GUIDEBOOK ON CAPITAL INVESTMENT PLANNING FOR THE CAPITAL CITY OF ULAANBAATAR

August 2018
# Table of Contents

## Foreword

## Acknowledgments

## Abbreviations

## Introduction

1. **Capital Investment Planning and Its Challenges in Ulaanbaatar**
   1.1. Introduction to Capital Investment Planning
   1.2. Capital Investment Planning in Ulaanbaatar
   1.3. Foundations of the New Capital Investment Planning Approach

2. **Key Elements of the Capital Investment Planning Process**
   2.1. Sources of Suitable Investment Projects
     2.1.1. City Development Planning
     2.1.2. Asset Management
   2.2. Financial Aspects
   2.3. Public Private Partnership and Integration with Capital Investment Planning
   2.4. Public Participation and Overall Transparency of the Capital Investment Planning Process

3. **Steps of the Capital Investment Planning Process**
   3.1. Lessons from FY2018 Capital Investment Planning Exercise
   3.2. Steps for Capital Investment Planning Process in Ulaanbaatar
     - **Step 1.** Develop a plan for communication with key stakeholders in the Capital Investment Planning process and their engagement
     - **Step 2.** Review/modify policies on Capital Investment Planning
     - **Step 3.** Establish project scoring criteria and prioritization process
     - **Step 4.** Develop or modify schedules, forms, and instructions
     - **Step 5.** Prepare project requests
     - **Step 6.** Review project requests and sort them into line ministries or city lists
     - **Step 7a.** Prioritize project requests and send the prioritized lists to line ministries
     - **Step 7b.** Public Private Partnership screening
     - **Step 8.** Identify available funding and match city’s projects to funding
     - **Step 9.** Draft capital program and budget documents and officially adopt them
4. IMPLEMENTING AND MONITORING INVESTMENT PROJECTS

5. WHAT IS NEXT FOR ULAANBAATAR?

Appendixes

Appendix 1. Mainstreaming Climate Resilience Considerations
Appendix 2. Draft Policy on Capital Investment Planning
Appendix 3. An Alternative Approach to Ranking Requests
Appendix 5. Assessing Local Government Financial Capacity
Appendix 6. References and Useful Resources

List of Boxes

Box 1. How to Make Urban Planning in Ulaanbaatar More Realistic and Sustainable
Box 2. Typical Elements of Annual Life Cycle Activities
Box 3. Reserve Fund for School Facilities, Tokyo’s Chuo Ward
Box 4. Tokyo Waterworks: How to Finance a Water Pipeline Replacement Project
Box 5. Good Practices in the Preparation of Public-Private Partnerships at National Level
Box 6. Benefit of Long-Term Planning and Public Participation: Contra Costa Water District, California, United States
Box 7. New Technique for Increasing Citizen Participation in Government Decision-making Process in Ulaanbaatar
Box 8. Cost Savings from a Simple Life Cycle Costing Decision

List of Figures

Figure 1. How Capital Investment Planning in Ulaanbaatar Is Related to Other Activities
Figure 2. Organogram of Ulaanbaatar City Administration, as of August 2018
Figure 3. Estimated Maintenance & Repair Costs for Different Facilities, Washington, DC, United States
Figure 4. Steps in Capital Investment Planning Process
Figure 5. Key Actions under Steps 6, 7 and 8

List of Tables

Table 1. Example of Demand for Capital Investment: Budget Requests for 2018
Table 2. Example of Basic Property Inventory for Public Buildings
Table 3. Prioritization Criteria Considered for Testing for the 2018 Capital Investment Planning with Illustrative Example
Table 4. Fragments of List 1 Submitted to the Ministry of Education, Culture, Sports and Science for Funding in FY2018
Table 5. Sample Summary of Requested Project Costs, Allocated Budget Funding by Ulaanbaatar, and Unfunded Difference (Million MNT)
Table 6. Sample Fragment of Ulaanbaatar’s Approved 2018 Capital Budget (Million MNT)
The capital city of Mongolia, Ulaanbaatar, is the political, economic, and cultural hub of Mongolia, where over 46 percent of the country’s population lives. The impact of climate change and the precarious livelihoods in rural areas have contributed to the rapid urbanization of the city over the past two decades. Ulaanbaatar’s population has grown from 600,000 in 1989 to about 1.4 million today and is expected to reach 1.7 million by 2030. This unprecedented growth creates a pressing demand for the Municipality of Ulaanbaatar to further invest in infrastructure and other assets to support economic and social development. Such investments require capital that often far exceeds available resources. This scarcity of capital, in turn, makes it even more important for the Municipality of Ulaanbaatar to build capacity to appraise and prioritize investment decisions.

This guidebook is a customized adaptation of the original World Bank Publication “The Guidebook on Capital Investment Planning for Local Governments” (2011), tailored to the circumstances of Ulaanbaatar. The original 2011 publication was grounded in an approach that emerged more than thirty years ago in certain North American cities, which has since been tried and tested across the world. Over the past twenty years, this approach of integrating asset management and life-cycle costing with capital investment planning has been recognized as a “good practice” by various organizations and adopted (and adapted) by cities in many countries. This revised version of the guidebook aims to help the city improve and enhance its existing process of capital investment planning. I hope that all of those in capital investment planning at the city, district, and central government levels, including the staff tasked with capital investment planning and managers of various municipal entities seeking capital investment, will find the Guidebook helpful.

James Anderson
Country Manager for Mongolia
Preparation of this report was funded by the Public-Private Infrastructure Advisory Facility. Public-Private Infrastructure Advisory Facility is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility, visit http://www.pphiaf.org.

The effort to mainstream climate change considerations into the Capital Investment Planning process in this report was supported by Just-in-Time Global Facility for Disaster Reduction and Recovery. The Global Facility for Disaster Reduction and Recovery is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change. The Global Facility for Disaster Reduction and Recovery provides knowledge, funding, and technical assistance and is managed by the World Bank. For more information about the facility, visit https://www.gfdrr.org.

The main author of this guidebook is Dr. Olga Kaganova. Yang Chen led the team to secure grant funding, led the research and consultations with the counterparts, and provided valuable professional insights into the report context. The team consisted of Khaliun Bat-Orig, who prepared the Public-Private Partnership related analysis and recommendations of the Guidebook in addition to overall support and quality review of the report context; Battuya Dash who updated the Ulaanbaatar city financial assessment that is used as the basis for this Capital Investment Planning exercise and provided overall support to the report context in addition to preparing the exploratory note on mainstreaming climate change considerations into the Capital Investment Planning process, including developing climate change prioritization criteria in Appendix 1 with contribution from Dr. Boldbaatar Shagdar in terms of client consultation and information sharing; and Xuan Peng, who provided general support to the team. Appendix 3 was authored by Gary Windolph, P.E. The authors thank Tasha Heidenrich and Tobias Fast for their editorial contribution. Also, the authors greatly appreciate Ms. Nomunzul Bat-Ireedui for her efforts in proof-reading and editing the report.

This effort was a continuation of the Public-Private Infrastructure Advisory Facility-funded activity conducted by the World Bank urban team in FY2014, which developed the Capital Investment Planning core methodology for prioritization of projects. This served as a solid foundation and the current team greatly appreciated the effort from the urban team, including Meskerem Brhane, Rumana Huque, Gayatri Singh, and David Ryan Mason.
This is a product of close cooperation with the Ulaanbaatar city government, in particular the Policy and Planning Department. The authors are deeply thankful to Mr. Ulziibayar, Mrs. Erdenechimeg and Ms. Tsendlkhagva from the Policy and Planning Department for their constructive and collegial collaboration.

Peer reviewers of the book include Arturo Ardila Gomez, Jacques Bure, Wenyu Jia, Joanna Mclean Masic, Marc S. Forni, Georges Darido and Nupur Gupta. Binyam Reja, Practice Manager for Central North East Asia Transport Unit, provided overall supervision and quality control of the guidebook.
Abbreviations

ADT  Average Daily Traffic
CIP  Capital Investment Planning or Capital Investment Plan
DBM  Development Bank of Mongolia
DPPL  Development Policy Planning Law
FY  Fiscal Year
GFDRR  Global Facility for Disaster Reduction and Recovery
GIS  Geographic Information System
IDIA  Industrial Development and Innovations Agency
JIT  Just-in-Time
LDF  Local Development Fund
MNT  Mongolian Tugrug
MoF  Ministry of Finance
MUB  Municipality of Ulaanbaatar
O&M  Operations and Maintenance
PPD  Policy and Planning Department
PPIAF  Public Private Infrastructure Advisory Facility
PPP (P3)  Public-Private Partnership
SME  Small Medium Enterprise
SNTA  Sub-National Technical Assistance
UB  Ulaanbaatar
UBDC  Ulaanbaatar Development Corporation
USD  United States Dollars
WB  World Bank
Introduction

This Capital Investment Planning (CIP) Guidebook is developed as part of a technical assistance provided by the World Bank (WB) team funded by a Public Private Infrastructure Advisory Facility-Sub-National Technical Assistance (PPIAF-SNTA) grant and a supplemental grant from Just-in-Time-Global Facility for Disaster Reduction and Recovery (JIT-GFDRR). The technical assistance aims to help the City of Ulaanbaatar (UB) strengthen its financial capacity through increased transparency and objectivity of UB city’s CIP process which integrates Public-Private Partnership (PPP) project prioritization processes and streamlines climate change considerations.

To meet the growing demand of infrastructure in UB, it was estimated that a capital investment of approximately USD 5 billion is needed to implement the capital investment projects for the initial period of 2014-2017 as planned in the Ulaanbaatar City Master Plan 2020. Another USD 20 billion is estimated to be required to reach the mid-term and long-term goals (until 2030) as stipulated in the Master Plan. However, UB reported total revenues of, inclusive of government transfer, equivalent to USD 655 million in 2016. This evidently shows the enormous financing gap for public infrastructure delivery in UB.

Despite UB’s plan to invest in its infrastructure, the city has its challenges regarding the CIP process. The investment prioritization process lacks a unified approach at the city level, and there is inefficient coordination between the main funding sources. The fragmentation of the system applies to the screening and selection of PPP projects, where the off-budget accounts resulting from PPPs have pushed the budget deficit and debt level over the edge at both the municipal and national level. Also, there is no clear methodology of how the projects are screened and selected to be included in the CIP list of projects, which is sent to seek the City Council’s approval. The proposed CIP list of projects is revised at the City Council level before approval and submission to the Ministry of Finance (MoF) for final approval and inclusion in the budget.

Objectives of This Activity

Given the fiscal constraints and the growing need for infrastructure investment, the WB initiated an effort in 2014 to improve the CIP process in UB city and to enhance the capacity of the Municipality of Ulaanbaatar’s (MUB) officials who oversee the CIP process. The activity was brought to a halt due to funding issues and was resumed in 2017 with the grant funding from PPIAF-SNTA. During the earlier phase of the WB team’s activity with regards to CIP, a preliminary diagnostics of the CIP system was carried out and an interim CIP prioritization methodology was developed. However, the methodology was not used. Objectives of this current phase of the activity is to i) revise the CIP prioritization methodology that reflects
The guidebook consists of five chapters. Chapter 1 overviews the CIP process and the challenges of that process in UB, including how the CIP process is linked with other areas of government activities such as long-term planning, asset management, and financial planning and budgeting. Chapter 2 considers more specifically how urban planning, strategic planning, and asset management serve (or should serve) as the foundation of potential capital investment projects. In particular, this chapter details how life cycle costing, a key component of asset management, should be incorporated into UB’s CIP process. This chapter also provides an overview of the standard financial arrangements of the CIP process (in particular how local governments typically fund and finance their capital investments) and practical instruments for public participation. This chapter refers readers to specialized sources of guidance on such subjects as asset management, municipal creditworthiness, and PPP.

Chapter 3 presents a step-by-step outline of the CIP process in UB, along with suggestions for new approaches and strategies that could be added based on international good practices. Chapter 4 discusses some issues associated with implementing and monitoring investment projects. These chapters are designed to provide practical advice on how the CIP process in UB can be improved.

Chapter 5 presents recommendations for next steps in the city’s journey towards more efficient and sustainable capital investment. It considers both short and medium-term improvements and strategic directions.

Finally, the appendices provide materials that may not be sufficiently known in the UB practice and hence can be useful for CIP-related activities. Appendix 1 presents an exploratory note on mainstreaming climate change into the CIP process in UB city and proposes a climate change criterion. Appendix 2 presents the draft
CIP policy UB city can consider when drafting its CIP policy. Appendix 3 presents an alternative approach to ranking requests. Appendix 4 presents international best practice guidelines on municipal asset management. Appendix 5 presents a sample methodology to assess a local government's financial capacity. Appendix 6 lists the references and resources useful for a more detailed study of recommendations and steps discussed in this Guidebook.

Note: Chapter 2 is important for understanding the context of the CIP process and its intrinsic links to other activities. Thus, it is recommended as mandatory reading for decision-makers. However, technical experts interested only in the organizational and technical aspects of the process can read Chapter 1 and skip directly to Chapter 3.
1. Capital Investment Planning and Its Challenges in Ulaanbaatar

1.1. Introduction to Capital Investment Planning

In the context of the public sector, *capital investment* is understood as investment in the acquisition or building of new assets (buildings, infrastructure, equipment), or as major repair and replacement of existing assets that have an economic life longer than one year and a value above a specified threshold.

A capital investment plan (CIP) is usually a multiyear (generally between 3-6 years) program of prioritized capital investment projects, with anticipated beginning and completion dates, annual estimated costs, and proposed financing methods. A capital investment program is normally approved by a local elected body. Each year, the program is reviewed, revised, and projected for the coming year. In particular, an approved CIP connects mid-range plans with the annual budgetary process. Once the CIP process is established, the CIP becomes a rolling plan, linked to the annual budgeting process: (1) the previous year is removed from the CIP, and a new year is added at the end of the CIP period; and (2) current-year capital budget expenditures are approved as parts of the city’s total budget.

CIP is based on two important assumptions that guides management of assets in modern cities: i) that a city government is only responsible for assets that provide public services to constituencies or assets that perform mandatory obligations of the city government; and ii) that the city government does not engage in activities that the private sector can provide, if economically feasible.

The CIP process follows a number of general rules to optimize the use of limited financial resources for public benefits:

- First, there is a transparent and systematic process that evaluates the competing needs of various municipal services. In the face of limited financial resources available to a city government for capital projects, a process should be established to allocate the limited financial resources to the city government’s priority areas;
- Second, a local financial policy that outlines the priority areas for capital investment and sources of financing is formulated and enacted;
- Third, CIP is a multiyear approach, which involves planning for the medium term, based on the city development agenda and forecasted capital repairs.
- Fourth, capital investment decisions are considered within the frameworks of life cycle costing. This framework considers not only the capital cost, but all costs during the useful life of an asset, particularly annual operations and maintenance (O&M) costs. The cornerstone of modern CIP is a recognition that capital investment – whether it is in new construction, acquisitions, or in capital repair – is intrinsically linked with the O&M costs that
this asset will incur during its useful life (see Box 2).

- Lastly, the CIP process and its results are inclusive of and transparent to all relevant stakeholders, including city-affiliated departments and agencies, the local legislative body (e.g. City Council), the business community, and the public.

1.2. Capital Investment Planning in Ulaanbaatar

The Budget Law of Mongolia (2011) defines the national capital investment projects as development and infrastructure projects that support long-term economic growth with total values higher than MNT30 billion (USD12.5m) and provides the criteria for prioritizing investment projects. The prioritization is based upon available documentation regarding proposed projects (e.g. project feasibility studies, land permit status), and their progress status (if on-going). However, the Budget Law prohibits land acquisition spending as a part of capital investment. This creates delays and complications for investment in public infrastructure and should be remedied in forthcoming revisions of the law.

The legal framework governing CIP is insufficient for the MUB. Moreover, there is no legal definition of capital investment project for UB City. The MUB’s Policy and Planning Department (PPD) is mandated by law to prepare the capital investment plan within the territory of UB. The challenge is that the relevant laws are silent about the specific content, quantities, and qualities of the services that the Capital City must provide. Many public capital investments, especially commercially-oriented ones (e.g., a business center or a market for used cars), are not explicitly prohibited by law and their potential scope is not formalized.

Conceptually, several strategic and mid-term development planning documents guide the CIP decisions at the city level, although there is no clear project selection and prioritization rule in effect. Specifically, the guiding principles of the CIP process in UB are as follows:

- The Mayor’s Action Plan – defines the investment directions of the current administration based on its political platform;
- The City’s Master Plan – the central spatial planning document; and

In terms of the institutional framework, the planning, funding and implementation of capital investment in UB involves three levels of governments. MUB reviews and selects over 2000 capital investment project requests from over 70 public entities in UB each year (Table 1). MUB sorts the capital investment requests by funding sources – UB city budget or line ministry budgets – and sends the requests to approving entities. Projects to be funded by the UB city budget require approval by the City Council, while the projects to be financed by state budget are approved by line ministries. The MoF reviews and includes selected projects in the annual budget allocations.

The review process of capital projects requesting city budget funds – either at the MUB level or City Council level – does not follow clear selection and prioritization criteria. The lack of a formal prioritization process has resulted in a practice where MUB selects capital investment projects without knowing the priorities of the requesting entities. Similarly, line ministries fund projects submitted by the city without knowing the city’s priorities.

---

1 The PPD mandate includes preparation of CIP.
In addition to capital investment project requests submitted by local entities to MUB, many large investment projects proceed to the final capital investment project portfolio of UB through channels outside the CIP process. Projects procured through PPP methods and projects financed with loans go through a separate selection and approval process. As a result, a substantial portion of the city’s capital expenses comprise debt obligations to the Development Bank of Mongolia (DBM), and this debt has not been properly considered in the planning stages. Similarly, “build-transfer” contracts impose additional debt burdens on the city. As a result, in 2017, 38% of the approved capital funding in the Capital City budget went towards repaying capital debt.

On the funding side, there are three main sources of funding for capital projects in UB:

1. The Local Development Fund (LDF), which is managed by both UB city (70%) and districts (30%) and used for small-scale investment in districts;
2. The city budget (including the City Road Fund), which supplies approximately 40% of the total capital funding for UB in 2018; the city budget is partially funded by inter-government transfers; and
3. The state budget, through ten line ministries, which supplies the other 60% of the total capital funding in 2018. Reportedly, decisions on which requested projects a ministry decides to fund have not been transparent. Moreover, the size of each ministry’s available funds varies significantly from year to year.

However, since 2013, a fiscal crisis at the national level has reduced available funding for UB. Both national budget deficits and debt burdens exceed the limits permitted by law, and both have reached a crisis level. In particular, off-budget accounts pushed the budget deficit and debt level over the edge. The national government mitigated the crisis by introducing a new national policy to reduce expenses and budget deficits, improve transparency, and avoid off-budget accounts. For UB, this meant a reduction of the overall available capital investment funding, and in 2014 and 2015 only 63%

---

2 Until April 2017, there was a fourth source: off-budget funding by the DBM, which borrowed funds and channeled them to UB, separately from the regular CIP process.

---

**Table 1. Example of Demand for Capital Investment: Budget Requests for 2018**

<table>
<thead>
<tr>
<th>No</th>
<th>Organization categories</th>
<th>Number of entities</th>
<th>Number of projects &amp; activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local Administrative Organizations of the Capital City</td>
<td>2</td>
<td>122</td>
</tr>
<tr>
<td>2</td>
<td>Districts</td>
<td>9</td>
<td>391</td>
</tr>
<tr>
<td>3</td>
<td>Implementing Agencies of Capital City Governor</td>
<td>27</td>
<td>612</td>
</tr>
<tr>
<td>4</td>
<td>Capital City Budget Entities under Capital City Governor &amp; Ulaanbaatar City Mayor</td>
<td>18</td>
<td>244</td>
</tr>
<tr>
<td>5</td>
<td>Enterprises under Capital City Governor and Ulaanbaatar City Mayor</td>
<td>16</td>
<td>657</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>72</strong></td>
<td><strong>2026</strong></td>
</tr>
</tbody>
</table>

*Source: Governor’s Office of Ulaanbaatar*
and 69% of planned capital investment were executed, respectively. Furthermore, no new capital investment was approved for 2017.

In summary, CIP decisions have been insufficiently coordinated not only among the three levels of government, but also among submitting entities as well as the public, resulting in an opaque CIP process which has had a serious, negative impact on UB’s municipal finance. With multiple channels for selecting and funding projects (including off-budget), and without proper data for monitoring past and current projects, priorities and project selection have not been well-coordinated. There is no city-wide, cross-departmental database linked to a geographic information system (GIS), containing past and current capital investment projects. More importantly, the lack of a formalized and transparent capital investment process to choose priority projects among the thousands of competing requests amidst different stakeholder incentives and needs, has resulted in inefficient and excessive capital spending in UB.

---

3 According to Finance & Treasury Department of the Governor’s Office of Ulaanbaatar.
4 “Brief Introduction to the 2017 Consolidated Budget of Mongolia.”
Figure 1 presents a generalized overview of how CIP in UB relates to other key planning and political functions and activities. It acknowledges the fact that CIP, along with budgetary and borrowing policy, determines the city’s financial health and ability to provide services to its inhabitants for years to come.

Due to a complicated institutional CIP framework, a fiscal crisis at both the national and municipal levels, and a lack of coordination, the Capital City has taken an initiative to modify its CIP process, with support from the WB. The initiative aims to establish a better organized and more rational CIP approach with more transparency and objectivity. It is a continuous process of tests and improvements; the city government and the PPD in particular made substantial progress in the preparation of the 2018 capital budget. This guidebook reflects this process and documents the lessons learned.

