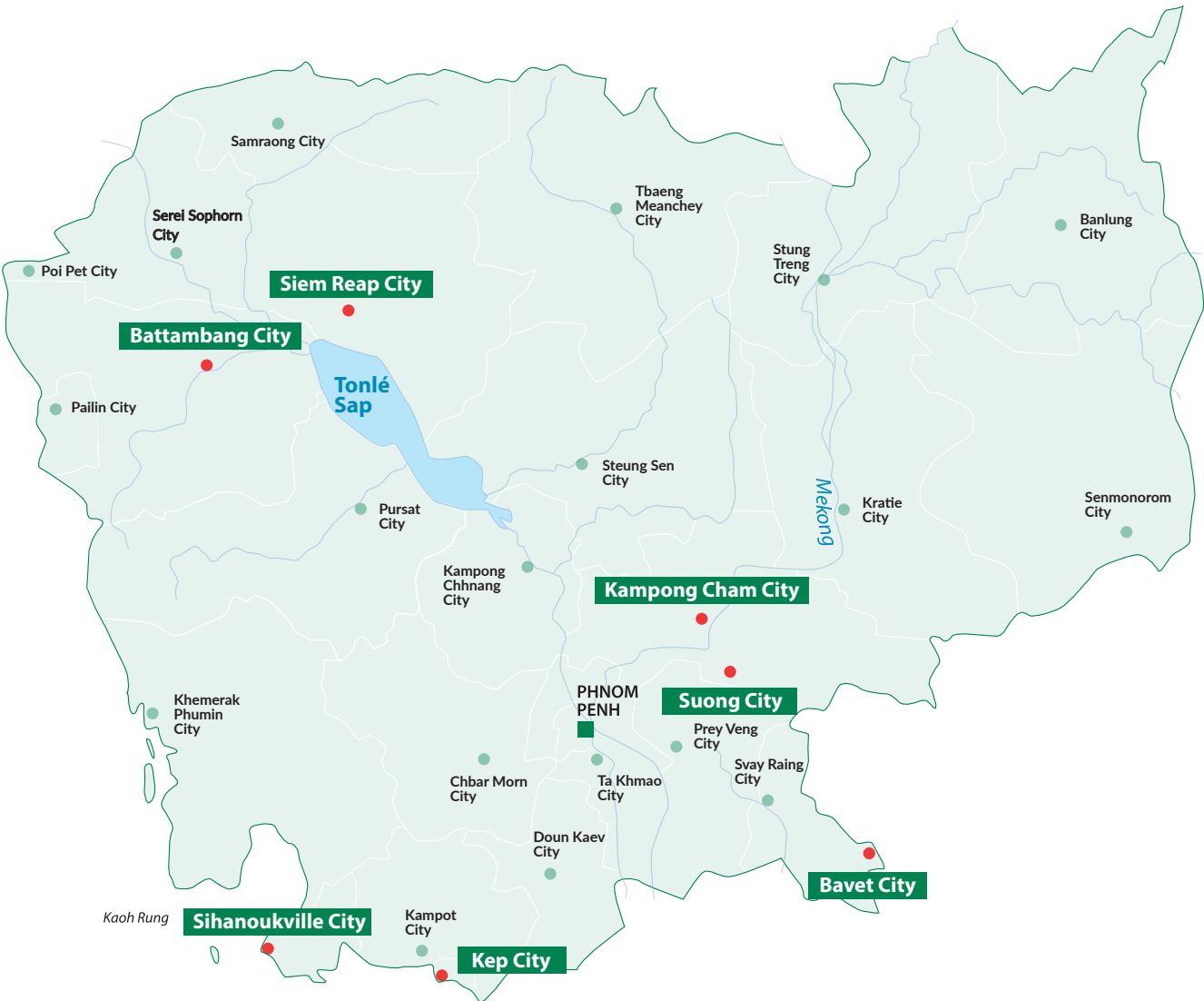


SUSTAINABLE CITY STRATEGIC PLAN 2020-2030 FOR SEVEN SECONDARY CITIES



Notice:

Images used in the English version of the Sustainable City Strategic Plan 2020-2030 for Seven Secondary Cities are slightly different from the Khmer version of the report due to language layout, but the content is identical.

**SUSTAINABLE CITY
STRATEGIC PLAN
2020-2030
FOR SEVEN SECONDARY CITIES**



Key Message

The Sustainable City Strategic Plan 2020-2030 for Seven Secondary Cities is developed as a policy document and supporting tool to Municipal Administrations for tracking any facing problems related to urbanization development, enhancing good governance and it is a roadmap for responding to the needs of local communities in the target cities. By the way, this strategic plan showcases the government's commitment to both vision and goal of the Rectangular Strategy-Phase IV, National Strategic Development Plan (NSDP) 2019-2023 and National Program for Sub-national Democratic Development and it also reflects the commitment of the Ministry of Interior (Mol) to implement the Law on Administrative Management of Capital, Provinces, Municipalities, Districts and Khans and the Law on Administrative Management of Communes /Sangkhat.

I hope that the strategic plan will become a valuable policy document for Municipal Administrations to continue pursuing sustainable city development and achieving each city's vision. In this regard, I encourage Municipal Administrations to check possibilities to integrate the strategic plan into the City Development Plan and Investment Plan, which in line with the existing laws and legislations of the Royal Government of Cambodia.

I would like to express my gratitude to the Ministry of Environment, General Secretariat of the National Council for Sustainable Development, General Department of Administration of the Ministry of Interior, and Global Green Growth Institute (GGGI) for leading this effort, and also national and sub-national government officials, who participated in this strategic plan development. I hope and believe that relevant stakeholders including government and non-government institutions, and also development partners will continue their active participation in the strategic plan implementation and progress monitoring in order to ensure efficiency and effectiveness in the future.

Phnom Penh,16....March.....2021
Deputy Prime Minister, Minister of Interior



Samdech Kralahom SAR KHENG



Sihanoukville

Foreword

The development of the capital city and other provinces in Cambodia has grown very fast in recent years and this growth is a major driver for the country's economic development. Growing urbanization creates job opportunities, livelihood improved and economic development. However, unwell-managed urban development can also lead to socio-economic, environmental, and cultural problems. Currently, these pressures have been apparent in Cambodian cities, especially in major sectors including, energy, water and sanitation, transportation, housing and construction, solid waste management, waste water and drainage system.

Phnom Penh, the capital city of Cambodia, attracts the most attention and takes account of these problems, but other provinces in Cambodia need to consider cities sustainable development plan. Cambodia has been promoting environmentally sustainable urban development and inclusive economic growth. In this regard, I would like to express my gratitude and appreciation for this effort to General Secretariat of the National Council for Sustainable Development (GSSD), General Department of Administration of the Ministry of Interior (Mol), and Global Green Growth Institute (GGGI), for initiating and implementing the Sustainable Cities Development program, especially developing Sustainable City Strategic Plan 2020-2030 for Seven Secondary Cities to achieve the vision of city development for resilience to climate change, resources efficiency, lifestyle improvement, and social welfare.

I believe that the strategic plan will be a useful guide for Sub-national Administrations, particularly for Municipal Administrations and other development partners in sustainable city development. I strongly support the key message of Samdech Kralahom, Deputy Prime Minister, Minister of Interior, to promote and encourage Municipal Administrations and relevant institutions to consider the integration of the strategic plan and priority projects into the City Development Plan and Investment Plan. Green growth in the cities will promote balanced and sustainable urban development countrywide to avoid urban growth only in Phnom Penh. This strategic plan will become an important policy for Municipal Administrations in contributing to Cambodia's Sustainable Development Goals, in particular responding to climate change for Cambodia as a vulnerable country in the world.

Moreover, this Strategic Plan builds a common understanding and provides a roadmap for sustainable city development throughout each city's common priority determination, and each city has sought to shortlist its key priorities for the promotion of city development. Based on this, I encourage Municipal Administrations and other key stakeholders to set up a partnership, implement priority actions of city development and monitor its progress.

I would like to express my gratitude to GSSD, General Department of Administration of Mol, and GGGI for developing these comprehensive strategic plans and acknowledge to all seven Municipal Administrations and related stakeholders in the successful development of this strategic plan. *វិទ្យាសាស្ត្រ*

Phnom Penh, *02 March* 2021

Chair of the National Council for Sustainable Development
Minister of Environment



Say Samal

Acknowledgements

The development of the Sustainable City Strategic Plan (SCSP) 2020–2030 for the seven secondary cities is the result of a successful collaboration between the National Council for Sustainable Development (NCSD); Ministry of Interior through the General Department of Administration (Mol/GDA); and Global Green Growth Institute (GGGI) and its consultant team, Grue + Hornstrup A/S, based in Denmark.

The preparation of the Sustainable City Strategic Plan for the seven secondary cities was made possible by the contributions of a broad range of stakeholders—including the relevant ministries of the Royal Government of Cambodia (RGC), provincial and municipal authorities of the seven secondary cities, development partners, community-based organizations and non-governmental organizations, academia, and private sector representatives—who each shared ideas for the sustainable future of these cities.

The following government officials played important leadership roles in supporting and facilitating the preparation and development of the Strategic Plan:

- **H.E. Tin Ponlok** Secretary of State, MOE.
- **H.E. Van Monyneath** Secretary-General, NCSD
- **H.E. E Vuthy** Former Deputy Secretary-General, NCSD
- **H.E. Ken Sereyrotha** Deputy Secretary-General, NCSD
- **H.E. Prak Samoeun** Director-General, Mol/GDA
- **H.E. Chea Bunheng** Deputy Director-General, Mol/GDA
- **H.E. Ing Chhe** Deputy Director-General, Mol/GDI (Former Deputy Director of DDC, MOI)

The following government officials and members of the GUDP Program Management Unit (PMU) played a significant role in the coordination and drafting of the SCSP 2019–2030:

- **Mr. Taing Mengeang** Director, Department of Green Economy, NCSD
- **Mr. Nop Sokhai** Deputy Director, DGE, NCSD
- **Mr. Khun Sovithea** Former Deputy Director, DGE, NCSD
- **Mr. Meas Chhivhun** Deputy Director, DDC, Mol/GDA
- **Mr. Sath Sitak** Deputy Chief of Office, DGE, NCSD
- **Mr. Khim Sandab** Chief of Office
- **Ms. Soeung Lyly** Technical official, DGE, NCSD
- **Mr. Tang Punleu** Technical Official, DGE, NCSD
- **Mr. Hem Sarin** Chief of Office
- **Mr. Sarou Rathcheat** Chief of Office
- **Mr. Heng Sengkim** Deputy Chief of Office

The focal persons from each municipality of the seven secondary cities played important roles in the coordination and facilitation of field missions in their respective cities during the preparation and consultation process for their cities.

Municipality	Focal person
Bavet	Mr. Seng Seila, Deputy Governor of Svay Reing Province (Former Governor of Bavet Municipality)
Suong	Mr. Chea Naron, Governor
Siem Reap	Ms. Lim Phallika, Deputy Governor
Kep	Mr. Khorn Vuthy, Deputy Governor
Kampong Cham	Mr. Hean Lina, Deputy Governor
Battambang	Mr. Hoeun Doeur, Deputy Governor
Sihanoukville	Mr. Eam Sarin, Deputy Governor

The preparation of the SCSP 2020–2030 was supported by the Global Green Growth Institute (GGGI) and its consultants from Grue + Hornstrup A/S.

Table of contents

KEY MESSAGE	III
FOREWORD	V
ACKNOWLEDGEMENTS	VI
LIST OF ABBREVIATIONS	IX
LIST OF TABLES	XI
FIGURES	XIII
EXECUTIVE SUMMARY	XIV
1. SUSTAINABLE CITY STRATEGIC PLANNING DEVELOPMENT	1
1.1. INTRODUCTION	1
1.2. VISION AND GOALS	3
1.3. STRATEGIC FRAMEWORK	4
1.3.1. Strategic Analysis	4
1.3.2. Strategic Objectives	23
1.4. PRIORITY ACTIONS	24
1.5. IMPLEMENTATION ARRANGEMENT	32
1.6. FINANCIAL RESOURCES	34
1.6.1. Domestic Resources	34
1.6.2. Official Development Assistance	39
1.6.3. Private Sector Investment	40
1.7. REPORTING, MONITORING, AND EVALUATION	42
2. CITY PROFILES	45
• SIEM REAP	45
• BATTAMBANG	53
• SIHANOUKVILLE	59
• KEP	67
• KAMPONG CHAM	73
• BAVET	79
• SUONG	85
METHODOLOGY OF THE STUDY AND ANALYSIS	91

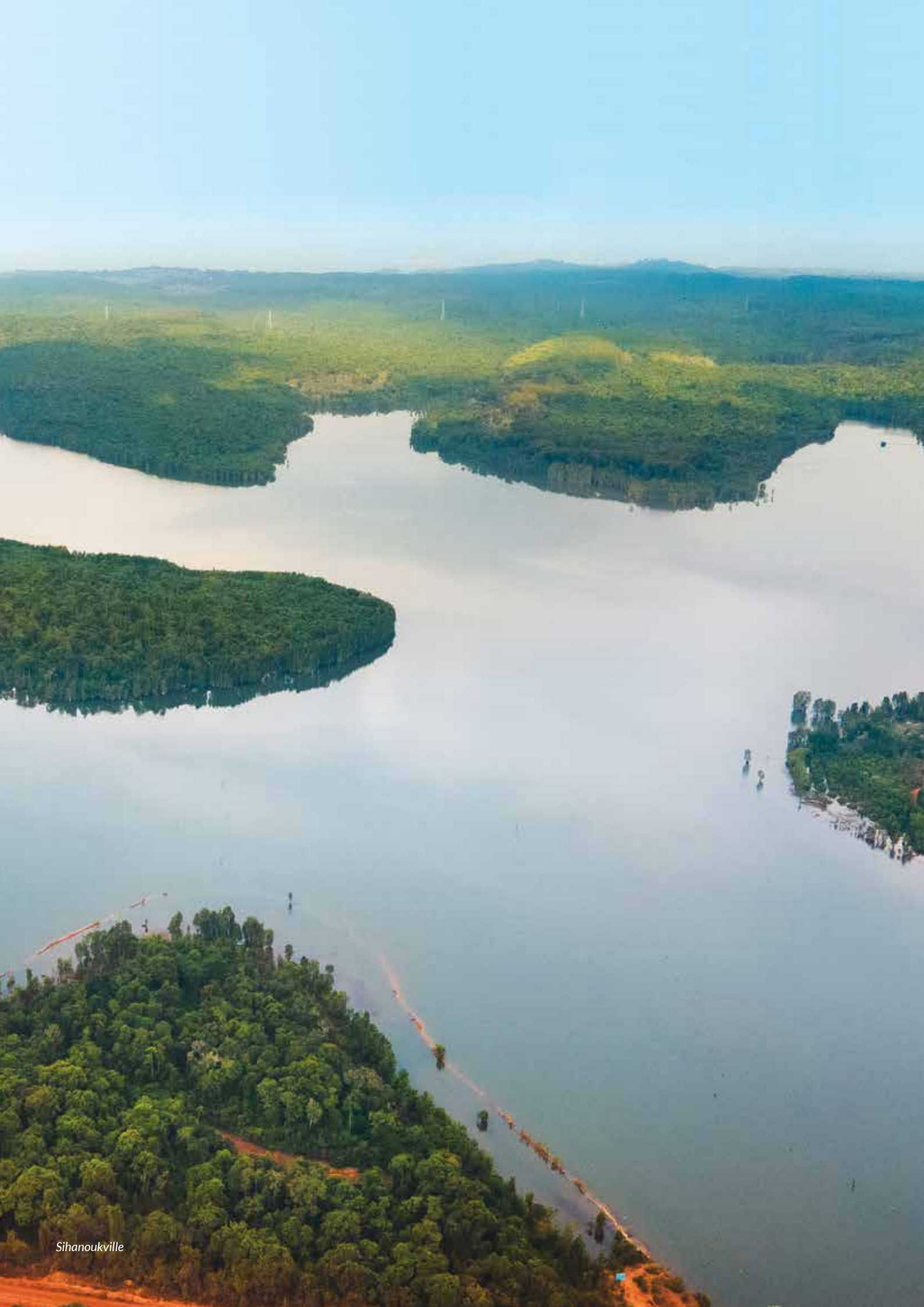
List of Abbreviations

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CBT	Community-based tourism
CBET	Community-based ecotourism
CCCA	Cambodia Climate Change Alliance
CDC	Council for the Development of Cambodia
CS	Commune/sangkat
D&D	Decentralization and deconcentration
DEWATS	Decentralized wastewater treatment system
DM	District/municipality
EDC	Electricite du Cambodge
GCF	Green Climate Fund
GDP	Gross domestic product
GEF	Global Environmental Fund
GGGI	Global Green Growth Institute
GNP	Gross national product
GNI	Gross national income
HHs	Households
IDP	Industrial Development Policy
IFC	International Finance Corporation
LDCF	Least Developed Countries Fund
MEF	Ministry of Economy and Finance
MoEYS	Ministry of Education, Youth, and Sport
MISTI	Ministry of Industry, Science, Technology & Innovation
MLMUPC	Ministry of Land Management, Urban Planning, and Construction
MME	Ministry of Mines and Energy
MoE	Ministry of Environment
MoI	Ministry of Interior
MOT	Ministry of Tourism
MPWT	Ministry of Public Works and Transport
MRF	Materials Recovery Facility
MSMEs	Micro, Small and Medium Enterprises

NCDD	National Committee for Sub-National Democratic Development
NCDM	National Committee for Disaster Management
NCSD	National Council for Sustainable Development
NDC	Nationally Determined Contribution
NGOs	Non-governmental organizations
NIE	National Implementing Entity
NP-SNDD	National Program for Sub-National Democratic Development
PD	Provincial department
PPCR	Pilot Program for Climate Resilience
PPP	Public-private partnership
PWGCCA	Provincial Working Group on Clean City Assessment
RDF	Refused-derived fuel
RGC	Royal Government of Cambodia
SCCF	Special Climate Change Fund
SCSP	Sustainable City Strategic Plan
SEZ	Special economic zone
SDGs	Sustainable Development Goals
SGP	Small Grants Program
SNAs	Sub-National Administrations
SNIF	Sub-National Investment Facility
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank

List of Tables

Table 1.1.	City selection criteria	6
Table 1.2.	Targeted land use planning from 2019–2023	8
Table 1.3.	Budget for Environmental Cleanliness Service 2017	11
Table 1.4.	Potential energy efficiency improvement in selected industries	15
Table 1.5.	Special economic zones in Cambodia, 2014	16
Table 1.6.	Access to public services	19
Table 1.7.	Women in decision making	20
Table 1.8.	Sub-National Administration Budget	22
Table 1.9.	Role of local governments in the annual budget formulation processes	35
Table 1.10.	The District/Municipality Fund, in millions of USD	37
Table 1.11.	Category of risk in private sector investment	41
Table 1.12.	Examples of possible indicators for monitoring and reporting	42



Sihanoukville

List of Figures

Figure 1.1.	The Cambodian total population in millions, 1962–2019	1
Figure 1.2.	Relationship between the SCSP and existing plans	3
Figure 1.3.	Map of Cambodia with the selected 7 secondary cities	7
Figure 1.4.	Schematic representation of Cambodia’s subnational-level structure	22
Figure 1.5.	Proposed implementation arrangement within the existing structures	32
Figure 1.6.	The CS Fund Budget over time, in millions of USD	37
Figure 1.7.	High-potential financing mechanisms	41

Executive Summary

What is the Sustainable City Strategic Plan?

The Sustainable City Strategic Plan 2020–2030 (the Strategic Plan) is a long-term plan that aims to promote green growth of strategically important secondary cities in Cambodia, selected as priority cities for green city development by the national government. The seven selected cities represent three city clusters: the coastal region (Sihanoukville and Kep), plain region (Kampong Cham, Suong, and Bavet), and Tonle Sap Lake region (Siem Reap and Battambang).

The Strategic Plan guides government and development stakeholders toward planning and management decisions and investments that ensure sustainable local development, balancing economic growth with social and environmental development. The green development of these cities will promote a more balanced and sustainable urbanization in Cambodia. The Strategic Plan is established to build a better understanding of what sustainable urban development is and how it can be implemented. The Strategic Plan serves to support the targeted cities in integrating green growth approaches in the implementation of each city's master plan, 5-year development plan, and 3-year rolling investment plan as well as sector development plans.

The Strategic Plan contains 4 main goals, 12 objectives, and 98 priority actions (section IV) identified through a comprehensive dialogue between government representatives at the national and subnational levels. Each city subsequently short-listed 10 first actions for implementation. The four goals are articulated around four themes: namely (1) integrated urban planning and green infrastructure development, (2) green local economy, (3) social inclusion, and (4) city governance.

Why is there a need for green city development in Cambodia?

Cambodia has one of the fastest-growing urban populations in Southeast Asia, and major cities and towns across the country are facing rapid, unplanned, and unsustainable patterns of urban development. This has resulted in a number of emerging environmental problems and social issues, including inefficient land use, insufficient provision of basic services and infrastructure, loss of natural resources, increased congestion, pollution, unemployment, and inequality. Without proper urban planning, these challenges and inequalities will increase and prove more difficult and costly to address.

In addition, there is an overconcentration and unequal distribution of industries, economic opportunities, and services across Cambodia's urban centers, particularly with respect to Phnom Penh. Cambodia needs an environmentally sustainable, economically attractive, and balanced urbanization to avoid concentrating urban growth in Phnom Penh alone as well as promoting a sustainable urban network consisting of prosperous and sustainable secondary and tertiary cities.

Cities are now recognized as critical engines of economic growth and, with proper planning, can become more resource-efficient, climate-resilient, socially inclusive, and equitable. Unless cities are carefully planned and managed, economic growth may remain limited to the few larger urban areas and fail to benefit the poor. A green growth approach to cities aims to generate inclusive growth by targeting job creation as well as improving connectivity between cities and markets, infrastructure development, inclusive service provision, urban adaptation, resource efficiency, and low-carbon development.

Green city development is critical to meet the RGC's international commitments—such as the SDGs; the Paris Agreement, including its National Determined Contributions; and the New Urban Agenda. The Green City Concept builds on the potential of urban areas to enable change through the concentration of economic activity, innovation, and job creation; realization of the potential for social transformation; high levels of concentration of culture, people, infrastructure, and buildings; and ability to redefine the relationship between rural and urban, to enable rural development that also benefits from urban development.

What are the key green growth challenges and opportunities in Cambodian cities?

- **Urban Planning and Green Infrastructure Development**

Continued urban growth needs to be more carefully managed. To date, urbanization has largely been unplanned and unregulated. Many Cambodian cities are facing a severe lack of systematic urban spatial planning and the required financial resources for sustainable urban infrastructure and services. This leads to unplanned human settlement, uncontrolled building construction, unmanageable zoning for businesses and residential developments, and the possibility of misdirected urban infrastructure development. For well-structured urban development, urban spatial planning is a pre-condition. Climate change impacts need to be seriously considered in green city planning. Cambodia is one of the most vulnerable countries to climate change.

Solid waste management is a common issue across Cambodian cities, and the amount of urban solid waste generated is increasing sharply. Poor waste management practices and standards of landfills present serious challenges. Waste collection services can be unreliable, and open burning and disposal into waterways are still common practice. Waste minimization and recycling concepts, which can contribute to job creation and economic growth, are being introduced but have not yet been implemented fully and effectively, with the concept remaining unfamiliar.

Drainage and wastewater management is another key challenge for cities. There is currently extremely limited treatment capacity in Cambodia, and untreated wastewater is generally released directly into the environment. The lack of adequate financial and human resources and empowerment at the city level are key barriers to the development and management of sanitation.

- **Green Urban Economy**

“Green growth” is a development approach that seeks to deliver economic growth that is both environmentally sustainable and socially inclusive. The aim of green growth is to improve human well-being and social equity while significantly reducing environmental issues and ecological scarcities.

