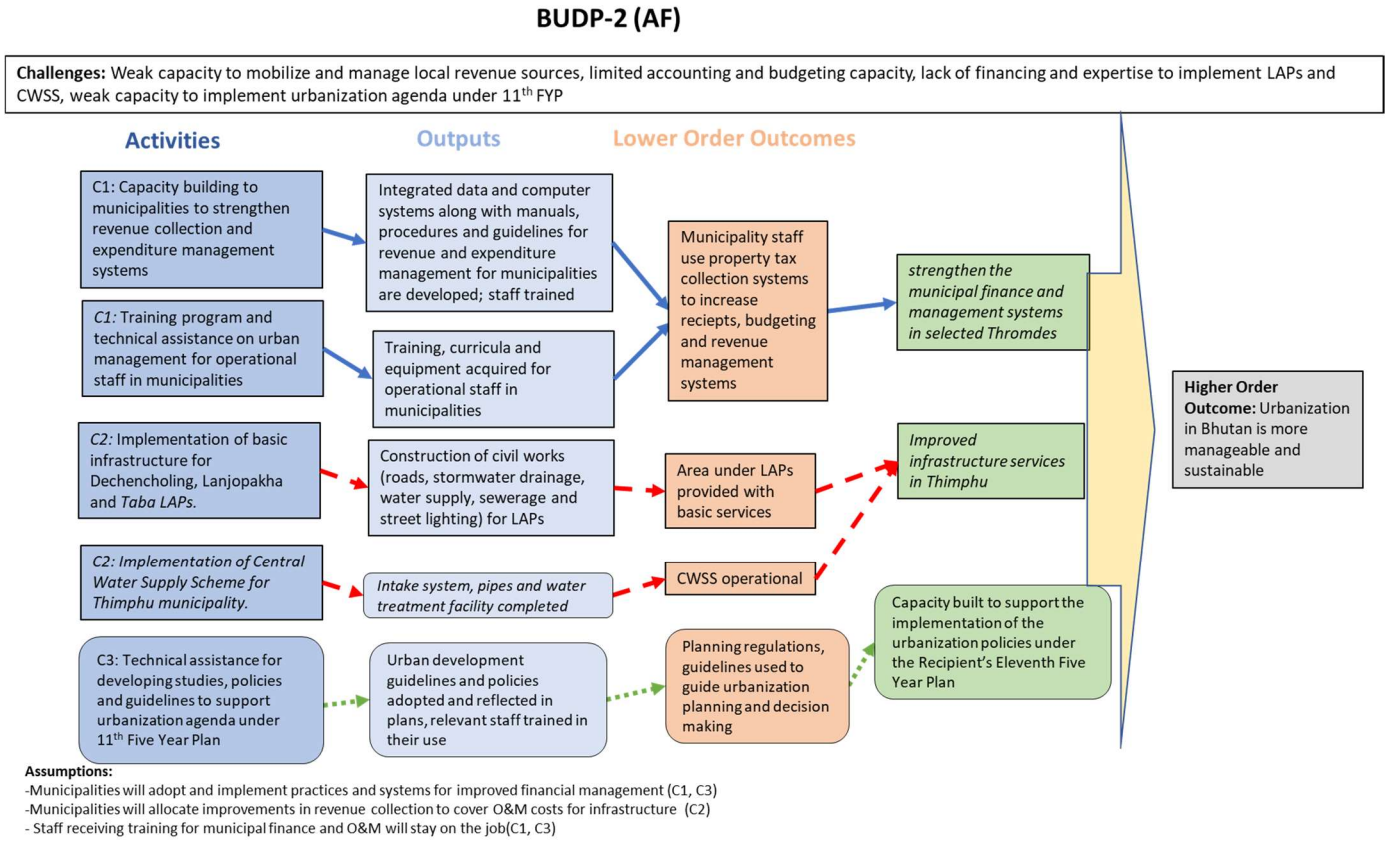
7. **The project's objectives were consistent with the Country Assistance Strategy (CAS) for FY2006-09.** Project preparation was informed by the CAS and the 9th FYP (2002-7), especially the focus on addressing the urban growth of Thimphu and the need to strengthen the institutional framework for urban planning and service delivery. The project was aligned with CAS Pillar 1: to "Promote quality of urban life and balanced regional development" measured in terms of "satisfactory urban service delivery" in Thimphu and select towns.[6] The CAS drew from the RGoB's 9th FYP objectives including the first goal of "Improving Quality of Life and Income" through "improving access to… safe water and sanitation" and "expanding infrastructure including roads… urban infrastructure and housing."[7]

Theory of Change (Results Chain)

8. The Theory of Change (ToC) for BUDP 2 and the AF is presented below. The expanded scope of activities and outcomes under the original Credit are in italics and the rounded boxes show the new activities and outcomes added under AF.

[6] World Bank 2005. Country Assistance Strategy for the Kingdom of Bhutan for the Period FY 06-09, pp.20.
[7] Royal Government of Bhutan 9th FYP pp. 49-50

Figure 1: Theory of Change for Second Bhutan Urban Development Project and AF



Project Development Objectives (PDOs)

9. The PDO was: to*: (i) support Bhutan's municipal reform program by strengthening municipal finance and management systems in Thimphu and Phuentsholing; and (ii) improve infrastructure services in northern Thimphu where no formal services are currently available*. The PDOs in the PAD and the Legal Agreement were identical.[8]

Key Expected Outcomes and Outcome Indicators

10. Achievement of the PDO was to be measured by the following outcome indicators:

a) Percent change in the local revenues collected by the Thimphu and Phuentsholing municipalities;

b) Number of building permits issued by Thimphu municipality for Dechencholing and Lanjopakha; and

c) Number of households in Dechencholing and Lanjopakha with new piped water and sewerage connections.

11. PDO indicator (a) measures the improvements in financial management systems in the two municipalities through increased efficiency in own source revenue collection, while (b) and (c) measure beneficiaries receiving improved infrastructure services in the two LAPs. Indicator (b) is a proxy for consumer demand expressed by investment in

[8]PDO section of the datasheet includes the original Credit PDO twice. Based on guidance from OPCS, this section was not edited to include the AF PDO. Instead, the AF PDO is included under "PDO as stated in the Legal Agreement."

housing construction on the sites, and indicator (c) measures access to improved water sources developed under the project, as at the time residents in the LAPs used private or non-purified water sources.

Components

12. The project consisted of three components as described below.[9]

Component 1 – Municipal Finance and Management (US$1.5 million): This component aimed at strengthening local revenue policies and the administrative systems for Thimphu and Phuentsholing municipalities, as well as their expenditure management and financial management capacities to operate as fully functional local governments. The component also sought to strengthen the RGoB's policy framework for sustainable financing of urban services, to support its department of national budget's design and implementation of a systematic inter-governmental financing framework for urban local governments.

Component 2 – Thimphu Northern Area Development (US$9.3 million): This component provided funding for implementation of Dechencholing and Lanjopakha LAPs and enhance the capacity of Thimphu in implementing construction supervision and for facilitating the provision of low-income housing in the LAPs.

Component 3 – Capacity Building (US$1.2 million): This component provided training, goods and incremental operational costs to strengthen capacities in the areas of internal work processes and urban services delivery to Thimphu and Phuentsholing Thromdes, as well as MoWHS.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

13. In 2013, the RGoB requested support for implementing its Municipal Finance Policy and the 11th FYP with the objective of strengthening systems and processes for municipal financial management and to improve financial sustainability for local governments. In the Mid-Term Review (MTR) conducted in May 2013, the Bank found that the original PDO remained relevant, and agreed to RGoB's request for additional support. Thus, on August 13, 2014, the project underwent a Level I Restructuring, including approval of an Additional Financing (AF) Credit in the amount of US$17.4 million equivalent. The PDO was revised as:

to i) strengthen the municipal finance and management systems in selected Thromdes; ii) improve infrastructure services in Thimphu; and iii) support implementation of the urbanization policies under the Recipient's Eleventh Five-Year Plan.

14. The revised PDO remained relevant to the Country Partnership Strategy (CPS) for FY2011-14. It contributed directly to the CPF's Second Area of Engagement, "Spatial Planning and Public Services", Results Cluster 3, "Integrated Sustainable Urban-Rural Development."[10] With the AF, the project also responded to the RGoB's 10th Five Year Plan, specifically the objective to "provide services to populations in rural and expanding urban areas that lack them while addressing emerging social challenges."

[9] Drawn from Schedule 1 of the *Financing Agreement for the Second Urban Development Project*, July 13, 2010.
[10] World Bank 2010. Country Partnership Strategy for the Kingdom of Bhutan for the Period FY11-14. Report No. 56577-BT

Revised PDO Indicators

15. **The Results Framework was updated to reflect the expanded scope of activities (see components below), and to incorporate certain World Bank core urban sector indicators**. Under the AF, the PDO indicators were revised to include the scaling-up of municipal finance and infrastructure activities in support of the PDO (see Annex 8). For the municipal finance activities, the PDO indicator was revised to specify property tax revenue collection, which would be directly attributable to the property record digitization and administrative systems that were supported by the project. It also included the two additional Thromdes of Gelephu and Samdrup Jongkhar. For the infrastructure outcome, Lower Taba LAP was included and the PDO indicator was adjusted to include households in LAPs with connections to water and sewerage as a separate indicator, to better quantify the benefits of different types of infrastructure improvements. The World Bank obtained a grant from the Institutional Development Fund (IDF) to support fiscal decentralization studies and training, and the RGoB requested to allocate the previously planned project funds for other activities.[11]

16. **The RGoB requested that the AF support deepening the institutional and policy framework for urbanization, as proposed in the newly adopted 11th FYP.** Specifically, Component 3 was adjusted to provide support for a new PDO of implementing urbanization policies detailed in the 11th FYP. Activities under this component would serve as inputs for MoWHS staff to inform the development of a broader institutional framework for urban planning to be adopted across the RGoB, including: (i) nationally through a Spatial Planning Act; and (ii) locally through subsidiary policies, standards and regulations to be used at local governments under the guidance of MoWHS. The outcome of this new objective was to be measured by tracking the "number of new plans that incorporate the urbanization policies" (PP, Page 8).

Revised Components

17. The AF revised the components of the project, and provided additional resources as follows under IDA Credit 5431' as detailed below. The PDO section of the ICRR datasheet includes the original Credit PDO listed twice. The section could not be edited in preparation of the ICRR and the AF PDO is included under "PDO as stated in the legal agreement."

    Component 1 - Municipal Finance and Management (US$$0.7m) was revised to scale up the financial management systems and capacity building activities to Gelephu and Samdrup Jongkhar, which were newly designated as municipalities in 2010. The new component cost became US$2.2 million.

    Component 2 - Thimphu Northern Area Development (US$15.9m) was revised to include infrastructure investments to implement the Lower Taba LAP and to finance the Central Water Supply Scheme (CWSS) for Thimphu municipality to increase the availability of water. The new component cost rose to US$26.05 million.

    Component 3 - Support for Policy Implementation (US$0.8m). This component, formerly "Capacity Building" was renamed and revised to include three sub components providing TA to the MoWHS and the municipalities by (i) developing and implementing a national human settlements strategy to guide urbanization and public investment

[11] The IDF Grant (P131088) for US$290,000 consisted of three components: (i) strengthening the capacities of the Department of National Budget (under MoF) to manage intergovernmental fiscal relations; (ii) the design of a principle-based framework for the allocation of capital and current expenditure grants; and (iii) strengthening the procedures and capacities for municipal budgeting and financial management. Work on the IDF was completed in 2016. The ICRR for the IDF found the overall outcome to be "satisfactory", but noted that further technical and capacity support, in addition to high level ownership of these recommendations at DNB and with other stakeholders was required for further implementation. Additional TA for the refinement and validation of a fiscal transfer framework would be required, with the eventual goal of institutionalizing a transfer system in future FYPs and annual plans.

priorities, (ii) drafting a national planning legislation and a set of planning standards for implementing the law, and (iii) drafting and implementing a set of architectural guidelines to be integrated in land use and construction design standards. The new component cost rose to US$2.0 million.

Project Cost. With the AF, the total project cost rose from US$12.7 million in the PAD to US$29.4 million, or 132 percent increase. As of this writing, the six-month grace period for disbursement of eligible activities was still open, but the actual project cost is very close to $24.77 million. This is 95 percent increase over the original cost but a 16 percent decrease over the cost in the AF Project Paper. The final disbursement of BTN87m (US$1.2m) is anticipated by the closing of the grace period. (Please note amounts at approval in both the datasheet and Annex 3 reflect the total costs in the AF Project Paper, not the PAD.)

Extension of Credit Closing Date. To allow ample time to implement the new works and TAs, the closing date was extended from the original date of December 31, 2015 to June 30, 2019.

Other Changes

N/A

Rationale for Changes and Their Implication on the Original Theory of Change

18. **Changes to BUDP 2 came at the request of RGoB to deepen commitment to policy priorities under the 11th FYP, particularly support for institutional strengthening to enable the MoWHS to implement a broader urban policy agenda.** The changes expanded the project's ToC by: (i) increasing the number of municipalities that would benefit from improvements in financial management; and (ii) adding an additional LAP and the CWSS to the project's scope. The addition of the support for urbanization policy outcome also contributed to the higher order outcome of improving the management and sustainability of urbanization (see Annex 7 for additional context). The added results area supports this through strengthening the institutional structure and longer-term strategy for planning and management of urban growth, as detailed in the rounded boxes in the Theory of Change in Figure 1.

II. OUTCOME

A. RELEVANCE OF PDOs

19. **At closing, the PDOs remained relevant to the Country Partnership Strategy FY2015-19.** The PDO contributes directly to Results Area 3 (Supporting Green Development) and Outcome 6 (Improved Infrastructure Management). The revised PDO reflects the project's focus on improving finance systems to enhance the municipalities' ability to collect own-source revenues and, in the case of Thimphu, to improve land use planning and implementation of urban infrastructure. The support for the implementation of urbanization policies provided a foundational policy and institutional framework to better enable local governments and the MoWHS to plan and manage urban development. The PDO and the urban agenda also remain relevant to the draft CPF for the period FY2020-2024 especially its focus on improving access to and the quality of basic services and strengthening domestic revenue mobilization

20. The PDO remains highly relevant for the current 12th FYP (2018-2023), which aims to create a "just, harmonious and sustainable society through enhanced decentralization."[12] The PDO is consistent with specific priorities of the 12th FYP, including "reducing poverty and inequality" and "improving efficiency and effectiveness of public service delivery," which are supported by infrastructure investments in Thimphu. BUDP-2 complements the Plan's emphasis on decentralization by "empowering local governments… through provision of greater financial, planning and

[12] Royal Government of Bhutan, 2018. The 12th FYP, Vol. 1, pg. 19

administrative responsibility, authority and accountability", through support for capacity strengthening, municipal finance and urban planning.