Source: authors’ compilation

Figure 2. Organogram of Ulaanbaatar City Administration, as of August 2018
1.3. Foundations of the New Capital Investment Planning Approach

A cornerstone of a modern CIP is the recognition that capital investment – whether it is in new construction, acquisitions, or in capital repair – is intrinsically linked with the O&M costs that this asset will incur during its useful life (see Box 1). For many types of infrastructure, O&M costs are quite high; in fact, over several years, they can equal – or even exceed – the original capital cost. This implies that prudent CIP should consider not only capital costs, but future O&M expenses as well, before decisions are made. At the very least, entities that request capital investments must have a good sense of the associated future O&M costs. They also need to know how these expenses will be paid. Additionally, city financial planners need to be involved in CIP to make sure that the total scope of newly-added annual O&M expenses is realistically estimated and budgeted for. Appendix 4 provides some guidance on how to estimate O&M costs for various infrastructure systems.

The fact that this proposed CIP framework balances the conflicting interests and preferences of different stakeholders (residents, businesses, municipal enterprises, and numerous other city entities) is perhaps its strongest feature. This balance makes the framework itself reasonably resilient even in the face of political or ideological change. Nevertheless, the above principles need to be made compatible with the complicated realities in which the city government operates.

This CIP approach is based on ideas and principles that have shaped understanding of the management of government issues in a growing number of countries. The proposed concepts have been tested and proven in international best practice. The approach has also influenced governments to understand asset management as an integral part of the CIP process. These experiences and lessons learned translate into the following very practical attitudes and measures for UB to adopt to improve its CIP process:

- All investment needs are compared objectively and prioritized against the same criteria;
- MUB does not spend its limited resources on unnecessary investment in projects that could be financed by the private sector;
- Prudent long-term fiscal policy is exercised (e.g. future payment obligations are considered before entering into contracts that stipulate such commitments);
- Innovative solutions at the project level are considered (e.g. if a better-quality road surface can reduce future O&M costs and quickly recoup the additional capital costs required, such a solution would be implemented); and
- Stakeholders in capital investment – both entities and individuals – have effective channels through which to express their preferences and priorities.
2. Key Elements of the Capital Investment Planning Process

2.1. Sources of Suitable Investment Projects

Potential investment projects for CIP are the product of two main processes: city development planning, which comprises of urban and socio-economic planning; and asset management.

2.1.1. City Development Planning

Several major documents and plans guide development planning in UB, from urban planning and socio-economic development perspectives.

Urban Planning. Urban Planning deals with the spatial aspects of development. The Capital City’s plan, Ulaanbaatar 2020 Master Plan and Development Approaches for 2030,\(^5\) outlines spatial plans for the entire city as well as short-term, detailed spatial plans for specific urban areas. Spatial plans include required components related to both physical (e.g. roads, public transportation, water, sewage) and social (e.g. schools and healthcare facilities) infrastructure to achieve their goals. In UB, an important component of spatial planning includes the retrofitting of infrastructure in areas previously developed, both formally and informally.

There are several challenges to incorporating the infrastructure stipulated by the Ulaanbaatar 2020 Master Plan into CIP projects. First, the Master Plan vision competes with the immediate needs and other plans of line ministries, districts or enterprises responsible for services such as roads, water supply, sewage, or public transit systems. These multiple entities do not always operate according to the spatial concept of the Master Plan. In addition, the provision of infrastructure typically lags far behind the city’s own planning documents.

Box 1. How to Make Urban Planning in Ulaanbaatar More Realistic and Sustainable

- Urban planners must be required to attach financial impact studies to their spatial plans:
  - How much will it cost the public sector to build infrastructure stipulated by these spatial plans? These cost estimates should be based on a credible methodology;
  - How much new public revenue (such as land and property tax) can be expected from such new development?

- Private sector interest in developing remote areas in regional towns and satellite cities should be tested in independent market studies before public investment in related infrastructure is made.

- More broadly, both citizens and city government should be more conscious about the sustainability of land use patterns in UB and the high financial and social costs associated with non-compact spatial development.

\(^5\) https://asiafoundation.org/resources/pdfs/1-MasterPlanPublicSummaryEnglish.pdf
Another layer of complexity is that, in UB as in many other cities, Master Plans are often not responsive to the signals of economic demand for land, for development or redevelopment. For example, the Ulaanbaatar 2020 Master Plan stipulates the development of ten regional towns and three satellite cities to be built by private developers and bought and/or occupied by private companies and households. However, the Master Plan chose remote locations for these developments, although there is already an oversupply of real estate (apartments and office space) in more central locations.

Furthermore, the cost of building public infrastructure for newly developed areas depends, to a very substantial extent, on how far they are from developed, central areas (i.e. are they widely dispersed new towns and satellite cities; or, is development more compact and builds on existing growth?). By planning a more compact city, planners can shorten the length of all the required linear infrastructure networks (e.g. roads, streets, water lines), thus substantially reducing the capital and life cycle costs of the infrastructure networks and their financial burden on taxpayers. This would also reduce the high social costs of dispersed living in UB’s severe climate.

In addition, many projects from the 2020 Master Plan, especially those related to large infrastructure, are too expensive for the Capital City to finance, even if it borrowed funds. Examples of such projects are new, major ring/radial roads, bridges, passenger rail systems (under and above ground), and major water treatment plants. Implementation of such projects then becomes dependent on whether higher levels of government are ready to co-fund or fully fund them. The implementation of these projects is often reviewed and decided through a separate channel from CIP, as discussed in Chapter 1.

It is important to note that the CIP process is the exact point at which spatial planning intersects with financial capacities and realities. One of the functions of CIP is to link these two components.

**Socio-economic Development Plan.** Another major city development planning component currently exists under the umbrella of the *Development Policy Planning Law (DPPL)* that was enacted in 2016. The law states that its objective is to “set the phases, principles, roles and responsibilities of the stakeholders in planning, implementing and monitoring the development policy documents and setting up a comprehensive framework for development policy planning.” In substance, the DPPL systemizes previously random yet ubiquitous policy documents, sector policy documents, national programs, etc. The law categorizes development policy planning by time (short-term; mid-term; and long-term) and geographically (state, regional, provincial, Capital City). Critical documents include the *Mayor’s Five-year Action Plan (2016-2020)*, which formulates the city’s administrative development vision and policy, and provides a background for the annual *Socioeconomic Development Guidelines* of UB. The latter document is one of the key sources of investment projects for CIP.

However, similar to the Master Plan, the above documents are not directly linked to the Capital City’s financial capacity, and the likelihood for full implementation is limited.

### 2.1.2. Asset Management

Asset management is the primary city function that creates a need for CIP, regardless of whether the term “asset management” is used. The

---

6 Orientation toward compact cities is a world-wide trend, including in OECD countries, and is promoted by various governmental policies (OECD (2011). Compact City Policies: A Comparative Assessment – Final Report).

7 Article 1 of the DPPL of Mongolia, 2016.
capital assets under city control include large numbers of buildings, roads, parks, water and sewage systems, city landfills, vehicle fleets, and numerous other assets. Among other things, asset management means managing each property or facility for its entire life cycle, as long as it is owned or controlled by the city or its entities (i.e. institutions or enterprises). Asset management addresses the costs associated with a property’s life cycle: the acquisition cost; operation, maintenance, and repair costs during the life of the asset; and replacement or disposition cost when the property exhausts its useful economic life.

Whether life cycle costs are included in CIP, or are part of operating budgets, is a matter of convention. Which costs are included also depends on existing laws. For example, to the substantial disadvantage of UB, the payment for land needed for capital construction is not allowed to be categorized as capital costs by the Budget Law. However, some life cycle costs – such as conducting capital repairs, modernizing an existing facility, or replacing worn out components of a building (e.g. the roof) – are a part of CIP in UB.

There are some fundamental issues related to asset management that UB faces, similar to those faced by other cities around the world:

- In UB, where a great deal of infrastructure already exists, a proportion of capital expenses needs to be appropriated not for new construction, but for the repair and replacement of existing assets. An important policy issue is how to allocate limited resources between capital repairs and extension of existing infrastructure, and investment in new infrastructure. This is not only an engineering or economic issue but a political one as well; it is well known that politicians tend to prefer supporting “flashier” new construction instead of more mundane replacement of invisible pipes and pumps. A good way to address allocation choices is to create policies (ideally formal, written ones) that give priority to the repair and replacement of existing core infrastructure over the construction of new facilities.

- The initial construction cost of most government capital assets – from general municipal buildings to city roads – constitutes only a fraction of the total life cycle costs incurred by the local government during the useful life of these assets (the useful life can be lengthy; e.g. around 50 years for buildings). This fact demonstrates very clearly that capital investment is only the first, and not the main, cost related to government assets. The implication is that planning any new construction or capital reconstruction must be linked to simultaneous planning for the future institutional and financial operation of the new property. In particular, the city government should define (1) which entity will manage and operate the new infrastructure,
and (2) from which sources the operating expenses will be funded. Thus, the arrows in Figure 1 indicate that CIP has an impact on both asset management and city budgeting. If any new capital asset is planned to be built or purchased, managing it during its life as government property would become a task under asset management. In addition, future operating costs should be factored into obligations for the city operating budget (unless this asset is managed by a fully independent and financially self-sustaining operator).

For cities with advanced asset management, all asset activities originate from a Strategic Asset Management Plan, including capital planning. Such a plan defines the government’s long-term goals and strategies regarding assets based on its service and program needs; it also estimates long-term repair and replacement needs for the entire asset portfolio. When a Strategic Asset Management Plan does not exist, two areas of basic asset management become critically important for the capital planning process and associated budgeting:

- Inventorying assets; and
- Tying capital investment to life cycle costing.

**Inventorying assets.** To reflect the condition of the assets and their maintenance and repair needs in the CIP process, UB needs an asset inventory that covers all capital assets that the city and its entities own. The inventory must contain all relevant information of a specific asset that can be used to maximize the value of that asset through timely maintenance and accurate recording of asset values (e.g. asset definition, location, condition, year of construction and repairs, maintenance costs incurred etc.). While some entities (such as the property relations department of UB city) and municipal entities (such as districts and enterprises) do have rather premature level of inventories of their assets, no consolidated database exists at the municipal level, and therefore no unified reporting requirements are in place. In recent years, UB has started taking steps to create a city-wide, cross-departmental asset database linked to a GIS. Additional financial and human resources, and more specific regulations outlining the specifications required to consolidate and complete the registry of all necessary information of the Capital City’s assets, are needed to fulfill the effort. It is recommended that the Capital City:

- Systematically reviews which of its entities has inventory data, and what type;
- Requires those who do not have complete inventory data to start creating a basic inventory within a simple database. As the scope and sophistication of asset management in the city grows, Ulaanbaatar can advance incrementally to a more sophisticated database, such as one linked to GIS; and
- Engages all key holders of public capital assets in discussion and development of basic inventory requirements; especially important is active participation of entities that have the most advanced inventory databases.

To give an example, a basic initial inventory template includes a brief description of the asset (or group of assets), its location, condition, year of acquisition, and remaining useful life. Often it includes an asset’s book value (as defined by a country’s accounting rules). In a more advanced version of the inventory, it will also include the replacement cost.\(^9\) The initial inventory can be a simple spreadsheet (see Table 2 for an example), which later can be imported into a more sophisticated database. Even basic inventory information can help in prioritizing capital project needs.
### Table 2. Example of Basic Property Inventory for Public Buildings

<table>
<thead>
<tr>
<th>No</th>
<th>Property current function</th>
<th>Address</th>
<th>Cadastre no.</th>
<th>Total floor area (sq m)</th>
<th>Land area (sq. m)</th>
<th>Year of construction</th>
<th>Building condition</th>
<th>Building book value (thousands, local currency)</th>
<th>Current occupancy (%)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative building</td>
<td>Chapichi St., 4</td>
<td>170,477</td>
<td>7,500</td>
<td>2,600</td>
<td>1985</td>
<td>Good</td>
<td>80,670</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Kindergarten # 1</td>
<td>Sevani St., 2</td>
<td>NA</td>
<td>580</td>
<td>350</td>
<td>1980</td>
<td>Satisfactory</td>
<td>3,500</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Kindergarten # 2</td>
<td>River St., 57</td>
<td>NA</td>
<td>990</td>
<td>690</td>
<td>1964</td>
<td>Poor</td>
<td>5,018</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Culture center</td>
<td>Karmin St., 39</td>
<td>NA</td>
<td>6,500</td>
<td>4,500</td>
<td>1984</td>
<td>Poor</td>
<td>61,732</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Source: Urban Institute project archives.

Furthermore, assets are usually grouped by category in inventory databases, e.g. by asset type or by holder/manager (department, municipal enterprise, etc.). Typical groupings may include:

- Utility and sanitation assets, including sewer and water systems, solid waste facilities, and municipal electric and lighting systems;
- Highways, roads, and bridges;
- Public buildings (in large cities like UB, this portfolio could be further specialized as follows: government use, education, sport, culture, public housing);
- Land or rights to land;
- Certain improvements to land other than buildings; and
- Certain equipment, vehicles, and furnishings.

It is important to note that the content of the inventory database depends on the tasks for which the data will be used. The data outlined above is needed to plan capital investment and life cycle costing. However, for other asset management tasks such as optimization of the building portfolio, the city government would need to collect and maintain other information (e.g. the level of vacancy of each building).

### Life-cycle costing

Life-cycle costing is an important economic analysis used in the selection of alternatives that impact both pending and future costs of infrastructure investment. Life-cycle costing estimates a cost of an asset for its entire useful life including both initial costs and future O&M costs. It compares the initial investment options and identifies the least cost alternatives of an asset for its life duration.10 The useful life of buildings and infrastructure facilities/networks can range from 15 to 75 (or even longer). The costs associated with the useful life include:

---

9 In asset management, a common practice is to express various expenses associated with maintenance, repair, and operations of a property as percentages of replacement cost. In this document, replacement cost includes the base construction cost; supervision, inspection, and overhead (typically 6% of base construction cost); design and planning (9%); and contingencies (5%). (Whitestone Research 2010–11).

10 United States General Services Administration, 2018.
Construction/acquisition; Annual expenses; and Disposition.

The annual costs, which depend on the type of facility, materials and equipment used, climate, and labor costs, have several components that are usually grouped into operations costs and maintenance/repair costs (see Box 2). Moreover, as mentioned above, there can be differing interpretations regarding which expenses should be paid from the operating budget and which from the capital budget.

The following characteristics are commonly recognized with regards to O&M, that highlights the importance of a life-cycle costing method to capital investment:

- **Asset Type**: Annual O&M costs, compared with replacement costs, vary significantly by type of asset and may constitute a substantial amount (please refer to Appendix 4 for a more detailed discussion on how to calculate O&M).
- **Initial Capital Cost vs O&M**: The O&M costs, taken over an asset's lifetime, can be much larger than the initial or replacement cost. Operations costs also vary substantially by geographic area.
- **Asset Components**: O&M costs for various components of complex infrastructure, such as po-

![Legend: horizontal axis - years of facility life; vertical axis - $ per sq. feet](image)

- **Central Plant, Boiler**
- **Pump House**
- **Municipal Building**
- **Public Library, 3 Story**

*Source: Whitestone 2010a.*

Figure 3. Estimated Maintenance & Repair Costs for Different Facilities, Washington, DC, United States
table water or wastewater (sewage) systems, vary substantially as well. For example, O&M costs of the collection systems and outfall pipelines for wastewater can constitute 1%-3% of the capital cost, while O&M of treatment plants may account for 12%-20% of the capital cost (see Appendix 4).

- O&M over time: Maintenance and repair costs are distributed unevenly during an asset’s life and depend on the type of asset (Figure 3). As already mentioned, these costs vary geographically as well, so in UB they would be different than in Figure 3.

Asset management is a vital aspect of CIP that ensures efficient use of public resources and maximizes the useful life and quality of infrastructure assets. There are recognized methods that underpin good public-sector asset management policies and practices around the world:

- First, the quality of design and construction materials are directly linked with the O&M costs for the rest of the life duration of an asset. Quite often, annual O&M costs, along with the overall life cycle costs, can be reduced by building facilities or infrastructure with higher quality design and construction materials, resulting in somewhat higher construction costs. The same is true for the costs of certain types of repair, replacement, or renovation. For example, replacing energy-efficient windows and doors in schools and kindergartens can result not only in better conditions for children, but in heating cost savings as well (if that investment in renovation is recouped by O&M savings in a few years). Thus, choosing the lowest cost for construction can unintendedly make overall life cycle costs more expensive over an asset’s life span, and it is important to consider immediate cost savings with a view to their long-term implications.

- Second, failing to properly fund O&M costs results in deferred maintenance, repair, and recapitalization. These, in turn, diminish the useful life of the assets and the initial investment in their construction.

- Third, the "best practice" method for accumulating the proper resources for maintenance, rehabilitation, and replacement of public facilities and infrastructure is to set up special budgetary funds for these purposes. Box 3 illustrates how special funds have been used by local governments in Japan.

The above practices have constructive implications for UB’s asset management in general and for the CIP process in particular:

- Planning any capital expense should be accompanied by planning for future annual O&M costs. This is good practice even if these costs initially can only be approximated. Based on Appendix 4, entities submitting capital investment requests can make rough initial estimates of future O&M expenses expressed as percentages of the capital cost.

Box 3. Reserve Fund for School Facilities, Tokyo’s Chuo Ward

As do many other administrative areas in Japan, Chuo Ward, 1 of the 23 wards of Tokyo’s metropolitan government, keeps a fund for the maintenance, rehabilitation, and replacement of school facilities. The ward annually sets aside an amount close to the depreciation amount for the ward’s 16 elementary schools and 4 lower secondary schools. The fund may be used only for the intended purposes unless the ward council decides otherwise.

At the end of FY 2009, the balance of the fund stood at approximately ¥10 billion (USD 100 million), which was sufficient to replace three school buildings that were identified in the long-term investment plan.

Source: Suzuki and others 2010.
When projects are evaluated during the CIP process, if funding sources for future O&M expenses for new capital assets cannot be realistically planned, it is advisable to consider whether this capital investment should be postponed.

Property and facility managers in each department or municipal company dealing with a specific portfolio of assets should establish and maintain systemized logs of all maintenance, repair, replacement, and operations works performed; in addition, they should log the annual expenses associated with these works for each capital asset under their care. The managers should group the works/expenses into meaningful classes, similar to those shown in Box 1. Grouping enables managers to total the annual costs for each type of expense. This data can be used for planning O&M expenses in the future.

In addition, managers should set up a system to evaluate the condition of assets and set reasonable schedules for maintenance, repair, and replacement. Accumulated over time, the records of actual past expenses, combined with an evaluation of the condition of the assets, will become an important basis both for objectively allocating the next year’s operating budget among different assets, and for developing CIP requests.

Note that one element of life cycle cost that is not discussed here is disposition cost. It usually consists only of the transaction cost if the property is sold at the end of its useful life. The transaction cost would include the administrative costs of the municipal lawyer and other staff, and of the documents needed for disposal. However, in some cases, the disposition cost can be very substantial and should be foreseen over the asset life cycle. A typical example is the cost of closing a landfill and rehabilitating the land. If a city government signs a contract with a private operator to operate the landfill for twenty years, does the contract stipulate how the closure will be paid for? Or will the city be left to cover this cost after contract expiration? Other cases with potentially significant disposition costs are those in which substantial demolition/debris removal is required, or a land site requires decontamination before it can be disposed of or reused. For UB, it is important to make provisions for such disposition (or end-of-contract) costs in the initial contracts with land or property lessees/concessioners or users.

Another important note related to CIP is that the construction cost and the life cycle cost combined still do not constitute the total cost. The total cost includes additional components, such as the cost of land and borrowing. If borrowing is a financing option, the city government should examine the financial viability of projects with the cost of borrowing included. The cost of land should also be accounted for in many cases, even if a land site is taken from the municipal land stock and no monetary outlay is needed. In some cases, the final “product” of an investment will not be a mandatory city function or could be delivered by the private sector (e.g. housing or parking garages). To know the total cost of the investment to society, the city administration must include the market value of the land in the estimated investment cost. When land must be acquired – e.g. by expropriation to widen streets – this cost obviously must be included, even if land is purchased outside the CIP process (which is the case in UB, according to the Budget Law).

### 2.2. Financial Aspects

CIP is closely related to two elements of financial planning: *capital financing* and *budgeting*. Capital financing deals with identifying and securing funding and financing for capital investment projects. Budgeting is a process of aligning resources to needs for a given fiscal period. In UB, as in most municipal systems internationally, the annual city budget has two
components: the operating budget and the capital budget. As such, the key input in the capital investment process is knowledge of the city’s financial capacity to fund capital investments. This capacity includes the feasibility of incurring debt and the policy toward borrowing. The list of projects prioritized through the CIP process is nothing more than an expression of local needs and preferences in a situation of limited available funding.

Therefore, there are fundamental links between CIP, capital financing, and budgeting. First, the financial resources available for capital investment define what can be implemented. Therefore, selecting projects within these funding constraints is a core task of the CIP process. Second, in a well-established budgeting process, capital investment spending will not take place without being approved as part of an integrated city budgetary cycle.

In this regard, UB’s financial management needs improvements, to make sure that channels such as borrowing by the DBM or PPPs do not operate separately from the city budgeting process, as is currently happening. In addition, as discussed earlier, the implementation of a CIP has an impact on future operating budgets. Indeed, the government needs to consider the post-construction life-cycle costs of new or renovated assets, and these costs must be planned for and incorporated into budget forecasts, preferably during the CIP stage.