Tourism can be a significant driver of the green economy in Cambodian cities and can play a vital part in creating further jobs. However, it requires careful management while simultaneously encouraging ecotourism initiatives to avoid undesirable social, cultural, and environmental consequences. Mass tourism can have a significant impact on the country's cultural and natural resources, consumption patterns, waste disposal, and social systems. The expansion of infrastructure to meet increasing numbers of tourists needs to be driven by a sustainability agenda that includes green infrastructure, building, and transport systems.

Another key driver of urban economy is industry. Cambodia has seen rapid industrial growth in the past two decades, with the sector growing from a 17% share of GDP in 1998 to a 32% share of GDP in 2018, according to the World Bank.¹ However, the sector is losing its competitive edge given its high energy costs; recent increase in the minimum wage; and lagging infrastructure, productivity, and logistics. Current production methods are not resource efficient, thus limiting Cambodia's ability to compete in international markets. It is therefore critical to promote green industrial development with a focus on energy consumption and generation and in the use of greener and more efficient technologies and processes.

Critical to sustainable urban growth is the use of renewable energy. Most cities in Cambodia get their power through the national grid, of which less than 1% is currently sourced from renewable energy (excluding hydropower). Businesses and households face constraints due to the high cost of electricity and insufficient supply of power. As illustrated by the power cuts during the 2019 dry season, Cambodia's worsening droughts make it economically crucial to complement

¹ World Bank, World Bank Database, (Washington, D.C.: The World Bank Group, 2018). Accessed June 06, 2019.
<https://data.worldbank.org/country/cambodia?view=chart>

current hydropower capacity with solar and other forms of renewable energy. The government's current drive to promote renewable energy will translate into both economic and environmental benefits.

Energy efficiency measures could also significantly improve economic productivity while decreasing energy demand and CO² emissions. Based on the assessment of the energy efficiency potential for buildings, industry, and transport, the overarching target proposed in the draft National Energy Efficiency Policy is to reduce energy demand by 20% in 2035, relative to BAU. If Cambodia reaches that target, it would save power generation capacity in the range of 190 MW to 307 MW.

- **Social Inclusion**

Green city development can be a driver of social inclusion in cities through supporting new forms of entrepreneurship, investment, and employment in future-oriented green business development. Urban social inclusion challenges include urban poverty and access to sustainable infrastructure and public services, access to affordable housing, mobility, gender equality, and citizen participation in city development decisions.

- **City Governance**

Municipal governments can play a central role in promoting green city development. They set the overall direction for their municipalities and are responsible for managing and delivering services. They also have legislative powers and represent their community at the national level.

Subnational administrations, however, face critical human and financial resource constraints, especially in managing services and infrastructure. Institutional capacity remains limited for dealing with emerging urban issues and reform initiatives, and a lack of staff is common. Improved organizational and institutional structures are required as are better performance systems, facilities, and digitization. There is also a lack of institutional coordination at the subnational level.

How will the Strategic Plan be implemented?

Central to the implementation of the Strategic Plan is the proposed establishment of the Sustainable City Working Group at Subnational level, chaired by the provincial governor, vice chaired by the city mayor, and include the heads of all relevant provincial departments. Roles and responsibilities will include project planning and integration; implementation, monitoring, and evaluation; resource mobilization; and external engagement. The best option, where possible, is the use of existing coordination mechanisms, such as the Provincial Working Group on Clean City Assessment or the Sub-National Committee on Land Management and Urban Planning.

To support implementation, cities will prepare an annual progress report to be submitted to the National Council for Sustainable Development's **Technical Working Group (TWG) on Sustainable Cities.** The TWG, which was established in 2019, has a membership that comprises representatives from relevant ministries and government institutions. The TWG is responsible for developing and promoting green policies and frameworks; integrating green city development into Cambodian laws; and developing investment policies and plans.





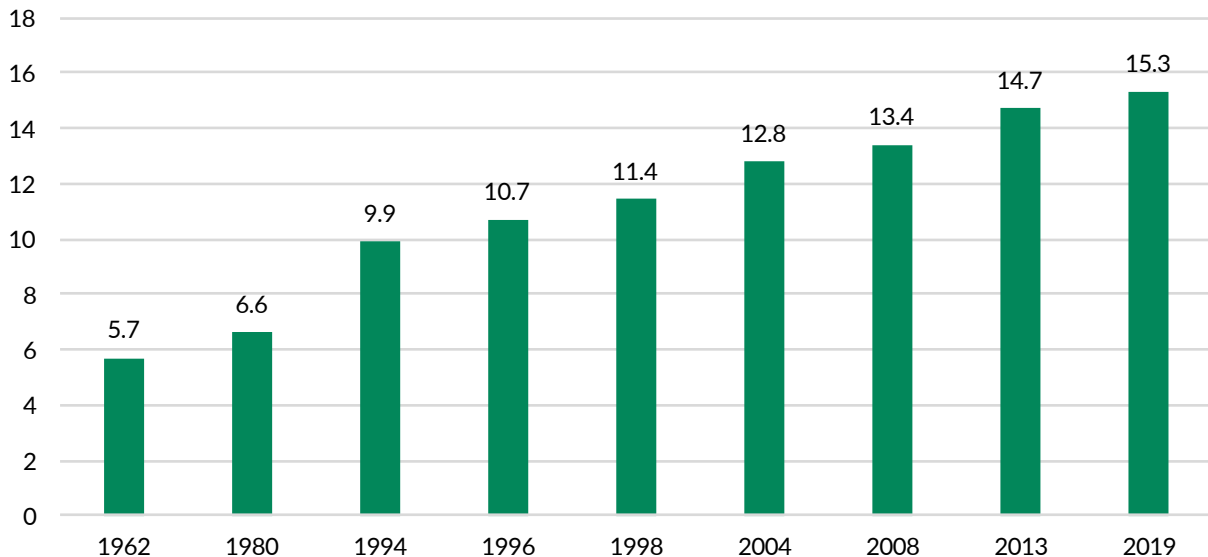
1. Sustainable City Strategic Planning Development

1.1. Introduction

Cambodia has a total de facto population of 15.29 million people. The average annual population growth rate over the 2008–2019 period was 1.2%,² according to the census. In the development of the National Strategic Development Plan (NSDP) 2019–2023, the RGC estimates that the urban population in Cambodia was 24.9% of the total population in 2019 and projects it to expand to 26.7% by 2023. A study conducted by the World Bank in 2015 reports that Cambodia's rate of urban spatial expansion is 4.3%; the second fastest in East Asia after Lao PDR.³

Urban expansion presents both opportunities and challenges. Urban growth creates economic opportunities, spurs innovation, and creates jobs. However, unstructured urbanization can create significant socio-economic and environmental challenges, including urban sprawl and insufficient provision of basic services and infrastructure, such as housing, transport, energy, water supply and sanitation, increased congestion, pollution, unemployment, and inequality.

Figure 1.1. Cambodian total population in millions, 1962–2019⁴



² The General Population Census of the Kingdom of Cambodia 2019, conducted by the National Institute of Statistics (NIS) of the Ministry of Planning (MOP). It is the fourth census in subsequent censuses conducted in Cambodia every 10 years, including 1962, 1998, and 2008.

³ World Population Review, "Total Population by Country 2019," accessed August 05, 2019, <http://worldpopulationreview.com/countries/>

⁴ Ministry of Planning, "The General Population Census of the Kingdom of Cambodia 2019," accessed September 20, 2019, http://www.nis.gov.kh/nis/Census2019/Provisional%20Population%20Census%202019_English_FINAL.pdf

Current urbanization is concentrated in and around Phnom Penh, which is the center for economic growth and creates many jobs, particularly in industry and manufacturing sectors. Cambodia needs an environmentally sustainable and economically attractive urbanization throughout the whole country to avoid concentrating urban growth in Phnom Penh. In 2011, the RGC formulated a National Policy on Land Use, applied to all provinces and cities to ensure the sustainable use of land and natural resources for socioeconomic development, food security, and balance of natural resources.⁵

The Sustainable City Strategic Plan 2020–2030 (hereinafter referred to as “**The Strategic Plan**”) was developed to serve this purpose by providing a strategic direction and guidance to seven city governments to integrate the principles of a sustainable city in their respective cities’ development and investment plans. The cities participating in this plan are Battambang, Banteay Meanchey, Kampong Cham, Kep, Siem Reap, Sihanoukville, and Suong. The Strategic Plan aims to promote the green growth of these strategically important secondary and tertiary cities in Cambodia. The green development of these cities will promote a more balanced and sustainable urbanization in Cambodia. The Strategic Plan, when implemented effectively, will contribute to Cambodia’s Sustainable Development Goals (SDGs),⁶ the National Determined Contributions (NDCs),⁷ and the “urban paradigm shift” identified in the New Urban Agenda at UN Habitat 3.⁸

The Strategic Plan is thus fully in line with national visions and goals for a sustainable and inclusive urban development and aims to support their implementation. The Strategic Plan contributes to the implementation of the National Green Growth Policy and Strategic Plan (2013–2030) and complements the draft National Urban Development Framework. It is harmonized with the National Clean City

Competition and the RGC’s decentralization and deconcentration (D&D) policies and reform program. The project is also aligned with the Law on Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans.⁹

The Strategic Plan provides the basic understanding of what a holistic approach to sustainable urban development entails. Additionally, it explains guiding principles in the integration of green growth in the development and implementation of urban planning by the RGC in order to ensure environmental sustainability, social inclusion, and economic urban development.

In addition to the national policy framework, the government has launched national programs and participated in various regional programs that aim to guide city development in accordance with international standards. This includes the National Program for Clean City Assessment—led by the Ministry of Tourism—in order to enter the ASEAN Clean Tourist City Program, and the ASEAN Smart City Framework. In 2018, three Cambodian cities (Battambang, Kep, and Siem Reap) received the ASEAN clean tourism award for meeting the ASEAN Clean Tourist City Standard.¹⁰ Under the ASEAN Smart City Program, Phnom Penh, Battambang, and Siem Reap were selected to enter the program, which is a regional program supported by the government of Japan. This program aims to promote and connect private investment from Japan to the region, focusing on sustainable and smart city development. Under this framework, the three cities from Cambodia will benefit from Japanese private investment.¹¹

⁵ Ministry of Land Management Urban Planning, and Construction (MLMUPC), National Policy on Land Use in Cambodia, April 2011.

⁶ UNIDO, “Background on the SDGs,” accessed September 20, 2019,

<http://www.undp.org/content/undp/en/home/sustainable-development-goals/background.html>

⁷ United Nations Climate Change, “National Determined Contributions (NDCs),” accessed September 20, 2019,

<http://unfccc.int/focus/items/10240.php>

⁸ UNIHABITAT, “New Urban Agenda Adopted at Habitat III,” last modified October 21, 2016,

<https://unhabitat.org/new-urban-agenda-adopted-at-habitat-iii/>

⁹ The Organic Law, 2008

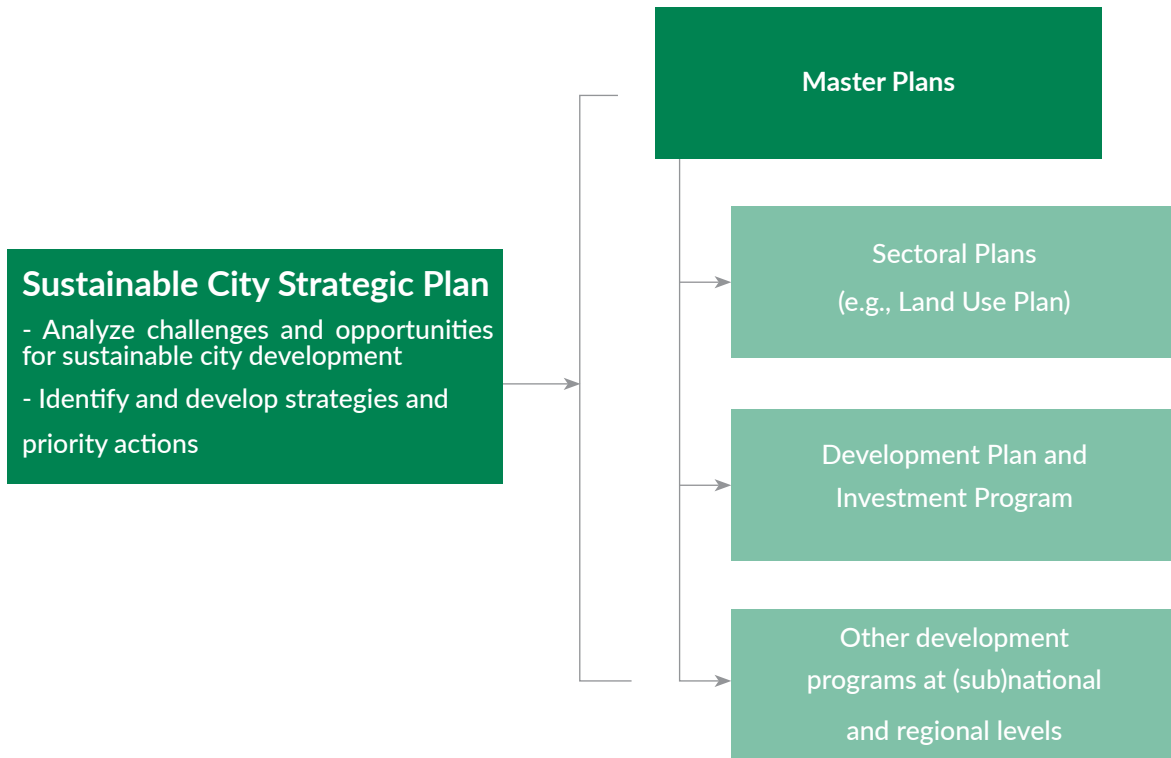
¹⁰ FreshNewsAsia, “Three cities from Cambodia received Awards from ASEAN’s Clean Tourism City Contest,” last modified January 29, 2018,

<http://freshnewsasia.com/index.php/en/localnews/77226-2018-01-29-02-44-04.html>

¹¹ Khmer Times, “Three Cambodian cities chosen for Asean urban planning scheme,” last modified February 2, 2019,

<https://www.khmertimeskh.com/582486/three-cambodian-cities-chosen-for-asean-urban-planning-scheme/>

Figure 1.2. Relationship between the SCSP and existing plans



1.2. Vision and Goals

Vision

By 2030, the seven secondary cities in Cambodia will become more resilient, resource-efficient, and be able to provide their citizens with a good quality of life and social harmony through sustainable development.

Goals

1. Develop a sustainable urban infrastructure through integrated urban land-use planning and strengthened urban environmental management, to provide high-quality public services, preserve natural capital, and reduce environmental pollution and climate change impacts.
2. Improve the local economy by strengthening the city's comparative advantages and exploring opportunities to promote a circular economy, public-private partnerships, and green technology.
3. Promote social inclusiveness by providing access to public services and job opportunities for all.
4. Improve the city's governance by building strong, accountable institutions; developing local human resources; and promoting knowledge sharing among cities.

1.3. Strategic Framework

This section provides a comprehensive review and analysis of sustainable urban development in the current context and situation of targeted secondary cities. This includes both challenges and opportunities, especially in key urban sectors, such as waste management, wastewater and sanitation, transport, energy, construction, and tourism. Based on the analysis of the seven cities (Part II provides detailed aspects of each city's profile), priorities were set and actions were identified that meet the goals and vision of sustainable urban development.

1.3.1. Strategic Analysis

The need for green urbanization in Cambodia

Based on the situation analysis in the selected cities, the urban population of Cambodia remains smaller than its rural population; however, many major cities and towns across the country are facing rapid, unplanned, and unsustainable patterns of urban growth and development. Increasingly, urban areas are confronted with a range of environmental and social issues, including inefficient land use, insufficient provision of basic services and infrastructure, a loss of natural resources, increased congestion, pollution, unemployment, and inequality. Without proper urban planning, there will be uneven urban development, which is one of the key factors that is widening income and quality-of-life gaps among urban residents.

These problems can be attributed to poor urban management, limited strategic spatial planning, poor connectivity between urban planning and environmental management, and insufficient investment in public services and infrastructure. Current urbanization is overwhelmingly concentrated in and around Phnom Penh, with some urban clustering in the northwest around the Tonle Sap Lake and the plain region.

There is an overconcentration of industries, employment, and services in several of these urban centers—particularly, Phnom Penh. The availability and quality of public services, such as water supply and solid waste collection, are also unfairly distributed with conditions in Phnom Penh being much better than those in many smaller cities, towns, and rural areas.

Cities are now being recognized as engines of growth and economic development. Unless cities and national urban development are carefully planned and managed, economic

growth may remain limited to the few larger urban areas. The need for improved urban planning and development management (and urban governance) is now becoming critical in order for growing urban areas to be compact and “livable” as well as economically and environmentally sustainable in the medium to long term.

Sustainable city development, if implemented effectively, is an approach that can help to achieve the transformations that Cambodian cities urgently need. Sustainable cities move toward long-term environmental protection, social inclusion, and economic sustainability. More specifically, sustainable cities are the ones that are resource efficient, climate resilient, socially inclusive, and equitable. A green growth in cities aims for green job creation, improved connectivity between cities and markets, infrastructure development, inclusive services provision, urban adaptation, and low-carbon development.

Policy context

These common sustainable city characteristics fit well into supporting the broader national policy framework of the Royal Government of Cambodia. The National Green Growth Road Map (2009) and National Policy and Strategic Plan on Green Growth 2013–2030 emphasize several elements that are key to green secondary city development. This includes green investment and jobs, green economy, green technology management, green social safety nets, green cultural heritage and national identity, and good governance on green growth. Specific priority areas relevant for secondary cities include sustainable land usage, the development of green infrastructure, transport and tourism, effective energy management (including renewable energy), and sustainable water resources management.

The Sub-Decree on Urbanization for the Capital City, City and Urban Areas, adopted in 2015, and the draft National Strategic Framework for Urban Development, led by the Ministry of Land Management, Urban Planning and Construction, share the same vision and direction: sustainable development and social inclusion. The drafting of the National Strategic Framework for Urban Development envisions the following:

Cities and urban centers throughout the country are continuously well developed in a climate-resilient and sustainable manner, providing balanced economic opportunities. Maintaining a good environment and quality of services that better serve the resident populations, as well as those in surrounding areas and the country,

creates socially inclusive cities and contributes to poverty reduction; livelihoods and welfare improvements; economic growth; and cultural and sustainable, spatially balanced national urban development.¹²

The Industrial Development Policy (IDP), adopted in 2015, additionally highlights the need to better consider Cambodia's rapidly changing and diversifying economy. The policy aims to boost up the industrial sector to 30% of GDP by 2025 by creating an attractive environment for foreign investors through reducing red tape, finding a balanced tax regime, and improving infrastructure. It identifies possible thrusts for industrial development that will be linked to expanding the connectivity of growth centers and corridors and the future possible roles for urban expansion. For example, Sihanoukville has been identified as a priority for ASEAN sustainable city development under the IDP.

At the time of writing, the RGC's Council for the Development of Cambodia is finalizing the draft of the new Law on Investment and Law on Special Economic Zone (SEZ). These new laws will provide more transparency to businesses and investors, enabling a business environment and providing attractive investment incentives in order to boost economic diversification and increase productivity, in response to the Cambodian Industrial Development Policy 2015–2025 and RGC reform measures laid out in March 2019. The new Law on Investment and Law on SEZ encourages and favors companies that take a long-term view of social responsibility, focusing on three main areas: (1) environment, (2) staff well-being, and (3) social inclusion. This will further encourage municipal authorities and relevant institutions to promote green infrastructure investment for urban development.¹³

Sustainable city development is also well aligned with the government's Clean City Program to improve the beauty, sanitation, good environment, and living standards in cities and attract more tourists. Using 77 criteria under 33 indicators, cities were ranked in the National Committee for Clean City Assessment in areas such as cleanliness, waste management, public service delivery, infrastructure, and awareness raising. Cities that were top performers—with scores of 40%, 60%, and 75%—were awarded with one, two, and three Rumdul flowers (*Mitrella mesnyi*) respectively.¹⁴

Sustainable city development is critical to meeting Cambodia's international commitments on sustainable development and climate change. Sustainable city development will help to contribute to Cambodia's SDGs (SDG 11 on sustainable cities and communities, in particular) and Cambodia's National Determined Contribution (NDC) under the Paris Agreement.

Sustainable cities have the potential to promote social transformation due to the concentration of economic activity, innovation, and job creation. The role of sustainable cities is thus not only central for SDG 11 (sustainable cities and communities) but also extends to all 17 SDGs. Action at the city level is crucial for the success of the SDGs, and for this reason, secondary cities in Cambodia and their respective city officials and local governments need to be suitably empowered to develop and implement the sustainable city plans.

Cambodia's NDC calls for a reduction of 27% in emissions compared to a business-as-usual scenario by 2030, estimated at 11,600,000 tons of carbon dioxide equivalents (tCO_{2e}). The priority sectors identified for mitigation action are energy, transport, manufacturing, and energy efficiency in buildings (categorized under "Others" in the NDC)—all of which are of direct relevance to sustainable cities. Additionally, the NDC defines a list of priority actions for adaptation. Many of these, such as "flood protection dykes for urban development" and "increasing the climate-resilience of infrastructure," highlight the importance identified by the government of the impact of rising sea levels to the coastal cities of Kep and Sihanoukville.

¹² MLMUPC, Sub-Decree on Urbanization for the Capital City, City and Urban Areas (2015).