21. **Continued urbanization pressure has further increased demand for local service delivery and planned urban growth, confirming the relevance of the PDO.** Additional background on the recent urbanization context is provided in Annex 7. Based on the most recent census data (2017), the intercensal (2005-2017) mean annual urban population growth rate was 2.5 percent, four times the overall population growth rate of 0.6 percent. Since 2005, the total share of urban population has grown from 30 percent to 38 percent. Thimphu district is now home to 15 percent of Bhutan's population, and the Thromde includes 40 percent of the total urban population, currently at 114,000 - a gain of 34,000 since appraisal. Thimphu faces increasing constraints on housing affordability as its buildable area declines and congestion and pollution increase. Other Thromdes are also struggling with coverage and sustainability of basic infrastructure services for residents.[13]

Assessment of Relevance of PDOs and Rating

22. The original Credit and the AF included relevant objectives and activities that were in line with the RGoB's 11th and 12th FYPs and the World Bank's CAS and CPF. The project informed and responded to the ongoing policy dialogue with the RGoB on critical issues of urbanization and decentralization. The AF responded to the RGoB's need to expand local government fiscal capacity by including additional Thromdes. The AF also responded to the demand for a more substantive policy and institutional framework to manage urban planning and management across the country, in line with the 12th FYP. As related in the Borrower ICRR, the "PDO was well drafted and the objectives set therein remain as relevant then as they are now…" (Annex 6). **The relevance of the PDO is therefore rated "High."**

B. ACHIEVEMENT OF PDOs (EFFICACY)

23. **The AF expanded the original project, as detailed in the ToC.** The AF broadened the scope of the original two PDOs and added a third. The project is therefore assessed by the revised PDO and the results approved in the AF Project Paper. The PDO under the AF builds on the original PDO by adding an objective to support the implementation of urbanization policies under the RGoB's 11th FYP. The scope of the various components under the AF remained consistent with those of the initial project, but were scaled up to expand the geographic scope. The targets of the PDO level results indicators were revised upwards and refined to better capture improvements attributable to the original project objectives (property tax, water and sewerage connections), but remained overall consistent with those of the original project. A split evaluation was therefore not carried out, as is permitted under the ICRR guidelines.[14]

Assessment of Achievement of Each Objective/Outcome

Outcome 1: Strengthening Municipal Finance and Management Systems in Selected Thromdes

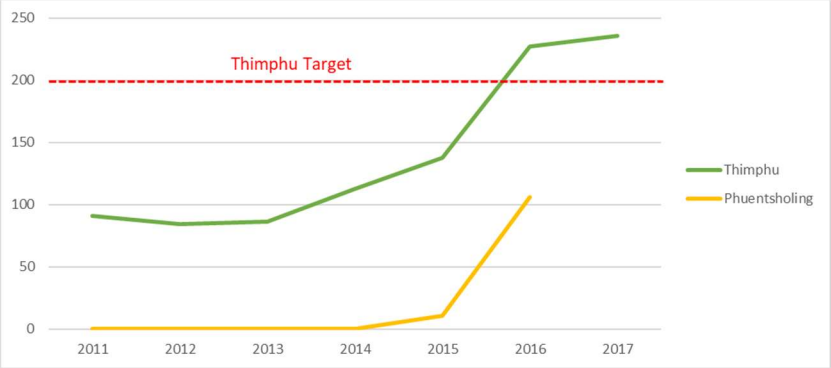
24. The project contributed substantially to strengthening municipal finance and management systems in the four targeted cities (Thimphu, Phuentsholing, Samdrup Jongkhar and Gelephu). "Municipal finance" and "management" under Outcome 1 are mutually referential; all activities led to improved municipal financial management. The project financed the development and installation of Revenue Management Systems (RMS) and Digital Asset Registers (DAR), as well as the drafting of Budget and Accounting Manuals for the four Thromdes with complementary staff training. The Thromdes were able to establish and utilize these more comprehensive records

[13] World Bank 2019. Bhutan Urban Policy Notes.
[14] World Bank. 2018. *Guidance Note on Implementation and Completion Report for Investment Project Finance Operations*, pg. 17.

to improve the collection of property taxes. Progress was tracked using the intermediate indicator measuring the digitization of property records, which required a property survey and the design and implementation of a registry database. The property record digitization allowed greater and more efficient property tax collection, which was reflected in the outcome indicator tracking the percent change in property tax revenue.

25. At appraisal, municipal finance data was recorded manually on paper ledgers, and data records were weak. For the intermediate indicator on property records digitized, the baseline was zero as there were no digital records of properties and targets for digitization were estimated based on available data. By closing, Thimphu (7,433 properties), Phuentsholing (2,803 properties), and Gelephu (1,199 properties) had exceeded property digitization targets (5,000; 2,000 and 1,000 respectively) by fully identifying taxable properties that previously had not been recorded. Samdrup Jongkhar (target 1,500 properties) is expected to reach the target in 2020, as the system was implemented just before closing. ISRs record progress of tax revenue collection for Thimphu only in absolute revenue amounts (i.e., the total amount of property tax revenue collected in BTN), with a final target of BTN 200 million that was met by project closing (see Figure 2 below). Phuentsholing also increased property tax revenue collection rapidly, from BTN 11 million in 2016 to BTN 106 million the following year - a gain of 963 percent. Due to delays in the roll-out of the property and tax record digitization and training, Gelephu and Samdrup Jongkhar had yet to report increases in property tax collection at the time of project closure as the DAR systems had just been completed. These will be reported for the first time at the close of the fiscal year in June 2020, with the expectation that they will achieve the target of a 10 percent increase.

Figure 2: Property Tax Revenue Collected, Thimphu and Phuentsholing (Millions of BTN)



26. **Component 1 contributed to other results that were not captured in the Results Framework.** Improvements in the accounting and budget systems enabled Thimphu and Phuentsholing municipalities to start preparing annual financial statements in 2015, which allowed them to better monitor expenses and revenues, as well as plan capital investments. Thimphu has met recurrent expenditures based in part on the increase in property tax revenue collected. Thimphu has linked the DAR and RMS to the water service billing systems, and has introduced an e-payment system for more efficient water tariff collection.

27. **The budget and accounting manuals, which will enable the Thromdes to better manage budgets and improve accounting systems, have been completed.** The original Credit financed training courses designed with local universities to facilitate the use of municipal finance systems by staff. Component 3 had intermediate indicators tracking training in two areas: (i) policymakers trained on fiscal decentralization principles; and (ii) staff trained in Thimphu and Phuentsholing on municipal finance. Based on the 2013 MTR, the fiscal decentralization activity was dropped and the intermediate indicator removed; as previously mentioned, the work was completed through a

separate IDF grant. By October 2013, 85 officials in Thimphu and Phuentsholing had been trained through 12 courses (against the original target of 100 by 2015). The government assessed future training needs and decided to reduce the amount of financing originally committed for this purpose, so that they could be used to cover cost overruns on infrastructure works under Component 2. The training indicator was subsequently dropped during the preparation of the AF. However, training was provided to concerned staff on municipal finance systems

28. **The first development outcome was achieved by project closing in Thimphu and Phuentsholing, which were prioritized given their larger number of properties for digitization and taxation.** The implementation of technical assistance, DAR, RMS systems in Gelephu and Samdrup Jongkhar started later, since they have fewer properties. However, by project closing all systems had been set up and people had been trained. Based on the experience of Thimphu and Phuentsholing, property tax revenue collected is expected to increase rapidly in Gelephu and Samdrup by the end of the fiscal year. The project substantially delivered training materials and course work for capacity improvement, before other arrangements were made to implement further training. **Based on these results, the efficacy of Outcome 1 is rated as 'Substantial.'**

Outcome 2: Improvement of infrastructure services in Thimphu

29**. This objective was met through the financing: (i) five LAPs in northern Thimphu; and (ii) improvement of the city's water system.** The original Credit and the AF targeted the development of three LAPs in designated expansion areas in the northern outskirts of Thimphu, which prior to the project had low populations and were primarily used for agriculture. With the adoption of land pooling plans (see Annex 7), the project financed works for the Dechencholing, Lanjopakha and Taba LAPs, including paved roads, stormwater drainage, streetlights, water and sewerage trunk lines, as well as water and package wastewater[15] treatment facilities. The project also financed the central water supply scheme (CWSS), with a 10 MLD treatment facility at Taba. The CWSS increased the overall water supply capacity of Taba (which previously did not have its own improved water source) and directly benefits the five proximate northern LAPs. The services financed under the project directly benefited 22,205 people, and an additional 11,100 living within 500 meters of the improved LAPs (about 29 percent of all residents in Thimphu). All civil works packages for the LAPs and the CWSS were completed by the closing date of the project. Water and waste water treatment facilities were operational and were providing water and wastewater outputs in line with national standards by project closing.[16]

30. By 2017, the project had savings of approximately US$2 million, as a result of competitive procurement and exchange rate gains. These savings were used to support parallel, Thromde-led works at Hejo-Semtelling and Junshina-Pamtsho in LAPs consisting of roads, streetlights, piping and utility ducts. These additional LAPs were not included in the AF results matrix, but they contributed to expanding the total beneficiaries of the project by 33 percent.

31**.** The intermediate results included the number of serviced plots developed under the Dechencholing, Lanjopakha and Taba LAPs based on the land pooling plan, for a combined target of 400 with a baseline of zero. Other intermediate results indicators tracked the total kilometers of internal roads, water pipes, and sewerage pipes for the three LAPs. By project closing, all civil works were completed in the three LAPs and were operational. However, the targets for infrastructure-related indicators, which were estimated at appraisal based on feasibility studies, were not revised during implementation and therefore do not reflect adjustments to the original designs. As a result, while some of the intermediate results show discrepancies relative to their targets, by closing all LAPs (streets, sidewalks, streetlights, trunk water and wastewater networks and serviced plots), including water and wastewater plants, were completed

[15] A package wastewater treatment facility is a small, pre-manufactured treatment plant that is used for small communities.
[16] The CWSS was formally inaugurated at a ceremony attended by the Prime Minister on December 11, 2019, but the facility had been operational since April 2019.

and were taken over by the Thromde (Dechencholing in September 2013, Lanjopakha in September 2016, and Taba in March 2019).[17] WTPs and WWTPs are operating at near capacity and producing clean water for beneficiaries. A summary of intermediate results is included below, while a detailed list of project outputs and performance measures of the treatment plants are included in Annex 1A and Annex 10, respectively.

32. **Building permits.** The project did not include any technical assistance or incentives for beneficiaries to build on the serviced plots. Instead, it was assumed that the availability of services would be sufficient to encourage construction on the newly developed plots. As a result, the outcome was to be measured by the number of new building permits issued in the LAPs (see Annex 9). Under the original Credit, the combined target for Dechencholing and Lanjopakha was 140, with 82 percent of the target achieved by the MTR. Based on progress, the target was revised upward at that time, and combined with the estimates for Taba for a target of 430 permits under the AF. By project closing, a total of 364 permits had been issued, a substantial (85 percent) achievement of the target. Civil works in Taba were completed shortly before closing, and based on the experience from Dechencholing and Lanjopakha, the issuance of building permits in Taba is expected to increase with the completion of works and is on pace to reach the target of 170.

33. **Water connections.** Under the original Credit, water and sewerage results were combined, with a target of 600 new household connections from Dechencholing and Lanjopakha (summarized in Annex 9). Under the AF, the indicator was split to track water and sewerage separately, with the final combined target of 850 new connections including Taba. The baseline for all three LAPs was zero. The AF also financed the CWSS, which would supply water to all the northern LAPs of the city. The results framework identified a baseline of 20,000 connections with a target of 21,200 connections. At closing, there were 732 connections in the three LAPs (86 percent of the target) and 22,005 connections across the city (104 percent of the target). This number is expected to grow as the CWSS became operational in April 2019. The completion of the CWSS has greatly improved the reliability and coverage of water service, as attested in the Borrower's ICRR report (Annex 6) and evidenced by exceeding the target. The CWSS has also contributed toward achieving the RGoB's Flagship 24x7 Water Program under the 12th FYP.[18] Recent monitoring data from the CWSS and other WTPs show that treated water outflow volumes are appropriate for design capacities, and that treated water complies with national quality standards (Annex 10).

34. **Sewerage Connections**. As with the water connection indicator, sewerage targets were a combined 600 for the two LAPs under the original credit. With the inclusion of the Taba LAP in the AF the combined target was set at 950, with all baselines zero. By closing, there were a combined 510 completed sewerage connections (54 percent of the target), as detailed in Annex 9. Performance data in Annex 10 for the WWTPs show that they are operating at close to full capacity and that the treated of effluent is in line with national standards.

35. PDO targets were established during project preparation based on estimates of: (i) LAP build-outs, to be financed under the project; and (ii) water and sewage connections, to be financed by developers and/or households following the completion of trunk infrastructure and the commissioning of LAP water and waste water treatment plants. During implementation, as is typically observed in service provision projects globally, the number of household water and sewerage connections on completion of works lagged relative to original estimates. In the specific case of this project, household connections were not made mandatory. Moreover, the Thromde charged a separate fee to connect to the trunk network. The lack of a requirement to connect to the newly established network, additional fees, as well as the

[17] Aide Memoire, IDA Implementation Review Mission March 13-20, 2014; Aide Memoire, Implementation Support Mission: February 5-20, 2017; Aide Memoire, Implementation Review Mission and Urban Policy Notes Dissemination May 13-17 and June 18-31, 2019.
[18] The Water Flagship Program aims to provide uninterrupted water coverage urban and rural households for 24 hours a day, seven days per week.

slow implementation of water and wastewater treatment facilities in the Lanjopakha and Taba LAPs and the CWSS, contributed to the slow uptake of connections in those LAPs. By contrast, in Dechencholing - where trunk infrastructure and treatment plants were completed first - connection levels are the highest.

36. To increase the number of household connections in Lanjopakha and Taba, the Thromde have held outreach and notification sessions to encourage residents to connect, once the plants become operational. Thimphu also waived the fee to connect to water and sewerage networks in the LAPs. Taba and Lanjopakha's water reliability has improved recently with the completion of the CWSS in April 2019. According to a beneficiary survey conducted in the LAPs in November 2019, most households reported high levels of connections to piped water systems for drinking (mean of 87.1 percent across the three LAPs) and flush toilet use (mean of 92.3 percent across the three LAPs); see summary statistics in Annex 9. Demand for connections to a reliable improved water supply in Taba and Lanjopakha is likely to increase following the recent completion of the CWSS, which provides additional uninterrupted supply to all of northern Thimphu.