In a well-developed financial management system, a city government would analyze its financial capacity for capital investments as a part of a CIP process. Such an analysis provides projections of future revenues and expenditures and determines the financial resources that can be used to fund investments or finance debt. Instruments for such an analysis are detailed in the next chapter. Moreover, given that the use of debt financing has long-term implications for a city’s financial health, it is very important for the UB government to have an in-depth understanding of the benefits and risks of incurring and managing debt.

Finally, some capital investment needs can be addressed through the use of non-financial or non-traditional solutions. On the demand side, as mentioned, UB can reduce the need for new infrastructure by planning for more compact development and higher density land uses. On the designing, building, financing, operating, and maintaining side, engagement of the private sector in the process through various forms of PPPs can be a solution for some well-selected infrastructure projects. Finally, the use of such non-traditional instruments as land-based financing can enhance a government’s financial capacity. Private sector participation and other non-conventional financing methods are detailed in the next section.

The total capital investment for any period of time (i.e. the entire CIP), and the individual projects included in it, can be funded through a combination of sources. Usually, sources of funding are defined separately for each capital project (or for a group of similar projects, such as street repairs in different parts of the city). Often one project, especially an expensive one, has several sources (e.g. co-funded by the central and city governments).

Typically, potential sources include:

- **Targeted transfers (grants) from upper levels of government.** Often, transfers/grants are allocated for specific sectors or specific projects – quite similar to what takes place in UB.

---

11 Land-based financing includes the mobilization of the economic value of the government-owned land and government’s power to impose fees and charges, in particular on developers, or to sell “development rights” to generate additional revenues to fund infrastructure. See Peterson 2009.

- **Local budget.** This may include such sources as:
  - *Surplus from the annual operating budget.* This can be the surplus from the previous year or the expected surplus from the current year. Sometimes this source for capital expenditures is called "pay-as-you-go". The surplus can be created either from own-source revenues (or savings of expenses) or from general (not earmarked) transfers from upper levels of government.
  - *Users' contribution.* This one-time contribution can be a substantial funding source. For example, hook-up/connection charges are commonly used in many countries for water projects. In most South Asian countries, this charge covers approximately 10% of investment costs. In Jordan, citizens contribute up to 50% for local roads (street pavement). Allowing users to contribute to the cost can to some extent build citizens' sense of ownership and influence in selecting priority projects and controlling implementation.
  - *Dedicated local taxes and fees for capital projects.* Such taxes and fees (e.g. land development fees) are usually charged to developers and used to fund city-wide extensions of public infrastructure. In some cases, the fee amount is linked to the need for additional infrastructure caused by the new development (impact fees). In UB, a similar instrument is the City Road Fund which receives money from the road use fee and the vehicle tax, and which funds works on the city's roads and streets.

A good way to manage dedicated local taxes and fees is through a **Special Reserve Fund.** This is a special, permanent (multi-year) budgetary fund established through a formal local government resolution. This fund accumulates specific earmarked resources identified in its establishing documents for the future repair and replacement of essential capital assets. These funds usually cannot be used for other purposes. Often, local governments have several such funds, each dedicated to a particular infrastructure system or group of properties (e.g. roads and streets; water, sewage, and rainwater; general immovable properties). The existence of such funds and regular contributions to them often indicate that prudent long-term financial planning and asset management policies are in place.

For infrastructure systems that provide user-paid services (e.g. water or sewage), some part of the user fee can be dedicated to capital investment (i.e. for paying for capital components of maintenance and repair costs and setting aside funds for depreciation). Tariffs for such fees are critical (Box 4).

A good practice is that tariffs should be based on full cost recovery. Usually, this implies that the tariff would cover the operations costs, maintenance and repair costs, debt service (i.e. payment of loan interest), depreciation, and, for private companies, profit. With the full cost recovery tariffs, the loan principal is repaid from the depreciation part of the tariff.

The amount calculated for depreciation, if not consumed by debt repayment, should go into a special reserve fund/account for capital investment to replace assets as they reach the end of their useful lives. As a good practice, such reserve funds should be supervised independently by a special board. Moreover, these special funds must be protected by local regulations from use for other purposes and be available only for capital investment by the designated service. For example, if water and sewage are provided by a special municipal com-
Guidebook on Capital Investment Planning for the Capital City of Ulaanbaatar

Box 4. Tokyo Waterworks: How to Finance a Water Pipeline Replacement Project

When determining the appropriate level of reserve funding for revenue-generating enterprises such as water companies, it is important to take into consideration fees and charges. The Tokyo Waterworks, which serves 12.5 million people in metropolitan Tokyo, has been financing its operating expenses and capital expenditures by relying on water tariff revenues. Various reserve funds have been set aside to cover fluctuations in its costs. Currently, the utility is facing the daunting task, beginning in 10 years, of replacing old water pipes. The total investment required is approximately ¥1 trillion (USD 10 billion), which represents 40% of the utility’s total assets of ¥2.5 trillion (USD 25 billion) in current yen.

To meet this challenge, Tokyo Waterworks started identifying ways to level out the ¥1 trillion planned investment over a reasonable period by planning for maintenance and rehabilitation well ahead of the project and by establishing a detailed construction plan. Meanwhile, the utility has already started accelerating debt repayments so that outstanding debt may be maintained at the current level of ¥0.5 trillion even after project financing has been undertaken. The accelerated repayments are covered by water tariff revenues even though the Tokyo metropolitan government lowered the water tariff on January 1, 2005. The utility plans to finance the ¥1 trillion replacement project by implementing a reasonable tariff adjustment.


company, the Water Reserve Fund should be available for the water company to use according to a pre-approved CIP.

However, two problems are common. First, tariffs often do not recover the full cost due to concerns that the full-cost tariffs would not be affordable for some users. To address the resulting budget shortfall, the first sacrifice is the reserve for recapitalization (depreciation). Second, municipal service enterprises often include depreciation in the tariffs but spend this portion of the fees on operating instead of capital expenses. They make this choice for a number of reasons, one of which is lack of a proper supervision of their activities. When tariffs are set below full cost-recovery due to concerns about affordability, there are two good-practice solutions to consider: (1) cross-subsidizing residential users with fees charged to industrial and commercial users; and (2) in more advanced cases, targeting subsidies directly to households in need so that they can pay the full tariff.

• Borrowing. Loans from financial institutions such as commercial banks, specialized banks and financial entities (common in Europe), or municipal bonds (common in the United States) are the most common forms of long-term borrowing from the financial markets by local governments. However, entering the financial markets requires a certain level of financial management maturity and sophistication. Local governments also need to establish their creditworthiness to be able to obtain credit on favorable conditions.

Long-term debt means infrastructure that is used by more than one generation is paid for by more than one generation. Short-term debt, such as debt with a pay-back period of
five years or less, is more problematic because debt service then becomes a larger expenditure and significantly reduces the local government’s near-term investment capacity.

The most appropriate candidates for financing with borrowing are facilities and systems that generate revenues during operations, which would help recoup capital expenses and repay debt. Further, borrowing must be associated with improving efficiency of facility/systems operations (e.g. if a water treatment plant was built with a loan, financial and operational efficiency of the municipal water company that operates the plant needs to be improved), along with increased tariffs for the service (matched, if needed, by well-targeted public subsidies). In the CIP process, projects that have such a potential should become the main candidates for borrowing. Strategically, this implies that users should pay a higher share of infrastructure costs, assuming that efficiency of systems is improved.

It is important to follow these rules for debt financing:

- Use debt to finance only strategic infrastructure projects that service mandatory city functions;
- The life of a loan should not exceed the useful life of the asset acquired with the loan;
- When possible, use loans to cover any gaps in financing after own sources and grants; i.e. the city should prefer grant financing to loans;
- Make a careful forecast of the capacity to repay the loan, because the limitations on borrowing established by law may be insufficient to prevent the city from over-borrowing. Not exceeding legal debt limits does not guarantee that the city is able to repay its debt; and
- Exercise caution when taking out large loans. If, as a result of borrowing, the city has no remaining borrowing capacity, financing other projects can become problematic.

- **Local balance sheet - Mobilization of land and property assets owned by local governments.** Many local governments around the world are "cash poor, but land rich". They have limited fiscal autonomy and/or insufficient budgets. Nevertheless, they control substantial holdings of land and built-up properties that they do not need for public use now or in the foreseeable future. Being "land rich" is particularly true for cities in many former centrally planned economies. Identifying such "surplus" land and built-up properties and selling them at auction can generate substantial revenues to fund capital investment.

For UB, maximizing revenues from land allocations and improving use of these revenues is highly relevant. In the past, a significant amount of land was allocated to commercial developers without charging market value, even in prime locations in the heart of the city. Over years, this resulted in substantial amounts of forgone potential revenues.

Public land and property are practically unrecoverable resources – once sold, they cannot be recouped without significant expense. Therefore, good governance principles should be applied carefully in decision making:

- The “surplus” nature of properties should be established following an inventory of all public land and property under city control, and after public-use land has been reserved for future development (most importantly for UB, “rights-of-way” for streets, engineering and social infrastructure). This careful preparation helps cities to avoid selling land for private development that is needed, e.g. for school con-
- Land sales should be planned for several years ahead, but flexibly adjusted to conditions in the real estate market so as not to oversupply land and to avoid sales during downturns of the real estate market ("time-to-market").
- Sales should take place in the form of simple auctions, in most cases for the highest price offered. Note that "auction" does not only imply a transfer to private ownership. Long-term (and even short-term) land leases can be auctioned as well. In such cases, a winner would offer the highest annual land lease rate.
- To increase revenues, the value of city-owned land should be enhanced before sale. A very useful step is to remove excessive land use restrictions and conditions by permitting broader combinations of land uses and higher densities. Fiscal benefits to local budgets can be very substantial, with no harm to public interest.
- The sale revenues should be placed in a special permanent budgetary fund used only for capital investment and repaying long-term debt, as discussed above for Special Reserve Funds.
- Sales of undeveloped land (land without infrastructure) should be coordinated with infrastructure provision for this land (either by the government or its entities or by private developers as a binding requirement for them).
- Expropriation of land from sitting tenants should be avoided or minimized.

- **Grants from international donors.** In some regions of the world, cities can "shop" for grants from various donor-sponsored sources. Mongolia has access to grants and concessional financing from various International Financial Institutions such as the WB, the Asian Development Bank, the Asian Infrastructure Investment Bank, the European Bank for Reconstruction and Development, KOICA, and JICA. However, such funding has certain disadvantages:
  - It may be available for specific types of projects only, and qualified projects may not be the highest priorities on the city’s CIP list;
  - Grant funding requires substantial additional preparatory and reporting work; and
  - The amount of grant money is usually limited, and there is a risk of discontinuation as a result of fiscal deterioration or changes in priorities in donor countries.

Nonetheless, it makes sense for UB to be familiar with available funding of this type. Obviously, availability of international donor grants should be investigated before the city turns to borrowing.

- **Private sector participation.** Private sector participation including the following forms:
  - **Lease (or installment purchase).** Like PPPs, this is another less traditional form of acquiring capital assets. A lease is a contract whereby a private party conveys equipment, services, etc., to the government for a specified time, in return for a periodic payment. An installment purchase is similar, but at the end of the payment period the government would in fact own the asset. Under such an arrangement, the costs to acquire premises or equipment are similar in some respects to purchases made with debt proceeds in that they are funded over multiple years, are subject to certain terms and conditions, and create future payment liabilities.

As UB already discovered, deploying this form is prudent only if:

- Projects are selected through a regular CIP process; and
- The impact of future repayment obligations on the municipal budget was well analyzed and approved as a part of a budgetary process.\textsuperscript{13}

- \textit{Developer exactions}. This form of private sector participation is widely used around the world and in UB and implies that developers build on-site infrastructure on their own, with no public funding. This form sometimes morphs into a “negotiated” contribution of off-site infrastructure by the developer, in addition to on-site infrastructure. For example, a developer is required to build an access road to its development site, or complete off-site infrastructure that was supposed to have been built by the government or its utility company but was not.

- \textit{Voluntary and negotiated contributions}. These are instruments such as \textit{business improvement districts}, in which property owners in a specific area agree to pay a predefined amount for specific improvements of infrastructure and services in the area, before investment in these improvements is made.

- \textit{Public-private partnership (PPPs or P3)} is one kind of procurement methods which is widely defined as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.\textsuperscript{14} The prevailing form of PPPs is based on a contractual relationship between the government and the private partner (which can be a consortium of private entities). A less common form is a joint legal entity established by the government and the private partner – a joint venture. Please refer to the next section for more detailed discussion on private sector participation and PPPs.

Private partners in PPPs can play several roles, which include providing financing, expertise, and efficiency; and, if a PPP is well structured, taking on specific risks that the private party can better manage than the public sector. However, long-term PPPs associated with capital investment can be the most complex investment instruments of infrastructure finance, procurement, and delivery methods that local governments might use.

On the financial side, there are two primary PPP models, with a continuum of hybrids in between. The first model applies to PPP projects that are completely financially self-sufficient and do not require public funding. In such cases, investors recapture their costs and obtain profit from the revenues generated by the property/facility they build, while citizens have access to a price-controlled public-use facility built without public capital outlay.

The second – and most common – model requires public funding via methods such as Availability Pay\textsuperscript{15} to the private entity, but the initial capital costs are borne by the private partner in a PPP. In this case, the local government’s financial obligations are very similar to debt repayment. The reason behind such a PPP is to obtain capital financing otherwise not available, allocate specific risks to a private-sector developer, and benefit from the innovation.

\textsuperscript{13} None of these two preconditions were followed in the initial UB’s experience of engaging in projects of this nature ("build-transfer" concessions) in 2014-2016.


\textsuperscript{15} Availability Pay is a PPP contract arrangement where the Government pays monthly/annual payments to the SPV, conditional on the facility being available and performing to agreed standards or Key Performance Indicators. On-going payments are subject to deduction for failures in service delivery of the facility or parts thereof being available for use.
tions and efficiency of the private sector. In many countries, various local facilities such as schools and jails have been constructed or reconstructed this way.

PPPs can also provide savings on life-cycle costs by integrating stages of capital projects that are fragmented in the traditional public-sector approach. For example, the integration of design, building, and operation under the direction of one private partner can lead to very substantial savings. Another major benefit is that well-structured PPP contracts protect public budgets from the risks of budget overruns and funding running out before project completion. The project costs and funding for the entire project are stipulated in the PPP contract, before construction starts.

Nevertheless, as already noted, PPPs associated with capital investment are complex transactions with high transaction costs and require specialized expertise. The local government must have the capacity not only to prepare, procure, and negotiate a PPP, but also to manage it. In particular, PPP contracts should be performance-based, with quality/performance indicators clearly defined, and private partner’s compliance with the contract should be rigorously enforced. Therefore, the recommendation for UB is to engage in PPPs gradually, starting with simpler forms such as outsourcing O&M of selected municipal services or facilities under two to three-year performance-based contracts (e.g. for street cleaning). It is advisable to enter into long-term PPPs associated with capital investment only after gaining experience with simpler contracts. International experiences show that starting with complex long-term PPPs is risky unless qualified (and often expensive) technical assistance is provided to the local government at all stages of PPP preparation, procurement, negotiation, and contract management. Without this support, complicated PPPs often lead to arrangements that do not represent the public interest as well.

In recent years, the UB city authority has increasingly emphasized the importance of PPPs in implementing and financing urban development projects, and has made changes in its institutional structure and made efforts to improve its capacities to gear towards PPPs. For example, UB city has established two new institutions with corporation status to enable the city authority to enter into contracts with the private sector – the UB City Development Corporation (UBDC) and the UB City Housing Development Corporation, as well as a PPP management agency – Industrial Development and Innovations Agency (IDIA).

UB city’s ambitious plans to leverage private capital to fill the financing gap to achieve its Development Plan of 2030 was brought to a halt when the previously signed Build-Transfer (BT) contract payments started to create heavy fiscal burdens on the municipality’s budget. Over the past few years, UB city has implemented a number of PPP projects, the majority of which are Design-Build-Transport (DBT) projects in the education and culture sector, some Build-Transfer (BT) projects in the road transportation sector and Build Own Operate Transfer (BOOT) and Build Operate Transfer (BOT) in urban construction projects. UB city, as well as the national government, defined numerous projects as PPP-potential and have been actively searching for private partners to take on these projects.

In the light of the national and municipal government’s plan to leverage private

---

16 IDIA, 2018.
capital, and of the recent experiences with regards to recently executed PPPs, it is vital to assess the factors that contribute to the heavy burden of PPP. One of the most fundamental factors that affect successful PPPs, and the factor which is potentially leading to the failure of PPP projects in UB, is the lack of institutional coordination in the prioritization and selection of potential PPP projects and the capital investment process of public investment projects.

2.3. Public Private Partnership and Integration with Capital Investment Planning

The central features that set PPPs apart from traditional forms of procurement and implementation are bundling of project phases to create synergies, transfer of risks to the party who is able to mitigate them most efficiently, and quality and/or performance-based contracts. Regardless of how infrastructure projects are procured, they should be identified and prioritized in the context of the public investment planning process. A well-structured and managed PPP will not be effective unless it addresses clearly identified objectives that are central to sector needs – particularly since the long-term nature of PPP contracts effectively locks in asset and service specifications over a long-term period – and are included in the government agenda.

As a consequence, PPPs should emerge from this broader public investment planning and CIP process. Only later in the process should projects be screened for their potential for implementation through PPPs and further assessment be carried out to determine their viability as PPP projects. The objective of this screening is to identify, based on the available information and with institutionalized criteria, whether the project may provide better value if procured via PPP. In international practice, governments carry out PPP screening at different stages of the CIP process. Due to a limited amount of information at the prioritization and selection stage of capital investment projects, some countries introduce criteria or checklists for PPP-potential, against which PPP projects can be compared.

In UB, PPPs have been prepared, appraised, selected, budgeted, and monitored separately from traditionally implemented projects. IDIA is responsible for facilitating the PPP program in the MUB, and projects are proposed by various municipal entities such as the UBDC and other municipal enterprises. This PPP project selection process has no clear linkage to the PPD’s CIP process, other than the City Council acting as the approving authority for both PPP projects as well as CIP projects. This disparity and lack of coordination creates numerous shortcomings for UB. First, it creates the risk of municipal enterprises promoting their own commercial interests instead of public priority needs. Second, it undermines the municipality’s public financial management and therefore creates undue fiscal risks and opacity.

Mongolia is not an exception in this regard on the international platform. The Benchmarking PPP Procurement report developed by the WB (and applied to national-level PPPs only) found that only 19 out of 84 countries assessed had a

17 In some international cases, PPP project ideas may emerge from other sources than the standard CIP process. These could include: i) Sector reform processes – governments undertaking reform of an under-performing infrastructure sector may consider PPP among a range of options for introducing private participation to improve performance in a particular sector; ii) Unsolicited proposals from businesses – some governments provide ways in which businesses and other non-government entities may originate PPP project ideas, for consideration by the government.

regulatory framework that detailed a procedure for ensuring that the identification and prioritization of PPPs is combined (or consistent) with public investment priorities. The remaining 65 countries left the requirement to the discretion of the procuring authorities.\textsuperscript{19} Mainly due to the lack of integration of CIP and PPP prioritization, Mongolia scores only 27 points out of a total of 100 with regards to its capacity in preparation of PPPs – an assessment whether the identification of a potential PPP happens within the broader context of public investments and thereby its consistency with government priorities. Among the four themes in the PPP benchmarking assessment, Mongolia earned 27 points on preparation of PPPs, 58 points on procurement of PPPs, 75 points on unsolicited proposals, and 69 points on PPP contract out of a total of 100 in all four categories. The main shortcomings that the report found, with regards to Mongolia’s PPP preparation, were that: PPP projects do not need central budgetary approval at preparation; the PPP prioritization process is not consistent with public investment prioritization; the PPP preparation does not formally mandate the assessment of risks, and; studies of the market’s appetite and capacity to accept PPPs are not fully formalized in the PPP preparation process. Similar shortcomings were typical for city-level PPPs in UB as well.

Thus, well-defined processes and methodologies for CIP that is inclusive of potential PPP projects, are prerequisites to successful PPP programs in UB, especially as PPP is a way to deliver a public investment project. This integration ensures that PPP projects are subject to the same level of scrutiny as any other public investment projects from the socio-economic, fiscal affordability, and financial viability perspectives. Projects that meet the MUB’s development agenda and social demand among other CIP prioritization criteria will then be screened for PPP-potential. Integration of PPP and CIP will not only help UB to avoid the shortcomings mentioned earlier, it will also help improve transparency related to PPP projects.