¹³ Economist, "New Investment Law More Encourage Private Sectors," last modified July 26, 2019, <https://cambonomist.com/news/new-investment-law-more-encourage-private-sectors-/>

¹⁴ National Committee for Clean City Assessment, "About National Clean City Competition," last modified July 30, 2019, <http://www.cambodiacleancity.gov.kh/kh>

Finally, sustainable city development will also advance Cambodia's implementation of the New Urban Agenda adopted in Quito, Ecuador in October 2016. The Quito Declaration on Sustainable Cities and Human Settlements for All calls for:¹⁵

- Sustainable urban development for social inclusion and ending poverty
- Sustainable and inclusive urban prosperity and opportunities for all
- Environmentally sustainable and resilient urban development
- Development of the urban governance structure: establishing a supportive framework
- Planning and management of urban spatial development

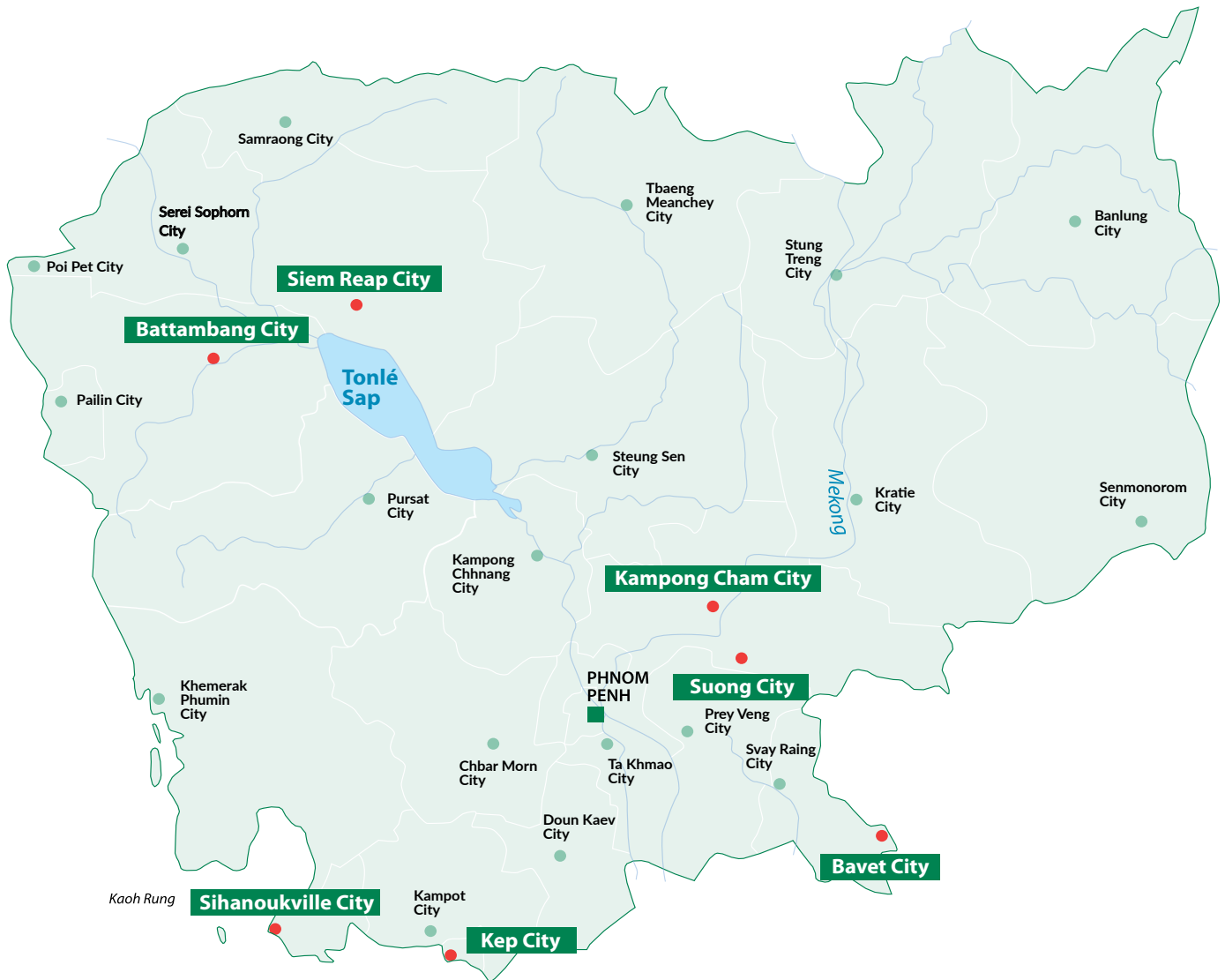
Assessment of challenges and opportunities for key urban sector development

This section discusses key green growth challenges and opportunities in Cambodian cities in four categories: (1) urban planning and infrastructure development, (2) green urban economy, (3) social inclusion, and (4) good governance. This assessment is the result of comprehensive data collection and consultation with local stakeholders in seven cities in Cambodia. The seven cities were selected by the government using seven green growth criteria (table 1) to represent three city clusters: the coastal region (Sihanoukville and Kep), plain region (Kampong Cham, Suong, and Bavet), and Tonle Sap Lake region (Siem Reap and Battambang) (figure 3).

Table 1.1. City selection criteria

Criteria	Explanation
Potential economic contribution to the national development agenda	The significance of economic activities contributing to national economic growth and poverty reduction.
Geographical importance for spatial balance	Importance of the city's sustainable growth to the country's balanced urban and national development.
Interest and commitment of the local government	The expressed level of interest and commitment of the local authorities to pursue sustainable city development.
Population growth	The projected growth rate of the city's population in relation to future development needs.
Extent of social and environmental issues that require immediate actions	The severity of the city's social and environmental challenges that will affect sustainable city development, if not addressed, in the near future.
Policy and institutional environment for sustainable city development at the city level	The extent to which policies and the institutional environment at the city level are likely to facilitate or pose a risk to the project's implementation. A supportive institutional environment is important in ensuring the success of sustainable city development.
External support	The level of support the city has received from development partners and local and international organizations.

¹⁵ United Nations, "UN conference agrees new urban development agenda creating sustainable, equitable cities for all," last modified October 20, 2016, <http://www.un.org/sustainabledevelopment/blog/2016/10/un-conference-agrees-new-urban-development-agenda-creating-sustainable-equitable-cities-for-all/>

Figure 1.3. Map of Cambodia with the selected 7 secondary cities¹⁶

A. Urban planning and green infrastructure development

In the past two decades, Cambodia has had one of the fastest-growing urban populations in the region. There were around 920,000 people living in the urban areas in 2000, which increased to 3.5 million people in 2016

(accounting for 20.94% of the total population).¹⁷ In 2019, the urban population in Cambodia stood at 24.9% of the total population and is projected to expand to 26.7% by 2023¹⁸ and to 44% by 2030.¹⁹

¹⁶ Image from Google Maps

¹⁷ Trading Economics, "Cambodia - Urban Population (% of total)," accessed May 10, 2016, <https://tradingeconomics.com/cambodia/urban-population-percent-of-total-wb-data.html>

¹⁸ Ministry of Planning (MoP). "National Strategic Development Plan 2019-2023,"

¹⁹ Ministry of Planning (MoP). "National Institute of Statistics, Socio-Economic Survey 2016"

The rapid urban development in Cambodia places great pressure on the RGC to provide supporting infrastructures and services in a more sustainable way. To date, urbanization has largely been unplanned for and unregulated, which is generating significant social, economic, and environmental issues. Many Cambodian cities face a severe lack of systematic urban spatial planning and necessary financial resources for sustainable urban infrastructure and services.

Through the MLMUPC, the RGC will continue to push for Land Management and Urban Planning, prioritizing it at regional, national, and municipal levels. The National Strategic Development Plan 2019–2023 targeted the development of land use planning for the next five years:

Table 1.2. Targeted Land Use Planning from 2019–2023²⁰

Indicators	Unit	2018	2019	2020	2021	2022	2023
Land use planning at national level	Plan	0	0	0	0	0	1
Land use planning at regional level	Plan	-	1	1	2	2	3
Land use planning at provincial level	Plan	3	7	9	11	13	15
Land use master plan at municipal/urban level	Master Plan	9	23	25	27	29	31
Land use master plan at districts/khans level	Master Plan	-	19	25	29	34	38
Land use planning for communes/sangkats level	Plan	80	179	199	219	239	259

To support well-structured urban development, urban spatial planning is a precondition. Former **Provincial Governor of Battambang, H.E. Prach Chan**, stated in his preface in the Technical Report on the Land Use Master Plan for Battambang Municipality (2009) that the “Land-Use-Plan will assure a sustainable and smooth urban development and help to avoid conflicts and obstacles in the future [...] The Plan will foster socio-economic growth and contribute to the main goal of poverty reduction.” For Cambodia’s secondary cities, only Battambang finalized its land use master plan for urban development in 2015, with Siem Reap and Kep following in 2018. Other cities are still undergoing the spatial planning, zoning, mapping, and drafting of their master plans. This presents a challenge as the process for the development of master plans take years and does not keep pace with rapid urbanization.

This slow process will lead to unstructured settlements, uncontrolled building construction, and the possibility of misdirected urban infrastructure development. For instance, when the city of Kampong Cham started to renovate its sewerage and drainage system in 2017, it caused considerable socioeconomic costs. The city had to compensate owners of already-built houses, buildings, or roads to make way for the sewerage system. It can be observed that the longer the urban planning takes, the slower the urban infrastructure investment develops; hence, slowing down potential economic growth and infrastructure services. Limited local capacity and a lack of national government technical and budget support is one of the main concerns raised by local governments, underpinning the slow urban planning development.

²⁰ MoP. “National Strategic Development Plan 2019-2023” (2019)

The need for careful planning of urban infrastructure is further exacerbated by climate change. Cambodia is one of the most vulnerable countries to climate change.²¹ In the Global Climate Risk Index 2017, conducted by Germanwatch, Cambodia was placed in the high-risk category, ranked as 115th out of the total 181 countries. Compared to twenty years ago (1998–2017), it was ranked at 19th and scored 39.67.²² Similarly, the analysis of 191 countries by Maplecroft in the Climate Change Vulnerability Index 2017 placed 33 countries in extreme-risk, 44 in high-risk, 75 in medium-risk, and 39 in low-risk categories. Cambodia was identified as belonging to the high-risk category.²³

Solid waste management

Solid waste is a common issue across Cambodian cities. Due to population growth and increased economic activities—especially in tourism, construction, and industry—the amount of municipal waste has recently increased sharply to over 4 million tons per year nationwide, with approximately 37% going to landfills, 12% recycled, and 51% illegally dumped or burned despite existing laws.²⁴ The figures for landfill waste have increased, from 317,550 tons per year in 2004 to 1.5 million tons per year in 2017²⁵ and continues to grow. Such a sharp increase in waste disposal, coupled with poor waste management practices (including storage, collection, transport, and land filling) and limited community participation, presents serious challenges for the cities. For instance, the rapid growth in Sihanoukville has exponentially increased the volume of rubbish, from less than 200 tons per day in 2015 to a staggering 1,000 tons in 2019, resulting in a volume of waste piling up on streets and flowing into the sea as well as open-air burning. The Sihanoukville

administration finds it difficult to manage the sheer volume of waste and is currently seeking support from development partners and the private sector to cope with the challenge.²⁶

In Cambodia, only Phnom Penh has drafted a long-term sustainable Waste Management Strategy and Action Plan (2018–2035) in response to the increase of waste (estimated to be 3,000 tons per day in recent years) due to rapid economic growth of the capital city, particularly in the industrial sector.²⁷ The plan provides a good model for secondary cities across Cambodia to set out a long-term vision to respond to the current waste management challenges.

At present, waste management in many cities is outsourced to private companies with varying standards of service but universally low levels of fee collection. Additionally, existing dumpsites are poorly designed and managed, leading to environmental and social problems (odors, leachate, vermin, methane emissions, and litter).

Waste collection services also do not cover all parts of the cities due to a lack of economy of scale, road accessibility, and community's willingness to pay. It is estimated that only 58% of the urban population is covered by existing waste collection services.²⁸ Open burning is the most common mode of waste disposal for those who do not use the collection service. Open burning is generally done without prior waste segregation (for example, by removing plastics) and at low temperatures, which causes the release of toxic gases and fine particulates into the atmosphere and leaching of harmful substances into the ground that in turn can affect waterways.

²¹ MEF & GSSD. "Addressing Climate Change Impacts on Economic Growth in Cambodia," (2019).

²² Germanwatch, "Global Climate Risk Index 2019," accessed September 10, 2019, https://germanwatch.org/sites/germanwatch.org/files/Global%20Climate%20Risk%20Index%202019_2.pdf

²³ Maplecroft, "Climate Change Vulnerability Index 2017," accessed September 9, 2019, <https://reliefweb.int/sites/reliefweb.int/files/resources/verisk%20index.pdf>

²⁴ Data from the Ministry of Environment's page, last modified July 27, 2019, during the awareness campaign in Siem Reap on the use of plastic bags and environmentally friendly bags. <https://www.facebook.com/Ministry-of-Environment-314699302002531/>

²⁵ Presentation by the Department of Waste Management of the Ministry of Environment, in August 2017, during the consultative workshop under Green Urban Development Program Phase II, organized by GGGI.

²⁶ B. Sokhean, "Governor seeks World Bank's help as Sihanoukville rubbish rockets to 1,000 tonnes a day," The Khmer Times. Last modified October 9, 2019, <https://www.khmertimeskh.com/50649191/governor-seeks-world-banks-help-to-tackle-waste-woes/>

²⁷ Phnom Penh Capital Administration (2018). "Phnom Penh Waste Management Strategy and Action Plan 2018-2035"

²⁸ S. Sethy, C. Sothun and R. Wildblood, "Municipal Solid Waste Management in Cambodia," in *Municipal Solid Waste Management in Asia and the Pacific Islands*, ed. A. Pariatambay and M. Tanaka (Singapore: Springer Environmental Science and Engineering, 2014).

Public awareness of proper rubbish storage, disposal, and recycling options is still low. Communities lack support to implement behavioral change programs that encourage the responsibility and accountability of individuals in storing and disposing their own rubbish in a proper manner. Consequently, many public awareness campaigns are needed in this area.

The 4Rs (Reduce, Reuse, Recycle, and Recovery) and waste separation concepts are being introduced but have not yet been implemented fully and effectively, and the concepts remain unfamiliar. Except for Battambang city, which has two small recycling facilities for organic and plastic waste, recycling remains largely unstructured within and outside cities and at dumpsites. Some valuable materials—like PET bottles, tin plates, and aluminum cans—are informally collected and sold to intermediaries for international markets. The rest of the collected waste is disposed in open dumps on the outskirts of cities without any further measures of environmental protection.

To decentralize waste management, the government released Sub-Decree No. 113 in August 2015 to provide a better and clearer mandate on solid waste management and outline waste management requirements. Among others, the sub-decree has the following objectives:

- Strengthen responsibilities of ministries, institutions, specialized units, the subnational administration, and relevant stakeholders who are involved with garbage and solid waste management in urban areas.
- Assign the task of garbage and solid waste management in urban areas to municipality, town, and district administrations.
- Identify necessary measures to increase effectiveness and safety in garbage and solid waste management in urban areas.
- Increase public awareness and people's participation in the development and implementation of local garbage and solid waste management.

The implementation of the sub-degree has remained limited due to a lack of finance and human resources for monitoring and enforcement. For example, requirements for the appropriate sorting, packaging, and storage of waste

by residents and the prohibition of burning and littering with corresponding fines have not been widely publicized. Delegation to municipal, district, khan, and commune administrations has also remained limited in most cities.

In 2017, the Ministry of Economy and Finance granted 8,000 million riels (about USD 2 million) to 26 cities nationwide to fill the financial gaps in solid waste and wastewater management. However, the amount is still not enough to keep cities clean and improve recycling. In order to provide waste collection as a public service or to attract private investment, a more transparent and sustainable model is required for waste collection fees across cities subsidized by resources from the municipalities.

At the time of writing, the Ministry of Environment, which is the lead government institution for the implementation of Sub-Decree 113, is reviewing the possibility to increase the environmental sanitation fund package for the subnational administrations and all municipalities for more effective municipal waste management. This illustrates that the ministry stands ready to provide both technical and financial support to the capital and secondary city municipalities on municipal waste management and related infrastructure project development, in collaboration with development counterparts, business partners, and technology providers. On July 22, 2019, MoE developed a Prakas (Ministerial Declaration) and guideline for the implementation and improvement of Solid Waste and Municipal Waste Management. The guideline introduces practical mechanisms for the whole supply chain of solid waste and municipal waste management, such as:²⁹

- Mechanism for waste collection and transport
- Mechanism for collection fee determination
- Mechanism for fees collection procedures (1) by the municipality and (2) by the private sector
- Mechanism for landfill management
- Mechanism for financial incentives for waste management

In addition to this, on September 10, 2019, MoE, together with MEF and MoI, developed a joint inter-Ministerial Prakas on the management and use of funds from the penalties for offenses to Sub-Decree 113.³⁰

²⁹ MOE, "Prakas No. 249 PRK B.ST on the Implementation of Guideline for the Improvement of Solid Waste and Municipal Waste Management," adopted on July 22, 2019.

Table 1.3. Budget for Environmental Cleanliness Service 2017

City Administration	Amount (million riels)	Amount (USD)	City Administration	Amount (million riels)	Amount (USD)
Serei Sophoan	405	101,250	Prey Veng	222	55,500
Poi Pet	447	111,750	Pursat	331	82,750
Battambang	561	140,250	Banlung	235	58,750
Kampong Cham	260	65,000	Siem Reap	783	195,750
Kompong Chhnang	267	66,750	Preah Sihanouk	361	90,250
Chbar Mon	285	71,250	Stung Treng	236	59,000
Stoeung Sen	307	76,750	Svay Rieng	278	69,500
Kampot	249	62,250	Bavit	259	64,750
Takhmao	350	87,500	Daun Keo	271	67,750
Khemarak Phoumin	230	57,500	Samraong	320	80,000
Kratie	238	59,500	Kep	209	52,250
Sen Monorom	192	48,000	Pailin	252	63,000
Preah Vihear	214	53,500	Suong	252	63,000

Wastewater and sanitation

Drainage and wastewater management is another key challenge for cities. Presently, there are only three municipal wastewater treatment plants in Cambodia: Siem Reap, Sihanoukville, and Battambang, which have a treatment capacity of 3,000 m³, 6,900 m³, and 1,000 m³ per day respectively. These facilities cannot sufficiently respond to the cities' growing demand. The system in Sihanoukville dates back to the French era and was designed to service a population of just 38,000 people. With the current popu-

lation count standing at 302,000 people (according to the latest census), it is overflowing. The facility in Battambang was intended to service 15,000 people over 89 hectares, but its capacity is currently limited to 450 m³ a day because of the degradation of the system. The treatment plant in Siem Reap is currently operating at a very limited capacity due to the broken sewer system. These cities are now developing plans to upgrade their treatment plants and sewer systems in partnership with multilateral development banks.

³⁰ MOI, MEF & MOE, "Inter-Ministerial Prakas No. 8682 PRK on the Management and Use of Transitional Money from Penalties for Offenses the Sub-Decree 113," adopted on September 10, 2019.

Other cities simply release untreated wastewater into receiving water sources, such as canals, ponds, or rivers. This results in pollution, environmental degradation, and human health issues. In Kampong Cham, for example, all the city's wastewater is discharged through the old sewerage and drainage system into the Mekong River without treatment, other than individual septic tanks or containment units. This poses a significant risk for the cities further downstream. Suong city does not have a drainage or sewer system, and the wastewater is currently discharged to natural ponds and rivers through old canals. Bavet and Kep are facing similar challenges.

The lack of adequate financial and human resources and empowerment at the city level are also key barriers for the development and management of sewer systems. Even though cities are aware of the serious consequences of wastewater problems, they have no choice but to wait for technical and financial support from the provincial/national government and development partners.

The Royal Government of Cambodia has recognized the severity and urgency of wastewater issues and has established a clear set of national policies and plans for wastewater treatment and sanitation services in major cities and urban areas through short-, middle-, and long-term strategies. The Ministry of Public Works and Transport (MPWT) released a sub-decree on sewerage management and wastewater treatment to govern and manage the sector in a more sustainable manner. By 2030, under the MPWT strategy, septic tanks/containment units from households will be connected to centralized septic tanks or treatment units, and by 2050, wastewater management and sanitation services will be provided for all.³¹

However, achieving these goals will require strong implementation strategies and stakeholder participation. This includes identifying implementing drivers—namely institutions, policies, regulations, and service providers. A Sub-Technical Working Group on Urban Wastewater Management and Sanitation, bringing together experts from across government institutions and development agencies, was established in January 2019 under the leadership of the MPWT to drive this agenda.

Achieving the goals of Sub-Decree 235 also requires formulating sustainable funding and financing schemes, selecting appropriate technologies based on specific situations, and raising public awareness of the importance and benefits of wastewater treatment, water reclamation, and sanitation services. A number of large-scale, centralized wastewater management infrastructure projects are being planned or are under evaluation with the assistance of international partners, which will provide much-needed solutions for some of Cambodia's cities, including Sihanoukville, Siem Reap, and Bavet. However, large-scale infrastructure projects put a significant strain on the government in terms of management capacity and financing operation and maintenance. It is essential that large-scale wastewater infrastructure be complemented with more affordable and resilient decentralized sanitation solutions; in particular, in the peri-urban areas where the urban poor are concentrated and that are often not covered by centralized systems. In addition, conservation of natural lakes and wetlands is essential to flood control and wastewater management. Grey-green solutions to flood control, such as bioretention or mangrove afforestation, are to date underexplored.

Coupled with the lack of green infrastructure development, cities also need to take the impacts of climate change into serious consideration in sustainable city planning. For example, in Battambang, 753 people, 1,581 hectares of agricultural land, and 59,324 meters of road were affected by the 2013 flood.³² In Siem Reap, 1,921 families were impacted by the 2015 drought and 14,200 meters of road were destroyed in the 2015 flood.³³ In Kep, 107 people were affected by the storm in 2016.³⁴ In Sihanoukville, tourism is highly vulnerable to climate change due to its dependence on climate-sensitive attractions. The potential impacts of climate change include increased beach erosion due to rising sea levels and storm surges, a loss of marine resources, and a reduction in tourist numbers during the rainy season.

To address these challenges, comprehensive urban planning, sustainable urban infrastructure, and mobilization of investments to deliver basic services (e.g., wastewa-

³¹ MPWT's presentation in a regional policy workshop on wastewater management in Bangkok, Southeast Asia, April 2-3, 2015.

³² Battambang Social Economic Statistics 2017

³³ Siem Reap Social Economic Statistics 2017

³⁴ Kep Social Economic Statistics 2017

ter treatment and solid waste management) are urgently required in Cambodia's secondary cities. Designing and strengthening sustainable city interventions will be crucial to support the cities in their planning, financing, and implementation of sustainable long-term urbanization initiatives.

B. Green urban economy

Cambodian cities can benefit from a green economy, particularly from the creation of new green jobs. The aim of a green economy is to improve human well-being and social equity while significantly reducing environmental issues and ecological scarcities. It is "low-carbon, resource efficient, and socially inclusive."³⁵ The concept of "green economy" emerged from the need to measure the human ecological impact and efficiency of sectors—like transport, energy, buildings, and tourism—as well as the investment flow-targeted areas, like renewable energy and clean-tech innovation. Since half of the country's GDP comes from cities, greening the urban economy is critical for sustainable country development.

Tourism

The tourism sector is considered as one of the major pillars of economic development in Cambodia. In 2018, 6.2 million international tourists visited Cambodia, up from 4.8 million in 2015, boosted primarily by an increase in Chinese visitors. Cambodia experienced the third largest increase in international tourists in ASEAN, behind only Vietnam and Indonesia.³⁶ This increase contributed USD 4.3 billion to the national budget.³⁷ It is projected that international tourists will increase to at least 10 million by 2025, representing an increase of 600% compared to 2005.³⁸ For a developing economy like Cambodia, tourism can play a vital part in creating local jobs and supporting

the growth of small and large businesses, ranging from small roadside shops to handicrafts, tuk-tuk drivers, and the hotel industry. Ultimately, this can directly contribute to reducing poverty and increasing the standard of living for people.

Despite its various benefits for the local economy, tourism—if not sustainably managed—can cause undesirable social, cultural, and environmental consequences. Given the resource-intensive nature of the sector, the increased influx of tourists will have a significant impact on the country's cultural and natural resources, consumption patterns, waste, and social systems. As an example, the world-renowned Angkor Wat complex in Siem Reap is facing increasing pressure from the influx of tourists, threatening the site's long-term sustainability. Municipal waste piling up on streets, sewage discharging into the Siem Reap River, air pollution, and storm water flooding have been areas of public criticism.³⁹ Sihanoukville, which received 1.3 million tourists for the first half of 2018 (a 10.12% increase from the first half 2017), has also experienced uncontrolled tourism expansion including building construction. This has led to environmental, social, and safety concerns. The Minister of Tourism has underlined that the consequences of the construction boom in Sihanoukville in recent years could leave a negative impact on the environment and tourism industry as a whole.⁴⁰ In June 2019, after a building collapsed, killing 28 construction workers, 22 unlicensed construction sites were halted. According to the National Institute of Statistics, Sihanoukville has a population of around 300,000 Cambodians and a Chinese population of about 80,000, attracted by booming tourism. Close to 90% of businesses in the city—in particular, the hospitality sector—are run by Chinese. Consequently, low-income families are leaving the city as rent has become too high.⁴¹ The amount of rubbish being produced

³⁵ United Nations Environment Program (UNEP) on defining green economy. Accessed October 20, 2019

<https://www.cbd.int/doc/meetings/im/wscbteeb-mena-01/other/wscbteeb-mena-01-unep-green-economy-en.pdf>

³⁶ Chea Vannak, "Cambodia 3rd in Asean for tourist growth," Khmer Times, last modified January 22, 2019, <https://www.khmertimeskh.com/570963/cambodia-3rd-in-asean-for-tourist-growth/>

³⁷ Ministry of Tourism (MoT), "Tourism Statistics Report - February 2019," last modified September 15, 2019, <https://amchamcambodia.net/wp-content/uploads/2019/04/CAM022019.pdf>

³⁸ Clean Green Cambodia, "Sustainable tourism in Cambodia," accessed September 15, 2019, <https://www.cleangreencambodia.org/sustainable-tourism-in-cambodia/>

³⁹ Long Kimmarita, "Siem Reap waste 'pollutes' river," last modified February 15, 2019, <https://www.phnompenhpost.com/national/siem-reap-waste-pollutes-river>

⁴⁰ Hin Piset, "Sihanoukville tourism First half of 2018 sees 1.3M visitors," last modified October 3, 2018, <https://www.phnompenhpost.com/business/sihanoukville-tourism-first-half-2018-sees-13m-visitors>

⁴¹ Kristin Huang, "Sihanoukville's big gamble: the sleepy beach town in Cambodia that bet its future on Chinese money, last modified September 24, 2019, <https://www.scmp.com/news/china/diplomacy/article/3025262/sihanoukville-big-gamble-sleepy-beach-town-bet-its-future>

daily has skyrocketed from just 100 to 200 tons per day in 2015 to a staggering 1,000 tons today.⁴²

It would be a win-win scenario for cities to pursue “sustainable tourism”—which, according to the World Tourism Organization, should:⁴³

- Make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity.
- Respect the sociocultural authenticity of host communities, conserve their built and living cultural heritage and traditional values, and contribute to intercultural understanding and tolerance.
- Ensure viable, long-term economic operations, providing socioeconomic benefits fairly distributed among all stakeholders. This includes stable employment, income-earning opportunities, social services to host communities, and contributing to poverty alleviation.