37. In aggregate terms, the project made substantial progress to achieving the revised outcome indicator targets for the LAPs. By closing, the intermediate indicator of serviced plots in the LAPs had been achieved and the building permit indicator was substantially achieved. For water and sewerage connections, achievements were respectively substantial and modest in aggregate terms. There were differences in achievement between the LAPs because of delays in the completion of water and waste water treatment facilities as well as beneficiary reluctance to pay fees to connect. Since closing, connections in Lanjopakha and Taba (the last to connect to treatment facilities) have continued steadily. A beneficiary survey completed in November 2019 found that most households in each LAP reported a *better* overall quality of life since moving to the LAP (Dechencholing 60 percent, Lajopakha, 60 percent and Taba 54 percent). Majorities reported the highest levels of satisfaction with the quality of specific infrastructure improvements (See Annex 9). Component 2 has materially improved infrastructure services in Thimphu. **The efficacy of Outcome 2 is therefore rated as "Substantial."**

Outcome 3: Support for implementation of urbanization policies

38. The project financed the preparation of technical documents and policy guidelines and standards that provided the MoWHS and the Thromdes a framework for implementing their urbanization priorities. These included the Bhutanese Architectural Guidelines, the National Human Settlements Strategy (NHSS), the Spatial Planning Act, and Planning Regulations and Standards. The NHSS helped inform the investment priorities of the MoWHS and other ministries in the 12th FYP, and served as an input to the recently completed Comprehensive National Development Plan (CNDP). The Planning Regulations and Standards have been incorporated in other planning documents under preparation (including LAPs and Valley Plans). The results were tracked according to the number of plans that incorporate the findings and recommendations of these outputs, with a target of five, which was exceeded. Some of the plans informed by the component include: the Paro Valley Development Plan 2015-2035; the Punakha Urban Development Plan 2016; and LAPs in various dzhongkhags, including Samdrup Choling and Jomotsangkha in Samdrup Jongkhar, Dagapela and Lhamoyzingka in Dagana, and Deikiling, Chamkhar and Jalikhar in Bumthang. The intermediate indicator was the number of officials trained to use the architectural guidelines and standards for the review of construction plans, with a target of 80. By project closing, the target was exceeded with 404 staff trained (505 percent), as the MoWHS expanded the training to cover additional relevant technical staff from other ministries and dzongkhags and gewogs across the country.[19] Based on the above discussion, the rating for Outcome 3, Support for Implementation of Urbanization Policies, is rated as 'Substantial.'

[19] A gewog is the lowest tier local government unit, roughly equivalent to a subdistrict. There are 205 gewogs in Bhutan.

Justification of Overall Efficacy Rating

39. With all three PDOs rated substantial, the overall efficacy is also rated "Substantial."

C. EFFICIENCY

Assessment of Efficiency and Rating

40. At appraisal, the economic analysis focused on the LAP infrastructure. It used the per-capita costs required to make water and sewerage investments to estimate cost effectiveness using international benchmarks. The economic analysis found that the planned build-outs for Dechencholing and Lanjopakha were cost effective. It then calculated additional benefits based on the increased value of land and houses that received these services, using a hedonic regression model that identified the impact of specific service amenities on housing values. The appraisal calculated an Economic Rate of Return (ERR) for each of the LAPs over 20 years, finding an ERR of 28 percent for Dechencholing and 33 percent for Lanjopakha. However, these rates were highly sensitive to the number of households that move to these LAPs. Under the AF, the same analyses were performed for Taba LAP, finding an ERR of 25 percent. An ERR yielding 24 percent was estimated for the CWSS using the estimated public health benefits and water tariffs generated. Approximately 82 percent of project funds, which were utilized exclusively for infrastructure provision, were subject to economic analysis.

41. A follow-on economic analysis was conducted at project closing, which mirrored the approaches used at baseline and the AF, and drew on updated project monitoring data and the 2017 Bhutan Living Standard Survey. Key variables in the economic analysis were the final costs incurred by the project activities, the population and rate of water and sewer connections, and an estimate of rental value increases as a result of the improvements (using a hedonic model). A detailed economic analysis is presented in Annex 4. The results are summarized in Tables 1 and 2 and show that all investments continue to have a robust ERR, with results sensitive to observed and future build-out rates and water connection rates.

Table 1: Summary of Economic Rate of Return Analyses

ERR at Appraisal		*ERR at AF*	*ERR at Closing*	*Difference*
Dechencholing LAP	33 %		27.9%	-5.1%
Lanjopakha LAP	28 %		39.3%	+11.3%
Taba LAP		25 %	12.7%	-12.3%
Central Water Supply		24 %	28.6%	+4.6%

Table 2: Summary of Net Present Value for Rentals under the Two Scenarios

LAP	***Net present value of rental increments***	
	Baseline (BTN)	**NPV at Closing (BTN)**
Dechencholing	381.4 million	511.2 million
Langjopakha	279.4 million	354.8 million
Taba	607.0 million	557.6 million

42. The project provided additional benefits to the Thromde governments in terms of greater own-source revenue collection from building and land taxes through the digitization of property records and implementation of revenue management systems. In Thimphu for example, the introduction of property digitization and revenue management systems has improved tax payment compliance and has allowed own-source revenue to match recurrent expenditures. It has provided the Thromdes with additional resources from a larger tax base to meet recurrent cost demands, should they be incorporated into future capital investment and operations and maintenance (O&M) plans.

43. **Implementation efficiency**. By closing 84 percent of IDA financing was disbursed, with an additional six months' grace period extended through December 31, 2019 for final reimbursement of works completed. The project's original closing date was extended by four years in August 2014 to complete all project related activities under BUDP-2 plus the AF. Additional efficiencies were achieved by project savings due to exchange rate fluctuations and competitive procurement in an increasingly competitive market for civil works contracts (in contrast, during the initial stages of BUDP-2 works were delayed due to inadequate bids). These additional savings were mobilized to implement water, sewerage, road and streetlight improvements in two other adjacent LAPs, which further expanded the benefits under the credits, enhancing per-capita cost efficiency.

44. Based on the above discussion, project efficiency is rated as "Substantial."

D. JUSTIFICATION OF OVERALL OUTCOME RATING

45. The relevance of the all three of the PDOs is rated "High." The efficacy of all three PDOs is rated "Substantial", and efficiency is also rated "Substantial." Normally these ratings would signal a "Satisfactory" outcome. However, under PDO 1, achievement of the property tax revenue targets for Samdrup Jongkhar and Gelephu had shortcomings, as did the targets for water and sewerage connections in Lower Taba and Lanjopakha LAPs under PDO 2. Based on the experience with tax revenue collection in Thimphu and Phuentsholing, as well as the increasing trend of water and sewage connections in Dechencholing, it is likely PDO1&2 targets will be met in 2020. However, with M&E also rated "modest," the ICR conservatively rates the final project outcome as "**Moderately Satisfactory."**

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

46. **Land Pooling.** The project's successful use of land pooling as an urban planning tool was a key innovation for managing urban growth. The introduction of a policy framework and LAP implementation strategy utilizing land pooling for managing urban growth is unique in the Bank's work in the urban sector. While the adoption of land pooling plans for the LAPs required significant time, it provided the advantage of reducing the costs and resettlement required for land acquisition and allowed the existing property owners to enjoy the benefits of infrastructure provided under the project. Annex 7 provides additional detail on the use of land pooling under the project and its benefits.

47. **Gender.** The project did not directly address gender disparities. While most property owners involved in land pooling were men, the beneficiary survey found comparatively high parity in the gender of beneficiary household heads in two LAPs: in Dechencholing the ratio was 57.5 male to 42.5 female, and in Lanjopakha 54.3 male to 45.7 female.[20] This contrasts with the 2017 BLSS finding of 70.9 percent males compared to 20.1 percent females in all urban areas in Bhutan

48. **Institutional strengthening was a key goal of the project, but the results have been mixed.** A critical focus of the

[20] The number of reporting households is 400 in Dechencholing and 350 in Lanjopakha.

project design was to improve systems and capacity at the Thromde and Ministry levels, by drawing on the integration of technical assistance and complementary training and learning support to technical staff. Thimphu Thromde has strengthened its implementation capacity, particularly in terms of procurement, financial management (FM), monitoring and evaluation (M&E), and safeguards. While the project strengthened construction management capacity in Thimphu, improvement in contract management has been slower as evidenced by slow or contested payments to works contractors. While there is demonstrable improvement in terms of the outcomes attributable to improved revenue collection and management and implementation for the urban policy agenda, the less successful completion and systematization of appropriate technical training sessions by project closing may limit the long-term ability of Thromdes to maintain the improvements in municipal finance and management, due to regular staff turnover and shifting managerial and leadership priorities.

49. **Mobilizing Private Sector Financing.** The project financed civil works for basic infrastructure, capacity building systems, and activities and technical reports to inform policy and operational guidelines. LAP implementation stimulated demand for construction materials and labor in the project areas. The completion of these works has provided opportunities for private investment for plot development in these areas and in the construction of residential buildings. The MoWHS and Thimphu Thromde have been charged with identifying operations and maintenance arrangements for water distribution and sewerage systems financed by the project. There is a current build-operate-transfer contract agreement for these facilities until the expiration of these contracts in the next five years. This presents opportunity for deeper private sector involvement in service delivery.

50. **Poverty Reduction and Shared Prosperity.** The project contributed to the reduction of multidimensional poverty by improving the quality and availability of basic infrastructure and serviced plots for formal housing construction. While much of the direct benefits were localized to LAP beneficiaries, the introduction of the Central Water Treatment Plant has expanded the quality of water service for the entire city. Infrastructure investments in water have increased access to a regular source of clean water. Sewerage networks and treatment facilities have contributed to improvements in wastewater quality and reduced the need for septic systems and the discharge of untreated waste water within the areas covered by the LAPs.

Other Unintended Outcomes and Impacts

N/A

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

51. **Project preparation was informed by the lessons of BUDP-1.** BUDP-1 was rated Moderately Unsatisfactory due to delays in completion of infrastructure investments in ten district towns, and the limited progress in improving their capacity to deliver urban services. As a result, BUDP-2 featured a more focused geographical scope of investments (only in Thimphu), introduced a new approach to land assembly (land pooling) for the planned developments, and included a deliberate focus on building local government capacity. As accounting and budget systems at the municipal level were extremely weak (relying on handwritten accounts books), the municipal finance component was designed to establish basic datasets and operational processes that would allow municipalities to improve their financial management. This demand was further deepened by the time of the AF, when RGoB sought to develop an overall urban policy framework for the country to allow local governments to better plan and manage urban expansion.

52. **The use of land pooling for LAP design and implementation was important for obtaining community support,**

reducing displacement and land acquisition costs. Land administration was identified as a critical obstacle at the close of BUDP-1, as new planned development had the potential to displace residents or require payment of compensation for land acquisition. The preparation of land pooling plans for the LAPs took nearly four years, and involved a long process of consultation and sensitization of LAP residents. This approach, which was in line with the 2009 Land Pooling Policy, was adopted in BUDP-2 and was key to developing local capacity in plan implementation and community consultation. It has resulted in broader public awareness and interest for land pooling to be applied in other LAPs and municipalities across the country.[21]

53. **During project preparation, the Thimphu leadership and technical staff took an active role in implementing land pooling for the LAPs.** This included frequent visits and consultations with residents affected by the project to respond to complaints, questions and feedback. Extensive consultations that were part of the land pooling exercise were time consuming and delayed preparation, but they improved community support for LAP implementation and reduced resettlement risks. Furthermore, compared to the alternative of land acquisition, they reduced the RGoB's compensation costs for resettlement. Overall, at the time of Credit approval, the project was well-prepared and ready for implementation.

B. KEY FACTORS DURING IMPLEMENTATION

Factors under RGoB control

54. **The project team was able to respond quickly to issues and adapt, in partnership with the Thromde leadership and the technical team and.** Gaps in human resources were identified quickly and addressed through regular meetings and discussions with the Bank team. Staff turnover during project implementation was generally low and allowed for improvements in coordination across implementing entities, particularly by the beginning of the AF. The project objectives and activities also responded to government priorities. Implementation benefited from the coordination of policies with activities and outputs in the sector, both in terms of the Land Pooling Policy (which enabled the preparation of Component 2 at the beginning of the project) and the technical outputs under Component 3 (which responded to a growing demand for an urban legal and policy framework).

55. **The government's commitment to the learning and capacity-building objectives introduced as part of the original Credit and then later under the AF to institutionalize the municipal finance support, dropped over time.** While Thimphu made good progress in training and mainstreaming activities under the municipal finance component, understanding of and commitment to the importance and utility of the municipal finance component activities was uneven in the other Thromdes. As a result, the implementation of project activities progressed more slowly and required additional supervision and pressure by the Planning and Policy Division (PPD) of the MoWHS to ensure timely implementation and reporting of activities in the Thromdes. As implementation of the Municipal Finance components progressed, needs assessments for future training requirements to implement these systems and processes slowed. For Thimphu Thromde, works implementation was improved through additional procurement staffing and more competitive bid packages, which enabled project savings that were used for additional works. Contract management performance by the Thromde was uneven, causing delays in contractor payments which required an extension of the reimbursement grace period and release of the final disbursement (See Annex 5).

Factors under World Bank control

56. **The implementation approach utilized by the World Bank benefited from lessons of the previous project and a stable**

[21] For example, the settlement of Kabesa, adjacent to Dechencholing, has petitioned the Thromde and Ministry of Agriculture for steps to explore the potential for land pooling.

task team. Over the ten-year life of the project the task team membership remained consistent and combined with regular supervision missions allowed for close collaboration within the project team and for flexibility and agility to respond to changing government priorities. For example, the World Bank identified separate trust fund resources for undertaking the fiscal transfer mechanism studies, which freed Credit resources for other activities under the original Credit. The team also proactively sought to identify and address capacity gaps with the implementing entities, including in safeguards and procurement. Knowledge and familiarity with municipal finance principles among the MoWHS project staff was limited at the project's inception. The team addressed this by hiring an international consultant to be based in Thimphu to facilitate the refinement of technical outputs and provide just-in-time support to the Thromdes and the MoWHS.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

57. **Baseline indicators and targets were set based on data availability and feasibility studies of the original credit and AF.** For the municipal finance outcome, data held by Thromdes on the number of properties was limited and incomplete, and targets were set based on best estimates. The PDO and intermediate indicator targets for the infrastructure component were based on feasibility study estimates. At the time of AF appraisal, the targets for improved plots in Dechencholing and Lanjopakha were increased. The other AF targets remained the same as in the original Credit or were set based on the new geographic scope (the additional Thromdes and LAP) and the additional outcome area for urbanization. The targets for the urbanization policy support outcome were set based on best estimates.