As mentioned, UB lacks a clear process to identify projects suitable for PPPs as part of the CIP process. This is aggravated by the: i) short period of timing allocated for project submitting entities to prepare project requests (May-June) in an annual CIP preparation cycle; and ii) the low capacity of the submitting entities to carry out a preliminary analysis and survey for the

\begin{boxedtext}{Box 5. Good Practices in the Preparation of Public-Private Partnerships at National Level}

At the national level, good practices which help ensure that the decision to procure a PPP is justified and that the procuring authority is ready to initiate the procurement process are:

\begin{itemize}
  \item The MoF or central budget authority approves the long term-financial implication of the project.
  \item The project is assessed and prioritized along with all other public investment projects in the context of the national public investment plans.
  \item The project is adequately justified, on the basis of:
    \begin{itemize}
      \item Socioeconomic analysis
      \item Fiscal affordability assessment
      \item Financial viability
      \item Risk assessment
      \item PPP vs public procurement comparative assessment
      \item Market assessment
    \end{itemize}
  \item The procuring authority prepares a draft PPP contract and includes it in the request for proposals.
  \item The procuring authority has standardized PPP model contracts and/or transaction documents to expedite and guarantee consistency.
\end{itemize}

\textit{Source: Benchmarking PPP Procurement 2017}

\end{boxedtext}
proposed projects. Given the above-mentioned constraints, and to ensure the sustainability of the recommendations provided in this guidebook to improve the objective nature of CIP process, UB is advised to follow the integrated framework in screening for PPP-potential projects proposed in Chapter 3, Step 8. Integration of the CIP and the PPP screening process generates several advantages:

First, a unified framework helps to ensure that decisions on public investment projects are consistent in maintaining the value-for-money objective throughout the project cycle.

Second, a unified framework helps to accomplish optimal risk transfer. It is important to note that all service delivery mechanisms — whether they are public, private, or partnership models — are exposed to risks. Failures by the government to mitigate these risks may not only have fiscal consequences for the government but also affect the quality of service delivery. The key difference of PPPs is that a large part of their efficiency or value-for-money benefits is derived from the effective identification, pricing, and transfer of risk from the public to the private sector. Good risk management allocates risk to the party best able to manage it. If each type of project (whether traditional or PPP) is subject to separate management arrangements, the concept of optimal transfer from one entity to another may not be ensured; and separate management arrangements also open the door to inadequate risk shifting at different steps in the project cycle. A unified framework, therefore, might be considered as one of the conditions for achieving optimal risk transfer in both traditional and PPP options.

Third, but not least, a unified framework may help to avoid unmanaged fiscal risks and to improve transparency in the public financial management system. It could lead to the incorporation of all PPP fiscal commitments and risks into the government’s routine fiscal screening and monitoring process. As such, it enables the government to effectively assess the real burden of PPP commitments and risks within a medium- and longer-term fiscal framework.

With PPP arrangement for project procurement and delivery, the private party will take on some or all of the responsibilities to design, finance, build and maintain the infrastructure, and provide services. However, the government should remain responsible for ensuring that the public service is provided to the expected quality standards in a way that achieves good value for money. Therefore, in setting up the institutional framework that manages PPPs, not only is it vital to avoid the disintegration between CIP and PPP, it is also important to set up the institutional framework in a way that avoids inherent conflicts of interests. As mentioned earlier, IDIA is the responsible agency to prepare the PPP pipeline and prepare PPP projects. However, because IDIA’s responsibility is to promote PPP in UB, there may be a conflict of interests in the current institutional arrangement. Based on international best practices, PPP-responsible units are better mainstreamed and centralized within the traditional CIP institutional arrangements.

2.4. Public Participation and Overall Transparency of the Capital Investment Planning Process

“Public participation” should provide channels not only for citizens but also for the business community to have a say in the CIP process and outcomes. Public participation ensures that what is funded and how these capital investments are paid for is transparent. It reflects the views not only of politicians and technical experts from the government, but also of a broader constituency of local taxpayers, both individual and corporate (Box 6). At the same time, public participation in the CIP process enables the government to convey to the public unpop-
Guidebook on Capital Investment Planning for the Capital City of Ulaanbaatar

Without such communication, there is a risk of a very common problem: people like services to be improved but tend to ignore the fact that improvements cost money.

The overall transparency of CIP – both within the government and to the public – is no less important than the direct contribution of non-governmental players. Transparency is essential to keep the government accountable, especially since government investment and construction projects around the world have been prone to corruption. Practical transparency instruments are discussed in Chapter 4.

There are at least three public participation entry points in the CIP process, each with specific instruments to be used. These key opportunities are:

- Active engagement of the elected representative body in CIP;
- Public input during the preparation of project requests; and
- Public input into the draft CIP and capital budget.

These entry points are presented in Chapter 3, along with the related steps in the CIP process. Furthermore, in addition to “standard” methods of public participation, there are endless opportunities for UB to employ creative approaches to engage citizens in addressing the specific challenges of CIP (see Box 7).

Box 6. Benefit of Long-Term Planning and Public Participation: Contra Costa Water District, California, United States

The Contra Costa Water District, which serves approximately 450,000 customers, developed a 10-year CIP as part of its annual cycle, which includes operating and capital budget development and tariff setting. In addition to a first-year plan for funding capital projects, the CIP estimated O&M and debt service costs, projected reserve balances, and projected revenue requirements. By projecting rates over ten years, the district was able to absorb one-time revenue shortfalls or unexpected expenditures without being forced to react with large tariff increases. Moreover, increasing tariffs in small annual increments – rather than steep, sudden hikes – was aligned with the financial plan and has slowed the rate of inflation. These increases went virtually unnoticed compared to most tax or rate increases. Area developers even agreed to substantial increases in the district’s “facility reserve charges” after participating in a technical advisory committee to review these charges relative to the plant investments required to serve growth.

Source: Adapted from Westerman 2004.
Box 7. New Technique for Increasing Citizen Participation in Government Decision-making Process in Ulaanbaatar

In 2015, the MUB successfully tested “deliberative polling” – a new technique of citizens’ engagement in long-term CIP. This two-day event brought together a scientifically selected random sample of 300 citizens representing UB’s residents to prioritize the projects planned by its Master Plan for 2020. It was Mongolia’s first-ever deliberative polling exercise for citizen participation in government decision making, in which the citizens actively participated by reviewing the presentations and documents provided by the city officials, and worked in groups to discuss and debate the pros and cons of the proposed projects in the Master Plan for 2020 before prioritizing them. The citizens’ preferences were surveyed before and after the deliberation. Following the deliberative polling exercise, 14 projects with the highest priorities were included in the Action Plan for the Implementation of the Master Plan 2020, which was approved by the Government of Mongolia in 2016.

Source: Adapted from First Deliberative Polling Results Report, Asia Foundation, 2016.
3. Steps of the Capital Investment Planning Process

3.1. Lessons from FY2018 Capital Investment Planning Exercise

As presented in the introduction of this guidebook, the CIP prioritization methodology developed as part of this technical assistance was piloted for the FY2018’s CIP. The methodology along with the prioritization criteria was introduced during a stakeholder workshop to the submitting agencies, line ministries, and other relevant stakeholders before the deadline of project proposal submissions.

The prioritization criteria and the overall CIP methodology were developed in close cooperation with the PPD and therefore, the recommended CIP process was carefully implemented by PPD. However, during the pilot process, certain shortcomings from the prioritization criteria were identified which reflect the complex and challenging CIP environment in UB. Below, common challenges experienced in UB during the FY 2018 CIP exercise are summarized:

- The number of investment requests that the PPD had to collect, process, and prioritize as a part of the CIP process was very large;
- Lack of capacity and information to complete the CIP project template. Additionally, some submitting entities submitted duplicate project requests – one to the PPD directly, and one to the line departments, which in turn forwarded them to the PPD;
- Challenges related to the CIP schedule: the PPD does not give entities enough time to assemble and submit their project requests;
- Insufficiently consolidated CIP process and insufficient considerations of financial consequences of investment decisions. In particular:
  - Decisions on borrowing for projects in the territory of UB, which impose direct or implicit repayment obligations on UB, have been processed outside UB’s standard annual CIP (e.g. borrowing by municipal enterprises and by state entities for city redevelopment projects);
  - Consideration of potential PPPs has been separated from the standard CIP process, and hence potential PPPs lack the proper screening on whether they serve public priority needs; and
  - City Council makes decisions that affect the city’s capital budget outside the CIP process. As a way of illustration: from 2014-2016, 139 “build-transfer” projects were included in a special Capital City Concession List. They were stipulated by several decrees of the City Councils, separately from the annual capital budget, despite the fact that they were imposing future payment obligations on the city’s future budget. After the impact of these agreements on the budget was recognized, most of them were canceled in consideration of the financial difficulties facing UB.
- Politicians favoring projects that only benefit their specific constituents and/or are well visible (like a swimming pool) over more urgent projects that benefit the common
good or are less flashy (like replacing leaking pipes). Similarly, members of parliament from the ruling party individually control a portion of the central government’s capital budget, and they can allocate these shares for discretionary investment;

- No accounting for future life cycle costs when making capital investment decisions;
- Managing PPPs through separate channels (e.g. the IDIA, the UBDC, and other municipal enterprises), without close coordination with the CIP process, creates the risk of municipal enterprises promoting their own commercial interests instead of public priority needs;
- Insufficient communication between the UB city government and line ministries about investment priorities, and a lack of alignment and harmonization of capital investment priorities between these levels of government. This results in line ministries responding to the city requests inconsistently (i.e. one ministry funding a higher portion of city’s requests than another, or a ministry allocating funding without knowing or simply ignoring the city’s priorities);
- Insufficient transparency of capital investment decisions, which is rife with opportunities for all sorts of abuses, such as unnecessary “pet projects” promoted by local politicians or officials, conflict-of-interest deals, or even outright corruption; and
- Limited public participation in investment decisions, including the fact that the private sector business community is not consulted.

Learning from the experience of adopting the CIP prioritization methodology (the process and the criteria) during FY 2018, the methodology was revised to be as practical as possible to the circumstances in UB. However, MUB is encouraged to implement the changes that have been advised throughout this guidebook and update its prioritization process (such as establishing a communication plan for key stakeholders, integrating PPP with CIP, creating inventory of assets, integrating the life-cycle costing methodology etc.) and its criteria to reflect these positive and vital changes that could bring UB’s CIP practice to international standards.

3.2. Steps for Capital Investment Planning Process in Ulaanbaatar

This chapter presents a CIP step-by-step guideline for UB city’s improved CIP process, which enables a more transparent, more objective, and more efficient planning procedure of capital investments. The CIP guideline is based on a transparent and consultative approach which builds on the development guidelines of UB City, the project readiness, project viability in terms of cost, and maximization of benefits to the society. The CIP process presented below consists of 9 well-defined steps, each vital to successful processing and preparation of a capital investment plan for UB city that maximizes the value of public investment. As presented in Figure 4, the CIP and budgeting is a dynamic process.
Step 1. Develop a plan for communication with key stakeholders in the capital investment planning process and their engagement

Issues addressed:

- How can the PPD engage various stakeholders in consensus building regarding the approach to CIP preparation and related policies and priorities?

The CIP process in UB is established partly by laws, partly by MoF regulations, and partly by the city of UB’s own decisions. Organizationally, the PPD is tasked with assembling, sorting, and processing capital investment requests and preparing a draft annual CIP to be funded from the Capital City budget and from the Capital City Road Fund. The PPD also forwards requests that should be funded by line ministries to the appropriate ministry.
However, the process has multiple stakeholders and decision makers, such as the district administrations, the Finance and Treasury Department, the City Council, and line ministries funding projects in UB. Therefore, the PPD needs means for keeping them informed and, ideally, in consensus regarding project prioritization and related policies. For example, the PPD may want to convince line ministries on the importance of respecting the city’s expressed priorities when allocating funding to the city’s project requests.

Similarly, establishing an early-in-the-process communication channel with a few City Council members could serve as an information and influence bridge to the whole Council, one that keeps them informed and builds support for the principles and results of the CIP process that the PPD implements. This way, when it becomes time for the Council to vote on the CIP draft, they better understand the priorities underlying this draft.

A simple instrument of such communication can be a workshop for stakeholders conducted early during an annual CIP process – similar to the one that was organized by the PPD and the WB in April 2017.

Step 2. Review/modify policies on capital investment planning

Issues addressed:

- Why would it be useful to assemble the key rules of capital investment in UB into one policy document?
- What are the typical issues included in such a document?

In UB, policy rules and initiatives related to capital investment are spread over multiple regulatory and policy documents issued by both the central and city government. However, there is no single recognized document that summarizes the most important rules for all participants. Most importantly, there are some uncertainties in the decision-making process which allow investments to be launched outside the CIP process. This, obviously, fragmentizes the process and creates unnecessary risks for the city. For example, there are no unequivocal rules that potential PPPs and projects requiring borrowing by municipal enterprises must first go through a prioritization screening within a regular CIP process.

A good policy, be it formal or informal, should cover at least the following:

- **Period covered by the capital investment plan.** In UB, there is no such formally pre-defined duration yet. On average, projects included in the CIP last for two years, but some last for 4-6 years.
- **Eligible types of investment.** The policy should list the types of investment eligible for inclusion in the CIP and identify which types/components of costs should be included. For example, the items eligible for inclusion into rehabilitation, replacement, and reconstruction should be the following: existing infrastructure, public-use facilities, and social-use and government-use properties under the mandate of the city government; also included should be the cost of acquiring land for these uses. In addition, eligible as well are the construction of these types of new infrastructure facilities (if and when construction is economically and financially justified), and the acquisition of land for such construction. Acquisition of equipment and vehicles for public functions under the mandate of the local government is also allowed. With respect to cost components, the policy should clearly state which expenses must be funded and from which budget – capi-
tal or operating. Note that, if the CIP policy identifies eligible types of projects clearly, and the policy is actually followed, it can prevent (or reduce) spending on “pet projects” by politicians lobbying for private interests, which do not directly provide public services and can be delivered by the private sector (e.g. production facilities, trade centers, business centers, market places, etc.).

In UB, the CIP policy may repeat priorities for capital investment from the Mayor’s Action Plan, priorities that should then be reflected in the project selection criteria. The policy should clearly state that no projects that require public investment – either directly (from the city or line ministries’ budgets) or indirectly (through municipal enterprises, PPPs or borrowing) – may be approved without going through the CIP process.

- Definition of what constitutes a capital investment project. In effect, this definition sets a minimum size for project requests and a minimum useful life for an asset in order to be considered for inclusion in the CIP. Until recently, the CIP process in UB was overwhelmed by small investment requests that would not qualify in most cities of comparable size.

- Assignment of organizational responsibility for capital investment plan preparation and submission. Some aspects have been discussed under Step 1.

- Methods of financing capital projects. The CIP policy should list specific sources available for capital investment that the UB government intends to use, accompanied by the specifics for these sources. For example, it would be useful to state in the policy that net revenues from the sale of land and property should be used for capital projects only, as should all the various land-based revenues, such as the land development fees and lease fees. It would also be useful to identify other revenue sources earmarked for capital investment; such revenues may include a certain portion of the operating surplus.

- Borrowing policy and limits. While UB’s government itself is not allowed to borrow, it has both direct and indirect debt liabilities from its associated entities. For example, UB is paying back loans from international lenders taken by the MoF for redevelopment projects in UB. In addition, borrowing by municipal enterprises both domestically and internationally created implicit liabilities for UB. Therefore, establishing explicit limits on such liabilities would help secure the financial health of UB. Borrowing policies and limits should be linked to a detailed analysis of the city’s financial capacity for the previous year and for the planned year.

- Criteria for prioritizing projects: The responsibility and methodology. The policy should establish that PPD is charged with developing these criteria, in consultation with key stakeholders. It should also stipulate that the criteria can be modified next year, if lessons from the previous year justify such a modification.

- Methods and timing of public participation. The policy may state who is responsible for securing public participation and during which periods but may leave it to the PPD to define specific methods.

An important issue is to define the legal status of this policy. Ideally, it would be approved by the City Council and would become binding for all city- and district-level participants. The next best solution would be to issue this policy as a Mayor's resolution/regulation, to make it binding for all executive entities and municipal enterprises. However, even if the policy was written as an internal PPD document, it would serve as a useful guide. A sample draft policy on CIP is included in Appendix 2.
Step 3. Establish project scoring criteria and prioritization process

Issues addressed:

- How would formalized criteria help improve the CIP process?
- Two typical approaches to project ranking and prioritization.
- The criteria testing in UB for the 2018 CIP and lessons learned.

If selection criteria are clearly defined before an annual CIP process starts, the project evaluation and prioritization process is more objective, rational, and protects the administration from accusations of unreasonable biases. While the PPD defines the criteria, it can be helpful to discuss them with such stakeholders as district administrations and members of the City Council. Public participation through focus groups and suggestion boxes can be used to provide citizens and the business community with an opportunity to participate in the formulation and review of selection criteria. To provide guidance to those drafting the requests, evaluation criteria should be established prior to the preparation of project requests and conveyed to participating entities under Step 4.

However, no evaluation system is perfect. Not all criteria will apply to every project. Good judgment, common sense, and political considerations will continue to play roles, particularly when the City Council approves a CIP in which projects were prioritized using the pre-defined prioritization criteria and process. Nevertheless, carefully prepared criteria can sharpen distinctions among projects, narrow the range of disagreement, provide a basis for discussion, and, hopefully, make the entire process more transparent. However, it is critical that project selection is supported by accurate and relevant information.

Moreover, practical experiences from many American cities show that it is advantageous if the priority setting process has the following characteristics:

- Is understandable to participants of the CIP process;
- Is practical in terms of cost, time, and personnel available to carry it out;
- Considers all major consequences of an investment project;
- Is supported by reliable, relevant information;
- Avoids double-counting evaluation criteria (i.e. use of two highly interrelated criteria);
- Indicates clearly whether the key value judgments (e.g. assigning "weights" to each criterion) are to be made by technical experts or elected officials;
- Identifies critical and non-critical projects;
- Is applicable to a wide range of projects; and
- Considers the interdependence of the suggested projects.

A common approach, which the PPD planned to test, is based on multi-criteria scoring of each requested project. More specifically, each project is assessed based on the pre-agreed criteria and obtains a specific number of “points” for each criterion. Then, these “points” are summed up over all criteria, resulting in a project’s total score. A project’s resulting priority is defined by its score: the higher the total score, the higher the priority. Sometimes the score for each criterion is weighted, with predefined weights.

Table 3 below presents the eight criteria with which the PPD planned to experiment for the 2018 capital budget, along with the maximum score (“points”) and scoring rules for each criterion. It also illustrates how this system works, using a hypothetical example of three projects.

20 Criteria were changed during the process.
As Table 3 shows, the set of criteria reflects several very important aspects of investment projects that the PPD (on behalf of the administration) considered for testing, in order to balance various viewpoints on municipal investment. In particular, criteria include:

- How well a project reflects the state and city investment policies (Criterion 1) and whether it is within the city's formal investment mandate (Criterion 6);
- Whether a similar project was already implemented relatively recently (Criterion 4) and whether the project is ready for commencement (Criterion 2);
- The scoring also gives some advantage to projects associated with resulting cost savings or new revenues (Criterion 3); to projects that repair, replace, or expand existing facilities vs. new construction (Criterion 5); and to projects benefitting a larger number of people (Criterion 7); and
- Finally, the scoring takes into consideration the project's importance for the requesting entity (Criterion 8).

While testing the scoring/prioritization system, the PPD learned some useful lessons, consistent with international experiences. In particular, the process needs to:

- Make and firmly enforce a rule that excludes a requested project from consideration if the request provides incomplete information or the project conflicts with the requirements of the relevant laws and regulations;
- Make the scoring criteria more clear and unambiguous and provide good guidance to submitting entities on how to fill out required data/information; and
- Simplify the request preparation process for submitting entities.

If it turns out that the technical specialists have difficulties filling in some data, this should serve as a red flag indicating that the same would happen when agencies prepare their project requests. In such cases, PPD needs to analyze whether more guidance should be provided on how to obtain required data or if the criterion should be removed or reformulated. For example, during the preparation cycle for the 2018 CIP, the most challenging criterion was "Estimated annual O&M costs", as only about 15% of projects had this amount included. Given the strategic importance of this criterion, the PPD experiment indicates that entities need systematic guidance on how to estimate O&M costs. Details are provided in Appendix 4.

Furthermore, a critical question is to which projects the prioritization criteria should apply. First, as is clear from Table 3, these criteria target new projects. According to the PPD, they are obliged to fund all on-going projects (i.e. projects started in previous years) which must be completed, and therefore do not require prioritization of this type. Second, should the formalized procedure of a type presented in Table 3 apply to all submitted requests for new projects, or can some projects be prioritized in a simpler way? International experiences vary; for the sake of efficiency, especially in large ju-
risdictions similar to UB, local governments sometimes decide to simplify the scoring and prioritization process. For example, they might:

- Focus the review on the most important projects; or
- Focus on projects near the “cut-off” point, i.e. projects whose inclusion in the CIP is problematic (e.g. controversial projects), and put less effort into evaluating projects that clearly should be included in the CIP.

Finally, it is important to stipulate that scoring/prioritization results may be adjusted to some extent by the PPD. The scoring/prioritization should not just be a mathematical exercise and should allow modifications if they benefit the community.

Table 3. Prioritization Criteria Considered for Testing for the 2018 Capital Investment Plan with Illustrative Example

<table>
<thead>
<tr>
<th>Criterion</th>
<th>1 • Relevance to long-term and mid-term national and city policy documents</th>
<th>2 • Project has feasibility study, engineering design, land permit and technical specifications required for its commencement</th>
<th>3 • Project cost will be offset by operating cost savings or increased revenues</th>
<th>4 • Similar project is implemented in mid-term</th>
<th>Total score</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum score (# of points)</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>Sum of all points</td>
<td></td>
</tr>
</tbody>
</table>

20 - if project is relevant to 3 or more policy documents; 10 - if it is relevant to 1-2 policy documents; 0 - if no relevance

15 - if project has all documents required for its commencement; 0 - if it lacks one or more required documents

10 - if credible quantitative estimates of expected cost savings or new revenue are provided; 5 - if a reasonable qualitative explanation of expected cost savings or new revenue is provided; 0 - if no evidence is provided

10 - if not implemented in the past 9 or more years; 5 - if implemented in the past 5-8 years; 0 - if implemented with in the past 4 years

<table>
<thead>
<tr>
<th>Project</th>
<th>Total score</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>75</td>
<td>1</td>
</tr>
</tbody>
</table>
### Step 4. Develop or modify schedules, forms, and instructions

**Issues addressed:**

- What is especially important to modify in the current CIP schedule in UB?
- How to address challenges of keeping the forms manageable?