An ecotourism approach would see Cambodian cities protect and conserve national heritage, cultural assets, land, and marine biodiversity; create decent employment and markets for products and services for local people; and increase resource efficiency (water, electricity, and food) in the tourism sector. For example, unlike general tourism, community-based tourism (CBT) and community-based ecotourism (CBET) projects are managed by local communities themselves or with the local communities strongly involved in the decision-making process. The profits thus benefit local communities directly, improving their development. There are currently 66 CBT and CBET projects across Cambodia; many cities—such as Siem Reap, Kampong, Kep, Sihanoukville, and Battambang—have a huge untapped ecotourism potential. In 2015, only around 10%

to 20% of tourists in Cambodia visited a CBT or CBET site.⁴⁴ Therefore, there are opportunities for cities to take actions to promote ecotourism by investing in existing and new ecotourism sites, training local people to provide ecotourism services, and developing ecotourism strategies to attract more tourists in this sector.

Battambang has demonstrated progress in promoting sustainable heritage tourism. The province and municipality of Battambang, with support from MOT, developed the Strategic Guidelines for Sustainable Heritage Tourism in 2016. The strategic guidelines put effective supporting services and infrastructures as an underpinning factor, which includes improving solid waste management, access to and within the province (including greater use of water-based transport), maintenance of public parklands, upgrading of the electricity supply for improved safety and presentation, and upgrading of local health facilities and services.⁴⁵

Industry

Another key driver of urban economy is industry. Cambodia has seen a rapid industrial growth in the past two decades, with the sector growing from a 17% share of GDP in 1998 to a 32% share of GDP in 2018, according to the World Bank.⁴⁶ However, the sector is losing its competitive edge compared to other countries—such as Bangladesh, Myanmar, and Vietnam—given its high energy costs, recent increase in the minimum wage, lagging infrastructure, low productivity, and logistics. For Cambodia to continue to diversify and expand its economy, new ways must be found to increase productivity and access more premium markets. Current production methods are not resource efficient; thus, limiting the ability to compete in international markets. NCS and GGGI’s joint economic modeling shows that the introduction of more resource-efficient production processes can lead to an increase in real GDP of USD 2.7 billion by 2030; more specifically, an improvement of

⁴² Ben Sokhean, “Governor seeks World Bank’s help as Sihanoukville rubbish rockets to 1,000 tonnes a day,” last modified October 9, 2019, <https://www.khmertimeskh.com/50649191/governor-seeks-world-banks-help-to-tackle-waste-woes/>

⁴³ United Nations Environment Programme. Division of Technology. Making Tourism More Sustainable - A Guide for Policy Makers (2005) 11-12. World Tourism Organization Publications.

⁴⁴ Afore Hsieh, “Cambodia’s Experiment with Responsible Tourism,” last modified December 30, 2016, <https://thediomat.com/2016/12/cambodias-experiment-with-responsible-tourism/>

⁴⁴ Afore Hsieh, “Cambodia’s Experiment with Responsible Tourism,” last modified December 30, 2016, <https://thediomat.com/2016/12/cambodias-experiment-with-responsible-tourism/>

⁴⁵ RGC, “Strategic Guidelines for Heritage Tourism in Battambang province, Cambodia,” accessed September 15, 2019, https://www.researchgate.net/publication/303566295_Strategic_Guidelines_for_Heritage_Tourism_in_Battambang_Province_Cambodia#pf16

⁴⁶ World Bank, World Bank Database (Washington D.C.: The World Bank, 2018).

46% for the garments sector, 14.7% for bricks, 33% for food processing, and 35.5% for electronics. Greening these industrial subsectors can create more than half a million additional jobs and reduce greenhouse gas emissions by 3.37 million tons—amounting to a 17% GHG emissions reduction in the garment sector and a 30% reduction in the electronics sector.⁴⁷ Increased resource efficiency would also mean a smaller material footprint and less industrial waste.

Therefore, promoting green industrial development is critical in achieving a green local economy. The draft of the National Energy Efficiency Policy has identified huge

energy saving potential within industries (table 4). This further demonstrates that industry can be more resource efficient and environmentally friendly with the use of greener technology in their operations and management. Cities like Phnom Penh, Bavet, Sihanoukville, Poipet, and Koh Kong have special economic zones that play an important role in promoting green industrial development. Efforts must be made to encourage those industries to be resource efficient and improve their environmental performance.

Table 1.4. Potential energy efficiency improvement in selected industries⁴⁸

POTENTIAL EE IMPROVEMENT				
(Sub) Sector	Min.	Max.	Average	Comments
Rice mills		70%	35%	Substitution of fossil fuels for rice husk gasification
Garment industry	20%	35%	28%	Through the use of more efficient wood boilers and sewing machines; application of thermal insulation
Ice factories			25%	Introduction of biomass gasifiers
Food industry	15%	20%	18%	Replacement of inefficient lights and air compressors
Rubber factories			25%	Improvement of drying process; use of more efficient electrical motors
Brick factories		70%	35%	Replacement of tunnel kilns by vertical shaft kilns and improvement of brick molding
Commercial buildings	20%	30%	25%	Based on international benchmarks
Charcoal production	30%	40%	35%	Through the use of more efficient kilns such as the Yoshimura Kiln (GERES)

While sustainable business practices are still lacking, there are some promising initiatives driven by industry. For example, Sihanoukville's Special Economic Zone (SSEZ), which covers 1,113 hectares of land and houses 109 companies to date, has created 14,000 local jobs. SSEZ invested USD 7 million in what they claimed to be the first large-scale advanced

wastewater treatment plant in Cambodia. The first phase has been completed and can treat 5,000m³ of wastewater per day.⁴⁹ The zone has its own landfill, manages its own waste, and plans to invest in waste-to-energy facilities. The Manhattan Special Economic Zone (MSEZ) in Bavet sits on 500 hectares of land, has 33 factories, and provides jobs to

⁴⁷ GGGI and NCSD, "The Economic, Social and Environmental Impacts of Greening the Industrial Sector in Cambodia," 2018

⁴⁸ Draft of the National Energy Efficiency Policy, checked and approved by Technical Working Group on August 9, 2017.

⁴⁹ Consultation meeting with the management of SSEZ in February 2018.

about 30,000 people. MSEZ spent approximately USD 1.2 million to set up its own wastewater treatment plant (phase I) with a treatment capacity of 5,000 m³ a day. The

MSEZ is currently speeding up the construction of another plant (phase II) with a similar treatment capacity.⁵⁰

Table 1.5. Special Economic Zones in Cambodia, 2014

Location	Name of SEZ	Year Established	Number of Firms Operating	Total Employment	Employees per Firm (avg)
Phnom Penh	Phnom Penh SEZ	2008	50	17,000	340
Bavet	Manhattan SEZ	2006	26	28,051	1,079
	Tai Seng Bavet SEZ	2007	17	7,968	469
	Dragon King SEZ	2013	2	280	140
Sihanoukville	Sihanoukville SEZ 1	2009	2	424	212
	Sihanoukville SEZ 2	2008	40	8,967	224
	Sihanoukville Port SEZ	2012	2	416	208
Poi Pet	Poi Pet O'Neang SEZ	2011	2	830	415
Koh Kong	Neang Kok Koh Kong SEZ	2005	4	3,953	988
Total	All Cambodian SEZs	2005	145	67,889	468

SEZ = special economic zone.

Source: Council for the Development of Cambodia, Government of Cambodia. <http://cambodiainvestment.gov.kh/list-of-sez.html>

With regard to climate resilience in this sector, a 2019 government study makes the case for manufacturers to invest in labor productivity measures to adapt to climate change. The study estimates that under a business-as-usual scenario, by 2050, reduced labor productivity from heat stress will account for 57% of all climate-related economic losses in Cambodia. The risk affects all sectors but is particularly high in manufacturing and construction. The study encourages industry measures to address this, such as reducing the need for heavy manual work done at periods of heat stress, improved ventilation, and adjusted work schedules.⁵¹

Sustainable industrialization is well aligned with the National Industrial Development Policy (IDP) 2015–2025, which aims to transform and modernize Cambodia's industrial structure from a labor-intensive industry to a skill-based industry by 2025. This can be achieved by linking with global value chains, integrating into regional production networks, and developing clusters while strengthening competitiveness, improving productivity of domestic industries, and developing modern technologies and knowledge-based industry.

⁵⁰ Consultation meeting with the management of MSEZ in February 2018.

⁵¹ MOE, NCSD, and MEF, "Addressing Climate Change Impacts of Economic Growth in Cambodia," 2019. Accessed October 30, 2019. https://www.climatefinance-developmenteffectiveness.org/sites/default/files/CEGIM_FullReport.pdf

IDP's policy framework contains four pillars that are critical to promoting green economy in cities:

1. Attracting FDI and mobilizing domestic private investment for industrial development, export market development and expansion, and promotion of technology development and transfer.
2. Developing and modernizing SMEs by way of expanding and strengthening the manufacturing base, promoting technology development, and transferring and strengthening industrial linkages between domestic and foreign enterprises.
3. Advancing the legal environment to enhance competitiveness by way of improving the investment climate and promoting trade facilitation, providing market information, and reducing business transactional fees.
4. Coordinating supporting policies such as human resource development, skills training, and industrial relations improvement together with infrastructure development, including transport/logistics system and digital connectivity, electricity and clean water supply, and other supporting services, such as public, social, and financial services.

Clean Energy

Critical to the development of green industry is the use of renewable energy. If we look at the power/energy sector in the year 2018, the electric power supply stood at 2,650.26 mW, of which 64.77 mW was from renewable energy, according to EAC's annual report. About 9,300 million kilowatt-hours per year were used in 2018, an average of 25.5 million kWh per day, according to the Ministry of Mines and Energy (MME). From January to the end of February 2019, power consumption increased to 31 million kWh per day due to a host of new investment projects in the capital. This led to a nearly 400-mW electricity shortage nationwide during the draught season of 2019 and daily power cuts for hours at a time. Cambodia's worsening draughts make it economically crucial to complement current hydro-power capacity with solar energy.

According to EDC's annual report, out of the total energy sale of 6,994 GWh in 2017, 18% was for the industry sector.⁵² It can be expected that the energy consumption in the industrial sector will grow steadily at an annual growth rate of 3.9% until 2035.⁵³ However, both the MSEZ and SSEZ often note that the high cost of electricity and insufficient supply of power for their factories inhibit further growth and expansion. Policies to encourage SEZs to invest in renewable energy will translate into both economic and environmental benefits.

In response to growing energy demand, the RGC has acknowledged the potential of solar energy development. In January 2018, the Electricity Authority of Cambodia (EAC) issued a first Prakas on the general conditions of connecting solar generation to the electricity distribution system or the electricity consumption system under the distribution system of the national grid. This Prakas allows consumers and industries, under certain conditions, to install solar power for additional self-consumption. A revision of the Prakas, incorporating further industry feedback, is underway at the time of writing. In addition, by 2019, the government had approved a pipeline of new solar farms, which will amount to 410 mW by 2022, the equivalent of 20% of the national installed capacity.

Energy efficiency measures could also significantly improve economic productivity while decreasing energy demand and CO₂ emissions. Based on the assessment of the energy efficiency potential for buildings, industry, and transport, the overarching target proposed in the draft National Energy Efficiency Policy is to reduce energy demand by 20% in 2035, relative to BAU. ASEAN experience indicates this is a conservative target and is fully achievable. If Cambodia reaches that target, it would save power generation capacity in the range of 190 mW to 307 mW. High potential sectors for savings would be industry, buildings, and transport. Reaching such a target does not necessarily require investment by the government. Much can be achieved with stronger regulations for energy efficiency. NCS and GGGI analysis shows that businesses that invest in energy-efficient production processes or building can expect a good return on investment, with a short payback time. As a result of more efficiency, these

⁵² Electricite Du Cambodge (EDC). Annual Report 2017

⁵³ Economic Research Institute for ASEAN and East Asia (ERIA), Annual Report 2015

businesses see their productiveness and competitiveness improved. International experience indicates that 25% or more of energy savings can be achieved in buildings simply by using energy-efficient building materials, energy-efficient equipment, and passive design principles. Further, according to international experiences implementing and enforcing energy labels for end user products, appliances and their efficient use can result in energy savings of 32–50%.⁵⁴ In Cambodia, the EU estimates that major industrial sectors (garment, rubber production, brick kilns, food processing, ice making, and rice mills) yield energy saving potentials that range between 25–35%; in particular, brick kilns can potentially save up to 70%. Depending on the future growth rate of the population and GDP and projected trends for energy prices, the achievement of a 20% reduction of demand against BAU by the 2035 target would lower national energy expenditure by USD 540 million, to USD 690 million per year. An improvement in energy efficiency will achieve the stated electrification targets sooner and at a lower cost. As a result, the total economic savings from improving energy efficiency are estimated to reach USD 710 million a year on average, or USD 13 billion cumulatively by 2035. Fossil fuel consumption would decline by 290,000 tons of oil (ktoe) to 460 kte on average per year. CO₂ emissions would be expected to decline by 1.7–2.5 million tons on average per year. The government acknowledges this and has started working on appropriate measures, including creating the Working Group on Guidelines and Certification for Green Building in August 2019, bringing together experts from the government, private sector, and development agencies.

C. Social inclusion

Growth does not automatically translate into opportunities for all. Social inclusion, therefore, is considered one of the key elements to ensure sustainable economic growth. There are urban development gaps between social groups—such as the rich and the poor—and marginalized subgroups—such as children, women, the elderly, people with disabilities, and migrants. These marginalized subgroups are often excluded and disadvantaged in urban development, which can potentially exacerbate discontent and lead to social conflict.⁵⁵ Taking contemporary and future demographic dynamics into consideration, the RGC recognizes the fact

that the consequences of changing demographic dynamics will impact people from all walks of life.

Poverty and access to services

The issue of urban poverty is still highly prevalent in Cambodia. The RGC introduced the National Population Policy 2016–2030, which made “social inclusion” an integral part of population policy. The overall objective of the policy is to contribute to steady improvements in the quality of life of the people of Cambodia and poverty alleviation, with an emphasis on inclusive development that can be achieved through concerted efforts in ensuring sustainable and equitable economic growth, social development, and environmental protection within the national and global development framework.

According to the Progress Report on the Implementation of NSDP 2014–2018 and Achieving CMDGs in 2014, poverty levels have dropped from 47.8% in 2007 to around 14% in 2014, and according to the newly launched National Strategic Development Plan 2019–2023, the poverty rate stood at 9.5% in 2019 and is projected to drop to 5.5% by 2023. Cambodia has also seen a declining level of inequality in human development. The 2017 Inequality-Adjusted HDI shows that the loss in human development due to inequality is 19.4%—considerably better than the global averages for developing countries and medium human development countries.⁵⁶ However, citizens still face significant limitations in terms of access to public infrastructure and services, including in urban areas, as illustrated in table 6.

⁵⁴ International Energy Agency (IEA), 2015. <https://www.iea.org/publications/freepublications/publication/WEO2015.pdf>

⁵⁵ J. L. Baker and G.U. Gadgil, Ed. East Asia and Pacific Cities: Expanding Opportunities for the Urban Poor, (The World Bank, 2017).

⁵⁶ UNDP, Human Development Indices and Indicators: 2018 Statistical Update. Accessed September 20, 2019. <http://hdr.undp.org/en/2018-update>

Table 1.6. Access to public services⁵⁷

City	Number of families living on public land	% of families with access to piped water	% of families with access to improved sanitation	% of families with access to waste collection
Battambang	2,631	55.6	81.1	38.9
Siem Reap	2,962	18	82.6	32.8
Sihanoukville	972	63	83.9	51.4
Kep	14	4.3	39.4	0
Kampong Cham	92	83.6	86.7	56.4
Suong	60	28.8	70.6	10.9
Bavet		7.93	62.2	8

In 2014, the government formulated the Education Strategic Plan to improve the education system and subsequently stimulate the economy. The plan focuses on equal access to education, increasing the quality of the school curriculum, and encouraging teachers and school faculty toward excellence in their roles as educators. With the RGC's resurgence in attention toward the education system, significant progress has been registered in the past decade. In 2016, the number of children enrolled in primary education has increased from 82% in 1997 to over 97% in the school year 2017–18. Cambodia has built nearly 1,000 new schools in the last ten years and has invested significant resources to expand access to a quality education. The government has committed 18.31% of the national budget to education in 2016. Between 1990 and 2017, the mean years of schooling increased by 2.1 years and expected years of schooling increased by 5 years.⁵⁸ However, the quality of education remains a challenge. Cambodia's student-to-teacher ratio is very high compared to neighboring countries, and teachers

are not paid enough to support themselves. Consequently, 47% of third-grade students are unable to read at a third-grade level.⁵⁹

Gender equality

The RCG has introduced national gender policies and guidelines. It has also implemented gender mainstreaming programs to promote gender equality and women's empowerment at the national and subnational levels. Cambodia has strengthened gender parity in education, with girls comprising 48.2% of primary students. Despite this, women remain more vulnerable than men due to disproportionate access to financial resources, land, natural resources, education, health, rights, and development services. Women are also among the marginalized groups that face barriers to meaningful participation in decision-making processes because of social stereotypes and traditional norms.⁶⁰ As shown in the table below, very few women hold leadership roles in their local communities.

⁵⁷ Data compiled from each city's social economic statistics, 2017.

⁵⁸ UNDP, Human Development Indices and Indicators: 2018 Statistical Update. Accessed September 20, 2019.

<http://hdr.undp.org/en/2018-update>

⁵⁹ Julia McCartney, "Improving access to education in Cambodia," last modified August 14, 2017,

<https://borgenproject.org/access-education-in-cambodia/>

⁶⁰ Phearanch Hing, "Women in the Face of Climate Change: the Driving Force for Any Solution," last modified March 8, 2016,

<http://www.kh.undp.org/content/cambodia/en/home/presscenter/articles/2016/03/08/women-in-the-face-of-climate-change-the-driving-force-for-any-solution.html>

Table 1.7. Women in decision making⁶¹

City	Village Chief			Commune Council		
	Male	Female	% of Females	Male	Female	% of Females
Battambang	62	9	14.5	100	19	19
Siem Reap	99	6	6.1	94	21	22.3
Sihanoukville	19	1	5.3	47	8	17
Kep	11	0	0	14	2	14.3
Kampong Cham	32	5	16.5	36	9	25
Suong	30	1	3.3	20	6	30
Bavet	35	0	0	29	4	13.8

The World Bank reports that Cambodia's high female labor force participation outpaces other countries in the region. An estimated 80% of Cambodian women aged 15–64 worked for at least an hour in the previous week, compared to an average of 66% for women in East Asia and the Pacific. Nearly 23% of Cambodian women worked in the manufacturing sector in 2015. In 2016, 42% of working women held paid occupations, almost half of which were in the garment sector. Even so, many of Cambodia's working women are not covered under provisions of the labor law. Though women have been most visible as the engine of the formal garment industry, their participation is growing in private wage employment in services (such as hospitality and education), agriculture, and construction. In these sectors, their participation remains largely informal. For instance, more than 500,000 female workers are in the informal wage employment sector in the services and construction sectors. Women in these informal sectors lack the protections afforded to workers in large garment factories, such as maternity protection, workload burden, wage, breastfeeding, and childcare, among others.⁶²

Affordable housing

According to the government's 2014 National Housing Policy, by 2030, Cambodia's population will need an extra 1.1 million homes to meet demand, many of which will be located in low- and middle-income communities. The policy states that all citizens have the right to adequate housing and provides options to ensure land tenure and security. Habitat for Humanity Cambodia estimates that 20% of the population lives in slums.⁶³ To incentivize the development of affordable housing, the Cambodian government adopted incentives in 2017 for developers of affordable housing projects, including special rates for paying income tax, property tax, and VAT as well as simplified bureaucratic procedures for obtaining construction permits and business licenses. While these incentives target the Phnom Penh area, similar approaches would be welcome in other big cities. The lack of affordable housing in Siem Reap and Battambang, for example, has resulted in thousands of poor households to illegally occupy public land (see table 6). GGGI research illustrates the strong potential for using low-carbon and locally sourced material in the development of affordable housing.⁶⁴

⁶¹ Data compiled from different sources of each city's social economic statistics.

⁶² Ly, Sodeth; SanchezMartin, MiguelEduardo; Phim, Runsinarith; Ky, Linna; Tong, Kimsun; Provo, AnneMarie; Nagpal, Somil; Vashakmadze, EkaterineT..2019. Cambodia Economic Update: Recent Economic Developments and Outlook (English). Cambodia Economic Update. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/843251556908260855/Cambodia-Economic-Update-Recent-Economic-Developments-and-Outlook>

⁶³ Habitat for Humanity Cambodia, Annual Report, 2016.

⁶⁴ GGGI, "Meeting Global Housing Needs with Low Carbon Materials," GGGI Technical Report no. 4 (2019).

Transport

As of 2017, the Cambodian road network covered more than 57,000 km. The national roads are mostly primary road networks linking Phnom Penh to provincial capitals and important centers of economic activity. Between 1997 and 2015, vehicle registrations grew, with an average annual growth of 11.3% for cars, vans, and trucks and 21.8% per year for motorbike registrations. In 2015, the total number of registered vehicles was estimated at 2,300,000 for motorbikes, 159,000 for cars, and 72,000 for vans/trucks/buses. In the same year, the transport sector represented over 45% of final energy consumption in Cambodia, entirely from imported petroleum products (35% gasoline, 57% diesel, and 6% LPG). In 2000, the transport sector accounted for less than 3% of national GHG emissions. While a fully updated national GHG inventory is not yet available at the time of writing, a 2016 inventory for the transport sector showed an average annual growth in transport emissions of 12.8% per year. NCS D points out that these trends indicate the challenge for Cambodia to promote continued economic growth, ensuring access to means of transportation for all in an environment where public transport is still limited and, at the same time, minimizing energy demand, reducing energy dependency, and managing the impacts of the transport sector on air pollution, human health, and climate change.

While road networks and vehicle ownership grow, Cambodian cities increasingly lack walkable and accessible pathways, public transportation, and green spaces. This especially undermines the accessibility of cities in Cambodia for citizens. Rather than being places where people can access services and connect with communities, Cambodian cities are increasingly difficult places to navigate.