58. Results data for Thimphu LAPs utilized existing permitting and plan check systems under the Thromde, including the issuance of building permits and water and sewerage connections for new construction. In this way, M&E practice for the Thromde built on and further enhanced existing systems. Intermediate indicators on roads, water and sewerage networks were to be obtained from regular contractor progress reports and were to be compiled in semiannual results monitoring reports.

59. Results indicators for the municipal finance and infrastructure components should have been revised with additional measures to track the project's contribution to the development objective. For the municipal finance outcome, there is a potential link between the increase in property records digitized and the subsequent revenue collected. However, other outputs under the component that could also contribute to improving the municipal finance and management outcome efficacy, such as tracking improvements in budgeting, accounting and FM, were not included in the results framework.

60. For the infrastructure services outcome, the PDO indicators document plot improvements and service delivery connections within the three LAPs, but the link to the objective of "improving services in Thimphu" is less direct. For example, the Thromde M&E cell also tracked the number of beneficiaries within and adjacent to all five of the LAPs that benefitted from access to these services, though this was not included as an indicator in the Results Framework. Such an indicator may have been able to also include the beneficiaries in Hejo-Samtelling and Jungshina-Pamtsho LAPs.

M&E Implementation

61. **M&E implementation was generally satisfactory in terms of the quality and timeliness of results monitoring reports.** By the appraisal of the original credit, project staff had completed necessary M&E training, and appropriate data collection and reporting arrangements had been agreed. The PPD of the MoWHS provided good quality bi-annual monitoring reports, which were generally submitted on time. The Thromde hired additional engineers tasked with environmental monitoring and contracted a sociologist to monitor social issues around the RAP implementation. Financial management and procurement reporting arrangements also produced timely and good quality reports.

62. **The revision of targets to reflect progress towards the development objectives could have been more regular and consistent.** For example, the property tax revenue collected was recorded in ISRs first as a percentage of local revenue under the original Credit, and then in aggregate BTN terms under the AF. ISRs for the project report PDO results in aggregate terms (combined across LAPS) and include results targets that are different from those in the AF results framework (where targets are disaggregated by LAP or Thromde). Property tax targets for Thimphu and Phuentsholing could have been revised upward at the time of preparation of the AF. given that the intermediate indicator (digitization) had been exceeded by appraisal of the AF. Intermediate indicators for the LAP implementation could also have been adjusted to reflect the final agreed construction package designs at contract signing.

M&E Utilization

63. **Regular reporting of results allowed the team and the PMU to adjust and refine the PDO indicators during the MTR and the subsequent AF preparation (as noted above in the section on revised PDO indicators).** The change from "local revenue" to "property tax collected" was an example of how the indicator was improved to better measure the project's contribution. Similarly, splitting water and sewerage connections also allowed the team to identify and track progress on both types of connections, which assisted the Thromde in outreach efforts to improve connection rates through meetings and public awareness campaigns, especially when the water and wastewater treatment plants became operational.

Justification of Overall Rating of Quality of M&E

64. **The rating for the quality of M&E for the project is "Modest."** The M&E framework for the project was generally appropriate for assessing progress toward achieving the PDO. However, targets for intermediate and outcome-level indicators were not revised until the final months of the project. Some targets were adjusted in the ISRs following the AF, though no justification was included. ISRs could have also better reflected the agreed results framework, including disaggregating data, to better monitor progress achieved over the course of the project, specifically at the LAP and Thromde levels.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

65. **Environmental compliance.** The project was classified as Category B and the environmental risk was rated moderate. The project was one of the pilots for the use of Country Systems (CS) on environmental safeguards, and the provisions under OP 4.00 were applied. Environmental safeguards triggered for the project included Environmental Assessment (OP 4.01) under the original Credit, and Natural Habitat (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11) and the International Waterways (OP 7.50) under the AF. In accordance with OP 7.50, India and Bangladesh were notified, the former responding with no objection and the latter submitting no response. A Safeguard Diagnostic Review for Piloting the use of Bhutanese Systems to address environmental safeguard issues in the BUDP-2 was prepared and disclosed on December 4, 2009. Site-specific environmental screening and assessment was carried out based on the EMP and site specific EMPs with costs were incorporated in the respective bid documents. Regular monitoring was conducted by the Environment Unit of the Thimphu Thromde. In addition, the MoWHS carried out semiannual monitoring and the National Environment Commission (NEC) conducted annual monitoring.

66. The environment monitoring reports indicated that there were no major or irreversible impacts, no damage or loss to important flora and fauna as a result of project activities in the development of LAPs, roads and the water supply scheme. Construction-related environmental issues including air and water quality, waste disposal, traffic, and health and safety were well-managed. During the implementation phase, there was an in environmental safeguard monitoring capability. Thimphu Thromde recruited two environment officers, who were responsible for monitoring EMP compliance. Compliance with environmental standards for the project is considered 'Satisfactory'.

67. **Social safeguard compliance.** Social safeguard compliance for the project is rated as 'Satisfactory.' The project triggered the Involuntary Resettlement Policy (OP/BP 4.12), and Social Assessments (SA) and Resettlement Action Plans were completed on time in good quality for each of the three LAPs. The project's social safeguard instruments were prepared based on social assessments of physical interventions under the project, including the development of the three LAPs, the, establishment of the Central Water Supply Scheme (CWSS), and the development of the local roads in the Hejo-Samtelling and Jungshina- Pamtsho LAPs under the AF.

68. Adverse social impacts associated with Component 2 works were loss of physical structures, fruit trees, businesses and access to rental houses due to land pooling, and temporary restrictions to agricultural lands for the installation of water mains. Resettlement Action Plans (RAP) were prepared for the three LAPs and Social Impact Management Plans (SIMP) for the CWSS and the development of local roads in Hejo-Samtelling and Jungshina-Pamtsho. The three RAPs and the two SIMPs were prepared, disclosed and implemented as per the requirements of the World Bank OP 4.12. Social impact assessment was conducted on the implementation of RAPs for the three LAPs as a condition for civil works commencement.

69. Resettlement and rehabilitation of the affected households and persons (AHP) were managed as per the RAPs and the SIMPs agreed with the Bank, and the entitlements approved by the NLCS. Thimphu Thromde could not fully staff the Social Development and Resettlement Cell (SDRC) and engaged a Sociologist (as agreed during the project preparation) to help its Urban Planning Division on social impact management and resettlement of the AHPs.[22] Thimphu Thromde established a grievance redress mechanism (GRM) during the implementation of the project. A Grievance Redress Committee (GRC) was formed and operated for receiving complaints related to land pooling and resettlement compensation payments. The GRC met on a regular basis to resolve complaints from aggrieved AHPs. All the decisions taken by the GRC were documented and forwarded to the MoF and NLCS for endorsement. Payments to be made to the AHPs were duly verified by the GRC before forwarding to higher authorities for scrutiny and approval.

70. **Financial Management (FM).** The FM arrangements were informed by lessons and recommendations from BUDP-1 and FM risks were rated "modest" during preparation. FM performance of the project is rated as 'Satisfactory.' Appropriate mitigation measures, especially to improve disbursement, were included in the project design by consolidating the accounting and reporting relationships to the two designated PIUs in the MoWHS and Thimphu Thromde. FM operated in accordance with Country Systems and the project FM units were appropriately staffed and coordinated with each other. Quarterly IUFRs were submitted on time and were generally of good quality. Annual external audit reports submitted by the Royal Auditing Authority were also generally timely and of satisfactory quality; however, the timeliness of the project authorities in responding to audit findings could have been better.

[22] All resettlement related data and information have been preserved in MS Excel in computer and in printed form with the UPD for any future use and reference. Only three AHPs are left to be paid, as they could not be tracked despite repeated efforts; the compensation amounts have been retained in the Thromde accounts section and are available for payment.

71. **Procurement.** Overall procurement performance of the project is rated as 'Moderately Satisfactory.' Under the original Credit, procurement was carried out by the PPD of the MoWHS and Thimphu Thromde under World Bank procurement guidelines. Over the course of the project, the implementing entities made significant progress in terms of improving procurement capacity by increasing the number of staff and reducing procurement delays by devising and implementing action plans to expedite the review of major contracts. During the AF, Thimphu Thromde became the first agency in a World Bank financed project to be allowed to use Alternative Procurement Arrangements (APA).[23] Despite the qualification, the Bank and implementing entities did not further develop the recommendations and next steps from the Bank's assessment, in order to implement APA in the project.

72. During the initial phase of the project, civil works packages were subject to significant delays due to weaknesses in contract management. These delays were due in part to understaffing at the implementing entities, lack of understanding of appropriate contract provisions, and a scarcity of consultants and qualified bidders on the initial contracts. These initial issues receded after the Thromde hired additional staff, introduced customized contract provisions, and the quality of bids improved through market signals. In order to improve implementation performance, the World Bank introduced a customized contract provision named "milestone-based contract performance penalty / liquidated damage". This approach allowed the contractor greater incentives to complete delayed or back-dated activities and was able to improve the speed and quality of contractor performance in works construction, as demonstrated by the contracting and completion of works for the LAPs at Hejo-Samtelling and Jungshina-Pamtsho by the close of the project. Despite the progress, there were several instances where poor contract management led to contested or delayed contractor payments for works, suggesting the need for improvement in recording and monitoring systems. However, the milestone-based model successfully reduced the incidence and length of delays in construction and has since been integrated into national procurement systems.

C. BANK PERFORMANCE

Quality at Entry

73. **BUPD-2 was designed as a continuation of BUDP-1, but with a greater emphasis on capacity building for both Thromde and MoWHS technical staff.** The design of the project drew from lessons from the prior project and extensive consultations with government stakeholders and the public in order to prepare the land pooling plans and related safeguards measures. The risk assessment was appropriate, as were the proposed mitigation measures. The measures and systems developed under the original Credit (FM, procurement, social and environmental safeguards) were largely carried over and continued under the AF. The indicators in the Results Framework were logical and used to guide decision making throughout implementation. Project identification began in October 2004 and the project was approved by the Board in April 2010 leading to a high preparation cost of USD$871,000. Preparation was prolonged by the need to design and introduce the legal framework for land pooling as the implementation mechanism for LAP investments. This required extensive study and consultations with community groups as further detailed in Annex 7. However, the results of land pooling likely saved substantial land acquisition costs during implementation and contributed to high levels of beneficiary satisfaction.

[23] The purpose of the APA is to streamline and expedite the procurement policies of the borrowing country. To qualify, an implementing entity will have to pass the Bank's APA assessment. Key factors influencing qualification for APA include an overall low incidence of corruption, robust review systems and relatively small value contract packages. For additional information, see World Bank "Alternative Procurement Arrangement Assessment Report on Thimphu Thromde" October 2016.

Quality of Supervision

74. The project benefited from frequent and focused supervision missions which produced 19 ISRs that spanned 27 missions. The Bank team was appropriately staffed and benefitted from limited turnover during implementation. Supervision missions regularly documented progress, safeguards, FM, and procurement issues, including agreed actions to resolve issues that arose. The MTR provided a comprehensive assessment of project performance and progress toward PDO indicators and provided the basis to scale up the project and refine the PDO. The AF included revisions to the Results Framework (as detailed in Annex 8), which improved the clarity and attribution of project contributions, though the reporting of these data and targets in subsequent ISRs was inconsistent. The team also continued to work closely with the PMU to identify and utilize project savings for additional works in two LAPs.

75. **There were delays in the procurement and implementation of works under Component 2 due to bid quality and lack of competitiveness, although these generally improved under the AF.** The team and the PMU met regularly to identify major issues and create task lists to prioritize activities and agree on clear timelines, the achievement of which were reflected in the changes in progress ratings, e.g., from “moderately unsatisfactory” to “moderately satisfactory.” Training and capacity building activities, which were focused primarily on municipal finance systems, progressed slowly throughout the entire project and were not a fully effective complement to the completion and integration of revenue management and budgeting systems introduced under the project.

Justification of Overall Rating of Bank Performance

76. The Bank’s work during project preparation and implementation enabled the project to make significant gains in terms of municipal financial management capacity and strengthening the policy framework for managing urban planning and growth. The project delivered basic infrastructure to manage urban expansion using the innovative technique of land pooling. Land pooling also significantly prolonged project preparation to a total of nearly six years and a total cost of $871,000. Project supervision missions reported progress toward the development objectives clearly and highlighted problems or recurrent challenges, including agreed actions to resolve them. However, the M&E design was weak, and the Bank failed to make the necessary changes to remedy these weaknesses. Results reporting in ISRs could have been improved by ensuring consistency with the Results Framework from the AF as described earlier under the Justification of M&E Rating. Overall, Bank performance is “Moderately Satisfactory”, in line with the rating for project outcome.

D. RISK TO DEVELOPMENT OUTCOME

77. **The main risk to the longer-term development outcome of stronger urban management and decentralized governance and service delivery is the deepening and continuity of improved capacity.** For Thromdes, this would include the prioritization of appropriate staffing and training to ensure that the municipal finance systems are fully and consistently utilized. This includes ensuring that new technical staff are trained in the principles of municipal finance and are able to operate the DAR and RMS systems. For the MoWHS, this includes a continued focus on mainstreaming the policies, standards and regulation in support of urbanization policies in the planning and development control functions of local governments. In each case, this will require a deeper commitment by leadership and management to ensure that both training and the new systems and processes are fully integrated into operations.

78. Water and waste water treatment plants financed by the project have been contracted under a design-build-operate-transfer model. The Thromde has hired engineers and technical staff to learn from the contractor on operating these facilities and conduct regular water quality testing. O&M costs will need to be covered from the budget, once the contract concludes in 2022; however, it is not certain if O&M will be assigned a budget line item or that adequate revenues from the current tariff system will be adequate to cover the costs. The Thromde will need to identify a

longer-term operating model, whether through fiscal transfers, the use of its own-source revenues, or through revenues from tariffs to ensure that recurrent operations and maintenance costs are met.

79. There is the potential that targets for PDO-1 (property revenue for Samdrup Jongkhar and Gelephu) and PDO-2 (water and sewerage connections to Lower Taba and Lanjopakha) will not be reached in 2020. However, this risk is low given that by project closing all required outputs had been completed (DAR and RMS for PDO-1 and LAP infrastructure including water treatment plants for PDO-2) and progress was moving steadily toward achieving the targets.