**Schedule**

Capital investment request evaluations should begin well before the operating budget cycle to avoid an excessive staff workload and ensure adequate time for review. In general, the practice of getting an early start on CIP is already in place in UB. However, the calendar needs to be modified, as entities submitting their requests have not been allotted enough time to prepare high-quality requests. The submitting entities need to have at least two months between the time when all forms, instructions, and training are delivered to them, and the deadline for submission.

The PPD needs to prepare an official CIP schedule, have it signed by the Mayor as an official document, and send it to all participating entities no later than February or March – and well before any actions are required from the entities.

The schedule should be binding not only for the submitting entities but for the PPD as well. If, for example, training on how to complete forms is scheduled for late April, the PPD should not postpone it because this will reduce the time available to the entities for preparing their project requests.

### Guidebook on Capital Investment Planning for the Capital City of Ulaanbaatar

<table>
<thead>
<tr>
<th>Criterion</th>
<th>5 • Project is a necessary repair or replacement of existing capital equipment or facility</th>
<th>6 • Project is relevant to Article 58 of Budget Law (applicable only to project requests to Capital City’s CIP)</th>
<th>7 • Number of beneficiaries</th>
<th>8 • How important the project is for the submitting entity (district, agency, etc.)</th>
<th>Total score</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum score (# of points)</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>Sum of all points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 - if capital repair or complete replacement of facility;</td>
<td>10 - if relevant to at least one function of city budget;</td>
<td>10 - if above a population average of 152 khoroo's of Capital City;</td>
<td>10 - if a project has the highest priority for the submitter;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 - if extension of facility;</td>
<td>0 - if no relevance</td>
<td>5 - if below the average but above the half average;</td>
<td>6 - if a project has the medium priority for the submitter;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 - if new construction</td>
<td></td>
<td>0 - if below the half average</td>
<td>3 - if a project has the lowest priority for the submitter;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 - if priority is not shown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project 1</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>Project 2</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>Project 3</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>75</td>
<td>1</td>
</tr>
</tbody>
</table>
Forms and Instructions

Project request forms are used to collect detailed information on each proposed project. Obviously, there should be consistency between the project scoring/prioritization criteria and the project request forms: the completed forms should contain the information and data needed for project scoring.

A central challenge in UB, at least during the preparation of the 2018 CIP, was that the standard form (mainly designed by the MoF) has 52 points of required information even before adding the data needed for scoring, as presented in Table 3. Finalizing such comprehensive forms for each project is challenging for many submitting entities. At the very least, they need clear instructions and training on how to complete this.

In the longer term, the PPD can collaborate with the MoF to shorten and simplify the standard form. In particular, they should work together to make sure that all the required information is truly needed for project evaluation and decision making. In addition, it might be useful to agree that for less expensive projects, less information is required.

Finally, it is important to note that even relatively sophisticated request forms are usually less detailed and have fewer supporting materials than may be required at later stages. The need for additional information usually arises after the project is approved as a part of the CIP, especially if the project will need external financing from lenders or grantees. Therefore, "packaging" the CIP-included projects to present them to lenders and grantees is a separate activity (further reviewed under Step 5). This is an additional reason why the project request forms are not intended to cover all the data needs for the entire investment process.

The submitting entities need very clear written instructions on how to complete the forms, especially regarding new requirements in the forms. In addition, providing hands-on training for the submitting entities is a good practice (and one that the PPD already implements).

Starting the Annual Cycle

As already indicated, the annual cycle should start with internal work by the PPD (Steps 1-3). After this work is completed, the PPD should send out requests for project proposals, instructions for their completion, and conduct training on filling out forms to all contributing entities (e.g. departments, enterprises). As with the CIP schedule, the forms should be accompanied by an approval letter signed by the Mayor.

Step 5. Prepare project requests

Issues addressed:

- What are common challenges faced by the submitting entities and how can they be handled?

Section 2.1 provided a general overview of how investment projects can be identified at this stage of the CIP process. Note that in UB, which has some amount of deferred maintenance and repair of existing public assets, the submitting entities should be encouraged to submit requests for unfulfilled needs for capital repairs, replacement, or extensions as high priority.

Addressing challenges. When departments or enterprises prepare project requests, they may encounter a number of challenges. Therefore, the PPD needs to be available to these entities to provide clarifications and guidance. In UB, particular challenges – in addition to those already mentioned – may include:

- Are all costs recognized and accounted for?

In the CIP processes, governments and
their departments commonly recognize components of the investment costs and include them in cost considerations and planning. However, governments rarely include other cost components in their analysis and decision making, such as the cost of financing and future O&M costs (Chapter 2). As already discussed, including even rough estimates of these as part of the financial analysis is important. Guidelines for making these estimates are suggested in Chapter 2 and Appendix 4.

Note, however, that the project request form used in UB thus far does not ask for estimates of future O&M costs, and the current investment decision-making process does not factor in this information. Changing this practice should be one of the next steps in improving the CIP process in UB.

- **Are material cost savings attempted in project requests?** Construction technology and materials are changing rapidly. However, municipal enterprises and departments often either are not familiar with these new opportunities, or they are not concerned with potential cost savings from the use of cheaper contemporary materials, equipment, and technology. For example, a municipal utility may suggest upgrading a sewage network using cast iron pipes, which were used in the past, but plastic alternatives could save up to 33%. This indicates that scrutinizing technologies and the costs of material inputs is very important for CIP. A challenge for the PPD is to ensure that the technical staff has the capacity, time, and incentives to keep up to date on cost-effective technical solutions.

Box 8. Cost Savings from a Simple Life Cycle Costing Decision

The Park District of Urbana, Illinois in the United States, keeps detailed expense records for each of its land and property assets. The business office, which maintains the records, discovered that the heating expenses for one of its properties were very high. An inspection and cost-benefit analysis revealed that changing the old heating system to gas would pay for itself in two years and permanently decrease operating expenses. This replacement was included in the Park District’s budget and implemented.

*Source: Kaganova and others, 1999.*

- **Can simple life cycle savings be found?** Savings of this kind are not necessarily complex, or difficult to achieve (Box 8). All entities should be encouraged to look for such opportunities as a part of asset management and CIP throughout UB.

- **When should projects for donors be “packaged”?** Some projects, especially expensive ones, can be expected to be co-funded through external funding (e.g. grants, borrowing). These projects will require much more careful and detailed preparation (“packaging”) for presentation to potential sponsors than is typically needed for financing through the city’s own budgetary process. The implication is that after a standard project request is presented for city CIP and prioritized for external funding, it will need to undergo a second, in-depth appraisal and “packaging”. Lenders and grantors typically ask whether a project under consideration is explicitly included in a CIP or an official development plan.

- **Who should suggest sources of funding for...**

---

21 The investment costs include feasibility and planning studies, engineering and architectural design, land acquisition, demolition, construction and construction management, contingency, site improvements equipment, and furnishings.
CIP projects? Finally, although the Finance and Treasury Department and PPD should provide recommendations for capital financing alternatives, it is beneficial for the submitting entities preparing project requests to recommend financing sources. Individual staff in these entities sometimes possess financing source information not otherwise available. Suggestions of other proposed financing methods should be recorded as specifically as possible in the project request forms.

Step 6. Review project requests and sort them into line ministry or city lists

Issues addressed:

- Practicalities of reviewing project requests.
- Initial, pre-prioritization sorting of the requests.

Once project request forms have been submitted to the PPD by all the entities, the next steps (Steps 6-8, Figure 5) are as follows: the PPD’s first action is to review the forms, checking each for completeness and accuracy. During this initial screening, no judgment is made regarding the merits of the proposed projects. In this first round, the PPD technical experts review project request forms to determine whether the information appears “reasonable”. In particular, project justifications should demonstrate the level of planning and care that has gone into preparing these project proposals.

In reviewing the applications, the PPD specialists need to ask the following questions:

- Does the project fit into the definition of a capital investment? If the amount is too small, can the request be bundled with another into a single request?\(^{22}\)
- Is the information complete and accurate?
- Is the project justification clear?
- Does the project overlap with or duplicate submissions from other entities?
- Are cost estimates reasonable? Can these estimates be used to develop a capital program and budget? Note that this question may require an expert review because departments and municipal enterprises are not always realistic in their assumptions and can underestimate cost components or, on the contrary, overestimate the costs.
- Can projects with large costs be broken down into phases that can be financed and built separately?

Developing a detailed checklist for PPD specialists for reviewing project requests can accelerate their work and increase consistency.

A common issue in UB and elsewhere is that some project requests contain incomplete/missing data. Difficult choices for the PPD are:

- Deciding if, and how much, extra time and help to give to submitters to fill in gaps; and
- Deciding if they should eventually exercise an administrative will to exclude projects with missing information from further consideration. This will be much easier if this is stipulated in advance in written documents to submitters (e.g. in the investment policy, instructions for submitters, or both).

After unacceptable requests are excluded, and a list of projects accepted for further consideration is formed, the PPD should sort them into separate lists (Figure 5). First, PPD should separate projects for which funding is the city’s

\(^{22}\) Ideally, the entities should be instructed to make such consolidations themselves while preparing their requests. A clear definition of a minimum amount and a requirement to bundle together smaller projects should be included in the instructions to the submitting entities.
responsibility (according to the Budget Law, Article 58) from those which will go to line ministries for funding consideration. The projects going to the line ministries (List 1) are then grouped by sectors. Within each sector, they are further split into List 1a – the projects already started under the previous years’ budgets (on-going projects); and List 1b – new projects. The projects going to the line ministries are then grouped by sectors. Within each sector, they are further split into List 1a – the projects already started under the previous years’ budgets (on-going projects); and List 1b – new projects. The projects going to the line ministries are then grouped by sectors. Within each sector, they are further split into List 1a – the projects already started under the previous years’ budgets (on-going projects); and List 1b – new projects. The city-responsibility projects also have groupings reflecting UB’s administrative structure. Then, the group of the city-responsibility projects is further split into two groups: List 2a – the projects already started under the previous years’ budgets (on-going projects); and List 2b – new projects.

The on-going projects must be funded according to the Budget Law and, therefore, they have an absolute priority over new projects. Hence, prioritization of on-going projects from List 1a and 2a is generally not needed. New projects, however, will always go through prioritization (further discussed in Step 7).

In sum, an output of Step 6 consists of four “clean” lists of project requests ready to go into prioritization or further steps, with each list further split by sector or administrative branch.
Figure 5. Key Actions under Steps 6, 7 and 8
Step 7a. Prioritize project requests and send the prioritized lists to line ministries

Issues addressed:

- How can the prioritization process work in practice in UB?
- Practical issues to discuss with the MoF.

If Steps 3, 5, and 6 have been done carefully, Step 7 is much easier.

List 1, for line ministries. As already mentioned, ongoing projects (List 1a) would not require prioritization as all of them should be funded, according to the law. Therefore, in principle, sector-specific parts of List 1a could be sorted into sectoral sub-lists for appropriate line ministries. However, in practice not all on-going projects submitted to ministries obtain funding. Thus, it is highly recommended that the PPD prioritizes on-going projects from List 1a before sending them to the ministries. The PPD's next action is to score and prioritize new projects that need to go to each line ministry for funding consideration according to the selected criteria and procedure (i.e. from Table 3). This list of prioritized projects constitutes List 1b. All projects selected and included in List 1b shall be subject to PPP-potential screening, as described in Step 7b. Those projects that meet the preliminary PPP-potential screening will be sent to the relevant agency responsible to further screen and appraise potential PPP projects (i.e. National Development Agency). The remaining projects stay on the list that is forwarded to the line ministries, as described below.

An output from Step 7a is a combined list of all eligible projects – on-going and new – for each particular sector (e.g. education, urban development, health, etc.), where new projects are listed in the order of priority. A fragment of this type of prioritized list of projects is shown in Table 4.
Table 4. Fragments of List 1 Submitted to the Ministry of Education, Culture, Sports and Science for Funding in FY2018

<table>
<thead>
<tr>
<th>No</th>
<th>District</th>
<th>Khoroo no.</th>
<th>Title, Capacity &amp; Location of Project or Activity</th>
<th>Unit</th>
<th>Capacity</th>
<th>Object Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X.1</td>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X.1</td>
<td>I. Capital Investment</td>
<td></td>
<td>On-going (&quot;transfer&quot;)</td>
<td></td>
<td></td>
<td>Not prioritized</td>
</tr>
<tr>
<td>X.1.1.1</td>
<td>Chingeltei</td>
<td>18</td>
<td>Construction of kindergarten in Khoroo 18</td>
<td>Bed</td>
<td>150</td>
<td>Kindergarten</td>
</tr>
<tr>
<td>X.1.1.2</td>
<td>Bayangol</td>
<td>4</td>
<td>School building 1500 seats</td>
<td>Seat</td>
<td>1500</td>
<td>School</td>
</tr>
<tr>
<td>X.1.1.3</td>
<td>Bayangol</td>
<td>3</td>
<td>School building 960 seats /School no. 73</td>
<td>Seat</td>
<td>960</td>
<td>School</td>
</tr>
<tr>
<td>X.1.1.4</td>
<td>Songinokhairkhan</td>
<td>28</td>
<td>School building, 920 seats /Khoroo 28</td>
<td>Seat</td>
<td>920</td>
<td>School</td>
</tr>
<tr>
<td>X.1.1.5</td>
<td>Songinokhairkhan</td>
<td>12</td>
<td>School expansion to add storeys on Ireedui primary school no.1</td>
<td>Seat</td>
<td>480</td>
<td>School expansion</td>
</tr>
<tr>
<td>X.1.2</td>
<td>II. Capital Repair</td>
<td></td>
<td>New</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X.1.2.1</td>
<td>Bayangol</td>
<td>12</td>
<td>Kindergarten no.12</td>
<td>Bed</td>
<td>240</td>
<td>Kindergarten</td>
</tr>
<tr>
<td>X.1.2.2</td>
<td>Bayangol</td>
<td>18</td>
<td>Kindergarten no.87</td>
<td>Bed</td>
<td>240</td>
<td>Kindergarten</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Capital repair of the building and plumbing repair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Roof and plumbing repairs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note that providing the line ministries with prioritized lists – as opposed to non-prioritized ones as has been done in the past – is a critical step toward aligning the ministries’ investments with the city’s needs and preferences.

However, further improvements are still needed in the PPD’s process of conveying city priorities to the line ministries. In particular, it is recommended that:

- The PPD, on the city’s behalf, discusses further collaboration possibilities with the MoF, on how the city’s priorities can be better presented on investment request forms; the best solution would be to obtain MoF consent that the official form would contain a relevant column showing the city’s prioritization of each project; and
- Meanwhile, the PPD should continue to present projects in order of priority on the submission lists, and explicitly (in writing) inform line ministries on how the priorities are expressed (e.g. which sections of the lists are prioritized, which are not; that the higher a project is in a subsection, the higher its priority is, etc.).

Option 1: All new projects that might be funded by UB are considered together and scored and prioritized as one group (again, using a pre-defined criteria and procedure such as in Table 3). Under step 7(b), all projects that are selected to be included in the CIP will be screened for PPP-potential. Then, under Step 8, the projects with the highest priority, but not PPP-potential, are included in the draft CIP, until the available funding is exhausted (Figure 5). The remaining projects are cut. Then, included projects are sorted back into groups according to categories used in UB’s capital budgets (e.g. new infrastructure, capital repairs, capital acquisition, social care services, small medium enterprise (SME) development, pastoral management, housing, flood protection, public transport services etc.). With this option, the amounts of funding for each category will emerge “passively,” as the sum of costs of projects from each category that scored high enough on the aggregate city list (List 2b).

Option 2: Project requests are scored and prioritized within their budgetary categories (e.g. new infrastructure, capital repairs, capital acquisition, social care services, SME development, pastoral management, housing, flood protection, public transport services etc.), separately from other categories. PPP-screening is carried out on prioritized projects, same as in option 1. Under Step 8, each category receives its own amount for projects which do not make it into the PPP-potential group, and project cut-off takes place within each category separately.

Finally, the scoring and prioritization of projects should be applied to new projects to be funded by UB (List 2b). There are two ways this can be done.
In any case, as already mentioned, the scoring/prioritization process should leave the possibility for the PPD to hold discussions about individual projects and to revise their evaluation scores if needed.

**Step 7b. Public-Private Partnership screening**

**Issues addressed:**

- **How to screen projects for PPP-potential?**

All capital investment projects, irrespective of the envisioned procurement method (either PPP or traditional procurement), should be channeled through the standard annual CIP process. Submitting entities should submit all project requests, irrespective of PPP-potential or not, as part of the CIP process. If a submitting entity believes that a project has a PPP-potential, it should be indicated in the request. All projects will be screened and prioritized as described in the earlier sections of the guidebook.

The CIP process should include an additional, separate set of criteria specifically designed and applied to testing the potential for the project to achieve value for money. These criteria will be used to screen PPP-potential projects among those projects which have passed the general CIP screening and are prioritized for consideration of the annual CIP budget. Taking international best practice and adopting it to UB’s context, certain criteria are suggested. These criteria look at the key features of a successful PPP and can be judged by the reviewing officer at PPD for initial PPP-potential screening:\[23\]

- Scale of the project – are transaction costs likely to be justified? UB can set a minimum size for PPP-potential projects.
- Contractible quality and performance specification – is there reason to believe UB can prepare a PPP contract that will hold a provider accountable for its performance?
- Opportunities for risk transfer – is there a good reason to believe that some of the risks associated with implementing this project can be allocated to the private sector (i.e. those risks that are best managed by the private sector) and that the private sector will be willing to take on these risks?
- Market capability and appetite – is it a potentially viable commercial project and is there private market interest in the project?

Those projects that meet all four PPP-potential criteria will be considered for PPP, and taken out of the CIP prioritized list and forwarded to the appropriate responsible entity – such as the IDIA – for review. IDIA’s role should be to conduct the necessary appraisal of whether preparing and implementing the project through a PPP makes sense.\[24\]

The final products of Step 7 (“a” and “b”) include:

- Sub-lists of eligible projects from Lists 1a and 1b sent to the line ministries and arranged by sector. For projects from List 1b, the order of priority should also be noted;
- Lists 2a and 2b of all projects eligible for funding from the Capital City Budget and from the Capital City Road Fund, arranged by category, and for List 2b, in order of priority; and
- Two separate lists of projects appropriate for (i) borrowing and (ii) PPP-potential projects, also in order of priority, to be sent to responsible entities (e.g. IDIA in case of PPPs) for further appraisal.

\[23\] These four criteria are used in South Africa to test PPP-potential projects.

\[24\] Discussing which studies should be conducted while considering and preparing a PPP goes beyond the scope of this guidebook.
Step 8. Identify available funding and match city’s projects to funding

Issues addressed:

- How does matching funding with prioritized projects work?
- Useful information to add to the CIP, to inform further planning.

Ideally, one output of the financial analysis would be a table of revenue sources available for capital financing for the first year of the CIP, and forecasts for its subsequent years (see Chapter 3).

However, if such in-depth analysis and forecast are not practiced yet (which is currently the case in UB), the PPD must turn to other sources for an indication of the amount of funding available for Capital City Budget Investment. In the current practice, this input comes from the annual socioeconomic guidelines that contain budgeted costs allocated by sector.

In most cities, it takes several iterations between the entity in charge of the CIP preparation, such as the PPD, and the city’s financial management to reconcile the funding and the list of prioritized projects.

When the available capital funding amount is determined, the procedure for choosing projects is simple in principle: the projects with the highest priority are included in the draft CIP until the available funding is exhausted (Figure 5). The remaining projects are cut. This process is repeated for all categories that are funded separately, according to their allocated amounts.

Due to limited funding, it is common that many projects will not obtain funding. For example, in many US cities, available annual funds can meet only approximately 10% of the total need. Furthermore, projects with high priority occasionally do not receive funding, but the next projects in line do. Being passed over can occur for several reasons; e.g. such projects can be expensive or complex and are skipped temporarily or forwarded for further studies and search for grants or considerations for co-funding through borrowing, which usually implies that the projects will not make it into a current-year CIP.

The central product in this step is a draft CIP. It shows a list of the projects suggested for inclusion in the CIP, preferably listed in the order of priority. Each project is shown with the suggested years of implementation, cost allocations among finance sources (if multiple), and with the suggested annual expenditures during the implementation period. The projects are usually arranged according to the categories for which funding allocations were made.

Other Summary Schedules

Other documents should be prepared as well, including:

- A list of unfunded projects from the CIP process, as it can be an important reference source for the next year’s CIP or even earlier; high priority unfunded projects may get funding later in the year as new funding sources become available;
- Debt and debt service schedules;
- A rolling summary table showing the history of total capital needs, capital funding from budget revenues, and unfunded amounts. In UB, it is recommended to maintain two such tables: one including the projects funded from the city resources only (as Table 5), and another for projects requested from and funded by the line ministries; and
- A list of capital investment projects in UB funded by line ministries and from other

25 Though a structure of this second table can be more complex than Table 5.
sources, such as borrowing and PPPs, if any. Ideally, this list would indicate who will be responsible for each project’s future O&M expenses, and in particular whether UB or its entities will be responsible.