Citizen participation

The public's participation is an important driver of urban sustainability. In Cambodia, however, citizen participation in city development is limited. Cambodia is one of the East Asian countries with the most centralized governance structure, which limits the public's involvement in governance and urban planning at the subnational level.⁶⁵ Although Cambodia has introduced legal interventions that encourage participatory planning, the adoption and enforcement of those interventions is slow. There is no clear mechanism to encourage public involvement in the process of urban planning and city development at the subnational level.

D. City governance

Municipal governments play a central role in promoting sustainable city development. They set the overall direction for their municipalities through long-term planning, including setting the vision and ensuring that it will be achieved. Local governments are also responsible for managing and delivering a range of quality services to their communities, such as health and education, road maintenance, and public space. Local governments legislate and make decisions in areas over which they have legislative authority. They are responsible for enforcing local laws and other relevant legislations. Local governments also represent their local community and advocate on behalf of their constituencies to state and federal levels of government, statutory authorities, and other sectors.

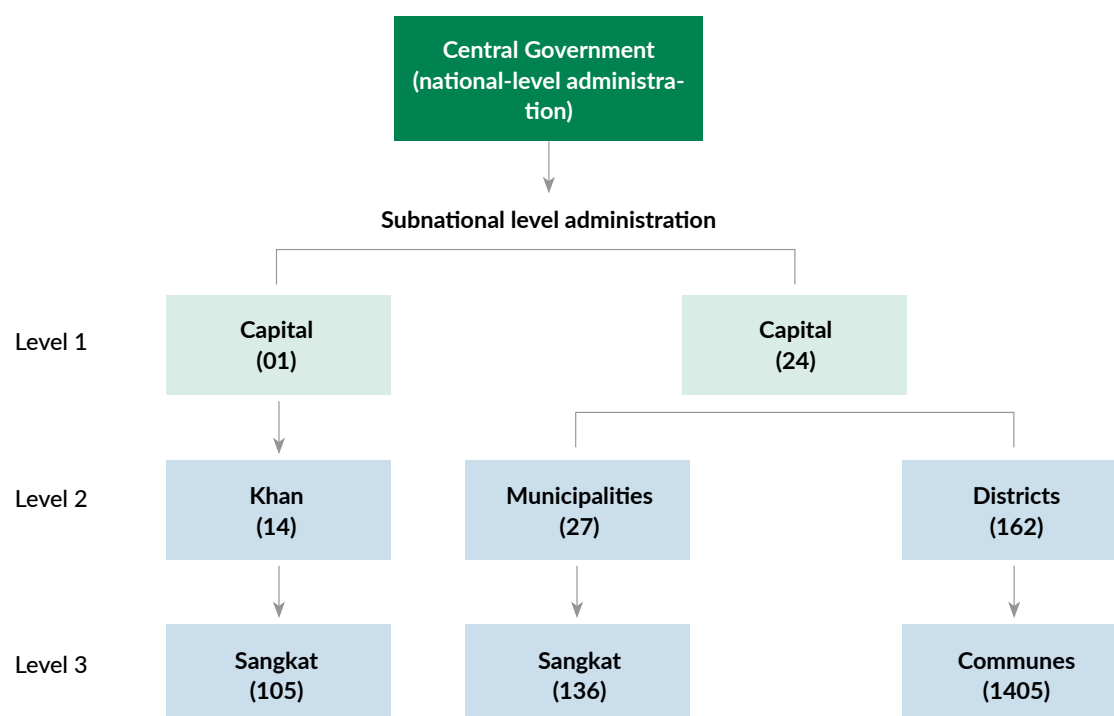
According to the Organic Law on Administrative Management of Capital, Provinces, Municipalities, Districts and Khans (2008), the subnational governance structure of Cambodia is categorized into three tiers: 25 provinces and the capital region form the top layer, 197 municipals and districts/khans represent the second tier, and 1,646 communes and sangkats make up the lowest tier.

To effectively carry out these roles, city governments require strong support from the provincial and national governments. To empower local administration, the government of Cambodia has implemented the 10-Year National Program for Sub-National Democratic Development (NP-SNDD, 2010–2019). This provides a roadmap for the implementation of decentralization and deconcentration reform, aimed at improving management systems of subnational administration. It is based on the principles of "democratic participation" to promote local development and the delivery of public services that meet the needs of citizens and contribute to poverty reduction.

The first phase of the program was completed successfully in 2014 with the development of key systems and legal instruments, including procedures to guide the operation of councils, the development of the district/municipality (DM) fund, and the financial management systems needed to support it; a program for social accountability; a draft statute to decentralize HR management and development; and initial procedures for implementing a compliance inspection process.

⁶⁵ J. L. Baker and G.U. Gadgil, Ed. *East Asia and Pacific Cities: Expanding Opportunities for the Urban Poor* (The World Bank, 2017).

Figure 1.4. Schematic representation of Cambodia's subnational-level structure



While progress has been made, subnational administrations still face human and financial resource constraints that directly affect their capacity to fulfill their role in urban and national development. In 2016, the Sub-National Administration was allocated a total budget of USD

343 million. Of this, USD 225.8 million was for the capital/province budget, USD 24.4 million for district/municipal funds, USD 76 million for commune/sangkat funds, and USD 16.6 million for conditional grants from the government (table 8).⁶⁶

Table 1.8. Sub-National Administration Budget⁶⁷

Sub-National Administration Budget (in USD million)			
	2014	2015	2016
Capital/province budget	158.23	186.15	225.8
District/municipal funds	17.5	19.19	24.4
Commune/sangkat funds	58.58	67.15	76
Conditional grant from RGC	0	5	16
Total	233.55	278.3	342.9

⁶⁶ Both capital/province budget and district/municipal funds are allocated at a rate of 1% of the current national revenue, 76% for the administrative component, and only 24% for the development component. Commune/sangkat funds, on the other hand, are allocated at a rate of 2.8% of the approved annual national budget of the previous year, one third of which is to be used for administration purposes.

⁶⁷ Data compiled from NCDD annual reports.

In general, most of the annual subnational budgets (over 70%) are used to cover staff salary and operational costs. This leaves only a very small percentage for the local development of needed services and infrastructure, such as solid waste collection and wastewater treatment facilities. As a result, investment in these essential projects always relies on the development partner's funding and contributions from the relevant ministries. If Cambodia's cities are to transform to greener and more sustainable futures, the revenue and resource base of urban authorities must be enhanced.

In addition to the budget constraints, the institutional capacity of subnational administrations remains limited for dealing with emerging urban issues and reform initiatives. A lack of staff is common at the municipal level, especially for less-developed cities, such as Suong and Bavet. Subnational administrations are also not able to attract the best-skilled and highly motivated staff to work with them due to low salaries and a lack of incentives. Better facilities; more advanced computerized, "smart" information; revenue collection systems; an improved scope for service delivery; and the development of positive attitudes to serve the public are needed.

There is also a lack of institutional coordination at the subnational level. At the provincial/municipal or city level, the sector departments execute policies and plans that were formed by line ministries and institutions at the national level. The structure is therefore hierarchical and lacks coordination in planning, budgeting, and personnel management. The city mayor is delegated powers by the national level to coordinate, promote, and guide the objectives of the departments in the province/municipality in accordance with the policies of the government. At the municipal/city level, coordination among sectors is generally weak, and accountability remains upwards. Better coordination and cooperation among cities could help strengthen human capacity and make more efficient use of scarce financial resources.

Cambodian cities could benefit from smarter technologies, systems, and approaches in meeting its current and future urban needs. Increasingly, cities are looking to become "smarter" and "greener." In the context of Cambodia, smarter systems and approaches can be developed to support improved service provision (for example, through communication apps between households and providers), infrastructure (to support waste management collection and separation), and information for citizens (including emerging public transport and other transport solutions) as well as provide data to planners to more effectively plan

and provide for the country's growing urban population. Technology is only a means to an end, however. A smart green city is well governed, inclusive, manages its eco-resources sustainably and, with the help of ICT, is able to provide efficient, affordable, and effective services to all.

1.3.2 Strategic Objectives

Based on the assessment in the section above, the national and local government institutions agreed on 12 proposed objectives to achieve sustainable city development, corresponding with the vision and four goals described earlier under "Vision and Goals" in section II. Below are these four goals described in greater depth:

1. Integrated urban planning and green infrastructure development

- Integrate sustainable urban planning and design, encompassing the land use master plan and land use planning and zoning.
- Develop sustainable urban infrastructure for sewerage and drainage systems, solid waste management, water supply, transport, communications, and energy supply—including through resilient grey-green and decentralized models.
- Develop efficient management for hazard risk mitigation, climate change adaptation, and disaster preparedness and response.

2. Green local economy

- Increase the share of renewable energy and improve energy efficiency in cities, encompassing industry, building, and households.
- Strengthen ecotourism in cities through the protection and promotion of natural assets and cultural heritage.
- Develop a stronger enabling environment for green businesses and enterprises.

3. Social inclusion

- Provide equitable access to public infrastructure and basic services for disadvantaged urban communities.
- Increase education, affordable housing, and decent employment opportunities for the urban poor.
- Engage all stakeholders—in particular, marginalized groups—in decision making.

4. City governance

- Improve city's financial capacity to implement sustainable city projects.
- Strengthen institutional capacity and human resources at the city level.
- Promote information, knowledge, data, and best practice sharing within and among cities.

1.4. Priority Actions

The following priority actions are proposed based on direct consultation with cities as well as knowledge sharing and reviews from international experience. For instance,

GGGI drew upon its practices in sustainable city planning and project development in secondary cities in Nepal, Senegal, and Rwanda.⁶⁸ Actions are grouped into short- (< 5 years), medium- (5–10 years), or long-term (10–15 years) initiatives and include actions for both national and city governments. Actions from the national government can create an enabling environment for the cities to promote green growth. Using Multi Criteria Analysis (MCA) and multi-stakeholder consultation, the priority actions are identified and grouped according to the 12 objectives. The proposed ideas are applicable to many Cambodian cities, so each city can choose the most relevant ideas to implement based on their actual circumstances.⁶⁹

Objective 1: Integrate sustainable spatial planning and design, encompassing the land use master plan and land use planning and zoning

No.	Actions	Lead Institutions	Time Fame
1	Develop/finalize city's master plan and land use master plan and strengthen the green growth perspective	Province / City MLMUPC	Medium term
2	Identify existing neighborhood areas for prioritization of infrastructure upgrading	Province / City MPWT	Medium term
3	Introduce zoning to safeguard and protect blue/green corridors ⁷⁰ in cities	Province / City MLMUPC	Medium term
4	Develop a transport master plan for the city, including public transport	Province / City MPWT	Long term
5	Introduce more pedestrian areas and cycle pathways for the city and enforce laws and regulations to return sidewalks to pedestrians	Province / City MPWT	Medium term
6	Allocate land for informal settlement upgrading (urban land reserves) to improve land tenure and housing supply for the urban poor	Province / City MLMUPC	Medium term
7	Upgrade local port infrastructure and transportation hubs to improve accessibility and safety for local citizens and tourists	Province / City MPWT	Long term
8	Plan for and promote the protection of ecological hotspots in the city	Province / City MoE	Medium term
9	Introduce clear industrial clusters to separate residential development areas from industrial activities	Province / City MISTI	Medium term

⁶⁸ FORNEWA, "Rwanda shares green city development experience at Global Green Growth Week in South Korea," last modified July 9, 2016, <http://www.fonerwa.org/blog/rwanda-shares-green-city-development-experience-global-green-growth-week-south-korea>

⁶⁹ Each priority action requires a more in-depth study, as some need to have (pre)-feasibility studies on the current situation, socio-economic status, and geographical level in order to develop effective implementation plans and strategies. Priority actions that require external financing or investment from the private sector also need to be developed into bankable projects.

Objective 2: Develop sustainable urban infrastructure for the sewerage and drainage system, wastewater management, solid waste management, water supply, and transport

No.	Actions	Lead Institutions	Time Frame
1	Improve municipal solid waste management through increased planned collection frequency and collection coverage and community engagement	Province / City NCSD / MoE Waste collection company	Short term
2	Upgrade existing landfills to better manage environmental impacts, such as leachate and gas. Develop new landfills with appropriate technical standards	Province / City NCSD / MoE / MPWT	Short term
3	Develop separation and recycling facilities for both solid inert waste (glass, plastic) and organic waste	Province / City NCSD / MoE / MPWT Waste collection company	Short term
4	Facilitate community-based participation in waste recycling programs through incentives and waste separation in households and businesses. Educate community on waste minimization practices (e.g., reducing the use of single-use items, such as plastic bottles and plastic bags)	Province / City MoE, MEYS	Short term
5	Establish carefully planned waste-to-energy facilities (e.g., anaerobic digestors, refuse-derived fuel, or incinerators with appropriate environmental controls)	Province / City MME, MoE Private company or PPP	Long term
6	Develop decentralized wastewater treatment systems in peri-urban areas	Province / City MPWT	Short term
7	Develop and rehabilitate sewerage and drainage network and bioretention solutions and improve fecal sludge management	Province / City MPWT	Short term
8	Construct or expand centralized sewage treatment plant in highly populated areas	Province / City MPWT	Medium term
9	Mandate industrial and commercial areas to construct pretreatment plant for wastewater (before discharging into the system) as required by the law	Province / City MPWT, MISTI Private sector	Short term
10	Develop sustainable transport infrastructure in the city, including public transport and electric vehicles	Province / City MPWT	Long term
11	Study and develop public transport and parking areas. Introduce rules and regulations for on-street parking	Province / City MPWT	Medium term
12	Improve sidewalk in city centers	Province / City MPWT	Medium term
13	Expand sewerage system and piped water supply network	Water supply authority/agent	Short term
14	Increase the percentage of climate-resilient paved roads	Province / City MPWT	Medium term

⁷⁰ Blue corridor: an idea of an urban environment, planned around watercourses, with an overland flow path and surface water ponding areas to create a network of urban corridors designed to facilitate natural hydrological processes. Green corridor: an idea of an urban environment, planning on land uses that connect fragmented habitats.

Objective 3: Develop efficient management for hazard risk mitigation, climate change adaptation, and disaster preparedness and response

No.	Actions	Lead Institutions	Time Frame
1	Establish and monitor air quality data at the city level	Province / City MoE	Long term
2	Develop a city-specific disaster management plan and set up a disaster management response team	Province / City NCDM / Cambodia Red Cross	Medium term
3	Mainstream vulnerability assessments and climate change adaptation into city's infrastructure development (e.g., build climate-resilient roads and ecological buffers in coastal zones)	Province / City MPWT, MoE	Short term
4	Introduce community-based disaster risk reduction planning at commune and village levels to prepare for hazards (fires, floods, storm surges, etc.).	Province / City NCDM	Long term
5	Protect communities against natural and development-induced flooding by providing flood management systems (ecological buffers, bio-retentions systems, wetlands, and blue/green corridors)	Province / City MoE	Short term
6	Plant more native green trees in the city to reduce the urban heat island effect and for beautification	Province / City MoE	Short term
7	Strengthen local fire brigade and emergency services and require all new buildings to have a fire emergency plan	Province / City NCDM	Short term
8	Improve onsite upgrading of urban poor housing to strengthen the resilience of houses against flood risks and other natural hazards	Province / City MLMUPC	Medium term
9	Expand/upgrade small access roads in the city to allow for emergency services to access communities	Province / City MPWT	Short term

Objective 4: Develop renewable energy and energy efficiency markets in cities, encompassing industry, building, and households

No.	Actions	Lead Institutions	Time Frame
1	Install energy-efficient streetlights (e.g., LED solar lights)	Province / City / MME	Short term
2	Promote renewable energy for heating and cooking in households (including sustainable charcoal, solar water heaters, solar rooftops)	Province / City MME / private sector	Short term
3	Develop renewable energy options for businesses, particularly for hotels and restaurants	Province / City MME, MISTI	Medium term
4	Introduce energy efficiency practices and the usage of renewable energy in public buildings	Province / City MLMUPC, MME, MoE	Medium term
5	Set and enforce high standards for energy efficiency in appliances and machinery	MME / MISTI / MoE	Medium term

No.	Actions	Lead Institutions	Time Frame
6	Promote fossil fuel-free forms of transport—such as electric buses, electric cars, and solar tuk-tuks—and through improved bicycle and pedestrian lanes	Province / City MPWT	Medium term
7	Develop off-grid and mini-grid renewable energy projects (solar PV, biomass, wind, etc.)	Province / City EDC & EAC, MME	Medium term
8	Improve energy efficiency in industrial activities, particularly garment, food and beverage, ice making, brick, and cement through regulation, promotion, and raising awareness of energy savings in factories	MISTI / Private sector	Short term
9	Showcase and promote clean technologies and improved industrial practices for industrial processing that reduces energy consumption and reduces reliance on wood fuel	MISTI	Short term
10	Provide incentives to businesses that utilize green technologies and practices by investing in energy efficiency and renewable energy (e.g., green awards)	Province / City MME, MISTI	Short term

Objective 5: Strengthen ecotourism in cities through the protection and promotion of cultural and natural assets

No.	Actions	Lead Institutions	Time Frame
1	Strengthen the protection of cultural (e.g., heritage buildings) and natural attractions	Province / City MoT	Short term
2	Promote Cambodia as a global ecotourism destination to attract international tourists and investments	Province / City MoT	Short term
3	Develop and operationalize a comprehensive ecotourism strategy, including marketing a strategic plan for each of the tourism-focused cities (Sihanoukville, Siem Reap, Battambang, etc.)	Province / City MoT Private sector	Medium term
4	Develop a network of cities within sustainable ecotourism, cultural tourism, and natural tourism to exchange experiences and launch joint promotion initiatives	Province / City MoT	Short term
5	Develop and streamline policies and procedures on ecotourism investments	Province / City MoT	Medium term
6	Develop ecotourism support infrastructure/facilities	Province / City MoT	Medium term
7	Greening of hotels to improve their sustainable waste management and resource efficiency (reduce water and energy consumption and promote the use of more local building materials)	Province / City MoT, MoE, NCSD	Short term
8	Improve monitoring of environmental quality—including water quality and local biodiversity—and promote the results to the local community and tourists	Province / City MoT, MOE, NCSD	Short term

Objective 6: Develop an enabling environment for green businesses and enterprises, including in handicrafts, manufacturing, and organic products

No.	Actions	Lead Institutions	Time Frame
1	Strengthen “One Village One Product” ⁷¹ movement by focusing on green handicraft products	Province / City, MISTI, MoT	Short term
2	Establish organic farmers’ market	Province / City MAFF	Short term
3	Support green SMEs to gain better access to finance to develop green products and services (i.e., set up a one-stop shop for business advice)	Province / City MISTI	Short term
4	Green SEZs, including through promoting renewable energy/energy efficiency in services, buildings and production processes, controlling water pollution, and managing liquid and solid industrial waste as well as employee well-being	Province / City CDC, MoE, MME, MISTI	Short term
5	Develop policy to support organic and urban farming (particularly on certification of organic products)	MAFF / NCSD	Medium term
6	Promote and facilitate value-added agricultural processing	Province / City MoC	Medium term
7	Establish regulations and incentives to stimulate green growth investment and technology transfer	CDC / MISTI	Medium term
8	Introduce more vocational training in green technology and green businesses at universities and training centers (e.g., solar technicians, energy efficiency, green product certification)	Province / City MEYS / MLVT	Short term

Objective 7: Provide equitable access to public infrastructure and basic services for the disadvantaged communities

No.	Actions	Lead Institutions	Time Frame
1	Identify and address gaps in service delivery (waste supply, housing, waste collection, electricity, etc.), particularly to poor communities and vulnerable groups	Province / City Line Ministries	Short term
2	Scale up the affordable housing program and provide social services to disadvantaged groups living in urban areas	Province / City Line Ministries	Medium term
3	Establish community-based waste collection and sanitation projects in urban slum areas	Province / City Line Ministries	Short term

⁷¹ The One Village One Product movement is an economic concept and approach in transforming local products into competitive products in local, national, and global markets. The concept started in Oita Prefecture, Japan, in 1979, and became one of the successful regional economic programs. The RGC, as one of the ASEAN members, has embraced this concept for Cambodia’s local products since 2010 and developed the National Policy on Promotion of One Village, One Product Movement 2016–2026, which aims to promote the development of the production chain for village- or community-based goods or services, including the production, processing, packaging, and development of one or more products to create added value.

No.	Actions	Lead Institutions	Time Frame
4	Establish a social insurance scheme that will ensure that each citizen has equal rights to basic services such as health care	Province / City MoSAVY, MoH	Medium term
5	Plan resettlement areas with appropriate and sustainable housing, energy, water, sanitation and transport services, green areas, and protection against heavy rains and flooding	Province / City MLMUPC	Medium term
6	Educate the disadvantaged communities about their rights, available services, and means to access the services for promoting a more equitable society	Province / City MEYS	Medium term
7	Introduce land titling and rental cooperatives that facilitate community-based land titling and increase access to housing for the urban poor	Province / City MLMUPC	Short term

Objective 8: Provide educational and employment opportunities for the urban poor

No.	Actions	Lead Institutions	Time Frame
1	Establish affordable childcare facilities so that parents can attend skill training or go to work	Province / City MLVT	Short term
2	Increase investment in the informal education system to benefit the urban poor, such as offering skill/language training to the urban poor	Province / City MEYS	Short term
3	Facilitate public and other forms of transport from poor residential communities/areas to workplaces	Province / City MPWT	Short term
4	Conduct business training to enhance skills in hospitality (including tourism), handicrafts, and organic farming as well as SME management, accounting, etc.	Province / City MoT, MISTI, MLVT	Short term
5	Create job opportunities for the urban poor in public and private investment projects, including in infrastructure, waste management, tourism, and manufacturing	Province / City Line Ministries	Medium term
6	Facilitate home-based work, such as in handicrafts and manufacturing, to improve access to employment for women	Province / City MISTI, MWA, MLVT	Short term
7	Organize informal sectors (tuk-tuk drivers, tour guides, et chai) to promote improved working conditions and better access to services for tourism	Province / City MoT	Short term
8	Promote and incentivize local businesses (e.g., hotels) to provide improved training opportunities and contribute to community development (e.g., through CSR practices) through a local/national awards scheme	Province / City Line Ministries, NCSD	Short term
9	Engage students in sustainable development through an eco-school program	Province / City MEYS, MoE	Short term

Objective 9: Engage all stakeholders, in particular the marginalized groups, in the decision making of the cities

No.	Actions	Lead Institutions	Time Frame
1	Organize public consultation for all city development projects, including private sector projects, as a requirement of the Environmental and Social Impact Assessment (ESIA)	Province / City Line Ministries	Short term
2	Increase capacity of relevant city officials in facilitating public consultation, including involving poor and marginalized groups	Province / City Mol	Short term
3	Increase share of women in decision-making roles	Province / City MWA, Mol	Short term
4	Strengthen the sense of ownership by engaging all stakeholders to get involved in consultation and decision making and by securing a proper gender balance among the involved stakeholders	Province / City Mol	Short term
5	Establish policy to allocate funding to support public consultation	Province / City Mol, MEF	Short term
6	Improve the efficiency of public participation by increasing knowledge awareness of the citizens	Province / City Mol	Short term

Objective 10: Improve city's financial capacity to implement sustainable city projects

No.	Actions	Lead Institutions	Time Frame
1	Increase subnational budget to allow for city's implementation of green city projects	Province / City MEF, Mol	Short term
2	Strengthen financial performance to gain higher creditworthiness for the city, allowing for better access to finance	Province / City MEF, Mol	Short term
3	Improve city's revenue collection, such as fees for public services (particularly for wastewater and solid waste)	Province / City MEF	Short term
4	Develop projects where additional investment can be obtained via public-private partnerships	Province / City MEF	Short term
5	Enable certain tax collection at the subnational level, such as property tax, to strengthen the local budget	Province / City MEF, Mol	Medium term

Objective 11: Strengthen institutional capacity and human resources at the city level