V. LESSONS AND RECOMMENDATIONS

80. **Land pooling.** The project's use of land pooling as a planning instrument to allocate land for infrastructure and community facilities is a significant contribution to global practice. It reflects the government's strong commitment to developing alternative approaches to land acquisition. Land pooling offers a more sustainable and inclusive land assembly approach that may reduce the cost of land assembly by minimizing resettlement costs, and at the same time it allows to share the benefit of development with landowners. The Bank has used the experience in Bhutan as case study in technical workshops and self-guided courses[24] and publications[25] to introduce the concept to a global practitioner audience.

81. **Capacity building and training.** Borrower commitment to capacity building activities is critical for prioritizing project activities and developing a longer-term plan for deepening knowledge sharing among key staff. The municipal finance component faced slow implementation, because at the policy level there was incomplete or inconsistent buy-in on the justification for and prioritization of these activities. This was due in part to the lack of familiarity with fiscal decentralization and municipal finance principles, and the potential for expanded responsibilities and autonomy of Thromdes. Without regular training and support from management, the momentum is likely to be lost through regular civil service staff transfers and shifting leadership priorities. This is also relevant for the continued institutionalization and implementation of the policies, regulations and standards on urban planning, especially once the Spatial Planning Act is finally adopted.

82. Based on the experience of the PIUs and focal points in the four Thromdes, there is potential for introducing a mechanism for peer-to-peer knowledge and learning exchange across technical and policy staff to further extend and deepen the implementation of budget and accounting systems, tax records and revenue management supported by the project. This would consist of more experienced technical staff in finance, accounting, budget management, and IT leading brief workshops or providing just-in-time support to counterparts in other Thromdes.

83. **Outreach for plot connections.** The project design assumed that plots with access to services would generate new house construction with water and wastewater connections. However, delays in the completion and commissioning of these facilities, as well as concerns over connection fees, slowed the uptake. As a response, the Thromde undertook a series of outreach activities to encourage households to connect to the system. Such activities could be built into infrastructure components in the future, either through preliminary market studies to gauge demand and willingness-to-pay for these services. This would also allow for water service provision to better meet residents' needs and provide better estimations for tariff rates, technical design elements and O&M costs.

[24] https://olc.worldbank.org/facilitated/link/00003104
[25] http://pubdocs.worldbank.org/en/698311444321631760/World-Bank-What-Makes-a-Sustainable-City.pdf

84. **Alternate Procurement Arrangements.** Given Thimphu Thromde's qualification for APA as part of the project, this modality should be taken up for future projects where Thimphu Thromde is the implementing entity. This would require the Bank team and Thimphu Thromde to agree on using APA during preparation and updating the 2016 APA agreement based on new procurement reforms and the scope of the future project.

85. **Environmental safeguards.** Close monitoring of each subproject sites is mandatory to ensure full compliance with Bank safeguard policies, in particular workers' health and safety requirements. The incorporation of EMP text and the cost of EMP implementation in the tender document, as well as adequate supervision are essential to ensure proper implementation of the EMP. The establishment of an environmental unit in TT for the project is a positive step, as it would support addressing the environmental aspects of ongoing and future projects.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Strengthening municipal finance and management systems in thromdes

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Local revenue collection (Thimphu Thromde)	Percentage	7.58 31-Aug-2010	50.00 24-Apr-2014		108.23 15-Aug-2018

Comments (achievements against targets):
This indicator covers Thimphu Thromde only. At the AF the indicator was revised to cover property tax specifically. The target set at AF was 50. Reporting was also conducted in terms of millions of BTN. The result was achieved at closing.

Objective/Outcome: Improve infrastructure services in northern Thimphu LAPs

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of people in urban	Number	0.00	1200.00		33309.00

areas provided with access to all-season roads within a 500 meter range under the project		29-Apr-2010	27-Sep-2016		14-Dec-2018

Comments (achievements against targets):
This results indicator was not included in the additional financing. The first target is included in the mid year 2016. ISR. The target was later revised upward to 12,000 following the completion of survey data

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of building permits issues for LAPs	Number	75.00 31-Aug-2010	100.00 15-Apr-2015	160.00	221.00 15-Aug-2018

Comments (achievements against targets):
This indicator refers to Dechencholing LAP. The baseline was drawn from the progress completed by the beginning of the AF, where the target was revised upward from 100 to 160 permits. The target was achieved.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of households with	Number	0.00	600.00	600.00	732.00

new piped water connections		31-Aug-2010	15-Apr-2015		15-Aug-2018

Comments (achievements against targets):
This indicator refers to new water connections for the total of all three LAPs. Under the Original Credit, the target was a combined total for two LAPs and also included households with sewerage. The target was achieved at closing

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of household with new sewerage connections	Number	0.00 31-Aug-2010	600.00 15-Apr-2015		510.00 12-Jun-2019

Comments (achievements against targets):
The indicator reflects a combined target and results from all three LAPs. The target was revised with the inclusion of the AF. The target was substantially achieved at closing.

A.2 Intermediate Results Indicators

Component: Thimphu Northern Area Development

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

Number of newly serviced plots for construction	Number	0.00 29-Apr-2010	300.00 15-Aug-2018		624.00 28-Jun-2019

Comments (achievements against targets):
The indicator target and results cover the total number of serviced plots from all three LAPs. The target was met by project closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
New roadside footpaths constructed	Kilometers	0.00 04-Apr-2010	10.98 15-Aug-2018		14.58 28-Jun-2019

Comments (achievements against targets):
The indicator was not included as an intermediate indicator under the AF. The indicator covers the combined totals for all three LAPs. The target was exceeded by project closing due to revisions in the civil works designs.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
New off-road footpaths constructed	Kilometers	0.00 29-Apr-2010	0.62 15-Aug-2018		1.12 28-Jun-2019

Comments (achievements against targets):
The indicator was not included under the AF as an intermediate indicator. The indicator covers the combined totals for all three LAPs. The target was exceeded by project closing following revisions to the civil works designs for the completed LAPs.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Internal roads constructed, non-rural	Kilometers	0.00 29-Apr-2010	12.10 15-Apr-2015	20.40	20.40 15-Aug-2018

Comments (achievements against targets):
The indicator covers the combined totals for all LAPs. The target was revised upward with the inclusion of Taba LAP. The target was achieved by project closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Roadside drains	Kilometers	0.00 29-Apr-2010	10.39 15-Aug-2018		10.39 15-Aug-2018

Comments (achievements against targets):

This indicator target and results are a combination of all three LAPs. The indicator was not included as an intermediate indicator under the AF. The target was achieved by project closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Water pipelines	Kilometers	0.00 29-Apr-2010	12.82 15-Aug-2018	20.70 22-Apr-2015	20.30 28-Jun-2019

Comments (achievements against targets):
The indicator target and results are the combination of all three LAPs. The target was revised upward with the inclusion of Taba LAP at the AF. The civil works package designs were revised during implementation below the original target estimate. The required piping for final LAP designs were completed by project closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Sewage Pipelines	Kilometers	0.00 29-Apr-2010	13.05 15-Aug-2018		13.75 28-Jun-2019

Comments (achievements against targets):
The indicator was introduced at AF and consists of the combined total for all three LAPs. The target was achieved by project closing.

Component: Capacity Building

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of Staff at TCC and PCC Trained	Number	0.00 29-Apr-2010	80.00 15-Aug-2018		404.00 28-Jun-2019

Comments (achievements against targets):
The indicator was introduced at AF with a target based on Thimphu and Phuentsholing Thromde staff. The Ministry developed and implemented the training module for additional technical staff from dzongkhags, gewogs and other line ministries.

Component: Municipal Finance & Management

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of Property Tax Records Computerized	Number	0.00 29-Apr-2010	5000.00 23-Apr-2010	7000.00 15-Dec-2015	8738.00 15-Aug-2018

Comments (achievements against targets):
The indicator is for Thimphu Thromde. The first target was achieved and the target adjusted in 2015. The target was achieved by project closing.

B. KEY OUTPUTS BY COMPONENT

Outcome 1: Strengthen the municipal finance and management systems in selected Thromdes	
Outcome Indicators	1. Percentage increase in property tax collected
Intermediate Results Indicators	1. Number of property records digitized
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. Digital Asset Registries (USD $0.6m) 2. Budget and Accounting Manuals, Revenue Management Systems (USD $0.7m) 4. Training and capacity building for Thimphu and Phuentsholing (USD $0.28m)
Outcome 2: Improve infrastructure services in Thimphu	
Outcome Indicators	1. Number of building permits issued for serviced plots in LAPs 2. Number of new piped water connections that result from project intervention 3. Number of new household sewer connections constructed under the project.
Intermediate Results Indicators	1. Number of newly serviced plots (plots with access to water and sewerage connections from the project) 2. Kilometers of internal roads constructed 3. Kilometers of water pipelines constructed 4. Kilometers of sewerage pipelines constructed

Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Dechencholing LAP works (USD$2.6m) 2. Dechencholing water treatment plant (USD$ 0.8m), Capacity 1.4MLD 3. Dechencholing Package waste water treatment plant capacity 0.9MLD (USD $0.3m) 4.Lanjopakha LAP works ($USD 2.2m) 5. Lanjopakha package wastewater treatment plant capacity 0.6MLD. 6. Taba LAP works (USD$4m) 7. Taba package waste water treatment plant, capacity 1LMD. (USD$0.3m)8. CWSS: 10 MLD Water Treatment Plant at Taba, Intake and settling system at Dodena, 14km pipleline ($USD7.4m) 9. Hejo-Samtelling and Jungshina-Pamtsho LAP works ($USD5.9m)
Outcome 3: Support implementation of the urbanization policies under the Recipient's Eleventh Five Year Plan	
Outcome Indicators	1. Number of plans that incorporate urbanization policies
Intermediate Results Indicators	1. Number of national, dzongkhag and municipal officials that received capacity building in applying Bhutanese architectural guidelines.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. National Human Settlements Strategy (2012) (USD $150k) 2. Spatial Planning Act, Planning Regulations and Standards (USD $115k) 3. Bhutan Architectural Guidelines (USD $84k).

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Toshiaki Keicho	Task Team Leader
Kirsten Hommann	Senior Economist
Asta Oleson	Senior Social Development Specialist
Samantha Forusz	Senior Social Development Specialist
Tashi Tenzing	Senior Sanitary Engineer
Surendra Govinda Joshi	Senior Transport Specialist
Mohi Uz Zaman Quazi	Senior Transport Engineer
Rama Krishnan Venkateswaran	Senior Financial Management Specialist
Manvinder Mamak	Senior Financial Management Specialist
Kumaraswamy Sankaravadivelu	Procurement Specialist
Rock Levesque	Senior Counsel
Zahed Khan	Senior Urban Specialist
Sita Ramakrishna Addepalli	Environmental Specialist
Lilian MacArthur	Program Assistant
Robin Rajack	Senior Urban Development Specialist
Supervision/ICR	
Zahed Hossain Khan, Dechen Tshering	Task Team Leader(s)
Sangeeta Patel	Procurement Specialist(s)
Savinay Grover	Financial Management Specialist
Tashi Tenzing	Team Member
Zibun Nessa Pinu	Team Member
Michelle Lisa Chen	Team Member
Rama Krishnan Venkateswaran	Team Member
Arun Kumar Kolsur	Procurement Team

Pamela Patrick	Procurement Team
Md. Akhtaruzzaman	Social Specialist
Iqbal Ahmed	Environmental Specialist
David Mason	Team Member

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY05	14.439	67,371.62
FY06	19.959	91,853.89
FY07	32.612	109,383.17
FY08	21.465	112,216.81
FY09	45.083	187,359.96
FY10	53.930	302,660.25
Total	**187.49**	**870,845.70**
Supervision/ICR		
FY10	6.390	39,878.18
FY11	26.249	149,970.07
FY12	30.451	176,493.55
FY13	29.125	147,518.43
FY14	23.276	94,886.80
FY15	19.262	83,334.95
FY16	16.471	67,993.19
FY17	17.614	92,689.53
FY18	15.087	90,005.89
FY19	22.850	129,518.93
FY20	8.975	45,635.63

Total	**215.75**	**1,117,925.15**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US$M)	Actual at Project Closing (US$M)	Percentage of Approval (US$M)
Municipal Finance & Management	2.20	1.8	81.8%
Thimphu Northern Area Development	25.20	20.1	79.7%
Capacity Building/Support for Urbanization	2.0	2.2	120%
Total	**29.40**	**24.7**	**84.0%**

ANNEX 4. EFFICIENCY ANALYSIS

Bhutan Urban Development Program –Economic Appraisal

The BUDP-2 financed infrastructure in three areas of Thimphu city: Dechencholing is situated 7.4 kilometers (by road) North of the center of Thimphu; Taba is located 5.5 km (by road) North of central Thimphu; and Langjopakha is located 2.9 kilometers North of Thimphu center.

Infrastructure services provided

Roads

- *Prior to the project*, there were no formal roads within the treated LAPs. Some plots may have had access to informal dirt roads, created by usage.
- *The project provided* a complete grid of paved roads for each LAP, with basic features such as drainage and street lighting, as a result of which each plot (and household) in each LAP now has direct frontage to a paved road.

Water

- *Prior to the project*, there was no public water supply in the treated LAPs. In addition, existing water treatment facilities in Thimphu were operating near capacity and additional supply was needed to ensure continued service in the city.
- *The project provided* a formal connection to treated municipal water for any plot that applied for it. Initially, this connection was delivered in return for a fee, but in the later stages this fee was dropped. Possibly due to the fee, not all households in the LAPs had connected to the piped water by endline. In addition, the project financed Thimphu's Central Water Supply System, which became operational in April 2019. Langjopakha and Taba LAPs were connected to this main treatment plant, while Dechencholing connected to a separate water treatment plant that was also financed by the project.

Sewerage

- *Prior to the project* there was no sewerage infrastructure in the LAPs. Household-level off-grid solutions, such as pit latrines or septic tanks, were used.
- *The project provided* connections to the sewerage network for any plot that applied for it. Initially, this connection was delivered in return for a fee, but in the later stages this fee was dropped. As in the case of water, not all plots had connected to the sewer network by the endline.

The economic analysis conducted at appraisal considered three main forms of benefit: (i) increased value of land/houses that receive services; (ii) the direct value of the services to households; and (iii) incentivizing new house construction on serviced plots. A more detailed discussion of the appraisal economic analysis and its assumptions for estimating costs and benefits are in the PAD and in the Project Files.