In addition, it would show the locations and schedules of expected construction works. At least two benefits can be expected from adding such an appendix to the CIP:

- If the future annual O&M costs are expected to be paid out of the local budget, the budget forecast will then be able to incorporate them (Chapter 3 and Appendix 4); and
- A comprehensive appendix may result in modifications to schedules or other details of local projects and prevent waste of local resources. For example, it would not make sense for UB to put new pavement on a street in June if it sees that the central government plans to dig the street up in August to replace a water main.

The PPD submits the results of this step into UB’s CIP funding/budgeting channel for consideration and approval.

| Table 5. Sample Summary of Requested Project Costs, Allocated Budget Funding by Ulaanbaatar, and Unfunded Difference (Million MNT) |
|---|---|---|---|
| **Requested Project Costs** | **2016** | **2017** | **2018** |
| | Budgeted cost | From 2016 budget | Budgeted cost | From 2017 budget | Budgeted cost | From 2018 budget |
| Allocation by UB, Total | 347,965.8 | 149,304.7 | 444,131 | 174,400 | 301,701.3 | 153,047.9 |
| From Capital City Budget Investment | 300,809.6 | 115,325.8 | 406,774 | 138,592 | 240,845.8 | 116,185.0 |
| From Capital City Road Fund Investment | 47,156.2 | 33,978.9 | 37,357 | 35,808 | 60,855.6 | 36,862.9 |
| Allocation by Line Ministries | Not available | Not available | Not available | Not available |
| Unfunded difference | Not known | Not known | Not known | Not known |
Step 9. Draft capital program and budget documents and officially adopt them

Issues addressed:

- How to add public participation to the process of reviewing the draft CIP?

Internationally, a typical practice is that the Mayor’s office reviews and finalizes the recommended capital program and the budget, and then submits them to the City Council for approval. The practice in UB is very similar.

For UB, it is recommended that the official CIP includes separate annexes with lists of projects prioritized but sent for further studies and considerations for potential borrowing or PPPs (see Step 5).

The CIP annual schedule should stipulate concrete actionable steps and it should include enough time for the public and members of the City Council to review the program and budget.

The first step in engaging the public is for the PPD and its partners to disseminate information about the CIP process through multiple channels (see below). Second, the public should have a chance to provide input; focus groups and public hearings are good methods of obtaining input from businesses and residents. When the citizens and businesses participate in the process, they develop a better appreciation of the challenges facing local officials and the tradeoffs involved. Public hearings also provide the residents with an opportunity to consider how the program affects their community. Public meetings typically take two forms: public hearings and community meetings.

- **Public Hearings.** A public hearing is a structured event used to gather residents’ and businesses’ comments concerning the CIP prior to its adoption. A public hearing reaches a large number of people and provides opportunities for them to comment directly on an issue. Open hearings enable major objections to the program and budget to be discussed before the City Council formally adopts the CIP. A public hearing may result in the need to amend the preliminary capital program and budget. These changes should be made before submitting the final capital program and budget to the City Council for adoption.

- **Community Meetings.** Meetings with local residents can be held at the neighborhood, khoroo, or district level. Meetings can be scheduled during the CIP process to solicit citizen input on proposed capital projects. The informal structure of these meetings enables in-depth discussions, direct and immediate responses to questions and comments, and clarification of facts or ideas.

To enable adequate public participation, the PPD or its partners should advertise public meetings well in advance. The advertisements should detail where and when the meetings will take place, and should be placed in the local newspaper, radio and television programs, the official UB website, and on social media. The PPD or other responsible coordinators should develop a process for conducting public meetings.

Organizational issues to consider include:

- Who will represent the PPD and the city;
- What procedures will be used for obtaining public input, including who is eligible to speak and the time limitations on remarks;
- Whether written comments will be accepted;
- How information collected through the public hearing process will be used; and
- How meeting results (including changes to CIP) will be reported back to the public.

After completing its review of the CIP draft, PPD comments, and public opinion, the City Council adopts the capital program and capital budget. Adoption of the program, however, is not a binding commitment to fund projects beyond the first year (Table 6).

### Table 6. Sample Fragment of the Ulaanbaatar's Approved 2018 Capital Budget (Million MNT)

<table>
<thead>
<tr>
<th>No</th>
<th>Title, Capacity &amp; Location of Project or Activity</th>
<th>Period</th>
<th>Budgeted Cost</th>
<th>Amount to be Financed in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CAPITAL INVESTMENTS BY CAPITAL CITY BUDGET</td>
<td>2018-2019</td>
<td>240,845.8</td>
<td>116,185.0</td>
</tr>
<tr>
<td>58.1.1</td>
<td>Implement Capital City management</td>
<td>2018-2019</td>
<td>9,485.2</td>
<td>6,417.9</td>
</tr>
<tr>
<td></td>
<td>Transfer</td>
<td>2018-2019</td>
<td>1,877.1</td>
<td>877.1</td>
</tr>
<tr>
<td>1</td>
<td>Expansion building of police department III (Khoroo 13, Songinokhairkhan)</td>
<td>2017-2018</td>
<td>1,877.1</td>
<td>877.1</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>2018-2019</td>
<td>7,608.1</td>
<td>5,540.8</td>
</tr>
<tr>
<td>1</td>
<td>Police department building (Khoroo 1, Baganuur)</td>
<td>2018-2019</td>
<td>2,000.0</td>
<td>1,000.0</td>
</tr>
<tr>
<td>58.1.2</td>
<td>Urban planning, construction and establishing new infrastructure</td>
<td>2018-2019</td>
<td>108,946.9</td>
<td>70,157.7</td>
</tr>
<tr>
<td></td>
<td>Transfer</td>
<td>2018-2019</td>
<td>18,545.5</td>
<td>5,151.0</td>
</tr>
<tr>
<td>1</td>
<td>Extension of GIS based integrated urban database of the Capital City and introduce it to the public use</td>
<td>2017-2018</td>
<td>3,954.0</td>
<td>1,200.0</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>2018-2019</td>
<td>90,401.4</td>
<td>65,006.7</td>
</tr>
<tr>
<td>1</td>
<td>UB’s share of repayment for the ongoing Asian Development Bank soft loan on “Investment support program for developing public utilities and ger area-1”</td>
<td>2018-2019</td>
<td>17,000.0</td>
<td>17,000.0</td>
</tr>
<tr>
<td>58.1.3</td>
<td>Capital maintenance of construction and buildings owned by the capital city, establishing new property and making investments</td>
<td>2018-2019</td>
<td>27,919.0</td>
<td>16,078.1</td>
</tr>
<tr>
<td></td>
<td>Transfer</td>
<td>2018-2019</td>
<td>20,086.1</td>
<td>8,988.1</td>
</tr>
<tr>
<td>1</td>
<td>Kindergarten construction, 240 beds (Khoroo 26, Songinokhairkhan district)</td>
<td>2017-2018</td>
<td>1,738.9</td>
<td>738.9</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>2018-2019</td>
<td>7,832.9</td>
<td>7,090.0</td>
</tr>
<tr>
<td>1</td>
<td>Hospital construction for Tuul village (Khoroo 13, Khan-Uul)</td>
<td>2018-2019</td>
<td>2,742.9</td>
<td>2,000.0</td>
</tr>
</tbody>
</table>
4. Implementing and Monitoring Investment Projects

Responsibility for managing an approved capital project is normally delegated to a city line department. However, the implementation of capital projects requires multiple steps and activities by various departments and actors. At this stage, multiple inefficiencies and delays can occur, even if the land and financing are available.

Several lessons learned from good practices internationally can be followed by UB to increase the effectiveness and efficiency of capital project implementation:

- Centralize responsibility for overall program oversight in the financial department;
- Treat project management as a professional function. Have project management duties performed by a central agency, as opposed to a line department; this will help prevent fragmentation and promote a relatively objective orientation toward the basic goals of project delivery. The project manager should focus on the management of resources, time, product, and risk, not on individual technical tasks such as design – such tasks should be delegated to contractors. In addition to project management skills, project managers need ready access to project information, such as budget, expenditure, and contract information; they also need sufficient authority to effectively manage design consultants and contractors;
- Engage project professionals from the private sector, either to support government project managers or to manage projects entirely, especially in the execution of extensive, complex, or ambitious capital programs;
- Seek methods to streamline interdepartmental project elements such as procurement, contract and payment processing, and construction approvals;
- Review intradepartmental processes, organizational structures, and workloads to identify opportunities to eliminate roadblocks and enhance accountability;
- Leverage economies of scale by consolidating schedules (e.g. solicitation of proposals), standardizing processes and products (e.g. correspondence and “boilerplate” sections of project specifications), and increasing automation and accuracy through electronic tools; and
- An entity within the administration should maintain up-to-date information on each project. Quarterly meetings with representatives of entities responsible for implementation should be held to report progress and discuss problems in implementation.

Preparing Projects for External Financing

As discussed in Chapter 3, typical project requests submitted to the PPD during the city’s CIP process do not contain all of the data and

---

information demanded by external lenders and specialized grantors. Therefore, for projects that seek external financing through special grants or borrowing, an important task in preparing requests is to present ("package") the projects according to the requirements of the particular grantor or lender.

In general, commercial lenders are concerned about the financial standing of the borrower and its ability to repay the loan (creditworthiness), and about the project's viability. Donors (e.g. the European Union for its pre-accession funds) typically focus on the net economic impact of the project instead. They want to see a cost-benefit analysis that reflects not only the financial but also the economic and social benefits of the project. For UB, if such cost-benefit assessment is required by a donor, additional analyses will be needed beyond those required by commercial lenders; e.g. presenting a project's net impact would include an investigation of economic welfare as measured by several different indicators.

In any event, donors often indicate that the existence of an approved CIP improves the chances of a local government receiving a grant. Therefore, CIP can be an effective tool for the city to lobby for the city's capital funding priorities not only with the MoF, but also with international donors.

**Monitoring Projects in the Capital Budget and Their Implementation**

The credibility of the CIP process rests, to some extent, on the timely implementation and completion of the approved projects. Having a system in place for monitoring and reporting on CIP projects is critical to the entire process. The system should monitor both the managerial and fiscal aspects of projects, so that the PPD or other responsible entity would know and report, on a quarterly basis, whether a project is on schedule and on budget, and if not, what the overruns are. A good CIP database is essential for monitoring project implementation. The following are the basic categories of information that should be maintained and updated quarterly during the construction implementation period:

- Project title;
- Responsible department;
- Key contact name;
- Total project cost;
- Project phases (schedule);
- Estimated expenditures/phase;
- Actual expenditures/phase schedule by phase; and
- Fiscal year/quarter.

Close communication between the CIP monitoring entity, project managers, and the city financial managers is necessary to monitor timely draw-downs of funds and to make sure payments are not exceeding the level of completed work.

Finally, it is critical for UB that the CIP monitoring entity builds a database of project history, by retaining key data on projects after they are completed.

Internationally, local governments that do not have a long history of budget discipline and capital planning face at least two major challenges in implementing their CIP:

- The list of projects included in the CIP (and approved by the City Council) can be easily changed during a fiscal year; so often that other projects not included in the CIP are funded instead; and
- Cost estimates for projects included in the CIP often prove to be insufficient and need to be increased, thus consuming funds planned for other investments.

Overcoming shortcomings in budget discipline
and capital planning requires better government accountability and planning and effective public participation.

Status reports are a crucial aspect of project monitoring and oversight. The format and frequency of the reports should reflect the information needs of the monitoring entity, Mayor, and the City Council. Typically, reporting is done quarterly. In general, the reports should contain sufficiently detailed information on each project (see the above bullet list suggested for the database), but also summary figures and tables, along with narrative explanations of delays, cost overruns, funding and construction problems, and proposed corrective actions.

Transparency and Public Information

To maintain public support, the city government must make a concerted effort to keep the public informed about the status of projects. Inviting the public to City Council meetings when CIP status reports are being presented can be one important method.

Transparency of the process can be achieved through simple, inexpensive means if the political and administrative will exists. For example, while UB is still establishing the monitoring and reporting system on its capital investments, it can simply publish a list of planned and executed projects, including related costs. The list could include capital projects funded during the past year, including their costs, and a list of projects planned for the past year (and upcoming year as well). These lists would be very informative for residents and would show how much discipline had been associated with CIP implementation. “Publishing” can be as simple as posting a table with the list on a city website.
Improving and modernizing the CIP process in a large city is always a work in progress – not just for UB, but for all large cities. At its current stage, the city would benefit from both tactical improvements and more strategic thinking and actions.

**Summary recommendations on short- and mid-term improvements:**

- Consolidate the main rules of the CIP cycle into a single official regulation, the UB Investment Policy. Preferably, have it approved by the City Council or, as the second-best option, by a Mayor’s resolution;
- Introduce and implement a rule that all capital projects that require public investment (from the city or line ministries’ budgets) or that create liabilities for the city budget and the balance sheet (through municipal enterprises, PPPs, or borrowing) must first go through consideration and prioritization within the standard CIP process;
- Continue experimenting with the project prioritization criteria and the data needed to determine scores. However, before coming up with an official list of data requirements for project requests, carefully test it with technical experts from the entities that will prepare requests. Key issues to test are whether (i) the criteria and data required to submit are clear to participants; and (ii) they have or know how to obtain required data;
- Prepare (and annually update) a guidebook/manual for entities that submit project requests; disseminate it, together with the UB Investment Policy, to all participants of the process. Combine this with hands-on training for participants;
- Ensure in the CIP official schedule that the submitting entities have at least two months between the time when all forms, instructions, and training are delivered to them, and the deadline for submission;
- Proactively communicate with MoF on how the city should present its priorities on official submission forms that go to line ministries; more generally, aim to align ministries’ funding decisions with city’s priorities;
- Prioritize both on-going (“transfer”) projects and new projects on the request lists for line ministries – given that not all on-going projects get funded; and
- In the official CIP, include separate annexes with lists of projects prioritized but sent for further study and consideration for potential borrowing or PPPs.

**Strategic directions**

- Recognizing spatial planning as a source of sustainable or unsustainable development. Development plans are where most investment needs for new infrastructure originate. Therefore, spatial development plans like the Master Plan must begin to attach price tags to suggested development, including: (i) the cost of public investment needed for imple-
mentation; and (ii) both the capital costs and future O&M costs need to be taken in consideration. Can the city afford to build needed infrastructure and then sustain its O&M?

**Strengthen the information base of the CIP process.** The CIP process simply cannot be efficient without adequate data and the capacity to use the data. The challenges that UB faces on this front have two main components: (i) lack of a systematic database of past capital investment at the city level; and (ii) insufficient capacity and data at asset-holding entities about their assets, and in particular, about their O&M needs, costs, and expenses.

Knowing the history of public investment for at least the previous ten years is necessary to avoid inefficient use of public funding. The database needs to be GIS referenced. Ideally, it should cover all public investment in the city’s territory. However, it should start with all city-funded projects and projects with city payment/repayment obligations (i.e. using loan financing or PPPs). Later the database will need to include projects funded by the LDF and by line ministries.

Overcoming organizational fragmentation in developing such a CIP monitoring database and securing access to it is critical for the overall efficiency of CIP. Regardless of which entity develops the database, the PPD and other stakeholders must have direct, free access to it. Moreover, the PPD, as a key user of such data, needs to be consulted when the database is designed.

**Introducing more systematic asset management.** This is a complex, long-term task. For example, the City of Portland (Oregon, United States), took close to twenty years to develop a good asset management system based on unified principles for all infrastructure sectors. For UB, there is an element of good asset management that is directly relevant to CIP and, more generally, to the sustainability of its infrastructure: the estimated cost of annual O&M and actual O&M expenses. Therefore, the PPD can start by helping all municipal entities, which hold and operate city-owned facilities and infrastructure systems, to learn how to monitor and plan these expenses.

**Recognizing climate resilience as a new challenge.** How to reflect this challenge in CIP is a new frontier in public management across the globe and still very much at an exploratory stage. UB can explore two approaches:

- **Approach 1.** To have a special capital investment program that would address the most pressing climate-related issues and fund this program as a special priority, setting aside some share of the annual capital budget for it; or
- **Approach 2.** Introduce a climate-resilience criterion (or criteria) to score/prioritize all projects into the set of project scoring/prioritization criteria in the CIP.

The WB recommends Approach 2 in the context of UB. The recommended approach is further elaborated in Appendix 1.
This note explores the potential approaches to incorporating climate change and its impacts into the CIP process in UB. In other words, it explores the approaches that cities around the world are adopting to make their capital investments low carbon and resilient to climate change, as well as the feasibility of the approaches in the present context of UB.

First, we briefly look at how global climate change and its impacts are driving and expected to drive changes in the climate system in Mongolia, particularly in UB. Then we discuss why cities are best positioned to initiate climate change policies and actions, after which we explore two main approaches in making cities prepared for, and resilient to, climate change impacts via their CIPs. After that, we examine the rationales for incorporating a proposed “climate change criterion” into the CIP process in UB. Finally, a short example is provided to illustrate how and in what form the proposed ‘climate change criterion’ could be used in prioritizing project requests from different sectors in CIP.

The ultimate aim of this note is to facilitate the capital investments in UB to start considering and incorporating climate change resilience and mitigation efforts.

Climate Change and UB city

In recent decades, the unprecedented level of anthropogenic greenhouse emissions into the atmosphere has caused global climate change and warming. Its associated cryosphere depletion and sea level rise have led to greater levels of evaporation and changes in precipitation patterns. Mongolia has experienced rapid depletion of the cryosphere, triggering increased frequencies and intensities of weather-induced hazards like droughts, storms, Zud (a harsh winter followed by drought in summer leading to losses of millions of livestock), and flash floods, all of which are forecasted to further increase in the future.27

UB experiences greater effects of global warming than the rest of the country. The mean annual surface temperature in the city increased by 2.6°C over the period of 1961-1991, while precipitation...
decreased by 5%. In the near and mid-term future, it is projected that the mean annual surface temperature and precipitation will increase. Thus, it is expected that the frequency and intensity of weather-related hazards will increase in UB, where the majority of Mongolia’s population and economic activities are concentrated.

In addition, rapid urbanization (i.e. urban growth and associated changes in land use patterns) in UB exacerbates the negative impacts of climate change in the city. Power plants in UB account for 78% of the coal use in the energy sector which amounts to 70% of the national greenhouse gas emissions. Moreover, UB is also home to Mongolia’s main energy-intensive industries. Thus, it is important that UB focuses on building in climate resilience in its future development plans, as it has a great potential to reduce carbon emissions.

Climate Change and Cities

As has been mentioned in this guidebook, cities are best positioned to initiate and implement policies and actions for climate change resilience and mitigation in different sectors. Cities are responsible for the delivery and, to a certain extent, the financing of various urban services and infrastructure; responsibilities that can be turned into opportunities to develop climate mitigation and resilience efforts. However, finding adequate funds for such long-term projects may not always be easy.

Therefore, an increasing number of cities around the world have begun to plan for climate change by developing stand-alone climate plans or incorporating climate considerations into existing plans, policies, and projects. Mainstreaming climate change assessments and adaptation goals into existing plans and activities allow cities to address climate impacts systematically without losing sight of existing city-related issues, or placing additional pressure on scarce resources.

Approaches to Incorporate Climate Change Considerations into CIP

There are two main approaches to incorporating climate change resilience and mitigation into the CIP:

28 https://environment.ub.gov.mn/post/268
29 Under a World Bank commissioned study on assessing flood risk in UB city, experts from the Meteorology and Hydrology Institute of Mongolia calculated climate change scenarios in the past (1981-2000), near future (2011-2030), and mid-term future (2046-2065), based on results from the global climate change model HadCM3, by Hadley Centre of UK, using RegCM3 model in a 30 km resolution grid covering UB city territory. The results indicate that the mean annual temperature is likely to increase by 1°C and 2.4°C, with precipitation increase by 11.7% and 28.4% in the near future and mid-term future, respectively, in UB city. JEMR (2014).
30 The surface area of urban forests decreased by 25%, while ger areas increased by 13.6 times. The built area in the city increased by 65% only over the period 1974-2013. JEMR (2015).
31 Though Mongolia’s absolute emission is negligible (0.1% of the global greenhouse gas emissions) compared to other countries, per capita emission is considerably higher (6.08 ton CO2 eq). MET (2017). Please see more information on carbon emission of energy sector in Mongolia at https://environment.ub.gov.mn/post/270.
32 Ditto.
33 World Bank (2011).
34 Ditto.
35 Ditto.
Mechanisms for assigning a certain portion of budget for building resilience to climate change and reducing greenhouse gas emissions:

These could be the mechanisms in which a special fund for climate change is set up or climate change actions are included in the municipal functions eligible for CIP. An example of a climate change fund is the climate change actions in Canadian provinces and municipalities.36

On the other hand, it is common practice among cities to legally mandate climate change actions as budgetary functions. However, these may have been incorporated in the municipal functions financed by CIP without being under the umbrella of climate change actions. In other words, insolation of municipally owned buildings, restoration of flood channels, and other disaster prevention actions are often included in the functions mandated by law for CIP without any reference to climate change action, although they are instrumental in reducing exposure and building resilience to climate-induced hazards. These activities are also included in the functions eligible by law for CIP in the context of UB city.