No.	Actions	Lead Institutions	Time Frame
1	Identify capacity gaps and needs and close those gaps by providing training or capacity building	Province / City Line Ministries	Short term
2	Raise awareness among city management and staff as well as enhance understanding of the sustainable city vision, goals, and objectives and the relevance of related specific actions	Province / City MoI, MoE, NCSD	Short term
3	Enhance knowledge and skills of technical staff of how to oversee, manage, install, operate, and maintain the technologies that are part of a sustainable city infrastructure	Province / City MoI, MPWT, MoE, NCSD	Short term
4	Develop sustainable city programs/projects to encourage the use of skills and knowledge acquired from trainings and/or capacity development	Province / City Line Ministries	Short term
5	Improve the performance of public services by offering incentives to staff members who have contributed greatly toward the city's sustainability	Province / City Line Ministries	Short term
6	Increase the decentralization of power and resources from the local government	Province / City Line Ministries	Medium term

Objective 12: Promote information, knowledge, and sharing best practices among cities

No.	Actions	Lead Institutions	Time Frame
1	Organize regular (annual) meetings among cities to share information and experiences on sustainable city development	Province / City MoI	Short term
2	Create an intercity electronic information hub and/or chat group (e.g., using Telegram or WhatsApp), where cities regularly post their news and share information on their sustainable city experiences	Province / City MoI, MoE, NCSD	Short term
3	Develop joint information and outreach activities to create national and international visibility on sustainable city development in the involved cities	Province / City MoI, MoE, NCSD	Short term
4	Develop a comprehensive knowledge management strategy on sustainable city development	Province / City MEYS	Short term
5	Build linkage and set up a formal process to integrate and update city-specific data with national measuring, reporting commitments to international organizations to quantify progress under the Paris Climate Agreement, UN SDGs, etc.	Province / City MoP, MoE, NCSD	Medium term
6	Strengthen the Clean City awards scheme to expand to clean, green, and sustainable city development and incorporate additional indicators of progress on sustainable city development	Province / City MoT, MoE, NCSD	Medium term
7	Develop and implement a partnership strategic plan between secondary cities and cities in other countries (build sister city relationships)	Province / City MoT, MoE, NCSD	Long term

1.5. Implementation Arrangements

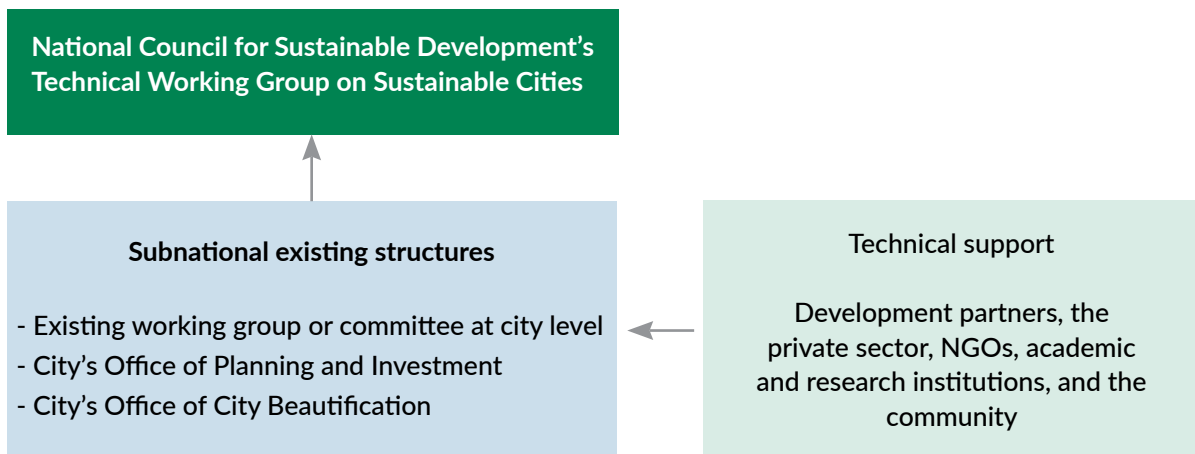
The Sustainable City Strategic Plan is developed to build an overall understanding and provide strategic direction and guidance to city governments to integrate the principles of green growth and sustainability in their respective city development and investment plans. This section describes a proposed coordination mechanism and structure at the national and subnational levels to oversee the integration of such principles.

The figure below shows the proposed coordination mechanism within the key institutions that are already

established and functioning at both national and subnational levels:

- At the national level, the NCSD’s Technical Working Group on Sustainable Cities should play a leadership role to oversee the implementation.
- At the municipal level, the existing working group or committee or relevant offices, such as the Office of Planning and Investment and/or Office of City Beautification within each municipality, should be the implementer of the plan and report to the national level.

Figure 1.5. Proposed implementation arrangement within the existing structures



National level: NCSD’s TWG on Sustainable Cities

NCSD is an inter-ministerial body comprising of high-level representatives (secretaries and under-secretaries of state) of concerned government ministries and agencies, with the prime minister as its honorary chair and the minister of environment as its chair. NCSD’s main role is to formulate, direct, and evaluate policies, strategic plans, action plans, legal instruments, programs, and projects related to sustainable development.

The Technical Working Group (TWG) on Sustainable Cities was set up in 2019 under the NCSD framework in response to the need for sustainable and comprehensive development of cities in accordance with Article 10 of Sub-Decree No. 59 SD, dated May 18, 2015, regarding the organization and functioning of the secretariat general of the National Council for Sustainable Development (NCSD).

The vision of TWG on Sustainable Cities is to accelerate city developments in compliance with national policies on green development as well as strategic plans for green development of the Royal Government in the economic sector. This is to be achieved by holistically taking into account environmental and social development, including climate change and natural disasters, energy saving and efficiency, welfare, and equitable city services as well as poverty reduction through the improvement of people’s living conditions.

TWG on Sustainable City consists of (1) secretariat of NCSD; (2) Ministry of Interior; (3) Ministry of Planning; (4) Ministry of Economy and Finance; (5) Ministry of Land Management, Urban Planning and Construction; (6) Ministry of Public Works and Transport; (7) Ministry of Mines and Energy; (8) Ministry of Environment; (9) Ministry of Industry, Science, Technology & Innovation; (10) Ministry of Water

Resources and Meteorology; (11) Ministry of Tourism; (12) Ministry of Education, Youth, and Sport, (13) Ministry of Rural Development, (14) Ministry of Culture and Fine Art, (15) Council for the Development of Cambodia; (16) Phnom Penh Municipality and the fourteen districts/khan as well as relevant departments, and (17) representatives from seven provincial administration. The next stage is to include other provincial administration. The secretariat of the TWG will be supported by Department of Green Economy.

The Technical Working Group on Sustainable City has the following responsibilities:

- Participating in coordinating and commenting on development of policies, framework, and approaches for sustainable cities strategic planning at national and sub-national levels, including but not limited to sustainable cities strategic plans, sectoral action plans, investment plans for sustainable cities development, land use plans, green infrastructure investment, green transport, solid and liquid waste management, energy efficiency, and renewable energy use at cities and towns;
- Incorporating green development concept into city or town development processes in the Kingdom of Cambodia, including city or town planning, city vulnerability, transport, environmental waste, manufacturing sector, solid and liquid waste management, green public space, and cultural heritage;
- Providing key inputs for integrating sustainable cities development into investment law of Cambodia, legal instruments relevant to construction, land use management, and city or town planning;
- Participating in providing comments on planning of fiscal and non-fiscal policies and mechanisms and finance to the Royal Government to encourage private sector to develop green investment projects;
- Proposing and commenting on development of criteria and instructions for green buildings, construction material use, and in-side building, considering resource effectiveness, welfare, efficiency, safety, and economic and environmental benefits, as well as certification for green constructions following Cambodia's standard such as residential, public administrative, commercial buildings, super markets, and providing support and coordination for good environment in green construction investment;
- Cooperating and promoting development of a green business model and project proposals to mobilize budgets from international financial institutions for implementation of sustainable cities development projects;
- Reviewing and compiling guiding documents on sustainable cities development guidelines, based on existing Asian sustainable cities guidelines;
- Identifying priorities and workplan for SCTWG;
- Performing a role as technical focal point for its ministry or institution to coordinate in reviewing, compiling, and implanting policies, strategies, action plans, and programs to ensure the strengthening of sustainable cities implementation;
- Accepting additional work as instructed by head of the National Council for Sustainable Development;
- Coordinating and regularly reporting to members of NCSD in its ministry or institution.

Implementation arrangement at subnational level: it should be noted that many cities already have an existing working group or committee with a similar mandate, such as the Provincial Working Group on Clean City Assessment (PWGCCA) and Sub-National Committees on Land Management and Urban Planning. Cities, therefore, can consider expanding the scope and membership of the existing mechanism and transform it into a Sustainable City Committee for the implementation of the Strategic Plan.

The coordination mechanism at the subnational level should have the following roles and responsibilities:

- Set city-specific targets and indicators for the priority sectors and integrate these into annual reporting to MoI
- Collect baseline data for the priority sectors
- Integrate green investment projects into the municipality's 3-year rolling investment plan
- Develop budget and resource mobilization plans to implement the investment projects
- Set up a platform to engage stakeholders throughout the whole implementation process
- Prepare an annual progress report to be submitted to the NCSD's TWG on Sustainable Cities
- Integrate green city indicators in the annual MOI's M&E existing mechanism

Stakeholder engagement is key to effective and inclusive sustainable city development. Therefore, it is crucial that an enabling environment is set up to promote public participation in the implementation of the Strategic Plan. Regular public forums, debates, and discussions should be organized to collect input from development partners, the private sector, NGOs, academic and research institutions, and the community. The city can consider appointing an NGO or private sector partner to be a representative of the Sustainable City Working Group.

1.6. Financial Resources

There are financing options cities can access for their green projects: through domestic resources (national and subnational budgets); international finance, such as the Green Climate Fund (GCF); the Global Environment Facility (GEF), and low-interest loans from development banks, such as the Asian Development Bank (ADB), World Bank (WB), and development partners. Cities can also leverage their own-source revenue with support from MEF and Mol and/or catalyze private sector investment or promote public-private partnerships for green project development. Although investments in resource-efficient and climate-resilient projects usually involve higher upfront costs, their overall life-cycle cost is typically lower. In addition, they can offer many social and environmental benefits over a long period of time.

1.6.1. Domestic Resources

Although efforts have been made in fiscal decentralization reform for the past decade, the RGC has not yet achieved its mission for fiscal decentralization, and it is observed that the government still has some forms of centralized fiscal management.⁷² Public investment programs and fiscal planning are carried out at the central level, and implementation is overseen by national ministries. Since 2005, RGC has taken actions to gradually devolve some responsibilities and resources to local governments through the execution of the D&D program and Law on Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans (highlighted in the earlier chapter on city governance). Although provinces and municipalities are responsible for the provision of urban services, their budget and investment decisions are made in a top-down

approach. The Law on Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans states that each subnational council shall have appropriate financial resources in order to administer and perform its obligatory functions (Article 242). It also says that the capital, provincial, municipal, and district councils have the right to receive revenue from local, national, and other sources of revenue in accordance with the Law on Financial Regime and Management of Assets of Subnational Administrations (Article 244). Under D&D reform, communes and sangkats have established locally elected council committees that approve 3-year investment plans. There are 1,646 communes and sangkats across Cambodia. Their total expenditure accounts for only 2.5% of the national annual budget expenditure. Their revenue and income mostly depend on national budget transfers, of which 80% is used for recurrent expenditures, such as operational costs and staff salaries. Projects and activities listed in the 3-year rolling investment plan are usually micro and small projects or too big for the available capital budget. Projects included in the investment plan often lack preparatory work, such as prefeasibility or feasibility studies, land acquisition, or detailed costing. MEF is responsible for carrying out cost-benefit analysis and project appraisal for capital investment projects in coordination with relevant line ministries. However, given limited personnel numbers and capacity, not all projects are appraised.

Provinces and municipalities are under the authority of the national government and line ministries, particularly through representatives of Mol. Capital investments are planned at the national government level and implemented through line ministries with involvement of local government officials. Table 9 describes the involvement of local governments in the annual budget cycle.

All tiers of local government are prohibited by the Law on Public Finance System (2008) to borrow, create any budget deficit, increase taxation, or create new taxation. This is a common practice for many developing countries, where national governments seek to ensure nation-wide fiscal discipline and prevent local governments from overspending or overborrowing, mostly because of their poor financial liquidity and inadequate capacity to manage and repay debts. The Ministry of Economy and Finance (MEF) and respective line ministries are responsible for fiscal planning for major capital infrastructure planning as well as their

⁷² ADB, "Fiscal Decentralization Reform in Cambodia: Progress over the Past Decade and Opportunities," last modified December 2018, DOI: <http://dx.doi.org/10.22617/TCS189247>

implementation. More innovative financing mechanisms, such as public benefit charges, remain underexploited as it is unclear, in terms of legislation, whether municipalities have the authority to create and levy these. Currently, municipalities retain the revenues collected from stamp duty. Usage of land value capture would appear limited, although cities have been known to use land as a capital investment contribution to project equity. The D&D program is gradually transferring the operation of the infrastruc-

ture and facilities built by the national government to the local government. This means that local governments are increasingly becoming responsible for operating and maintaining the infrastructure put in place. Experience shows that a number of cities are experiencing financial and human resources challenges to operate, maintain, and fund the O&M of infrastructures built by donor and government financing.

Table 1.9. Role of local governments in the annual budget formulation processes⁷³

Stage	Activity	Period	Responsible Entity	Local Government Involvement
Stage 1	Strategic Budget Planning	Mar-May		
1.1	Macroeconomic framework & public financial policy	Mar	MEF	None
1.2	Circular on the preparation of budget strategic planning	Apr-May	MEF	Provincial/district governors have six weeks to provide their Budget Strategic Plan
Stage 2	Prepare Budget Package	Jun-Sep		
2.1	Circular on the preparation of draft budget law	Jun	MEF	Detailed budget revenues and expenditures sent to line ministries and provincial/district governors
2.2	Negotiation on budget package - technical level	Jul		
2.3	Negotiations on budget package - ministerial level	Aug	Line ministries	Line ministries' discussion with local government
2.4	Prepare draft budget law	Sep	MEF	None
Stage 3	Budget Approval	Oct-Dec		
3.1	Approval by Council of Ministers	Oct	Cabinet	None
3.2	Approved by National Assembly	Nov	Assembly	None
3.3	Approved by Senate	Dec	Senate	None

⁷³ RGC. "Law on Public Finance System of Cambodia," (2008).

Subnational funding instruments

Funding instruments for subnational administration differ markedly by the tier of subnational administration. An overwhelming 98.4% of commune and sangkat revenues in 2016 came from fiscal transfers, predominantly from the Commune and Sangkat Fund. Although the Commune and Sangkat Law (2001) provides powers for communes and sangkats to raise taxes, none have ever been codified or collected. The great majority of revenues for districts and municipalities outside of Phnom Penh come from the district and the MDF. There are also significant transfers directly from Phnom Penh city to its 12 khans as well as much smaller transfers from provinces to their districts and municipalities. About 93% of total district, municipality, and khan revenues in 2014–2016 were from central, Phnom Penh, and provincial transfers. The districts and municipalities do not have any tax revenues assigned to them; however, from 2017, certain municipalities, khans, and sangkats share a proportion of the property tax. Nontax revenues collected at this level mainly accrue to sangkats and khans in larger urban locations, particularly Phnom Penh. The great bulk of provincial and Phnom Penh revenues come from shared tax and nontax revenues, which provided 78.3% of total revenues (2016). Taxes shared with provinces and Phnom Penh are all collected through the General Department of Taxation of the MEF.

The RGC's 3-Year Rolling Investment Program has been implemented to promote the provision of social services using the MDF and CSF. Financial management and planning systems will be developed and reviewed. These are expected to provide Sub-National Administrations (SNAs) with increased autonomy to reduce delays in the disbursement of funds and to facilitate SNAs to develop and implement plans that are comprehensive and clearly state strategic goals.

The Commune and Sangkat Fund (CSF) was set up in 2002 as an unconditional grant, set at 2.8% of recurrent domestic revenue. Due to increases in national revenues, the size of the CSF has expanded rapidly. In 2014, its budget was USD 58.5 million, or roughly USD 35,900 per CS, which was over four times larger than it was in 2003. The allocation of the national budget for CSF has gradually increased annually, which is a positive sign for subnational development (figure 6). Allocation to each CS is formula based, factoring in population and poverty. The CSF is divided

into administrative and local development components. Due to increases in salaries, the administrative component reached nearly 45% in 2014. The CSF has been predominantly used to develop small-scale economic infrastructure, such as rural roads, irrigation, and water supply.

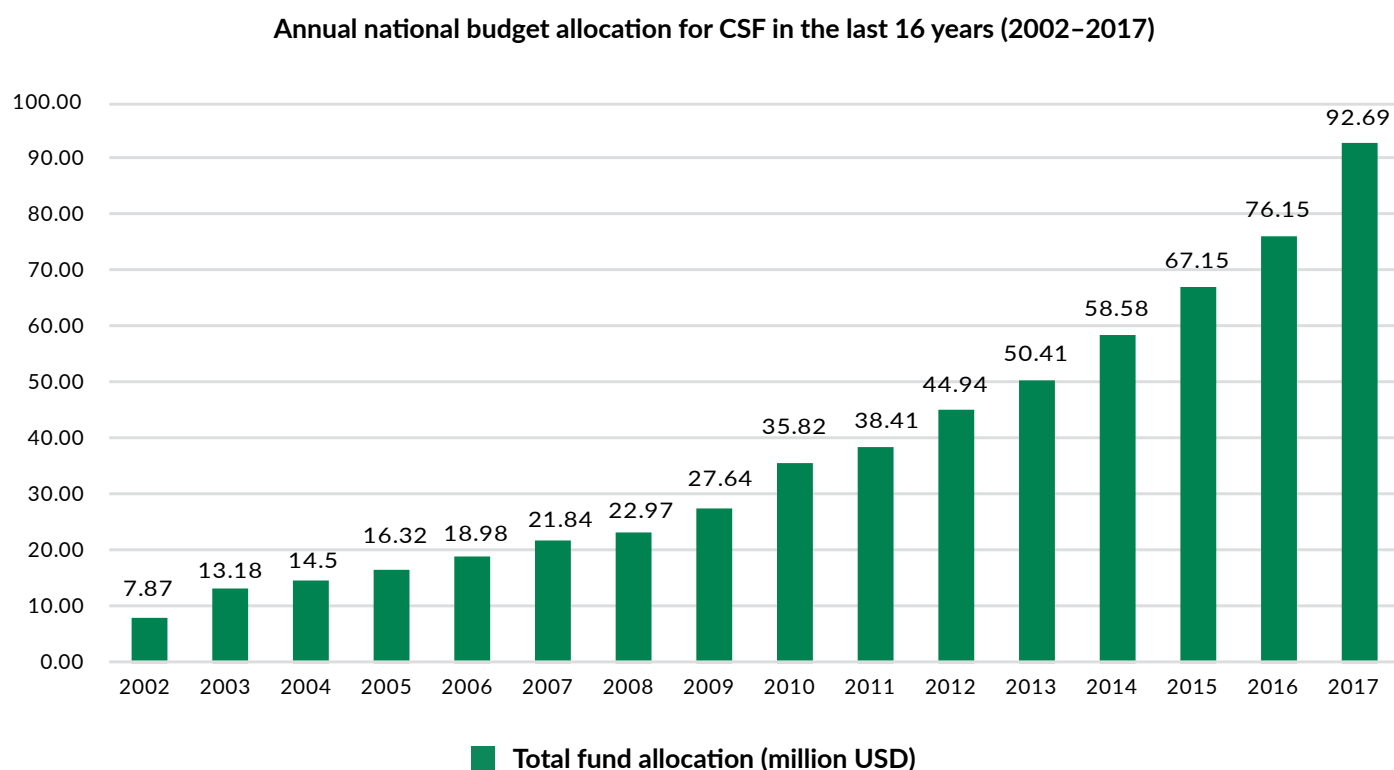
In late 2019, the RGC pledged to double the annual budget for the CSF of all 1,646 communes/sangkats; each will receive about USD 130,000 beginning in 2020. This requires a total CSF budget of more than USD 200 million starting in 2020 and would remain around the same until 2023.⁷⁴

The Municipality and District Fund (MDF) was established by Sub-Decree 36 in March 2012 (Sub-Decree on the Establishment and Functioning of Municipality/District Fund). During 2014, it was budgeted at USD 21 million, or roughly USD 114,000 per DM. Of this budget, USD 17 million was provided by the RGC (largely administration costs and salaries) with the remaining USD 4 million financed by Sida and earmarked for development (USD 21,600 per DM).

During the first IP3, all regulatory instruments establishing the MDF were completed, 29 staff members were trained, and procurement committees and units were established. The new sub-decree on the MDF (2019–2023), dated April 11, 2018, increased allocation from the national budget—from 1.1% (2019) to 1.5% (2023)—and divided the fund into administrative and development components.

For DMs to become viable service delivery organizations contributing to national development, they must access discretionary resources to be used exclusively for development. In the second phase of the implementation plan of the National Program on Sub-National Democratic Development (NP-SNDD), the DM development component was at least 0.5% of the national recurrent budget annually, during 2016–2018, and DMs are expected to raise at least 10% of their income through own-source revenues.

⁷⁴ Vann Vichar, "Communes Budgets to More Than Double to \$130,000," Voices of Democracy (VoD), last modified October 10, 2019, <https://voden-glish.news/commune-budgets-to-more-than-double-to-130000/>

Figure 1.6. The CS Fund Budget over time, in millions of USD⁷⁵Table 1.10. The District/Municipality Fund (USD)⁷⁶

City	2017			2018		
	Admin	Development Projects	Total	Admin	Development Projects	Total
Siem Reap	205,562.5	77,965	283,527.5	225,650	86,630	312,280
Battambang	188,715	64,240	252,955	206,917.5	72,270	279,187.5
Sihanoukville	146,812.5	46,970	193,782.5	184,667.5	53,575	238,242.5
Kep	96,502.5	37,507.5	134,010	113,767.5	41,912.5	155,680
Kampong Cham	115,450	40,535	155,985	142,592.5	45,495	188,087.5
Suong	105,332.5	37,650	142,982.5	123,320	42,025	165,345
Bavet	122,117.5	41,500	163,617.5	136,127.5	46,475	182,602.5

⁷⁵ NCDD, NCDD's Annual Report, 2017.⁷⁶ Department of Sub-National Budget Management, "The District/Municipality Fund," from 2017-2018

The Provincial/Capital Budget is a mix of shared national revenue sources and state budget contributions. During 2014, it stood at USD 158 million. Subsequently, the budgeting process was revised to make it more equitable and transparent. Although not established in regulation, for the last two years, funds have been allocated to Provincial/Capital based on a temporary formula. The formula is still being improved based on regular feedback by Provincial/Capital.

The Sub-National Investment Facility (SNIF) was established in 2016 by Sub-Decree No. 32 on the Establishment and Functioning of SNIF to provide funding from the central government and other sources for public investment projects prepared and implemented by subnational administrations. SNIF is an incentive-based investment financing facility and a form of conditional fiscal transfer to support local infrastructure investments and economic development. The rationale for setting up SNIF is to (1) relieve pressure to use unconditional grants for major infrastructure projects, freeing unconditional grants to be increasingly used for governance, local economic development (in partnership with the private sector), social services, and the provision of social protection services to the vulnerable and poor; and (2) to improve the appraisal process of infrastructure investments, allowing an assessment of projects on their merits in terms of development impact. The SNIF has different investment “windows” dealing with infrastructure, natural resources management, climate change, and local economic development. The source of funding for SNIF includes the national budget (up to 0.07% of recurrent revenue by 2020) and contributions from donors and development partners. Government funding of the SNIF has been determined for five years. Development partners and other sources can reach specific agreements on the conditions of funding. SNIF is managed by a council chaired by the Ministry of Economy and Finance.