Economic analysis at Completion

The efficiency analysis mirrors the analysis conducted at appraisal as closely as possible by updating the coefficients in the model developed at appraisal using more recent survey data from 2017. Services provided under BUDP-2 may raise the value of land and properties in the LAPs through three channels: (i) by incentivizing construction of additional houses; (ii) by incentivizing a *higher quality* of construction, holding the number of new units supplied constant (e.g., avoiding slum development); and (iii) by raising the value of any given property,

holding constant features not supplied by the project.

As at appraisal, only the *third* of these channels (property value increase, holding constant features not supplied by the project) is considered at completion.[26] It assumes that the same number *and quality* of housing would have been provided in each LAP regardless of the project,[27] and considers only the extent to which the value of this fixed housing supply increases due to the services provided. For this purpose, a hedonic price equation was constructed to explain rental values, and the impact of the project servicing on those values (as was conducted at appraisal). The model was used to assess whether the factors presumed to drive rental gains at appraisal still hold at the end of the project. Further details on the model estimation are in the Project Files.

In order to calculate the benefits at completion, the model coefficients were applied to measures of housing quality and infrastructure in order to estimate increases in the value capitalized as rents. Estimated rents are close to those detailed in the November Beneficiary Survey in the three LAPs, suggesting that the results are credible (see separate Beneficiary Survey Report). Household survey results suggest median monthly rents of approximately BTN5,000 in Dechencholing and Langjopakha, and between BTN5,000-10,000 in Taba, with 80-95 percent of houses rented for under BTN10,000. The model estimates a rental value of approximately BTN4,200-4,600 for houses without servicing, and BTN6,500-7,100 for households with servicing, which is in line with these findings. The predicted rental value of the average house *without* the project servicing and without specifying the location is BTN4,861.1.

Piped water in the dwelling is associated with a **29.1 percent** increase in rental values, while a modern flush toilet is associated with a **14.7 percent** increase in rental values. Both coefficients are highly significant, at the 1 percent level. The coefficient on paved road frontage would imply a 3.9 percent increase in rental values for properties with paved road frontage; however, this just misses significance at the 10 percent level. This is likely due both to the small sample size and the low variation in road access (most houses in Thimphu have access to paved roads).[28]

To apply the above model to estimate the impact of the treatment on monthly rent, first a counterfactual was established by predicting the monthly rent for the average house in each LAP, absent project servicing (based on the other variables in the model),[29] and second, the analysis estimated how this rent would increase with the

[26] This reflects the approach of the baseline appraisal.

[27] There is considerable evidence that BUDP II investments enabled construction of more and higher quality housing. Before the BUDP, the three treated LAPs were mostly agricultural areas, with few houses. At the project closing, the LAPs were substantially transformed, with a large increase in the housing supply (see table below), and remaining plots expected to be developed. Most housing was high-quality, multi-storey modern housing. It is reasonable to deduce that the large increase in housing (at high quality) in the three LAPs would not have taken place without the services provided, not only because of the rapid increase in supply following the intervention, but also because Thimphu residents seem to demand a certain minimum level of servicing in order to build/inhabit a dwelling. For example, 95 percent of households have piped water on their plot; 95 percent have a flush toilet (85 percent have a toilet flushing to a sewer or septic tank, the remainder flush to a pit latrine); and the mean distance to a tarred road is 3.7 minutes (85 percent live less than 10 minutes from a tarred road). By providing this servicing in the LAPs, the project may well have opened the LAPs up to the intense development observed.

Number of households	**Dechenchholing LAP**	**Langjopakha LAP**	**Taba LAP**
Baseline	187	246	127
Endline	678	888	1,368
Increase	x 3.6	x 3.6	x 10.8

[28] In the baseline appraisal, a significant coefficient (of 13.9 percent) on roads was derived only by extending the sample to include an additional town, Paro.

[29] Based on the constant and coefficients.

addition of project servicing. We lack comprehensive LAP-level data on the characteristics of each house in order to be able to apply the model to each unit. To address this, an 'average' house (in terms of size and quality characteristics) for each LAP was estimated and the model was applied to it. From informal monitoring evidence from the field, in addition to BLSS and Beneficiary Survey data, we know that almost all houses in the LAPs are *multi-family* dwellings, with formal wall materials (stone/cement), and glass windows. The location of each LAP (in terms of kilometers to a bank, a proxy for the city center) is known. The only outstanding variable is the number of rooms, which is predicted based on the above characteristics of the LAP houses.[30]

The estimated impacts of full servicing on household rent in each LAP were compared with those estimated at baseline, finding very similar increments measured in BTN/month (but lower *percentage* increments, since absolute rents were assessed as lower at baseline).

	Rental increment resulting from provision of water, sewers, and roads (combined) on household rent			
	Current (endline) analysis		Baseline analysis	
LAP	Nu/month	Percentage of unserviced house rental value	Nu/month	Percentage of unserviced house rental value
Dechencholing	1,638	34 percent	1,612	71.6 percent
Taba	1,877	39 percent	N/A	N/A
Langjopakha	2,218	46 percent	2,351	71.6 percent

The rental increment associated with *each type of servicing* in each LAP was multiplied by the number of households receiving that servicing in each LAP in each year for 20 years. The total number of housing units in each LAP was taken from the monitoring data (for historic years), and the feasibility study and density assumptions made at baseline (for future years)[31]. The share of households in each LAP that received each type of servicing annually until 2019 was taken from project monitoring data and the endline household survey. [32][33] For future years, it was assumed that:

1. All *newly built* units are connected to water and sewerage.
2. One quarter of the remaining (pre-existing) unconnected units connect to water and sewerage each year (leading to a declining number of annual connections).
3. The final connection rate cannot exceed 95%.

The overall impact of the project servicing on land and property values in each LAP was calculated as the net present value of the induced rental value increments over 20 years, less the final project costs. This result was highly sensitive to the year from which rental value increments were calculated (which also determines the end of this 20-year period). Results were sensitive to this decision due to delays in the completion of works versus

[30] The model predicts an average of 3.09 rooms per house. Almost all variables remain significant, but the model's explanatory power is weak, with an r2 of just 16.5%.
[31] We assume this density is reached in line with the historic build rate since project initiation.
[32] The baseline economic appraisal assumed that *all* plots in each LAP would receive *all* three of the services offered by the project (roads, water, and sewers) without delay. By endline however, all beneficiaries received tarred road frontages, and all had the *option* to connect to water and sewers, but many households had not yet connected. It is believed that connections to water and sewage were initially low because a connection fee was charged by the government. This fee was subsequently dropped in 2018, and since then far more households have connected. An endline household survey suggests that 80%, 68.5%, and 91.6% of households in Dechencholing, Langjopakha, and Taba respectively had water connections by the end of 2019.
[33] We also know which servicing overlapped in each household in each LAP. All households in all LAPs received tarred road frontages, while only a subsection of these received water or sewage. In Dechencholing and Taba, all households receiving sewage also received water (but not vice versa). In Langjopakha, all households receiving sewage also received water (but not vice versa).

project start dates, and delays in most households' connection to the water and sewage networks provided until after the 2018 removal of connection fees. This sensitivity was assessed by calculating the NPV (and later ERR) when each of the three different, reasonable start dates as detailed below. The ICRR used "Scenario C" as it includes the most complete accounting of factors contributing to housing construction and rental values over the course of the project.

	Start of 20-year period to calculate NPV of rental increments
Scenario A	Year of project *initiation* in each LAP: 2013 in Dechencholing and Langjopakha, and 2015 in Taba
Scenario B	Year following project *completion* in each LAP: 2014 for Dechencholing, 2017 for Langjopakha, and 2020 for Taba
Scenario C	Year following the *removal of fees* for water and sewage connections: 2019 for all LAPs

These results are shown in the table below, and for reference also compared with estimates at baseline.

	Net present value of rental increments			
LAP	**Scenario A**	**Scenario B**	**Scenario C**	***Baseline (Nu)***
Dechencholing	326.8 million	356.3 million	511.2 million	381.4 million
Langjopakha	214.2 million	307.9 million	354.8 million	279.4 million
Taba	352.3 million	601.1 million	557.6 million	607.0 million

Other Costs and Benefits

The baseline economic appraisal for Dechencholing and Langjopakha considered a wide range of other factors relevant to the economic and financial rate of return of the project. However, most had little impact on the final project value – many were 'accounting' variables equal on the cost and benefits side, while others had low values compared to the land value impact. The baseline appraisal for Taba LAP and the central Water Treatment Plan were conducted separately at Additional Financing, and focused on the dominant costs and benefits from the Dechencholing and Langjopakha appraisals. These are detailed further in a separate Efficiency Analysis for the project. The key variables impacting the ERR were the land value increment, and the project's upfront and ongoing maintenance costs.

Economic Rate of Return at Closure

The table below summarizes the cost estimate at appraisal, AF and completion costs.

	Cost estimate at appraisal (Nu)	**Cost estimate at AF (Nu)**	**Actual costs (Nu)**	**Cost different**
Dechencholing	132.8 million		240.5 million	+ 107.7 million
Langjopakha	107.1 million		157.1 million	+ 50 million
Taba		296.8 million	271.8 million	- 25 million
Water Treatment Plant		252.5 million	238.6 million	-13.9 million

The costs were used to generate an estimated economic rate of return for each of the investments in the three scenarios. A detailed explanation of the different scenarios is included as part of the separate Efficiency Analysis.

Project	ERR estimate				
	At baseline	At AF	At endline		
Central Water Treatment Plant		24 percent	28.6 percent		
LAPs			**Scenario A**	**Scenario B**	**Scenario C**
Dechencholing LAP	33 percent		Negative	Negative	27.9 percent
Langjopakha LAP	28 percent		Negative	28.2 percent	39.3 percent
Taba LAP		25 percent	12.0 percent	12.9 percent	12.7 percent

The ERR for Taba is positive under all scenarios, but lower than that estimated at appraisal. This is explained by the slower-than-forecast build-out and uptake of water and sewer connections in the LAP. For the first four years of the project (2015 to 2019), no water or sewer connections were made, whereas the baseline assumed all households would immediately be connected. In addition, whereas the baseline predicted 2,200 houses by 2016, by 2019 the number of houses was 1,368. This particularly affects the ERR through the reduced *health benefit*.[34] The ERR for the Water Treatment Plant is forecast at 26.8 percent – marginally higher than the baseline forecast, primarily due to slight cost savings.

Under Scenario C – in which the NPV of the rental increment is calculated for 20 years beginning in 2019 - when the fees to connect to water and sewers were removed, Taba LAP was completed and water and wastewater plants became operational, the ERR for each LAP is positive. In Dechencholing, it is narrowly below that estimate at appraisal, and in Langjopakha it is 11.3 percentage points above that estimated at appraisal.

[34] Valued at Nu 1,250 per person per year in households with water connections, as per the methodology applied in the economic appraisal at Additional Financing.

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

1. *Improvement of Urban Infrastructures in Northern LAPs:* As mentioned by you, the Hejo-samtelling and Jungshina-Pamtsho LAPs were not included in the initial project scope. However with due approval from the Government and the Bank Thimphu Thromde took up the activities towards the end of the project period and completed all the works including many additional works that were required to be carried out based on the site conditions. Due to this additional works there has been cost overrun over the initial approved estimate by Nu.87 Million. However, it is well within the overall cost savings from the BUDP-2&AF projects. We would like to highlight here that upon completion of these activities the Project Development Objectives have been achieved to a great extent under the two LAPs and the residents are enjoying the facilities extended by the Project. However, till date we could not pay the contractor M/s Tundi and Chimi RD const (JV) for the works already completed in June 2019. Therefore, we would request the Bank to kindly expedite the approval process based on the detailed justifications provided by the PIU and in line with the verifications conducted by the Bank Officials.

2. *Operation and Maintenance cost of DBOT projects*: The O&M cost of the 3 DBOT Projects Viz; 0.6 MLD waste water treatment plant at Langjophakha, 10 MLD WTP at Taba under Central water supply scheme and 1 MLD STP at Taba are to be paid upon completion of the O&M period on yearly basis. Since all the above three DBOT Projects have been successfully completed and commissioned by the respective contractors which are all under the O&M period their payment needs to be made in the near future. However, upon closure of the World Bank Project the O&M cost will have to be Born by the Thromde later even though the O&M cost is already inbuilt in the Project cost. Therefore a total of 34. Million O&M cost will go back to the Bank unused fund. We would request the Bank to kindly make a note of this so as not to repeat it in the future projects.

3. *Capacity Building:* During the Implementation BUDP-2/AF Project, the MoF refused to release 50% of the ear marked budget for capacity building under the project citing that no loan money should be used for training and capacity building. Since it is imperative to allocate some budget under the Projects for training and capacity building we would recommend incorporating some fund in the form of a grant from the Bank for short term training and capacity building of the Project officials like any other Project. This would not only motivate people working with the Project but also benefit those people within the 46organization who will take up the O&M aspects of completed Projects.

ANNEX 6. BORROWER'S ICRR

Bhutan: Second Urban Development Project
Borrower's Implementation Completion and Results Report
November 2019

Country Context and Rationale for Operation at the time of Request.

Around that time, the preparation of the Local Area Plans (LAPs) for five areas in Northern Thimphu had been completed and was ready for implementation. Hence, there was an urgent need to provide basic infrastructures/services in these LAPs to accommodate the migrant population that was settling in the peripheries of the Thimphu City and to have a balanced development. The LAPs in southern part of Thimphu city were already under implementation then through the ADB support.

At the same time, there was also a need to bring about municipal reforms through strengthening of municipal finance and management systems in the major cities of Thimphu and Phuentsholing to achieve financial sustainability of the municipalities, given the decentralization policy of the Government.

Linkages with First Bhutan Urban Development Project

The 1st BUDP-2 was supported by the IDA between 1999 and 2006 towards urban development and urban infrastructure systems in 10 small and medium sized towns which helped to develop in ten small and medium-sized towns as well as serviced sites in three of the towns. It also helped strengthen local government's project management and cost recovery for water supply.

Given the need to accommodate an increasing urban population and to develop Bhutan's policy and institutions to facilitate and manage urban growth, the proposed project was expected to make significant contribution to the equitable and sustainable expansion of urban services, an essential element of the first pillar provide an excellent opportunity to assist RGOB in creating a more autonomous and accountable local government system through a series of policy support, technical assistance and institutional capacity building. While a primary objective of Bhutan's The Tenth Five Year Plan (2008 -2013) emphasized on the importance of sustainable urban management and decentralized governance apart from the poverty reduction. It placed high priorities on developing urban infrastructure for the two major cities and several towns as well as on the necessary capacity development of central and local institutions dealing with urban management.