Low carbon and climate-smart CIP:

Capital investments are ‘climate-smart and resilient’ when they serve the social, economic, and environmental purposes for which they were intended.37 Such purposes include reducing greenhouse gas emissions, helping communities adapt to climate change, and gaining resilience to any number of disturbances a city could face regardless of the existence or non-existence of CIP and/or its plans and actions for climate resilience and mitigation.38

Climate change considerations may be incorporated into CIP by the following adjustments: forecast carbon emissions from proposed investment; generate and select low carbon alternatives to conventional projects; forecast the cost-effectiveness of vulnerabilities of proposed investments to all pertinent hazards; generate and select resilient alternative sites for projects; and include “climate-smart” low carbon, resilient criteria for prioritizing investments.39

Recent examples are the climate-smart CIPs under development in Kampala, Durban and Dar es Salaam where development of long-term climate-smart CIP will ensure that capital projects are designed from the outset to provide carbon reduction and resilience-building co-benefits to the municipality, allowing for the incorporation of climate change resilience and mitigation actions more effectively into long-term CIP.40

Rationales for Proposing a ‘Climate Change’ Criterion in CIP Methodology

The aforementioned adjustments for incorporating climate change considerations into CIP except for the climate change criterion in the CIP methodology proposed in this Appendix will require a

---

36 For example, Ontario province in Canada set up a Municipal Climate Change Challenge Fund to support the greenhouse gas emission reduction projects by the municipalities as one of the mechanisms to implement its Climate Change Action Plan. Please see more information on the Fund and Action Plan at https://www.amo.on.ca/AMO-Content/Backgrounders/2017/MunicipalClimateActionLeadership.
37 Jan Whittington (2016).
38 Ditto.
39 Ditto.
40 C40 Cities (2016).
significant amount of quantitative data and assessments like carbon emission forecasts and risk and site assessments in relation to vulnerability to hazards. These adjustments are all equally important on their own in improving CIP process in any city, but they will require extensive capacity building activities for the planners, managers and technical experts of numerous municipal entities involved in the CIP.

As previously mentioned in the guidebook, UB’s existing CIP prioritization spreadsheet needs to be further streamlined; the current project request form requires over 50 different inputs, which means it is already a complicated process to complete the forms. Incorporation of additional estimates and assessments risks further complicating the project request form.

However, the inclusion of a climate change criterion in the CIP methodology will enable the incorporation of climate change resilience considerations into various urban sectors, which CIP covers. A simple example on how a climate change criterion could be used in the CIP methodology for different sectors using qualitative information is provided in the next section. CIP planners and managers at municipal entities and the PPD are encouraged to explore and devise the criterion to make it all-encompassing.

This will also facilitate incorporation of climate change considerations into capital projects and works under CIP from the outset of project design. In other words, the criterion will be a starting point for planners, managers and technical experts at municipal entities involved in the CIP to consider how a proposed capital investment could contribute to building resilience to climate change and reducing carbon emissions.

**Climate Change Criterion in CIP Methodology**

A simple climate change criterion is proposed for the initial learning and piloting exercise. The proposed criterion will ask two questions and assign a score if answered yes. These questions are: if a project request contributes to reducing greenhouse emissions, and if a project request contributes to building/enhancing resilience to climate change. Common sense qualitative explanations (e.g. project incorporates greenery or repairs existing infrastructure in such a way that the latter becomes more resilient to climate change hazards) will suffice, and if there is no such explanation forthcoming, the project will get no score accordingly. In the end, the overall climate resilience score will be added to the project’s total prioritization score. In this way project requests that incorporate climate change considerations will have more chance in getting funded.
<table>
<thead>
<tr>
<th>Budget Law Provision</th>
<th>Title of a Project Request</th>
<th>Contributes to Reducing Green House Emission Yes=a score No=0</th>
<th>Contributes to Building &amp; Enhancing Resilience to Climate Change Yes=b score No=0</th>
<th>Total Climate Resilience Score a+b</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>CAPITAL CITY BUDGET CAPITAL INVESTMENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>58.1.1</td>
<td>Implement Capital City management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Engineering design of a new city sub-center</td>
<td>Yes. Project design includes green infrastructure</td>
<td>Yes. Project design considers resilience to climate hazards</td>
<td>a+b</td>
</tr>
<tr>
<td>58.1.2</td>
<td>Urban planning, construction and establishing new infrastructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Implementing a bicycle lane program</td>
<td>Yes. Project will contribute to reduction of green house gas emission by reducing use of motorized vehicles</td>
<td>Yes. Project includes drainage to reduce risk from flooding</td>
<td>a+b</td>
</tr>
<tr>
<td>58.1.3</td>
<td>Capital maintenance of construction and buildings owned by the Capital City, establishing new property and making investments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Capital repairs of buildings of schools</td>
<td>Yes. Project includes green roofs</td>
<td>No</td>
<td>a</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>58.1.16</td>
<td>Large-scale citywide landscaping and lighting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Establishing model streets with full furnishment in germ areas</td>
<td>Yes. Project includes greenery works</td>
<td>Yes. Project improves flood protection drainage in the area</td>
<td>a+b</td>
</tr>
<tr>
<td>II</td>
<td>CAPITAL INVESTMENTS BY MUNICIPAL ROAD FUND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Repair and extension of road drainage pipes and sinkholes</td>
<td>No</td>
<td>Yes. Project contributes to resilience to flooding</td>
<td>b</td>
</tr>
</tbody>
</table>
Appendix 2. Draft Policy on Capital Investment Planning

*Period covered by the Capital Improvement Program.* A three-year Capital Investment Program will be prepared for the period _____ to _____ and updated annually, and the capital budget will be adopted annually by the City Council.

*Eligible types of investment.* Capital investments that can be considered for inclusion in the CIP are:

- Rehabilitation and/or replacement of existing infrastructure, public-use facilities, and social-use and government-use properties under the mandate of the city government;
- Reconstruction of the above infrastructure, facilities, and properties;
- Construction of new infrastructure, facilities, and properties of the above type if financially and economically justified;
- Completion of projects funded in previous years if they do not conflict with current policies; and
- Equipment and vehicles for public functions under the mandate of the city government.

The costs needed for adequate and timely maintenance, repair, restoration, and modernization of physical assets are eligible for inclusion in either operating expenses or capital costs.

Funding the replacement reserve for capital assets (infrastructure, facilities, properties, and equipment and vehicles) should be a part of the annual capital budget.

Future operations costs of all new capital investment projects should be included in project requests and planned for funding.

*Definition of capital investment project.* All capital investments that belong to the above-mentioned categories, exceed ____ MNT thousand, and have useful lives of longer than three years can be included in the Capital Investment Program. Project costs can include feasibility studies, engineering, architectural design, and contract services needed to complete the project.

*Organizational responsibility for capital investment program preparation and submission.* The PPD will lead the CIP preparation process, and provide needed guidance and instructions to participants, along with a workshop for key stakeholders. The PPD will select the projects for inclusion in the CIP based on the pre-agreed criteria and submit the draft CIP to the Mayor to present to the City Council for review and approval.
Methods of financing capital projects. The following funding options will be considered for capital projects:

- Capital City Budget
- Capital City Road Fund
- Own sources of municipal enterprises
- Funding by line ministries (for eligible projects)
- Grants/donations
- Loans taken by municipal enterprises and by state entities for city's projects
- Private-public partnership.

In particular, one-time revenues, revenues from the sale of property, land development fees, land lease fees, and operating surpluses will be used for capital projects.

Long-term debt by municipal enterprises or by state entities for implementation of projects on the UB territory can be incurred only to fund capital projects that cannot be implemented from budget revenues and grants from central government agencies, and only if projects are approved as parts of the city's Capital Investment Program and loan amounts and conditions approved by the City Council.

The total amount earmarked for the Capital City Budget Investment cannot exceed ____% of the Capital City Budget Revenues.

Limits on loan liabilities. Capital projects financed through borrowing will be financed for a period not to exceed the useful life of the asset. Long-term debt can be incurred by municipal enterprises and by other entities borrowing for municipal projects only if all technical specifications for the project, including permits and licenses, already have been obtained. The total amount of old and newly planned loans for which the city is liable cannot exceed ____% of the operating revenues of the Capital City Budget. Borrowing should comply with a separate Policy on Debt Management.

Criteria for prioritizing projects, or who will establish them and how. Criteria for determining priorities in the Capital Investment Plan will be developed by the PPD, in consultations with other stakeholders.

Methods and timing of public participation. The PPD, in cooperation with other stakeholders, will develop and implement public participation tools.
Appendix 3. An Alternative Approach to Ranking Requests

**Step # 1:** Define (6 to 10) evaluation criteria.

The following list is illustrative only, though it includes the same criteria as the approach in the main text (Table 2):

- **Criterion A:** The project responds to long-term and mid-term national and city policy documents.
- **Criterion B:** The project has feasibility study, engineering design, land permit and technical specifications required for its commencement.
- **Criterion C:** Project cost will be offset by operating cost savings or increased revenues.
- **Criterion D:** A similar project was not implemented in mid-term.
- **Criterion E:** The project is a necessary repair or replacement of existing capital equipment or facility.
- **Criterion F:** The project complies with Article 58 of Budget Law (applicable only to project requests to Capital City’s CIP).
- **Criterion G:** The project will be used by or serve at least a population average of 152 khoroo of UB.
- **Criterion H:** The project has a high priority for a submitting entity.

**Step # 2:** Choose and apply method for using the criteria to select and prioritize projects.

For each project request, judge how many of the established evaluation criteria it satisfies. Then rank the projects in priority groups. For example:

- **First Priority Group:** Projects that satisfy 5 or more criteria
- **Second Priority Group:** Projects that satisfy 4 criteria
- **Third Priority Group:** Projects that satisfy 3 criteria
- **Fourth Priority Group:** Projects that satisfy less than 3 criteria.

I. Introduction

The purpose of these guidelines is to provide local governments with some background for estimating annual O&M costs that can be expected for capital assets. Moreover, the document outlines how these cost estimates should be modified and clarified depending on a stage of asset development (e.g. very rough pre-design initial estimates vs. good-practice approaches when the asset is already operational).

This material discusses nine types of capital assets typically controlled by municipal governments and included in their CIPs.

- water systems including fixed assets such as wells, river diversions, dams, transmission lines, water treatment plants, treated water storage facilities, distribution pipelines, fire hydrants, pumping stations, etc.;
- wastewater systems including fixed assets such as collection pipelines, manholes, pumping stations, wastewater treatment plants, sewage lagoons, sludge disposal areas, etc.;
- storm drainage systems including canals, ditches, pipelines, manholes, stormwater inlets, flood control reservoirs, erosion protection, dikes, etc.;
- solid waste collection and disposal facilities including collection containers, collection vehicles, recycling facilities, landfills, etc.;
- community service buildings including city halls, libraries, police stations, fire stations, etc.;
- parks and open space including children’s play equipment, picnic facilities, soccer fields, basketball courts, etc.;
- cemeteries including service and maintenance buildings;
- power generation and distribution systems including power generation equipment, substations, metering, transmission and distribution systems, administrative buildings; and
- streets and roads including roadway surfacing, signage, rights-of-way, bridges, traffic control devices, drainage systems, etc.

II. O&M Cost Estimating Overview

There are several common methods that are utilized to estimate future O&M costs for both planned...

41 Prepared by Gary Windolph, P.E (2013) for NORC at the University of Chicago.
and/or existing municipal assets such as those described above. If only approximate or preliminary planning estimates are desired, it is common practice to use a percentage of the estimated or original construction cost as a basis for estimating the annual O&M costs. Another method involves making such estimates based upon historical costs associated with similar municipal facilities. The most accurate method requires the preparation of a detailed O&M plan for the facility, a plan that should include a description of all anticipated O&M activities, a description of each work activity, a detailed staffing plan, power costs, materials costs, and replacement costs of equipment having a short life expectancy, etc.

Estimates based upon initial construction costs. This methodology is the least accurate of all methods available for estimating future O&M costs for proposed facilities. However, it is commonly used as a basis for making early, preliminary estimates of O&M costs. Every new facility has unique characteristics that cannot be directly compared to existing facilities from which historical O&M data is derived. Using such data without considering the unique characteristics of the proposed facilities to estimate O&M costs as a percentage of initial total project capital cost is not advised. Buildings, water systems, wastewater systems, etc., are all constructed differently, have different components, different physical characteristics, are located in a different climate, etc. Therefore, it is very important to give consideration to all of the unique characteristics that may affect O&M costs when making estimates using this method.

For example, a proposed complete water system will include numerous components, each having different O&M requirements. O&M costs are much different for dams, pump stations, pipelines, storage facilities, and well fields. O&M costs are generally around 1 percent of the total estimated construction costs for pipelines, distribution, facilities, tanks and wells; at 1.5 percent of the total estimated construction costs for dams and reservoirs; and at 2.5 percent for intake and pump stations. O&M costs for water treatment plants are much higher in relation to initial construction costs and vary considerably depending on the type of treatment required.

The above example clearly illustrates why it is not appropriate to apply a single percentage factor to the total construction cost of a complete project for the purpose of estimating the anticipated annual O&M cost. Therefore, for each of the capital improvement categories previously identified, a general breakdown of the components that may be included in the total projects should be analyzed, with a range of estimates given for each category.

Depending on the type of facility, the annual combined O&M costs could fall in the range of 2-50% of the initial construction cost, and even higher for some facilities. Obviously, the operation and maintenance cost/construction cost ratio (O&M/CCR) for a power generation and distribution system, or a wastewater treatment plant will be much higher than for a storm drainage collection and disposal system.

Estimates based upon historical costs. For additions to, or the modification of, existing facilities, identifying historical costs and adjusting those values, based upon required or desired changes to the previous O&M program, is an effective approach for developing estimates of future O&M costs.

Estimates based on O&M work plans. The most reliable method for estimating O&M costs for newly proposed facilities, is to formulate estimates based upon a detailed work plan that includes esti-
mated staffing levels, work activity descriptions, supplies required, etc. Typically, good engineering practice requires making these estimates during the alternative evaluation phase of project development. These estimates are normally made and refined throughout the alternative evaluation process to aid in the determination of the most cost-effective project alternative.

III. Definitions Used for O&M Cost Estimates

For the purpose of this document, “Operation” costs include the following:

- For non-movable items having a life duration in excess of twenty years, operational costs include those activities and associated costs that are necessary for the asset to function for the purpose intended. Estimates of the percentage of O&M costs do not include costs for staffing required to provide the service ultimately intended, such as teachers and school administrators for schools, firemen in fire stations, etc. In the case where the facility itself produces the end product, e.g., water and wastewater treatment plants, all costs are included for the operation of the facility, including staffing for both operation and maintenance.
- For movable items included in the initial project direct cost, such as equipment required to provide the intended service, maintenance and replacement costs are included in the percentage range estimates. An example would be waste bins and garbage collection vehicles. O&M costs would not include personnel costs associated with the operation of the vehicles, emptying the waste bins, etc.; only the costs for the maintenance and replacement of the equipment are included.

For the purpose of this document, “Maintenance” costs include the following:

- All labor, material, tools, equipment, and supply costs associated with maintaining the improvement in an acceptable operating condition.
- Physical depreciation/replacement costs (annual) for components that must be replaced during the expected life of the completed facility.

IV. O&M Cost Estimates based on Capital Costs

A number of variables unique to each project or project component can affect the relationship between capital construction costs on the one hand, and O&M costs defined as a percentage of the initial cost, on the other hand. Some of the more common variables that generally apply to all constructed facilities include:

- High construction costs, resulting from the use of higher quality materials, will normally result in lower O&M costs;
- Economies of scale can result in lower O&M costs when compared to capital costs. In other words, larger facilities may have a lower O&M costs in relation to the original construction cost;
- Specific site conditions can greatly increase initial construction costs, but actually reduce O&M costs, both in real terms and when defined as the percentage of the initial construction cost;
- In some cases, “Operations” cost cannot be reasonably estimated as a percentage of initial capital costs; and
The estimates given are based upon estimated annual costs and do not reflect the fact that actual annual spending would fluctuate. An important assumption, however, is that if one year the total planned amount is not spent, money is accumulated and spent later when needed. The estimates also do not take into account inflation, salvage, or disposal costs at the end of the facility life. For components requiring repeated replacement during the life of the facility, replacement costs are included in an amount equal to the straight-line depreciation over the life of the component.

V. Estimates of O&M Cost as a Percentage of Construction Cost (O&M/Cc)

Water systems including fixed assets such as wells, river diversions, dams, transmission lines, water treatment plants, treated water storage facilities, distribution pipelines, fire hydrants, pumping stations, etc.

General Considerations:

- **Ground-Water Wells.** The relationship between capital construction costs and O&M costs for Ground-Water Wells is highly variable. The initial cost is defined to be the cost of construction of the borehole, including the well casing and well screen. Difficult geologic conditions can result in high initial costs, but will not result in higher O&M costs. In addition, water quality can significantly affect casing and well screen life, i.e. highly corrosive or high mineral content water may require more frequent well maintenance. Initial well screen quality is also an important consideration.

- **Diversions Structures, Dams.** Diversion structures are normally located on rivers or streams that are all unique in their character. Structures located in areas of high-velocity water flow, or areas subject to occasional or frequent flooding, have higher maintenance costs than initial capital costs compared to facilities located in a less hazardous environment.

- **Transmission and Distribution Pipelines.** Difficult construction conditions, such as installation in hard rock, will result in high initial construction costs but lower maintenance costs. Pipelines crossing intermittent rivers or drainageways or located in geologically unstable areas may not initially cost more, but will incur higher maintenance costs. Operational costs such as flushing of lines and exercising valves will remain constant, regardless of the above considerations.

- **Water Treatment.** The relationship between initial construction cost and O&M costs for water treatment is highly variable, primarily based upon the quality of water to be treated and the type of treatment. For example, for high-quality water requiring only chlorination, initial costs will be relatively low, but O&M costs as a percentage of initial capital costs will be very high since the cost of chlorine is high. Low-quality water requiring more treatment will result in much higher initial capital costs, but O&M costs, as a percentage of the initial cost will be lower compared to chlorination only. For water treatment facilities, O&M cost estimates should be determined for each project, based on a thorough analysis by the designing engineer.

- **Pumping Stations (including well pumps).** The cost relationships for this category are primarily affected by the local cost for electricity, frequency of operation (total operational time), and motor and pump efficiency. Pump and motor manufacturers normally provide power consumption data in their standard sales materials.

- **Water Meters.** Maintenance costs for this category have an indirect relationship to the initial cost. High-quality (usually more expensive) water meters normally have a longer life and require little maintenance, thereby generating a lower share of O&M cost compared to the initial cost than cheaper meters.
### WATER SYSTEMS

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables affecting cost percentage</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground-Water Wells (not including pumping equipment)</td>
<td>Well depth, geology, water quality, initial quality of components</td>
<td>2%-10%</td>
</tr>
<tr>
<td>Diversions Structures, Dams</td>
<td>Location, geology, topography</td>
<td>2%-5%</td>
</tr>
<tr>
<td>Transmission and Distribution Pipelines</td>
<td>Climate, geology, material</td>
<td>1%-3%</td>
</tr>
<tr>
<td>Storage Reservoirs</td>
<td>Capacity, type</td>
<td>2%-4%</td>
</tr>
<tr>
<td>Water Treatment</td>
<td>Water quality, treatment type, size</td>
<td>10%-50%</td>
</tr>
<tr>
<td>Pumping Stations (including well pumps)</td>
<td>Capacity, pumping head and quantity, power rates</td>
<td>10%-20%</td>
</tr>
<tr>
<td>Water Meters</td>
<td>Initial quality</td>
<td>5%-15%</td>
</tr>
</tbody>
</table>

Wastewater systems including fixed assets such as collection pipelines, manholes, pumping stations, wastewater treatment plants, sewage lagoons, sludge disposal areas, etc.

**General Considerations:**

- **Treatment Plants.** The relationship between initial construction cost and O&M costs for wastewater treatment is highly variable, primarily based upon the type of treatment system and the quality of water to be discharged. Discharge water quality is normally a function of government regulation. The type of treatment system chosen usually is based upon land availability and the degree of treatment desired. For wastewater treatment facilities, O&M cost estimates should be based on a thorough analysis by the designing engineer.

- **Pumping Stations.** The cost relationships for this category are primarily affected by the local cost for electricity, frequency of operation (total operational time), and motor and pump efficiency. Pump and motor manufacturers normally provide this data in their standard sales materials.

- **Collection and Outfall Pipelines.** Difficult construction conditions, such as installation in hard rock, will result in high initial construction costs but lower maintenance costs. Pipelines crossing intermittent rivers or drainageways or located in geologically unstable areas may not initially cost more, but will have higher maintenance costs. Operational costs such as flushing of lines will remain the same, regardless of the above considerations. Topography also affects maintenance costs. Lines constructed on flat grades may require flushing on a more frequent basis.

### WASTEWATER SYSTEMS

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Plants</td>
<td>Degree of treatment, type of treatment system</td>
<td>12%-20%</td>
</tr>
<tr>
<td>Pumping Stations</td>
<td>Size, pumping head, capacity</td>
<td>10%-20%</td>
</tr>
<tr>
<td>Collection Systems and Outfall Pipelines</td>
<td>Geology, topography</td>
<td>1%-3%</td>
</tr>
</tbody>
</table>
Storm drainage systems including canals, ditches, pipelines, manholes, stormwater inlets, flood control reservoirs, erosion protection, dikes, etc.

General Considerations:

- **Canals and Open Waterways.** Canals can be either lined or unlined. O&M costs are generally lower for lined canals. Since lined canals normally cost more, the O&M/CC ratio is normally lower.
- **Pipeline.** O&M cost considerations are similar to those for wastewater systems.
- **Manholes and Inlet.** O&M costs can be significantly affected by the effectiveness of the community solid waste management system. Poor solid waste management practices will result in an increased need for manhole and inlet cleaning to remove surface debris accumulating in the system.
- **Flood Control Retention Reservoirs.** O&M costs are highly dependent on whether the storage area is also used as a community park. If this is the case, park maintenance costs should also be considered when making the O&M cost estimate.