The Ministry of Environment has reassigned functions and budgets to the subnational level. Sub-Decree No. 113 (2015) and a joint Prakas (2016) transferred obligatory responsibilities for garbage and solid waste management to the districts and municipalities, leaving policy development, technical support, and supervision with the ministry. About 26 municipalities now receive modest additional

central funding to support this function (around USD 2 million in total per year), but many districts will need to find the resources from their unconditional funding. Other initiatives approved and underway are the (1) delegation of certain responsibilities for the management of protected areas to 64 districts, (2) provision of climate change resilience responsibilities through small district grants, and (3) transfer of responsibilities for environmental education. The ministry is also pursuing preparatory work on other functional transfers, such as liquid waste and sewerage management, plastic waste management, and employment of rangers for protected areas.

Other sector ministries—including education, social affairs, and health—have also implemented this approach. For instance, the Ministry of Social Affairs, Veterans and Youth Rehabilitation transferred the functions of monitoring civil society organizations working with orphans to provinces and municipalities and districts, with the responsibility primarily under the municipalities and districts.⁷⁷

Own-source revenues do not exist within subnational administration. None of the levels of subnational administration have powers to raise new taxes or to change the nature or rates of existing taxes. Furthermore, all subnational levels have only limited powers to impose or reform nontax revenue policies and rates. All tax and most nontax revenues are administratively collected by the General Department of Taxation and the General Department of Non-tax Revenues of the MEF, with an absence of revenue-collecting units in subnational administrations. As revenue arrangements are applied in a deconcentrated fashion, there is only limited scope for generating local accountabilities. Powers between different levels of subnational administration vary significantly. The Law on Commune and Sangkat Law (2001) provided the power to collect tax and nontax revenues, including land taxes, immovable property taxes, and rental taxes. However, a revenue law, as required, was never enacted and no collections have occurred in practice. Districts have no practical powers in relation to taxation matters, though general taxation powers were provided in the Organic Law (2008) and Subnational Finance Law (2011), both of which also provided the power to collect nontax revenues. However, no law as required has been prepared.⁷⁸

⁷⁷ ADB, “Fiscal Decentralization Reform in Cambodia: Progress over the Past Decade and Opportunities,” last modified December 2018, DOI: <http://dx.doi.org/10.22617/TCS189247>

⁷⁸ ADB, last modified December 2018.

Overall, there is a need to increase the subnational administration resource envelope so they can meet their mandates. Resources should also be shifted from central to local governments, allowing the latter to develop their own revenue sources to eventually become less dependent on fiscal transfers and simultaneously strengthen accountability relationships with citizens. Financial management should be strengthened to reduce delays in budgeting, reporting, and the disbursement of funds. This will become increasingly important as additional financial resources are placed under the authority of DMs. Efforts should be made to reduce SNA overhead and administrative costs to channel more funds to development projects.

1.6.2. Official Development Assistance

Development aid is typically channeled through bilateral or multilateral development banks or development agencies and NGOs. In most cases, donor projects financed through grants or concessional loans are implemented through MEF and respective line ministries. For foreign aid-funded projects, local governments need to receive clearance from MEF and respective line ministries. Accessing these funds requires much effort in preparation, preliminary studies, and project proposal development to comply with the criteria of donors. This presents a challenge for city officials and, in most of cases, requires support from the national level and development partners. Moreover, given the size of secondary and tertiary cities in Cambodia, many of the projects sought after are actually too small to attract donor interest. Projects relating to decentralized sanitation solutions, public space rehabilitation, or waste collection solutions, for example, often do not meet minimum budget expectations for traditional donors. There is a niche in this space for smaller donors willing to work with the government, and mechanisms to bundle small projects can be explored. For sustainable city projects, a few climate funds are particularly worth highlighting.

The Global Environment Facility (GEF)⁷⁹ was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided over USD 17 billion in grants and mobilized an additional USD 88 billion in financing for more than 4,000 projects in 170 countries. The GEF

administers several trust funds. The Special Climate Change Fund (SCCF) finances adaptation and technology transfer in all developing country parties to the UNFCCC. It provides support for the additional cost of adaptation to generate measurable adaptation benefits.

The Least Developed Countries Fund (LDCF) addresses the urgent and immediate adaptation needs of the 51 least developed countries that are especially vulnerable to the adverse impacts of climate change. The Adaptation Fund supports adaptation projects and programs in developing countries that are parties to the Kyoto Protocol and are particularly vulnerable to the adverse effects of climate change.⁸⁰

Of high relevance to cities is the GEF Small Grants Program (SGP), which provides financial and technical support to projects that conserve and restore the environment while enhancing people's well-being and livelihoods. SGP demonstrates that community action can maintain the fine balance between human needs and environmental imperatives. The program provides grants of up to USD 50,000 directly to local communities, including indigenous people, community-based organizations, and other non-governmental groups for projects in biodiversity, climate change mitigation and adaptation, land degradation and sustainable forest management, international waters, and chemicals. In Cambodia, since 2014, GEF SGP has funded 204 projects in community-based adaptation, biodiversity, climate change mitigation, and land degradation, with a total amount of USD 7.7 million and USD 1.7 million in cash co-financing and USD 4.2 million in in-kind co-financing.

The Green Climate Fund (GCF)⁸¹ is the largest global fund that assists developing countries in adaptation and mitigation practices to counter climate change. The GCF supports projects, programs, policies, and other activities in developing country parties using thematic funding windows. Its central focus is to raise USD 100 billion a year in climate finance by 2020. The GCF gives recipient countries access to funding through accredited national, subnational, and regional implementing entities and intermediaries. Countries can also access funding through accredited international and regional entities (such as multilateral and regional development banks and UN agencies) under international access. Some funds will be distributed through Enhanced Direct Access, in which developing

⁷⁹ For more information about the fund, visit <https://www.thegef.org/about/funding>

⁸⁰ For more information about the fund, visit <https://www.thegef.org/about/funding>

⁸¹ For more information about the fund, visit <https://www.greenclimate.fund/who-we-are/about-the-fund>

country-based accredited institutions receive an allocation of GCF finance and then make their own decisions on how to program resources. In October 2016, the GCF approved USD 745 million in funding proposals. There are 10 projects and programs, which have a combined value of USD 2.6 billion and will help 27 countries across the globe to reduce their emissions and adapt to the impacts of climate change. The projects and programs are mainly about adaptation (52%), cross-cutting (22%), and mitigation (26%).

So far, Cambodia is diversifying its strategy to access GCF funds by applying for both international and direct access.

NCDD (National Committee for Sub-National Democratic Development) has been selected by MoE (the National Designated Authority to the GCF) as a potential National Implementing Entity (NIE) in Cambodia and is undergoing the accreditation process. It is the first organization that the GCF has preselected to provide subnational funding. The pilot program on which a GCF proposal will be built has targeted eight districts in Cambodia.

The Pilot Program for Climate Resilience (PPCR)⁸² is a funding window of the Climate Investment Fund for climate change adaptation and resilience building. Through a programmatic approach, PPCR assists national governments in integrating climate resilience into development planning across sectors and provides funding to pilot innovative public and private sector solutions to climate risks. To date, about USD 939 million (80% of PPCR funding) has been allocated to 58 projects. It is expected that around USD 2 billion in co-financing resources will be mobilized. The government of Cambodia is tapping USD 86 million in grants and near-zero interest loans from the PPCR (phase II of SPCR) to support hard investments in climate resilience in key sectors: water management, agriculture, and rural infrastructure.

The PPCR is also channeling soft investments to enhance the capacity of Cambodia's institutions to effectively mainstream climate resilience into development planning. Cambodia's PPCR investment plans are implemented by the Asian Development Bank (ADB) and executed by the relevant institutions within the Cambodian government. The design and formulation phase were supported by members of the World Bank Group (IBRD, IFC), key national stakeholders, and development partners.

Nationally Appropriate Mitigation Actions (NAMA) Facility⁸³ is an international funding mechanism established in 2012 during the climate negotiations in Doha, Qatar. Currently, NAMA Facility receives funds from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU); the Department for Business, Energy and Industrial Strategy (BEIS) of the United Kingdom (UK); the Danish Ministry of Energy, Utilities and Climate (EFKM); and the European Commission. NAMA Facility targets developing countries and finance for innovative projects that tackle climate change and cutting emissions (i.e., low-carbon development projects). However, accessing funds from NAMA Facility is very competitive and requires detailed and in-depth analysis proposals with a clear vision and goals. In 2018, 76 outlines were submitted with a total requested funding budget of close to EUR 1.1 billion; only 7 proposals were selected for support of their detailed preparation phase (DPP).

1.6.3. Private Sector Investment

In 2016, the private sector accounted for 62% of global climate finance. By creating the right regulatory environment, the public sector can go far in stimulating such private investment through, for example, PPPs, innovative blended financing mechanisms, and risk-reducing instruments. However, there are existing barriers that hinder the engagement of private actors in climate-ready investments in Cambodia. These include (1) a lack of information, guidance, and expertise on innovative and low-carbon and/or climate-adaptation technologies; (2) a high risk perception among commercial banks and investors, sometimes nourished by low bookkeeping standards of prospective lenders, resulting in high collateral and high interest rates; (3) a lack or inadequacy of policy and regulatory frameworks; and (4) the Cambodian market size. In addition, cities are rarely seen as “bankable” in developing countries and are often unable to access private (international) finance sources. Consequently, cities must develop a stronger finance base of their own, through own-source revenue, to develop an independent source of investment funds as well as demonstrate their credit capacity. There is huge potential to scale up private sector engagement in sustainable city projects if these barriers are removed and a better enabling environment is created.⁸⁴

⁸² For more information about the fund, visit <https://www.climateinvestmentfunds.org/country/cambodia>

⁸³ For more information about the fund, visit <https://www.nama-facility.org/>

⁸⁴ General Secretariate of National Council for Sustainable Development, “Study Report on Promoting Private Sector Contribution to the Climate Change Response in Cambodia,” accessed July 18, 2018, <http://www.camclimate.org.kh/en/activities/347-new-release-%E2%80%93-study-report-on-promoting-private-sector-contribution-to-the-climate-change-response-in-cambodia.html>

Table 1.11. Category of risk in private sector investment⁸⁵

Category of Risk	Common Examples
Political Risk	<ul style="list-style-type: none"> • Unstable political environment, security concerns • Changes in national or local government support for green projects
Regulatory Risk	<ul style="list-style-type: none"> • Policies that promote “brown” growth (e.g., fossil fuel subsidies) • Insufficient enabling policies, regulatory changes • Weak legal frameworks and limited enforcement of regulations
Technology Risk	<ul style="list-style-type: none"> • Technology underperformance, limited in-country expertise • Inadequate supporting infrastructure (e.g., transmission)
Credit Risk	<ul style="list-style-type: none"> • Counterparty creditworthiness, risk of default or non-payment • End-user payment for public services
Capital Markets Risk	<ul style="list-style-type: none"> • Immature national and local financial markets, limited market liquidity • Currency fluctuations

National and subnational governments can employ a number of strategies to leverage private sector finance. For example, pilot projects help to demonstrate the business case for private sector investment. Risk-sharing measures, such as insurance and guarantees, can reduce financial risks and facilitate private sector participation. Furthermore, inno-

vative financial instruments can facilitate private sector investment in climate compatible development projects. Using local existing micro, small- and medium-sized enterprises (MSMEs), and financial institutions presents a further opportunity to stimulate private sector finance.

Figure 1.7. High-potential financing mechanisms⁸⁶

⁸⁵ GGGI (2019). Green Cities Development: A Training Manual. <https://ggi.org/report/green-cities-development-a-training-manual/>

⁸⁶ GGGI (2019). Green Cities Development: A Training Manual. <https://ggi.org/report/green-cities-development-a-training-manual/>

1.7. Reporting, Monitoring, and Evaluation

The NCSD's Technical Working Group on Sustainable Cities (if assigned to coordinate the implementation of this SCSP) shall play a central role in supporting the integration of the priority actions identified in the plan into the existing planning, monitoring, and evaluation process.

As sustainable city projects drawing from the Sustainable City Strategic Plan are integrated in the cities' 5-year development plan and 3-year rolling investment plan, it is important that SMART sustainable city indicators for

these projects be incorporated in the planning documents.

This will eventually allow for monitoring progress in sustainable city development through the government's existing annual M&E cycle. The following are some suggested indicators, but these can be modified depending on each city's context and data availability to measure the progress of the four goals.

Table 1.12. Examples of possible indicators for monitoring and reporting

Goals	Indicators
Integrated urban planning and green infrastructure development	<ul style="list-style-type: none"> • Urban master plan (% completed) • Green spaces per person (m²/person) • Number of existing neighborhoods identified for infrastructure upgrading • Share of wastewater safely treated (%) • Share of paved road (% of total road length) • Percentage of municipal waste recycled • Amount of energy saving in public building
Green local economy	<ul style="list-style-type: none"> • Ecotourism strategy (% completed) • Revenue generated from ecotourism (\$) • Number of jobs in ecotourism • Amount of renewable energy generated in the city • Amount of investment in ecotourism support infrastructure/facilities • Number of households and businesses using renewable energy for heating and cooking
Urban social inclusion	<ul style="list-style-type: none"> • Number of households benefiting from the affordable housing projects • Number of households with access to piped water • Number of households with access to solid waste management services • % of population with access to public transport • Population with access to improved sanitation (% of households) • Women in decision-making positions (%) • Number of jobs created for the disadvantaged communities
City governance	<ul style="list-style-type: none"> • % increase in subnational budget • Amount of revenue collected by the city • Number of municipal staffs benefiting from capacity-building programs • Availability of city data for the public





2. City Profiles

SIEM REAP

2.1. Introduction

Siem Reap is located in the northwest region of Cambodia. The city is home to one of the most internationally well-known archaeological attractions: the temples of Angkor Archaeological Park—a UNESCO World Heritage Site. Siem Reap's population has grown steadily, from over 240,000 in 2016 to around 287,753 in 2018 and is now the second largest city by population in the country. It is expected to grow annually, to an estimated 440,099 in 2035.⁸⁷ The increase is primarily due to the influx of people from other cities and provinces of Cambodia, seeking to benefit from the economic prosperity brought in by a

vibrant tourism sector that accounts for millions of tourists that arrive in the city every year.⁸⁸

The employment and income generation opportunities offered by the tourism sector makes Siem Reap one of the most rapidly growing cities of Cambodia. As can be observed from the table below, the population has grown, on average, by over 3% annually. The actual growth rates are likely under-estimated due to the rate of inward migration, which is not accurately represented in the available data.

Table: Key Demographic Statistics: Siem Reap (socioeconomic statistics for Siem Reap, 2016)

Description	2013	2014	2015	2016
Population	217,609	223,071	222,979	240,648
Annual growth rate (%)	2.5	5.7	-3.1	7.9
Female population	111,418	118,565	112,517	122,544
Sex ratio (females per 100 males)	104.9	106.3	101.9	103.8
Number of families	41,451	42,997	43,335	47,225
Average family size	5.2	5.4	5.1	5.1

⁸⁷ MLMUPC, Siem Reap's Municipal Land Use Master Plan 2035, 2018.

⁸⁸ "Siem Reap Socio-economic Statistics," 2016.

2.2. Sustainable City Sector Analysis

Tourism

Tourism is a key sector to Siem Reap's economy. The international airport of Siem Reap saw the arrival of 1.9 million tourists in 2018, equaling Phnom Penh's airport.⁸⁹ The Angkor Wat archaeological complex remains the country's premier tourism destination, and Siem Reap continues to be the country's "gateway" for international tourists. However, the associated pressures of a fast-growing city with many short-term visitors require frameworks services and infrastructure that are developed for long-term sustainable development. This includes areas such as resource-efficient buildings, waste management, energy, water, sanitation, and transport. Such green tourism frameworks and infrastructure are not yet fully developed and operational.

As with other secondary cities in Cambodia, Siem Reap receives a limited budget from the national government, including funding for initiatives that would stimulate green tourism. The lack of human and financial capacity constitutes a major barrier for taking actions; for example, enforcing green standards and regulations and investing in greener infrastructure. The financial gap can be addressed through greater allocation of the national budgets and contributions from tourist businesses (e.g., through a license system for operators) as well as from other public and private financiers. Developing a green tourism profile would put Siem Reap in a better position to attract international private investments (e.g., for green and resource-efficient hotels and guesthouses) as well as concessional finance from international institutions. The tourism sector in Siem Reap could also play a key role in promoting environmental sustainability through supporting plastic-free tourism, more efficient and renewable energy services for operators (such as e-transport around the city and Angkor), and the creation of jobs around such initiatives.

Handicrafts

Currently, Siem Reap has more than 500 small- and medium-sized businesses producing diverse types of handicrafts, such as silk scarves and crocodile skin products, which mainly supply the tourism industry. With the growing

number of tourists and an increasing demand for souvenirs sustainably produced from local environmentally friendly material and using local artisanal techniques, the market can be expected to grow significantly in the future. There is thus a significant potential for Siem Reap to expand the handicraft industry, which will contribute to green economic growth by creating jobs and income among local artisans, craftsmen, traders, and farmers, and, in this way, also address issues of poverty reduction and social inclusion.

Among the key barriers for the local handicraft industry highlighted by city authorities is the lack of licensing for local products. A licensing scheme could contribute to a better quality, even playing field and provide certification of local origin and sustainability in materials and production. An effort to require local producers to license their products would therefore benefit the market. The relatively high electricity cost in Cambodia, when compared to neighboring countries, is also seen as a barrier for local manufacturers, so efforts to reduce these costs would help increase their revenues. Finally, green production for local products should be promoted for sustainable growth.

Solid waste

Better management of solid and liquid waste is a key issue for sustainable city development in Siem Reap and is high on the agenda of the City Hall. It is well understood that a highly functioning waste management system, including efforts to reduce and recycle waste, contributes to better health and a more pleasant and aesthetic city environment, benefitting citizens and making the city more attractive to tourists.

One of the immediate challenges is the efficient collection and safe disposal of solid waste. The options of disposing waste in suitable bins or containers are limited, and the current collection of waste does not cover all households and companies. As a consequence, waste often piles up in streets outside homes and in commercial areas. At the same time, waste transport services are not widely available or timely and are often dependent on whether people pay the waste collection company for their services. There is little knowledge among people and tourists on how to separate waste—for example, in recyclable fractions

⁸⁹ Ministry of Tourism. "Tourism Statistics of Cambodia," 2018.

(organic/non-organic, glass, paper, metal, etc.)—and also few opportunities to do so. Moreover, the existing landfill sites do not fulfill the required technical standards.

The responses to meet these immediate challenges include expanding waste collection services to the entire urban area and improving the landfills to satisfy appropriate national and international standards. To utilize green growth opportunities, this should be combined with recycling projects (e.g., composting facilities) and waste-to-energy projects (e.g., using waste or landfill gas as fuel).

In parallel to this, infrastructure should be put in place for household and business waste separation and subsequent recycling and reuse. Recycling should be further operationalized; for instance, by supporting market development for recycled products and encouraging SME operators to develop recycling businesses.

Raising awareness and educating people is necessary for better waste management. This includes learning how to minimize waste, separate and classify the different types of waste, and dispose waste in a timely manner, following the schedule of the waste collection company.

Wastewater and sanitation

The limited infrastructure for treatment of wastewater is another major challenge for Siem Reap.

About 75% of the population in Siem Reap Municipality have their toilets connected to onsite sanitation facilities. However, 45% of the fecal sludge from these facilities is not safely managed, mostly due to leakage from uncontained pits and illegal disposal.⁹⁰ Research conducted by Emory University in 2017 in five sample neighborhoods showed that 100% of the population was exposed to fecal contamination, demonstrating significant health risks.

The current sewage system has only 2,000 connection points (the city has more than 44,000 households) and is malfunctioning whereas more than 350 hotels and guesthouses have their own treatment system to partially treat wastewater. There is no system for separating drainage and rainwater from sewage, implying that the flow of polluted

water through the sewage treatment plant is much higher than necessary, likely leading to the discharge of polluted water into streams and the nearby Tonle Sap Lake. There is a backlog in maintaining and developing the culvert system, and certain drainage systems are obstructed during heavy rain. With the projected growth in inhabitants and tourists, these challenges will only grow in the future, if business as usual continues.

The government, in partnership with development partners, is currently drawing plans to rehabilitate the 3.7-km broken sewerage network and construct secondary and tertiary sewer lines feeding into the existing trunk sewer line. Apart from connecting more households and businesses to the sewage system, there is a need to separate drainage and storm water from sewage water. This will reduce the load on existing and future sewage treatment plants and enable a more efficient treatment of sewage water. From a green growth perspective, a large coverage of the sewage system in the central areas, combined with fecal sludge management in outer areas (appropriate containment, emptying, transport, and treatment/reuse of fecal sludge) and efficient cleaning of sewage water, is beneficial for the environment and health. In addition, there are possibilities for reducing the amount of dry matter and BOD⁹¹ in the sewage water by treating the sludge through a biogas plant and using the biogas to power an engine to produce renewable electricity.

Housing

The poorest communities in Siem Reap can be found on public state land along the river and road corridors, which excludes them from receiving formal services from the state, such as road infrastructure, drainage systems, clean water, electricity, and waste management services. Living conditions of the poor can be improved by shifting current settlements from the roadsides to designated areas, securing land for resettlements, and improving the livelihoods of people living in current slum areas. Properly planned new settlements can be designed to reduce energy and water consumption and waste generation, provide easy access to public transport, and offer green open areas.

⁹⁰ WaterAid, 2016. "Assessment fecal waste flows and associated practices in Siem Reap, Cambodia," Accessed September 20, 2019.

<http://cityforall.net/wp-content/uploads/sites/3/2018/10/How-much-of-Siem-Reap%E2%80%99s-Faeces-is-Safely-Managed-James-Wicken-WaterAid.pdf>

⁹¹ Biochemical oxygen demand: used as a gauge for the effectiveness of wastewater treatment plants.

Transport

City authorities recognize the need to improve transport to reduce air pollution and improve mobility for pedestrians by increasing enforcement of traffic regulations, including parking. In addition to paving the roads (currently, only 15% are paved, and road infrastructure in resorts are lagging), there are opportunities to improve public transport, including promoting electric vehicles—particularly from the city center to the main tourism sites—and establishing bicycle and pedestrian lanes. Such infrastructure would concurrently serve the modern tourism market as well as support local economic development.

Urban planning

In parallel to the specific interventions discussed above, Siem Reap needs to place the sustainable city approach within its own urban planning framework to ensure that it

contributes to Cambodia and the city's overall vision and goals and general direction. This will prevent the city from locking into a costly, resource-intensive, polluting urban system and to address additional challenges and opportunities, such as managing uncontrolled urban sprawl and pushing for the preservation of protected areas. Integrating sustainable city principles, objectives, and infrastructure from the Sustainable City Strategy Plan into the city's land use and sector master plans is important. It will also help the city to attract attention, resources, and finance from international development partners and other public and private investors.

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following as priority actions:

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
1	Restoration and expansion of the drainage and sewerage system in the city center.	Improved drainage and sewerage network. Prevent stormwater flooding by removing blockage in drainage and sewerage network. Reduce the negative impacts on the environment and biodiversity by removing stormwater from the ground. This will raise the attractiveness of the city as well as public health.
2	Improvement of fecal sludge management and construction of connection to main sewerage network.	Reduce the disposal of fecal sludge and contaminated water to waterways to improve the environment and biodiversity and public well-being as well as raise city beautification. This can be achieved by improving containment units, collection, transport, and treatment/reuse of fecal sludge.
3	Development of a sustainable supply chain for recyclable waste in Siem Reap and enhancement of landfill sites to an acceptable standard.	Reduce waste from public spaces and decrease disposal to natural ponds, canals, lakes, and waterways. Improve the environment and biodiversity and public well-being as well as raise city beautification. Encourage formal businesses in the supply chain (source separation, collection, transport, and recycling) toward recyclable waste that will both contribute to environmental sustainability and socioeconomic growth.
4	Conduct feasibility study on renewable energy and energy efficiency for Siem Reap city.	Respond to the growing demand of energy for electricity through the use of renewable energy sources and energy efficiency. This will contribute to the sustainable use of natural resources and reduce electricity costs and negative impacts on the environment.
5	Installation of LED street lights powered by solar energy.	City beautification and response to the growing demand of energy for electricity through the use of solar energy sources and energy efficiency. This will contribute to the sustainable use of natural resources and reduce negative impacts on the environment.
6	Development of affordable houses and improved zoning for cultural, ecotourism, residential, commercial, and public areas, among others.	Reduce informal settlements and improve living conditions by integration informal settlements into affordable public housing programs. Maintain public order and raise the beauty of the city to attract more visitors/tourists. Improve systematic urbanization and city administrative management.