Relevance of Project Development Objective

The overall PDO was very much relevant to the need of the government at the start of the project. The PDO was well drafted and the objectives set therein were relevant then as they are now, given that the objectives set out to reform municipal finance and management practices in the Thromdes were also set out in the Thromde Finance Policy, 2012, concurrently. Besides, the benefits of the infrastructure development works in Northern Thimphu city had been clearly outlined.

However, given the lack of proper understanding by and buy-in of the stakeholders over the period of implementation, especially the Thromde managements, the desired outcome ***(on component-1 related to municipal finance reforms)*** could

not be fully achieved during the project period although, the Thromdes have now started to understand and have made considerable progress in implementation. For example, Thimphu Thromde (TT) has had recently implemented most of the recommendations for reforms made by the consultants. Despite the additional support afforded to Phuentsholing Thromde (PT) after a long period of lull (from 2014-2016) in implementation, the Thromde has not undertaken anything worthwhile even now and no amount of effort thereafter has yielded any satisfactory results.)

(ii) Assessment of the outcome of the operation against the agreed Project Development Objectives; with a focus on providing evidence of the achievement of the operation's objectives and of the contribution of the supported activities and outputs to the project's development outcomes;

Achievement of Project Development Objectives

The PDOs have been significantly achieved under the project and as intended. This was possible primarily through a proper monitoring mechanism that entailed updation of outcome indicators and the RMT (Results Monitoring Table) on a regular basis which were subject to review by the Bank every six months.

Changes in Project Development Objectives under the Additional Financing

With the fairly successful implementation of revenue management reforms in the two cites of Thimphu and Phuentsholing Thromdes under the BUDP-2 and to bring about uniformity in the financial systems across all the Thormdes, it was felt necessary to have similar reforms in the remaining two Thromdes of Gelephu and S/Jongkjhar as well which were then included under the Additional financing,

Similarly, with the success achieved in the provision of Infrastructures in the two LAPs of Dechencholing and Langjopkha following land-pooling under the BUDP-2, it was felt essential to have similar development amenities in the remaining three LAPs in Northern Thimphu as well under the Additional Financing.

There was a dire need to build a new water supply scheme to cater water supply to all the five LAPS in Northern Thimphu in view of the acute water shortages faced by the City then and being unable to provide the required quantity of water through the existing water supply systems. Construction of a robust and new water supply system was absolutely required so as to be able to supply adequate water to the Northern LAPs which were being developed under the BUDP-2/AF

Achievement of Project Development Objectives under Additional Financing
The stated objectives, especially on components 2 and 3 have been substantially achieved while for component-1, there have been some implementation delays.

Comments on Component-1:

While the measures to reform municipal finance and management practices in the Thromdes will be works-in-progress, with each Thromde at different levels of implementation, there still need to be some concerted efforts expended to ensure that the PDOs are sufficiently achieved. None of the four Thromdes have achieved the expected PDOs within the duration of the implementation for reasons such as that the relevant officials in the Thromdes did not know what had (or has) to be done, how they could contribute, too many changes in management (esp. the position of the Executive Secretary of a Thromde), there were not proper consultations, the implementation of the reforms measures was thought of as being

additional work, etc. The implementation of the municipal finance and management reforms in the Thromdes of Gelephu and Samdrup Jongkhar could only begin by May-June 2017 after a delay of almost 2 years, which can be attributed to the fact that the very same municipal finance and management reform measures to be implemented GT and SJT had to be drawn from the implementation in TT and PT. And the implementation in GT and SJT could only be thought of to be implemented when the implementation in TT and PT were successful or satisfactory. Even then, the implementation of the same in GT and SJT could not be successfully undertaken as the Thromdes also had the same kind of issues as were confronted during the implementation in TT and PT. While some level of understanding has been developed and the Thromdes can relate to the need for better financial and management practices for long-term sustainability and for provision of efficient municipal services, the PDOs as expected were not met, given that the Thromdes have got a long way to go to really institutionalize the recommended reform measures for which concerted efforts and resources must be expended.

Key Factors During Project Preparation

Some of the major challenges faced by the borrower during the initial phase were lack of requisite manpower, especially on social safeguard aspect and implementation modality/ arrangements. The professionals required in the implementation team were not in place /available at that instant. Other issue of apprehension was on the implementation of the Land-pooling rules/concept as it had just been commenced for implementation in Thimphu city and its legal provisions were not well-defined either. However, these challenges were overcome/ addressed through numerous public consultations following which the implementation could be carried out as intended. The public were sensitized on the benefits of the land-pooling exercises which indeed resulted in a 'win-win' situation for all stakeholders involved.

Key Factors During Project Implementation

Dedicated Team work and commitment of various stakeholders involved in the Project were primary reasons for successful completion of the Project and achievement of the intended objectives.

However, as far as component -1 (municipal finance and management component) is concerned, the Thromdes firstly were little prepared to implement the project and the Bank was not aware of the limited capacity of the Thromdes to implement; secondly, the support afforded to the Thromdes through the internal consultants—Ernst & Young LLP and Deloitte-Touche was not adequately used and neither did the consultants make proper effort to engage the Thromdes in helping them in the implementation; and thirdly, the way the project management was set up did not allow for Thromdes to directly engage with the consultants and had to instead route everything through the project management hosted in the Ministry.

Evaluation of Borrower's Performance

While the borrowers own performance was fairly good in implementing most of the proposed works, the limited capacity of the Thromdes, especially on municipal reform component hampered the initial implementation schedule. However, with the constant guidance received from the Bank, the activities could be implemented although at a slower pace. The World Bank provided enough support to the project, including ensuring that the Thromdes understood the importance of implementing and ensured the proper implementation of the defined reform measures. Most of the time, the World Bank project team was at hand to clarify issues and provide the much needed guidance.

One of the key lessons learnt was that it is very important to assess the capacity of the implementing team prior to start of the project and accordingly enhance the required capacities through appropriate measures to ensure that the team is

able to perform as intended resulting in fulfillment of the desired objectives. Additional important factors from the borrower's side included i) the mobilization of a team consisting of right combination of manpower and skills and ii) strong support of the top management resulting in effective project preparation.

Outcomes for Institutional Strengthening and Project Monitoring

The outcomes in this context have been satisfactory as the PMU (Project management Unit) and PIUs (Project Implementation Units) that were established under the BUDP-2/AF gained adequate experiences during the project implementation/ monitoring phase through constant interaction and guidance received from various Specialists fielded by the Bank at regular intervals. Besides, there used to be frequent exchange of emails with the Bank officials/specialists and as and when needed which helped us achieve smooth and unhindered implementation. The monitoring mechanisms in place were effective and helped steer the project in the right direction.

Implementation of Results Framework and M&E Arrangements

The results framework was implemented/ monitored through appropriate indicators which were aligned with the project objectives. The M&E was carried out through progress reports, mission visits, emails, etc.

The Bid packages for various works were designed and implemented following successful completion of social and environmental studies that were required to be carried out. Besides, the social and environmental aspects in particular were reviewed by the Specialists of the World Bank prior to finalization and incorporation in the bid packages. Similarly, in case of consultancy works, proper guidance was sought from the Bank Specialist prior to finalization of the RFP and the ToRs for any Consultancy services that needed to be procured. As regards financial management, the financial position of the Projects used to be regularly monitored by the Bank through submission of the IUFR/ cash forecast on a quarterly basis.

Recommendations and Lessons Learned for Design of a Future Operation

In the event if similar projects are to be implemented in the future, the following suggestions need to be considered:

- Proper consultation during the Planning and Design phases. Adequate time need to be allocated to arrive at fair, balanced and sustainable decisions.
- Identification of relevant officials
- Proper implementation consultations with all stakeholders
- Strengthening of 'in-house Capacity' of the Project personnel in their relevant fields.

Constant monitoring and implementation guidance

ANNEX 7. URBANIZATION IN BHUTAN AND LAND POOLING

Recent Trends

Cities are a critical driver of economic growth and Bhutan's urbanization trends are starting to reflect this shift. The total population in 2017 was 735,553, of which 37.8 percent resided in urban areas, driven by strong rural-urban migration. Based on the most recent census data, the intercensal average annual urban population growth rate was 2.5 percent, four times the overall population growth rate of 0.6 percent. The population and economic base are concentrated in the western part of the country. Thimphu district is home to 15 percent of the entire population and its synonymous Thromde (municipality) comprises around 40 percent of the total urban population. Phuentsholing, Samdrup Jonkhar and Gelephu are the next most populous municipalities.

Since 2000, the economy begun a structural transformation and has shifted away from a reliance on agriculture and towards services. Agriculture's contribution to GDP has been diminishing, from 23.2 percent to 16.6 percent, but it constitutes a significant share of employment, rising from 43.6 percent in 2005 to 57.2 percent in 2016. The public sector, at around 20 percent of total, is the second largest employer after agriculture. In urban areas, the share of public employment exceeds 46 percent. Manufacturing and services sectors represent approximately 80 percent of the value of economic activity. Emerging sectors include hydropower, construction, transport, tourism and communication. Manufacturing contributes around 10 percent of the GDP and consists almost entirely of small and medium enterprises with less than 100 workers. The largest shares of light manufacturers are clustered in Thimphu, Paro, Chukka and Sarpang. Construction has growth potential in urban areas. Service sector accounts for 90 percent of nonfarm private sector firms and jobs clustered in the Thimphu-Paro region and around Phuentsholing. Tourism is the largest service sector industry, accounting for 31 percent of all firms, 18 percent of jobs and about 9 percent of GDP. ICT, Finance, Insurance and Real Estate sectors are small but emergent industries.

Urbanization trends suggest that migration may be driven more by the "pull" factors of urban areas. These include service sector employment—especially the higher wages in urban areas—and education opportunities or family linkages. Country-wide access to basic services is high, suggesting rural-urban migration is not strongly linked to "push" factors such as infrastructure scarcity, landlessness or conflict. More than 95 percent of households has access to electricity and improved water, across urban and rural areas, a remarkable trend of convergence of access.

Still there critical urban-rural divides in terms of poverty and the quality of basic services. Median household incomes in the urban areas (150,000nu) are nearly triple those in the rural areas. Rural dzongkhags in the central and south have the highest incidence of service deprivation. The poverty rates in rural Dagana, Zhemgang and Mongar districts are up to 10 times higher than Thimphu municipality. Literacy rates in these areas hover around 66 percent, far below Thimphu (80.2), Gelephu (85.6) and Phuntsholing (83.2). Overall, the literacy rate of urban dwellers is 23 percent higher than rural areas. Gaps in improved sanitation coverage are also substantial: 97.6 percent in urban versus 88.1 percent in rural areas overall, while 8 of 20 districts have under 80 percent coverage, with the lowest coverage rate just 55 percent in Gasa.[35]

Overall, spatial-economic transformation in Bhutan is largely driven by the economic opportunities that cities offer. However, Bhutan's larger urban centers are not well equipped to seize the benefits of agglomeration economies, in terms of specialization and market access, which affect the number and the quality of jobs, and in terms of quality of

[35] PHCB 2017

services, which affects their livability and competitiveness. The four largest Thromdes face infrastructure and service delivery backlogs, shortage of serviced land and affordable housing, and environmental pollution. For example, Thimphu Dzongkhag (with Thimphu Thromde) and Chhukha Dzongkhag (with Phuentsholing Thromde) have greatest concentrations of households without reliable water service; traffic congestion is also a key issue in these two Thromdes; and only 20 percent of households in Thimphu have sewer connections. Around 60 percent of urban dwellers rent, though apartments are increasingly unaffordable for households at or below the median income level

Overall, most citizens have access to serviced housing units as estimates suggest that the quantitative housing deficit is low and will likely stabilize as the population growth rate declines in the coming decades. Urban areas consist primarily of rental housing and a few informal settlements which lack decent services and have substandard and impermanent dwelling units. Data on expenditures and rental rate increases suggest that urban housing is unaffordable for the median income household, meaning that middle and lower income quintiles would spend more than one third of their incomes on housing costs. Globally, a basic housing affordability standard are housing expenditures no more than 25-30 percent of household income.

Land administration and infrastructure planning encourage peri-urban expansion. With the exception of select instances of land pooling, other land value capture instruments, such as property taxation or betterment fees, which can be used by municipal governments as incentives to control and manage urban expansion and facilitate new affordable housing, are largely absent from urban areas. Developers are also constrained by the inability collateralize land for construction finance, which raises the costs and risks to develop land for housing or other purposes.

A critical concern for policy makers is how to strengthen and extend Bhutan's structural transformation toward an economy driven by the private sector and based on employment in manufacturing and services, with sustainable jobs for the educated, the skilled, the youth and women. Bhutan is reaching the point where gaps in urban planning, service delivery and affordable housing within cities can start to negatively impact economic growth and competitiveness as well as quality of life over the long term. National policies on urbanization and local actions by municipal governments can a critical role in planning and managing this urban growth to not only sustain the economic advantages that cities provide, but also to ensure that they are livable and socially inclusive.

Policy Framework

RgoB's policies on urbanization are set out in the 10th, 11th and 12th Five Year Plans (FYPs), the National Urban Strategy (NUS, 2008) and the National Human Settlements Strategy (NHSS, 2017). These policies aim at planned urban development that is economically, socially, and environmentally sustainable, and at stimulating economic growth while ensuring regional balance. The 10th and the 11th FYPs prioritize balancing regional development to manage the rapid pace of urbanization and to spread development and opportunities equitably across the country, through the development of regional growth centers outside Thimphu and Phuentsholing. Both NUS and NHSS aim to reduce regional imbalances in population and economic activity through placed-based approaches that encourage more equitable economic development and in-migration. Finally, a Comprehensive National Development Plan for Bhutan 2030 (CNDP), aimed at addressing issues of rural-urban migration and regional imbalances in development has been finalized for GNHC.

Through the 12th FYP and the Comprehensive National Development Plan, the RgoB aims for "equitable" and "balanced regional development." Towns and cities cluster jobs and investment unevenly across the country as a response to market forces. A balanced approach to regional development should not attempt to spread jobs and

private investment more evenly, but should instead address the gaps in connectivity and basic services such as health and education to provide more equitable opportunities for people anywhere in the country. The concentration of people and economic activity in two main hubs (Thimphu and Phuntsholing) requires a different approach than smaller market towns or rural villages. Larger cities need to support agglomeration and scale economies while managing congestions forces, while smaller settlements and rural areas need to ensure that residents have quality basic infrastructure, health care and skills for more equitable human capital development.