<table>
<thead>
<tr>
<th>STORM DRAINAGE SYSTEMS</th>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canals and Open Waterways</td>
<td>Topography, geology, alternative uses, lining type</td>
<td>2%-5%</td>
<td></td>
</tr>
<tr>
<td>Pipelines</td>
<td>Topography, geology</td>
<td>1%-2%</td>
<td></td>
</tr>
<tr>
<td>Manholes and Inlets</td>
<td>Location, topography, geology, street cleaning and solid waste management</td>
<td>2%-5%</td>
<td></td>
</tr>
<tr>
<td>Flood Control Retention Reservoirs</td>
<td>Size, topography, geology, alternative uses</td>
<td>1%-3%</td>
<td></td>
</tr>
<tr>
<td>Flood Control Dikes</td>
<td>Location, height, topography, geology</td>
<td>1%-5%</td>
<td></td>
</tr>
</tbody>
</table>

Solid waste collection and disposal facilities including collection containers, collection vehicles, recycling facilities, landfills, etc. For movable equipment, O&M cost as a percentage of capital cost does not include utilization, but does include maintenance and replacement costs.

General Considerations:

- **Collection Containers.** O&M costs do not include the costs associated with the actual collection process. Costs only include periodic cleaning, repair, and replacement.
- **Collection Vehicle.** O&M costs do not include the costs associated with the collection and transportation process. It does include replacement cost and routine maintenance during the life of the vehicle.
- **Recycling Facility.** O&M costs include repair, maintenance, and replacement of recycling equipment. It does not include staffing costs for operation of the equipment. Costs are highly variable, depending upon the type of facility.
- **Landfill.** O&M costs cannot be estimated with any degree of reliability based upon the initial capital cost. O&M costs are difficult to quantify on this basis due to highly variable design considerations. More reliable estimates are possible if they are based upon the daily quantity of waste.
processed, but local conditions are normally a significant factor. Estimates should be made based upon a specific design prepared by a qualified engineer.

### SOLID WASTE COLLECTION AND DISPOSAL FACILITIES

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection Containers</td>
<td>Type, materials, location, frequency of use</td>
<td>12%-25%</td>
</tr>
<tr>
<td>Collection Vehicles</td>
<td>Initial quality, utilization</td>
<td>12%-17%</td>
</tr>
<tr>
<td>Recycling Facilities</td>
<td>System type, initial quality</td>
<td>8%-15%</td>
</tr>
<tr>
<td>Landfills</td>
<td>Topography, geology</td>
<td>Not quantifiable as a percentage of initial construction cost</td>
</tr>
</tbody>
</table>

Municipal service buildings including city halls, libraries, police stations, fire stations, etc.

**General Considerations:**

- **Structural Components.** O&M costs for structural components are highly dependent on the structure type. Lower initial costs may lead to higher O&M costs, although this is not always the case. Climate and end use can also significantly affect these costs in relation to the initial capital cost.
- **Electrical Systems.** O&M costs have a reasonably good correlation to initial construction costs.
- **Heating, Ventilation, & Air Conditioning Systems.** O&M costs are highly variable when compared to the initial cost, depending on the structure type, climate, and end use considerations.

### MUNICIPAL SERVICE BUILDINGS

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Components including roof</td>
<td>Materials, quality, climate</td>
<td>1%-1.5%</td>
</tr>
<tr>
<td>system and facade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>Installed mechanical equipment</td>
<td>0.5%-1%</td>
</tr>
<tr>
<td>Heating, Ventilation, &amp; Air Conditioning</td>
<td>Climate</td>
<td>3%-7%</td>
</tr>
<tr>
<td>Landscaping, Parking</td>
<td>Area, climate, use</td>
<td>0.5%-2%</td>
</tr>
</tbody>
</table>

Parks, recreation and open space including children's play equipment, picnic facilities, soccer fields, basketball courts, etc. Initial cost of land is not considered in initial construction cost.

**General Considerations:**

- **Baseball/Softball Fields.** For lower percent estimates, assumptions include that the fields are serviceable playing surfaces with less sophisticated drainage systems (typically perimeter drainage only), utilization of soils existing on site, limited (if any) lighting, fencing for safety purposes only, temporary scoreboards, minimal but adequate irrigation systems, primitive (if any) concession facilities, throw down bases, and generally low capacity seating for teams and spectators. Higher
O&M cost estimate percentages include fields that generally possess elements making them serviceable for longer periods of time, including higher quality turf, comprehensive irrigation systems, lighting suitable for nighttime play, improved infield materials (fast drying clays and soils), higher quality seating for spectators and teams, permanent electronic scoreboards, efficient drainage systems, extensive fencing for securing the field when not in use, on-site maintenance facilities, and larger concession services. Also included would be on-site utility infrastructure including water, drainage culverts, and electricity, all resulting in both higher capital and O&M costs.

- **Soccer/football Fields.** Soccer/football fields are less expensive to develop than baseball/softball fields, primarily because the only requirements are generally a large, level, playing surface covered with adequate turf. Soccer/football fields do not need particularly specialized playing surfaces. If extensive supporting services are provided including seating, lighting, concessions, and water and sanitation facilities, O&M costs will be higher in relation to the initial construction cost when compared to a minimum facility.

- **Tennis Courts.** Assumptions include construction of a regulation tennis court with 10 ft. fencing, netting, and drainage, court cushioning and full lighting for night play. Lower percentages should be used for higher cost and initial quality of construction.

- **Basketball Courts.** Estimates assume an outdoor college regulation sized basketball court, concrete with painted lines, and 10-foot fencing with lighting.

- **Swimming Pool (outdoor).** Assumptions include only construction of the pool and perimeter, and do not include lighting, concessions, seating, dressing rooms or other ancillary facilities.

- **General Park Facilities.** Assumes the area is open, actively landscaped (planter boxes, decorative trees and shrubs) parkland with irrigation system, lighting, trash cans, park benches, picnic tables, stationary barbecue units, bike rack, restrooms, and drinking fountains. Playground equipment is also included.

<table>
<thead>
<tr>
<th>PARKS AND OPEN SPACE</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
<td><strong>Variables</strong></td>
</tr>
<tr>
<td>Baseball Fields/Softball Fields</td>
<td>5%-15%</td>
</tr>
<tr>
<td>Soccer/Football Fields</td>
<td>10%-15%</td>
</tr>
<tr>
<td>Tennis Courts</td>
<td>3%-6%</td>
</tr>
<tr>
<td>Basketball Courts</td>
<td>2%-5%</td>
</tr>
<tr>
<td>Swimming Pool (outdoor)</td>
<td>15%-25%</td>
</tr>
<tr>
<td>General Park Facilities</td>
<td>15%-35%</td>
</tr>
</tbody>
</table>

Cemeteries including access and interior roadways, service and maintenance buildings.

General Considerations:

- O&M services include mowing, planting, seeding, fertilizing, raking, mulching, watering, pruning, and all services related to maintaining the grounds on a cemetery and surrounding grounds, including raising, setting and aligning, and cleaning of headstones. It also includes the maintenance
of pathways, driveways, curbs and parking areas, and irrigation systems. They do not include costs associated with burial activities.

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and Administration</td>
<td>Construction quality</td>
<td>2%-6%</td>
</tr>
<tr>
<td>Administration Buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cemetery Grounds</td>
<td>Climate, topography, soil conditions, degree of care</td>
<td>20%-30%</td>
</tr>
<tr>
<td>Roadways</td>
<td>Quality, ease of access to gravesites</td>
<td>1%-3%</td>
</tr>
</tbody>
</table>

Power generation and distribution systems including power generation equipment, substations, metering, transmission and distribution systems, administrative buildings, etc.

General Considerations:

- Population Density. Population density is an important consideration. A mainly urban utility may have less than 17 meters of distribution circuit for each customer. A rural utility can have over 100 meters of primary circuit per customer.

- Distribution Networks. Underground distribution systems have a much higher capital cost compared to overhead systems, but much lower O&M costs. This results in a lower O&M/CC percentage for underground systems compared to overhead systems.

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Turbine Generation</td>
<td>Size, location, gas price</td>
<td>10%-15%</td>
</tr>
<tr>
<td>Solar Photovoltaic</td>
<td>Size, location</td>
<td>0.5%-1%</td>
</tr>
<tr>
<td>Conventional Coal</td>
<td>Size, location, coal price</td>
<td>2.5%-5%</td>
</tr>
<tr>
<td>Distribution Networks</td>
<td>Population density, topography, system type (above or underground)</td>
<td>8%-15%</td>
</tr>
</tbody>
</table>

Streets and roads including roadway surfacing, signage, rights-of way, bridges, traffic control devices, drainage systems, etc.

General Considerations:

- Gravel Roadways. Gravel roads have lower construction costs than paved roads, but higher O&M costs. For very low volume roads, maintenance costs are also relatively low. Gravel roads require grading, shaping, and regular addition of gravel. Dust control is often necessary. These costs increase significantly with traffic volume and weights.
• Asphalt Roadways. Asphalt streets and roads have somewhat higher initial construction costs but normally lower maintenance costs if constructed properly and regularly maintained. Maintenance is periodic, generally requiring resurfacing every 4-7 years.

• Traffic. All roadway maintenance is highly dependent on the amount and type of traffic.

<table>
<thead>
<tr>
<th>Component</th>
<th>Variables</th>
<th>O&amp;M cost (% of capital cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravel Roadways</td>
<td>Topography, geology, climate, vehicle type, ADT</td>
<td>5%-10%</td>
</tr>
<tr>
<td>Asphalt Roadways</td>
<td>Topography, geology, climate, vehicle type, ADT</td>
<td>2%-8%</td>
</tr>
<tr>
<td>City Streets (hard surface)</td>
<td>Topography, geology, climate, vehicle type, ADT</td>
<td>5%-10%</td>
</tr>
</tbody>
</table>

**VI. Summary**

O&M costs must be estimated, and sources of funding identified, early in the initial planning stage of project development. If these costs are not quantified and planned for, project implementation may result in unbearable future financial burdens on the community, resulting in ultimate project failure.

The estimation of O&M costs, based upon a percentage of initial construction costs, is a fairly common practice used in the early planning stages of project development. However, it must be kept in mind that these estimates should only be used in the preliminary planning phase. As project implementation progresses, new O&M estimates should be prepared based upon the specific design details of the project. If project alternatives are being considered that have significant differences in initial construction and O&M costs, financial analysis should determine the most cost-effective alternative. In order to make this analysis, the best possible estimates of O&M costs should be used in the analysis. The preparation of detailed O&M cost estimates should be required of the engineer/architect responsible for the design of the project.
Appendix 5. Assessing Local Government Financial Capacity

Knowing and planning its own capacity to fund and finance capital projects and maintaining fiscal discipline on this front, are critical for UB’s financial sustainability. Such financial planning is the foundation on which CIP should be based.

Analysis and Forecast of Revenues and Expenses

Financial planning starts with an objective analysis and forecast of revenues and expenses. Not all sources for capital investment listed in Chapter 3 are equally available in UB. However, even if these instruments are potentially available, the primary factors in determining the city’s financial capacity are: (1) the extent to which the city government can generate revenue or has a stable stream of grants and subsidies from the central government, and (2) the extent to which the city can control expenditures. Furthermore, as already mentioned, line ministries and the DBM play a very important role in funding capital investment in UB. Thus, in 2016, capital investment on UB’s territory by the central government constituted about 20% of the total planned capital investment in the city, and 28% by the MDB.

Revenue Receipts

One of the main factors in determining UB’s financial capability is the size of its local revenue base. This is the amount of revenue (from taxes and fees) that the city is entitled to receive and collect. Within good practices, two types of revenues are distinguished: operating (recurrent) revenues, and capital revenues (such as one-time revenues from allocating land rights).

Earlier research in UB\(^\text{42}\) identified that the city has a substantial potential to increase its own revenues, through improved administration and collection of local fees and charges. In particular, a substantial increase is realistically possible through improving land and property taxation and fees. However, this would require collaboration between the central and city governments, to reconsider related policies and regulations. The biggest single-source increases can be expected from:

- Taxing apartment ownership (if politically feasible);
- Taxing non-residential properties based on their market value; and
- Releasing municipal land for private sector activities at market value.

\(^{42}\) Land Administration and Management in Ulaanbaatar, Mongolia. – World Bank, 2015.
Other directions of revenues enhancement include:

- A gradual increase of tariffs for services, toward the level of full cost recovery, but closely tied to simultaneous improvement of the quality or quantity of the service – affordability concerns should be addressed through targeted subsidies; and
- Improved effectiveness and efficiency of tax and fees administration.

Another substantial part of the city’s annual revenue are transfers from the central government; making them predictable and stable is a requisite of the city’s financial health.

**Operating Expenditures**

In evaluating its financial capacity, the city should be concerned with the number and extent of the public services that it is mandated by law to provide and the accompanying municipal expenditure. The costs of providing services are determined by the cost of labor, materials, and energy for each service plus the administrative costs of running the city government. In addition, UB has loan repayment obligations, which are part of the city’s expenditures. A useful indication of the ability to provide services can be obtained from looking at the structure of the city’s operating expenses, especially how much is spent on items other than staff salaries.

**Financial Balance (Net Results) and Financial Analysis**

Financial balance is simply the comparison of revenues to expenditures. If operating revenues exceed operating expenditures, there is an operating surplus; if expenditures exceed revenues, there is a deficit. Municipal policymakers (City Council) and financial managers (Mayor and finance director) should be concerned with both the operating balance in any one year and future trends. The stability of the operating balance (and total balance) from year to year is important, and particularly wide swings between surpluses and deficits may need attention.

Speaking pragmatically, to establish the limits for the capital budget for the current year and realistic multiyear targets, an analysis of a local government’s financial condition and capacity to finance future capital projects should be made early in capital programming. Ideally, the analysis needs to be prepared and discussed prior to the preparation of capital project requests. Besides, within good practices, the establishment of fiscal parameters by the policymakers enables a more rational and effective approach to the selection of projects in the CIP process.

At a minimum, financial analysis should comprise:

- 3-to-5-year financial analysis of own-source revenues by major source, expenditures, operating and capital reserves and surpluses/deficits;
- Analysis of current and future debt capacity, from all forms of borrowing, including indirect borrowing through PPPs;
- Analysis of per capita debt, debt as a percentage of revenues, and debt service as a percentage of budget;
- Analysis of potential future changes in funding from the central government; and
- Analysis of potential capital funding sources.
In conducting the analysis, the following questions should be asked:

- What are the operating expenditure, revenue, and net operating result (surplus, deficit) trends?
- What are the reasons for these trends?
- What would happen to the net result if key parameters such as a tax rate or a collection rate changed?
- How dependent is the city government on one-time revenues (such as revenues from allocation of land rights) and funding from the central government?
- What is the current amount of outstanding debt?
- What is the remaining borrowing capacity?
- What is the level of debt service?
- What is the potential for new sources of capital funds?
- How much will be available for capital funding?
- How can the government’s financial condition be improved?

Spreadsheets for cash flow forecasts are required to conduct this kind of analysis. Sample forms for the basic cash flow analysis are shown below, as sheets 1 and 2. Sheet 3 includes a spreadsheet for matching available financing with requests for capital funding assembled in the CIP process. This kind of analysis is a part of financial management, regardless the needs of CIP. The analysis should use scenario-based simulations under various assumptions about parameters that can be changed by the city government (from salaries of government employees to rates for local taxes and tariffs for local fees). The forecast also should include a sensitivity analysis.

Note that sheet 2 has sections (IV and V) that simulate the impact of annual operating expenses caused by new capital projects on local governments’ net operating results. Moreover, in connection with capital projects built by higher levels of government, if the future annual O&M expenses are expected to be borne by the local budget, it is recommended that these costs also be included in the simulation.

**Debt Financing and Debt Policy**

To what extent the use of borrowed finance is feasible and prudent depends on several factors: availability of such finance from the financial market, creditworthiness of the city, and its interest in borrowing. Moreover, most countries have special regulations and limitations on local government borrowing that should be factored in.

Once a loan has been incurred, debt service payments must be included in operating expenditures going forward (sheet 2). A key question in evaluating debt carrying capacity is whether the surplus will be sufficient to cover the debt service payments associated with a given loan or loan program. The more the net operating surplus exceeds a city’s anticipated new debt service payments, the more creditworthy the city is. Indeed, the ratio of net operating surplus to anticipated new debt service payments is often considered the most important indicator of a local government’s debt carrying capacity.

---

43 Matching finance to requests is discussed further in Chapter 4, step 8.
If the ratio is close to 1.0, any serious fluctuation in a city’s operating revenues or expenditures (or in exchange rates if the loan is denominated in a foreign currency) could produce serious problems in meeting the payment terms of the credit. If, on the other hand, the ratio of net operating surplus to debt service payments is substantially higher than 1.0 and is forecast to remain stable over several years, a city’s ability to support the anticipated debt is reasonably secure.

To properly assess creditworthiness, the city needs to look at this issue in more detail\textsuperscript{44}.

Incurring debt should be a matter of local policy. The city government should play a leading role in determining whether, to what extent, and under which conditions, to take loans which it would be responsible to repay. UB needs to adopt a formal policy to provide general direction in planning and borrowing to finance capital investment. A debt policy needs to:

\begin{itemize}
  \item Establish parameters for the acquisition or issuance of debt and for acceptable levels of debt;
  \item Provide a basis for evaluating the impact of acquiring debt on the city’s overall financial condition;
  \item Communicate to citizens the importance of financial management; and
  \item Communicate to investors and the financial community in general that the city government is prudent and has a policy basis for debt.
\end{itemize}

Adoption of a debt policy provides parameters for the consistency and continuity required to achieve financial goals. It clearly communicates to the finance department a hierarchy of sources for the capital budget, so that staff can use this framework to carry out their responsibilities in debt management. The framework should be reasonably flexible so that officials can respond quickly to changes in the financial market or other conditions without jeopardizing essential services.

Obviously, the city debt policy needs to comply with the framework of existing laws and be based on the city’s projections of its future financial condition. Moreover, it may be prudent for UB to establish its own additional limits on borrowing, beyond those set by national regulations.

More specifically, the city debt policy should address the following questions regarding the specific local situation:

\begin{itemize}
  \item What is the appropriate use and acceptable level of short-term debt?
  \item What is an acceptable level of long-term debt?
  \item For what purposes (types of projects) will long-term debt be used?
  \item When should tax-supported (or asset-backed) general obligation debt be used versus self-supporting revenue debt (debt that finances projects that generate revenues sufficient to repay the debt)?
  \item What is the desired mix of financing from current budget revenues and from debt?
  \item When should variable rate debt be used, if at all, versus fixed rate debt?
  \item What maturity schedules should be used for short-term and long-term debt?
\end{itemize}


## Detailed (Analytical) Estimate of Operating (Recurring) Revenues
(Sheet #1) (MNT thousands)

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Actual</th>
<th>Plan</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Inherited from previous year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Local taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Local fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Other local revenues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Grants (any transfers that can be used for operating or unrestricted purposes)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Current year</th>
<th>Year+1</th>
<th>Year+2</th>
<th>Year+3</th>
<th>Year+4</th>
<th>Year+5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total (A...+E)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## ESTIMATING THE NET OPERATING SURPLUS/DEFICIT (Sheet #2)
(MNT thousands)

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual</th>
<th>Plan</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current year</td>
<td>Current year</td>
<td>Year+1</td>
</tr>
<tr>
<td>I Total operating (recurrent) revenues, from Sheet # 1 (A+...+E)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Inherited from previous year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Local taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C Local fees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Other local operating revenues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Unrestricted grants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II Total operating (recurrent) expenses (A+...+F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Salaries and benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Utility expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C Maintenance and repair expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Other operating expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Operating subsidies to municipal institutions and utility companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Reserve/depreciation funds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G Debt service (interest and principle) for existing loans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III Projection of net operating surplus/deficit before impact of new planned investment (I minus II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Estimated M&amp;R, depreciation, and operations expenses or savings from planned new investments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V Projection of net operating surplus or deficit after M&amp;R, depreciation, and operations expenses of planned new investment (III minus IV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI Net operating surplus or deficit as % of operating revenues (V/I)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# CAPITAL BUDGET PROJECTION (Sheet #3)

(MNT thousands)

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual Current Year</th>
<th>Plan Current Year</th>
<th>Projection</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I Capital revenues (1+…+8)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Planned operating surplus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(from Sheet # 2, above, Line V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Revenues from sale of assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Voluntary contributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(or special assessments)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Federal/regional capital grants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Donor capital grants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Loan or bond proceeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Proceeds from capital reserves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>II Capital expenditures (1+…+6)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Capital repair*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Replacement*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 New equipment acquisition*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Construction (including design)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Land acquisition*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Addition to capital reserve fund</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NET (I-II)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* This spreadsheet should be investigated in 2 versions: (1) with (*) items from the previous CIP, to see how much would be left after previously started capital projects are further funded; and (2) with additional projects from draft CIP budget. See chapter 3.
Appendix 6. References and Useful Resources

World Bank’s Relevant Urban Programs and Instruments


Local Capital Budgeting and Finance


Asset Management/Life Cycle Costing


Creditworthiness


### Project Preparation for External Funding and Finance


### Public-Private Partnerships


### Climate resilience