The RGoB's spatial policies do not distinguish between the demands of enabling growth and the needs of equitable service delivery. These require differentiated yet complementary approaches that involve "place" and "people"-based approaches. "Place-based" levers such as large infrastructure investments that are proximate to economic centers, where firms and people are concentrated, can enhance the benefits of agglomerations. "People-based" interventions targeted to rural areas and small towns, where poverty and human capital deprivations are more acute, would include support for basic infrastructure, health and education, complemented with policies and programs that facilitate better skilled people to migrate to more productive areas. Prevailing regional development strategies, such as the NHSS, tend to emphasize a narrow set of "place-based" approaches rather a comprehensive approach.

Governance Context

Since the early 1980s, decentralization has been a key policy objective of the RGoB; an objective detailed in Section 1 of Constitution. The current 12th Five Year Plan (FYP) aims toward "empowering local governments through greater financial, planning, administrative responsibility and authority." However, despite the decentralization agenda is not fully integrated or supported by other policy and program initiatives. Currently, most local governments have limited capacity and experience managing urban service delivery, undertaking medium term capital investment planning, and including robust and transparent accountability mechanisms. As urbanization continues, local governments will need to strengthen each of these areas in order to play a greater role in efficient, responsive service delivery.

The Gross National Happiness Commission (GNHC) has developed a framework to divide roles and delineate responsibilities amongst the central agencies, Thromdes, Dzongkhags and Gewogs based on three key principles: (a) assignment of expenditure responsibilities, (b) assignment of tax and revenue sources, and (c) intergovernmental fiscal transfers between the national government and local governments. Bhutan's functional and fiscal assignments, which are a combination of devolution, delegation and deconcentration, are largely consistent with the norms followed in many smaller countries, but they have not been matched with concurrent expansion of resources, strengthening of local government systems and enhancement of local accountabilities, all of which would create the capabilities and incentives for better municipal government performance.

Bhutan's rapid economic growth and expansion of urban population have highlighted the need for improved urban governance and management and the demand for higher order urban services. The Royal Government of Bhutan (RGoB) has taken important steps, over the years, to strengthen the role and capacities of Thromdes, Dzongkhags and Gewogs in service delivery and citizen engagement. Nevertheless, municipal governments in Bhutan, especially the four Class A Thromdes, continue to face major policy and institutional barriers that limit their ability to become effective, responsive and accountable in urban planning and management, service delivery, and local economic development.

The Use of Land Pooling in BUDP-2

Land pooling is a planning technique minimize displacement and land acquisition costs through voluntary agreements made with land owners to redraw their plots in exchange for improvements in basic infrastructure.[36] Land pooling allows governments to proactively manage urban expansion which otherwise often leads to the spatial exclusion of the poor as land values increase following speculation and infrastructure investment. Typically, governments acquire land from property owners at a set compensation rate and the property owners must move elsewhere, which is both expensive from a public finance standpoint and disruptive to local communities. Under land pooling, the government takes a deliberately consultative approach to planning the future layout of plots, streets and community facilities with the purpose of including community input and approval in to the siting of these amenities as well as the size and location of the individual plots to be redrawn. Each land owner agrees to give up a portion of their plot (between 20-30 percent), the existing plots are redrawn and the contributed land is used for streets, water and drainage, and other community facilities.[37] This allows property owners retain a slightly smaller plot, but they stand to benefit from the market appreciation of their land from the value of new infrastructure improvements.

At appraisal of the original Credit, public understanding of land pooling was limited and it had not been widely used before the project.[38] Thimphu Thromde, the MoWHS and the World Bank undertook extensive consultations with residents in the LAP to revise and agree on the proposed redrawn plots and location of infrastructure as part of project preparation. This included explaining the process and potential benefits in terms of services and land value appreciation as well as addressing community concerns. The planning process required planners to redraw the plots based on the agreed land contributions of owners and design location of rights of way and land for community facilities such as parks, schools and clinics. Residents provided guidance and feedback to drafts of the plans, which concluded when a majority of the residents agreed. These consultations enabled a wide acceptance of the final LAP plans for implementation; Dechencholing, 97 percent of owners agreed, in Lanjopakha 80 percent and in Lower Taba 92 percent.

This greatly reduced both population displacement and the compensation and resettlement costs to the RGoB and created incentives for land owners to mobilize private investment in housing on their plots. The planned increase of housing stock (multifamily apartments) was intended to address the needs of the city's rapidly growing population. Based on a beneficiary survey of land owners prepared after closing, a 61 percent rented out housing to tenants built after the project. Of the land owners, 72 percent were "satisfied" or "very satisfied" with the consultation and planning process and 73 percent agreed that the amount land contribution was "fair." Among all LAP residents surveyed, 73 percent agreed that land pooling is worth replicating elsewhere in Bhutan.

[36] Land pooling or land readjustment has been used extensively by urban governments in Japan, Korea, Germany and India (notably in Pune and Ahmedabad) and other countries for decades. See Lozano-Gracia, N., Young, C., Lall, S. and Tara Vishwanath 2013 "Leveraging Land to Enable Urban Transformation: Lessons from Global Experience" World Bank Policy Research Working Paper 6312

[37] Land pooling requires the endorsement of a certain amount of land owners to the proposed plan (usually at least 70 percent). Owners that do not agree will receive compensation for land acquisition. In Bhutan, in the case where land owner's plots do not meet minimum size requirements for contribution, owners pay a betterment fee and retain their land.

[38] Under BUDP1, a small pilot land pooling project was completed in Rangjung.

ANNEX 8. REVISIONS TO PDO AND RESULTS INDICATORS

PDO Indicators		
Original Credit	*Changes under Additional Financing*	*Justification*
Local revenue collection change (Thimphu, Phuentsholing)	Percentage increase in property tax revenue (Thimphu, Phuentsholing, Gelephu, Samdrup Jongkhar). This can be more directly attributed to the property digitization and revenue management systems.	Gelephu and Samdrup Jongkhar were added after they became Thromdes in 2010
Number of building permits issued (Dechencholing, Lanjopakha)	Revised to also include Lower Taba LAP	Requested by Thimphu Thromde
Number of households with new piped water and sewerage connections (Dechencholing and Lanjopakha)	Separated into two more precise indicators for project intervention: i) New piped household water connections, Dechencholing, Lanjopakha, Lower Taba and entire Thimphu. "Entire Thimphu" here refers to the Northern LAPs under implementation – Dechencholing, Taba, Lanjopakha, Hejo-Samtelling and Jungshina-Pamtsho. ii) New household sewer connections in Dechencholing, Lanjopakha and Lower Taba	To better distinguish separate connections to water and sewerage systems in the LAPs and to measure the impact of the CWSS on water supply in the city.
	Added: Number of plans that incorporate the urbanization policies	To reflect the impact of the support for urban policy implementation
Intermediate Indicators		
Number of property tax records computerized (Thimphu, Phuentsholing)	Revised to include Gelephu and Samdrup Jongkhar, which were designated in 2010	Gelephu and Samdrup Jongkhar were added after they became Thromdes in 2010
Serviced land for housing (Dechencholing, Lanjopakha)	*Added*: number of newly serviced plots (Dechencholing, Lanjopakha, Lower Taba)	Revised to distinguish between new plots and existing plots that had services
Number of key policy makers trained on the principles of fiscal decentralization	*Dropped*. By the 2013 MTR, the Bank team had obtained separate funding for supporting the fiscal decentralization work, which was completed in 2015.	Borrower requested to undertake the activity with separate funding
Number of staff in finance departments trained in aspects of financial management (Thimphu,Phuentsholing)	*Dropped*. By the 2013 MTR, 12 training courses had taken place and 85 Thromde staff members from both Thimphu and Phuentsholing had received training.	The government decided to review future training needs and explore other ways to support this work separate from the project.
Kilometers of internal roads constructed (Dechenholing, Lanjopakha)	Revised to include Lower Taba LAP	Included to measure construction progress for LAPs
Frequency of solid waste collection services (Dechencholing, Lanjopakha)	*Dropped*. The project did not include additional technical support or investment for solid waste collection services.	The borrower requested to use project resources for other purposes

	Added: Kilometers of water pipelines constructed for Dechencholing, Lanjopakha and Lower Taba	Included to measure construction progress for LAPs
	Added: Kilometers of sewage pipelines constructed for Dechencholing, Lanjopakha and Lower Taba	Included to measure construction progress for LAPs
	Added: Number of national, dzongkag[39] and municipal officials that have built competencies in applying Bhutanese architectural guidelines	Included to measure progress toward capacity building for implementation of urban policies.

[39] A dzongkhag is a district, roughly equivalent to a second-tier administrative entity, such as province. There are 20 dzongkhags in Bhutan. Each dzongkhag has a primary administrative settlement, which is a Class A or Class B Thromde.

ANNEX 9. OUTCOME 2 RESULTS INDICATORS AND SELECT BENEFICIARY SURVEY FINDINGS

The targets presented in Tables 1-3 below are drawn from the Results Frameworks from the original Credit and AF. The results achieved are drawn from the final Results Monitoring report from June, 2019. Annex 1 above presents the targets and results based on reporting from previous ISRs which differ in the following ways:

Building permit targets are not disaggregated by LAP and Annex 1 refers only to the Dechencholing target (250). The final ISRs report the results achieved in aggregate across all three LAPs. Table 1 below provides the most recent disaggregation at project close.

Water and wastewater targets are recorded in ISRs being revised to 600. There is no evidence of this formal revision and original targets from the Results Frameworks are included here. As with Building Permits, the ISRs report the results achieved in aggregate terms across all three LAPs. The disaggregated results are included in Tables 2 and 3.

Table 1: Building Permit Targets and Results

LAP	Baseline	Target	Achieved	Percent
Dechencholing	0	160	117	73.1
Lanjopakha	0	100	124	124
Taba	0	170	123	72.3
Total	*0*	*430*	*364*	84.6

Table 2: Water Connection Targets and Results

LAP	Baseline	Target	Achieved	Percent
Dechencholing	0	250	458	183.2
Lanjopakha	0	350	187	53.4
Taba	0	250	87	34.8
Total	*0*	*850*	*732*	86.1

Table 3: Sewerage Connection Targets and Results

LAP	Baseline	Target	Achieved	Percent
Dechencholing	0	250	169	67.6
Lanjopakha	0	350	274	78.2
Taba	0	350	67	19.1
Total	*0*	*950*	*510*	*53.6*

Table 4 provides summary statistics of household access to improved water and wastewater services from a household survey conducted in November 2019. Table 5 summarizes the households reporting that service quality is the highest with different services, based on a four point scale (where 1 is “best” and 4 is “worst”).

Table 4: Beneficiary Survey Access to Improved Water and Wastewater Systems

LAP	Piped Drinking Water	Flush Toilet	Households
Dechencholing	87.5%	95%	N=380
Lanjopakha	78.2%	85%	N=350
Taba	95.6%	96.9%	N=580

Table 5: Households Reporting "Best" Level Service Quality

LAP	Roads	Public Transport	Water Supply	Garbage	Drainage Cleaning	Streetlighting	Sewerage	N
Dechencholing	46.3	76	55.3	77.5	51.1	52.1	46	400
Lanjopakha	56.9	54	56	63	38	53.7	52.9	350
Taba	70.7	39.5	45.8	55.1	49.3	70.2	49.1	580

ANNEX 10. WATER AND WASTEWATER PERFORMANCE INDICATORS

Tables 1 and 2 below present summary figures from the water and wastewater treatment plants financed by the project. Figures are drawn from daily engineer and plant supervisor reports for the period October-November 2019. The tables show water quality measures compared to standards acceptable by the National Environment Commission (NEC). The Taba wastewater treatment plant has been recently commissioned and data on COD was not available. The Dechencholing water treatment plant has temporary problem with the meter measuring treated outflow. The plant supervisor is aware of this and the meter will be fixed.

Table 1: Water Treatment Quality of Service Indicators

Facility	Mean Treatment Volume*	Design Capacity	pH	*Permissible Range*	Turbidity	*Maximum Allowable (NTUs)*	Total Coliform	*Maximum Allowable (CFU/mL)*	Year Commiss-ioned
Dechencholing Water Treatment Plant	0.5MLD	1.4MLD	7.45	*6.5-8.5*	0.43	*5*	0	*0*	2014
Central Water Treatment Plan at Taba	9.1MLD	10MLD	7.38	*6.5-8.5*	0.57	*5*	0	*0*	2019

NTU refer to Nephlometric Turbidity Unit, CFU refers to Colony-forming unit.
* Compiled from October-November 2019 operational and testing logs, it should be noted that volumes change seasonally.
National standards are developed by the National Environment Commission in "Bhutan Drinking Water Quality Standard 2016."
http://www.nec.gov.bt/wp-content/uploads/2019/04/StandardDrinkingWater2016.pdf

Table 2: Waste Water Treatment Quality of Service Indicators

Facility	Mean Treatment Volume*	Design Capacity	COD (Out)	*Maximum Allowable (mg/L)*	BOD (Out)	*Maximum Allowable (mg/L*	Total Coliform	*Maximum Allowable (MPN/100ml)*	Year Commiss-ioned
Lanjopahka Waste Water Treatment Plant	0.5MLD	0.6MLD	13	125	6.5	30	68	<1,000	2017
Taba Waste Water Treatment Plant	0.56MLD	1MLD	Unavailable	125	25.4	30	560.17	<1,000	2019
Dechencholing Waste Water Treatment Plant	Unavailable	0.75MLD	48	125	2.7	30	110	<1,000	2014

COD refers to Chemical Oxygen Demand, BOD refers to Biochemical Oxygen Demand, MPN refers to Most probable number.
*Compiled from October-November 2019 operational and testing logs. It should be noted that volumes change seasonally. COD data for Taba WWTP is currently not available from this period. According to the Dechencholing plant operator, the plant is working at full capacity, but the flow meter for calculating specific volumes is not functioning.
National standards are developed by the National Environment Commission in "Bhutan Drinking Water Quality Standard 2016."
http://www.nec.gov.bt/wp-content/uploads/2019/04/StandardDrinkingWater2016.pdf

ANNEX 11. SUPPORTING DOCUMENTS

Supporting documents available in Project Files are:

1. Project Aide Memoires
2. Project Implementation Status Reviews (ISRs)
3. Project Beneficiary Survey
4. National Human Settlements Strategy
5. Draft Spatial Planning Act
6. Bhutan Architectural Guidelines
7. Alternative Procurement Arrangement Assessment Report on Thimphu Thromde

ANNEX 12. PROJECT MAP