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
7	Development of environmentally friendly mobility options in Angkor complex.	Reduce the use of private vehicles, congestion, and pollution in the Angkor area; promote people's well-being; and maintain environmental sustainability.
8	Increased public awareness of waste management, such as littering, storage, and disposal as well as the use of eco-bags.	Encourage people to store rubbish properly so that it can be easily collected. Raise public awareness of littering, proper waste disposal, and hygiene as well as the impact on the environment. Install environmental billboards in town and at shopping centers (markets).
9	Development of ecotourism site in Angkor complex.	Encourage ecotourism that can contribute to a sustainable environment. Ecotourism will also contribute to the creation of green jobs for local people.
10	Development of One Village One Product.	Improve the use of local materials for specialized local products. Stimulate the creation of green jobs and sustainable use of natural resources while reducing the negative impacts on the environment.

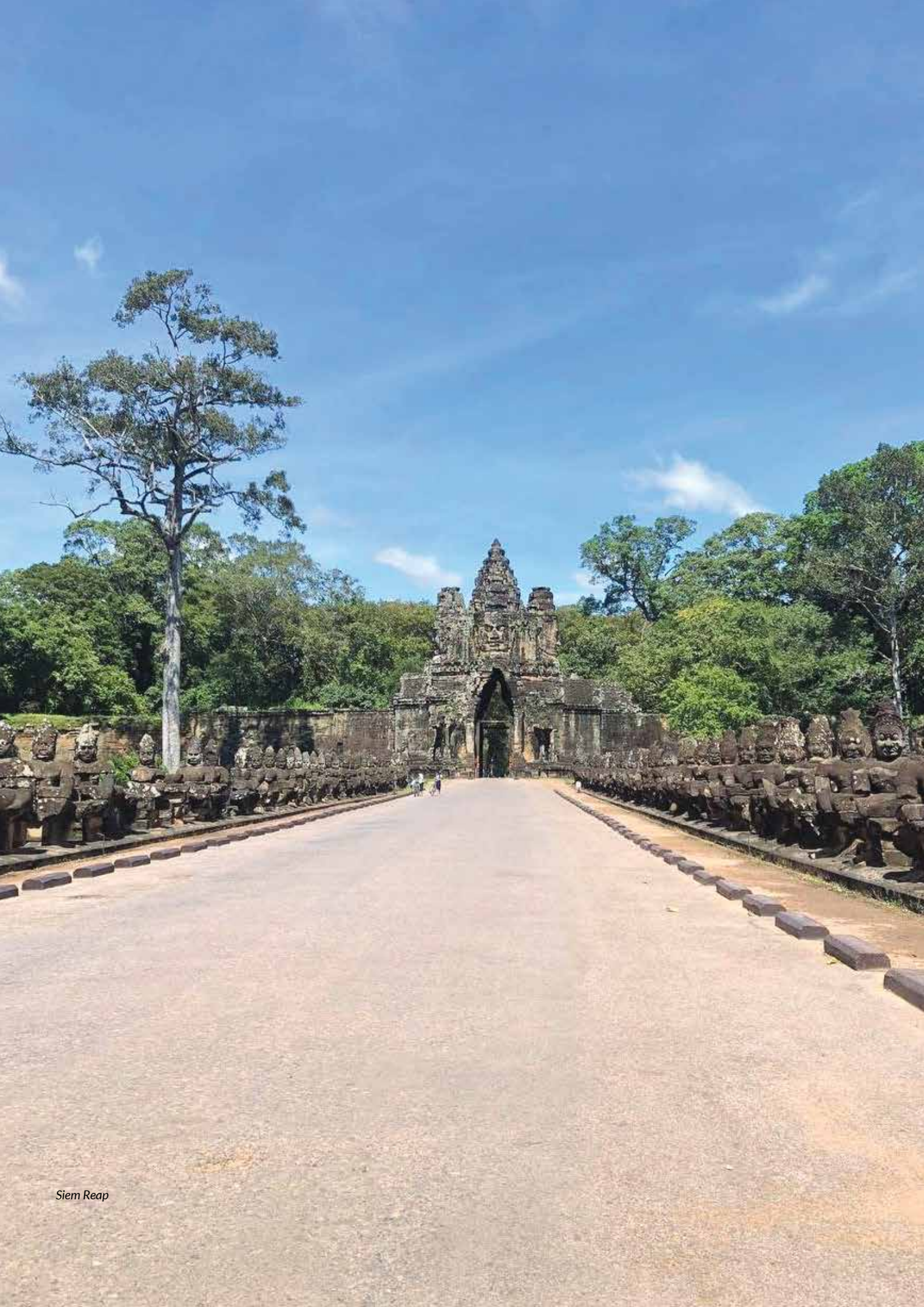
Source: Consultation with Siem Reap Municipality

2.4. Socioeconomic Statistical Information

Indicators	Year 2016
Population	240,648
Population density (person/km ²)	549.48
Poverty rate	14.81%
Area (km ²)	424.73
Literacy rate (workshop presentation)	87%
Key economic sectors	Tourism
Share of employment in different sectors	
- Agriculture	28.6%
- Manufacturing	2.7%
- Services	68.7%

Indicators	Year 2016
Outward migration (abroad)	1,826
Average number of motorbikes per household	1
Number of people who are in debt (bank or micro-finance)	15,579
Number or households in slums/informal settlements	2,962
Number of households that are impacted by heavy storms	12
Number of households that are impacted by floods	51
Number of households that are impacted by droughts	1,921
Percentage of households with access to solid waste collection services	73.68%
Percentage of households with access to sanitation	82.6%
Percentage of households with access to piped water	19.18% (8,602 HHs)
Percentage of households with access to electricity	94.6%
Amount of solid waste generated per day	380 tons





Siem Reap



Battambang

BATTAMBANG

2.1. Introduction

Located on the Sangkae River on National Highway 5, which connects to the capital, the city of Battambang is home to over 150,000 people with a steadily growing population, making it the third largest city in Cambodia. Benefitting from its proximity to Siem Reap, the city itself is a popular tourist destination that offers a mix of cultural and natural tourism. It holds a significant geographic advantage given its proximity to Thailand. Battambang's development further draws from the agricultural resources from its province and the role that the administrative center plays for that province.

The city stands to benefit economically once the ongoing upgrade of the meter gauge train line—which once connected Phnom Penh to Poipet, a town located at the Thai border—is completed. Despite these distinct advantages, the city and its neighboring areas can be significantly affected by the annual rainfall levels that cause droughts or floods, with many areas only reachable by boat. In 2014, the city received an ASEAN award for the quality of its environment; however, there are clear pressures on its environment, including the pollution of river systems, sanitation and wastewater, waste management, and transport. These problems both undermine the city's tourism market as well as negatively impact the quality of life and environment of its urban citizens.

Table: Key Demographic Statistics: Battambang (socioeconomic statistics of Battambang, 2016)

Description	2012	2013	2014	2015
Population	147,662	150,711	153,727	155,584
Annual growth rate (%)	0.1	2.1	2.0	1.2
Female population	75,424	76,845	78,383	78,744
Sex ratio (females per 100 males)	104.4	104.0	104.0	102.5
Number of families	26,777	27,071	27,767	28,695
Average family size	5.5	5.6	5.5	5.4

2.2. Sustainable City Sector Analysis

Tourism

According to the Provincial Department of Tourism, Battambang registered 96,460 visitors in 2016. The main attractions are the historical center and the “bamboo train” on the decayed railway. The city accommodates 48 hotels (1,958 rooms), 71 guesthouses (1,199 rooms), 65 standard

restaurants, 21 standard karaokes, 6 standard massage salons (35 beds), and 4 standard dance halls. Documentation on architectural and urban heritage is currently under development by the Department of Tourism. The Department of Tourism is intending to open the governor's palace to the public, extend the night market inside the historical core (a pedestrian street would be designed), and upgrade the amenities in public spaces.⁹²

⁹² AFD, “Terms of Reference for the Feasibility Study on Sustainable Development of Cambodian Cities,” 2017

Battambang city has identified tourism as a key economic sector in its future development. The proximity to the Siem Reap International Airport and international border with Thailand and the future railway line between the Thai border and Phnom Penh, which passes through the city, make the city increasingly accessible to domestic and international travelers.

In the city center, Battambang has more than 700 buildings from the colonial times, many of which have the potential to be key tourist attractions. It is therefore a priority to preserve these buildings and to make them an important part of its tourism profile (e.g., under the label “cultural” tourism). Among other attractions are the increasing number of high-quality hotels and restaurants and well-developed public spaces, such as parks.

The city faces several challenges in developing the tourism sector, which need to be addressed to make the city more attractive. Among these are the deteriorating heritage buildings and their lack of visibility (some are completely covered by billboards), the low quality of drainage and sewage systems, the accumulation of uncollected solid waste on the streets, and a limited budget for developing tourism potential, including in the context of sustainability and green economic opportunities.

With a growing number of hotels and restaurants, a green labeling or certification scheme based on highly hygienic and sustainability standards could provide green hotels with a competitive advantage and add to the city’s green profile. The scope for sustainable tourism extends beyond the city center, where ecotourism activities can be developed to help preserve, rather than exploit, natural assets.

Solid waste

As for most secondary cities in Cambodia, improving waste management is a main challenge for Battambang and is a key element in future sustainable city development.

Currently, the collection of household waste is slow and does not cover the entire city. Some homes are not accessible to waste collection trucks due to narrow roads, and people cannot afford or are not willing to pay for the services. There is uncontrolled dumping and burning of waste on smaller roads and in ditches alongside the residential areas. The waste that

is collected by the two private contractors is most often burnt at a standard below landfills, releasing toxic substances into the air, ground, and waterways, particularly from the burning of plastics. There are currently two small recycling facilities for the composting of organic waste from markets and the recycling of plastic bags into pellets to be sold in Thailand as raw material. Both facilities have issues accessing clean and reliable waste feedstock. A material recovery facility was also recently constructed and is under the responsibility of the municipality. However, it is not yet in operation and is not fully equipped.

There is an urgent need to respond to these challenges and to make the city cleaner and more pleasant to its citizens and tourists while avoiding public health risks. Specific short-term actions include extending waste collection to cover the entire urban area; establishing infrastructure for household, business, and market waste separation and recycling; and developing improved landfills. The recycled waste could be the basis for establishing SMEs, which collect, upgrade, and resell the waste to other businesses. Producing energy from waste—for example, by harvesting methane from organic waste and converting it to energy—is another opportunity for private operators and, at the same time, a contribution to Cambodia’s national goals on reducing greenhouse gas emissions. These SMEs would need support from the government to be financially viable; for instance, by facilitating access to the waste or providing fiscal incentives.

Wastewater and sanitation

In recent years, the city has seen an urban expansion on the west bank of the river, with limited urban planning. This has reduced the sponge area of the city, and drainage of large areas now flow away rather than into the Sangkae River. The city has experienced several flooding events (mostly between October and December) that have affected the local population and destroyed thousands of hectares of crops mainly in wetlands. The 2018 floods were important despite the fact that riverbanks had already been elevated. An upcoming project financed by the Asian Development Bank (ADB) and the French Development Agency (AFD) will upgrade water supply and wastewater facilities and address the issue of wastewater flowing directly into the river.⁹³ At the time of writing, an additional wastewater management plan for the city is also under preparation by

⁹³ Cambodia Development Initiative for Asia (CDIA). “Climate Vulnerability Study to Help Shape Investments in Four Cambodian Cities,” 2019. Accessed December 2, 2019.

<https://cdia.asia/2019/12/02/climate-vulnerability-study-to-help-shape-investments-in-four-cambodian-cities/>

the Beijing Urban Construction Group. Part of the current drainage system does not meet the technical standards required by the Department of Public Works and Transport, and some ditches are buried or blocked by garbage. Consequently, there is an urgent need to rehabilitate the drainage systems to meet the required standards.

Battambang has three sewage treatment plants (a treatment plant in Sava, a treatment plant in Preak Prea Sdach, and a reservoir east of Stoeng Siem Reap), although one of these is currently not working. There is an immediate need to renovate the existing sewage treatment plant. In general, the sewage and drainage system are vulnerable to climate change because of increasing droughts and flooding.

A revenue generation opportunity can be to harvest biogas from the treatment process and use it to generate electricity. This would also contribute to both the local economy and national GHG emission reduction targets.

Green agro-products

The agricultural land around Battambang is fertile, and the agricultural sector holds good potential for green growth, including sustainable or organic farming and small- to medium-scale agro-processing. The local tourist sector is a promising market for locally made products (e.g., silk, fresh fruit, jam, honey, or organic rice), which can be sold to hotels and restaurants and directly to tourists in souvenir shops and markets. Additionally, high-quality oranges from Battambang are already sold in other Cambodian cities, and there may be a scope for exporting products, such as orange juice and rice, to neighboring countries like Thailand.

Among the challenges to develop these potential markets are a general lack of awareness and technical know-how

among relevant farmers and businesses. In addition, the key actors in the tourism sector—such as hotels, restaurants, tourism information centers, and travel agencies—also need to be aware and ready to make use of this potential; for instance, in their marketing. There is, however, limited technical knowledge and a shortage of skilled human resources in these areas.

Developing markets on such specialized and high-quality agricultural products can provide an important contribution to green growth in and around Battambang by diversifying and stimulating the economy and creating incomes and jobs among farmers, processing industries, traders, and households. This can also present opportunities for inclusion of socially marginalized groups, contribute to poverty reduction, and reduce outward migration.

Urban planning

An urban master plan was adopted in 2015. Further integrating sustainable city principles, objectives, and infrastructure in the Sustainable City Strategy Plan into the city's land use and sector master plans is essential to prevent the city from locking itself into a resource-intensive, costly, and polluting urban system. It will help the city to attract attention, resources, and finance from international development partners and other public and private investors.

Greener urban planning can include further development and expansion of green public spaces (there are currently 14 public parks) and improvement of facilities for “soft” traffic; for example, establishing sidewalks and bicycle lanes along main roads. A new ring road and two new bridges located to the north and south of the city are expected to limit heavy traffic in the city center.



Battambang

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Project Name	Brief description of the project's social, economic, and environmental benefits to the city
1	Development of new waste recycling plants and support to existing recycling plants.	Socio-economic benefits and reduction of the amount of waste to be disposed at landfills, improving conditions and the life span of the current landfill. Encourage formal business set-up in the supply chain of waste that will create green jobs.
2	Establishment of collection points for organic and plastic waste at local markets located in the inner-city conservation/ protected areas. Awareness raising of waste management to the public—households, enterprises, private companies, and public and private institutions.	Raise the beauty of the city and improve hygiene and sanitation in surrounding areas of all the markets in the city center. Improve segregation of organic waste and plastic waste for recycling.
3	Development and expansion of the existing green corridor (more public spaces, trees, public gardens, and recreation grounds/areas).	Maintain the sustainability of the existing green areas/corridor, enhancing the city's green corridor in response to climate change. Improve the city's cleanliness and pleasant environment and raise the beauty of the city as well as improve public health.
4	Restoration and expansion of the sewerage and drainage system.	Reduce flooding in the city center and its negative impacts on the city's atmosphere; enhance the cleanliness, sanitation, and beauty of the city. Reduce the amount of wastewater discharge into waterways, such as canals, lakes, and ponds.
5	Development of decentralized wastewater treatment plants.	Reduce the amount of wastewater discharge into waterways, such as canals, lakes, and ponds in outer parts of Battambang that cannot be connected to the central system.
6	Development of the public transport, bus stations, and parking areas with standardized rules and regulations.	Reduce public congestion and improve public order for on-street parking. Improve air quality and public health as well as city beautification.
7	Improvement of current sidewalks and pedestrian areas.	Encourage walking and reduce the use of motorcycles and vehicles. Reduce traffic congestion and improve air quality and public health.
8	Renovation and showcasing of heritage buildings to beautify the city and increase its appeal to tourists and businesses.	Renovate and showcase heritage buildings to beautify the city and increase its appeal to tourists and businesses.
9	Market development for sustainable agricultural products.	Create jobs and increase income by promoting agricultural products from the city and encouraging investors to set up food processing facilities.
10	Introduction and promotion of green hotels.	Encourage sustainable use of materials in hotels that could reduce the negative impact on the environment.

Source: consultation with Battambang Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2015)
Population	155,584
Population density (person/km ²)	1,347.75
Area	115.44
Literacy rate	0.86%
Key economic sectors	Trade
Share of employment in different sectors	
- Agriculture	72.6%
- Manufacturing	1.9%
- Services	70.7%
Outward migration (abroad)	7,046
Average number of motorbikes per household	0.8
Number of people who are in debt (bank or micro-finance)	5,317
Number or households in slums/informal settlements	2,631
Number of households that are impacted by heavy storms	26
Number of households that are impacted by floods	0
Number of households that are impacted by droughts	0
Percentage of households with access to solid waste collection services	19.18% (5,892 HHs)
Percentage of households with access to sanitation	81.1%
Percentage of households with access to piped water	55.70% (15,983 HHs)
Percentage of households with access to electricity	97.7%
Amount of solid waste generated per day	140 tons



SIHANOUKVILLE

2.1. Introduction

The rapidly growing city of Sihanoukville is the most important economic city in Cambodia after the capital, which is primarily due to being home to the country's only deep water port. The importance of the city can be seen by the opening of a rail connectivity with Phnom Penh, which offers the country's only regular passenger and goods train services by the Royal Railways. The city also has the country's third most important international airport, with daily flights to Siem Reap, Phnom Penh, and multiple cities in China. The city is home to several SEZs and is seeing an increasing amount of investments from China due to mutual agreements signed between the two countries' governments.

With a significant increase in foreign investments underway—concentrated in a few key sectors, such as casinos, real estate, and resorts—the city is changing rapidly and is seeing a significant growth in its population and change in demographics. Therefore, the government will need to look beyond its current practice of tracking the “residential and family members books” to estimate population growth. The demographic statistics in this table below are limited by the current method of tracking population data, and the current population is likely much higher, owing to foreign nationals, construction workers, and hospitality staff. An improved method to account for inward migration is highly recommended.

Table: Key Demographic Statistics: Sihanoukville (socioeconomic statistics of Sihanoukville, 2016)

Description	2012	2013	2014	2015
Population	75,226	77,657	82,048	78,380
Annual growth rate (%)	1.2	3.2	5.7	-4.5
Female population	38,502	39,554	41,942	39,656
Sex ratio (females per 100 males)	104.8	103.8	104.6	102.4
Number of families	16,224	17,003	18,034	17,250
Average family size	4.6	4.6	4.5	4.5

2.2. Sustainable City Sector Analysis

Tourism

Sihanoukville is well placed to further develop its tourism sector, which remains a key economic sector for the city. The city is accessible through all means of transport (good road connections, railways, an ocean harbor, and an international airport). It has extensive sandy beaches and excellent opportunities for marine ecotourism, including the accessible and beautiful small islands off the coast. The availability of fresh seafood adds to the potential for attracting tourists.

In the past few years, the city has experienced a development boom with the construction of a large number of casinos, hotels, and resorts, sending prices up. The profile of foreign arrivals has also changed significantly, with a third of arrivals now from China on tourist and business visas.⁹⁴ The province's tourism department for the first half of 2018 reported a 44% increase in Chinese arrivals since 2017. Visitors from Vietnam increased by 3.3% while visitor numbers from Europe and America have fallen sharply. One million in the first six months were domestic tourists—up 8.1% year on year.

Current key challenges include ensuring a balanced range of tourism infrastructure toward more nature- and culturally based activities and the relatively high prices of food and accommodation. Further, the skills of staff in the hospitality sector (hotels, restaurants, etc.) are low and need to be upgraded. Discharge of untreated sewage water into streams and the ocean, garbage accumulating on streets and beaches, and traffic jams have increased significantly and add to a reduced attractiveness for tourists who appreciate nature and a clean environment. Sihanoukville also faces problems with the enforcement of laws and regulations—which can prevent the illegal occupation of beaches and islands and illegal construction of shops and buildings in the city—to protect the environment and improve the appeal of the city.

There are several opportunities for developing a more sustainable tourism sector, which would contribute to the sustainable city objectives of Sihanoukville. A key element is the construction and renovation of hotels and resorts according to principles of sustainability. This includes sustainable design and landscapes, water conservation, energy efficiency, renewable energy (e.g., solar water heaters), waste recycling, and protection against erosion (e.g., from heavy rains). More efficient planning, control, and licensing of stores and restaurants along the beaches and in the city is also required, together with law/regulation enforcement activities. Also necessary is the development of sustainable infrastructure around hotels, resorts, and beaches, including the energy and water supply, garbage collection/recycling, and wastewater treatment.

Recent transformation has also brought employment to the city. While a large number of Chinese workers have been brought into staff casinos and hotels, there are also more jobs being offered to Cambodians.

Industry

Industrial development in Sihanoukville is centered around four special economic zones (SEZs). The most recent one is the Sihanoukville Special Economic Zone (SSEZ), which, in its initial phase, focuses on textiles, clothing, machinery, electronics, and other light industries. Apart from manufacturing, it includes zones for trade and living. Once completed, it will comprise over 300 factories, with a total number of 80,000–100,000 employees.

The SEZs in Sihanoukville are important for its future development. They create economic growth, jobs, and incomes but also have a large environmental and social footprint, which may negatively affect the city and its citizens as well as its tourism potential.

Given that SEZs are centrally managed by the national government, it can be a challenge to integrate them in Sihanoukville's sustainable city development. Based on discussions with local authorities, an example of such challenge is the 135-MW coal-fired power station, which has been constructed primarily to provide electricity to the SSEZ. Unless the smoke is properly cleaned, the plant will increase air pollution levels, including in the city, and may negatively affect investments in the tourism sector. In any case, it will add to the national greenhouse gas emissions.

In a sustainable city context, it is important for Sihanoukville that the production processes in the SEZs are happening in a safe, clean, and healthy working environment (complying with the principles of “decent” work). This includes limited pollution of air, water, and soil and the sustainability of the infrastructure and services, which underpins the production, commercial activities, and living quarters. Areas to focus on include renewable energy, resource efficiency, water supply, management of solid and liquid waste, and transport connections. In addition, it is important that there is a good potential for additional job creation through targeted training and skills-upgrading activities that are inclusive of women and marginalized groups.

Greening of the SEZs requires that the city, provincial, and national authorities enforce environmental and social standards to make the SEZs part of the sustainable city development. It also requires a close collaboration with the companies operating in the SEZ on the potential of green growth (e.g., through their business associations). The companies operating in the SEZs should be made aware of the economic benefits—such as energy efficiency measures—and see the potential for national and international marketing of their products, produced and branded on the basis of principles of environmental and social responsibility.

⁹⁴ Ministry of Tourism, 2018. Annual Statistics Report in 2018.

Wastewater

Sihanoukville's sewage and drainage system only covers part of the city, and there is only one sewage water treatment plant. This means that untreated water is discharged into streams and the sea, thus threatening the ecosystem and human health and undermining the tourism potential. There is also limited local awareness and understanding, a lack of cooperation, and weak enforcement of the wastewater regulation. The recent construction boom has significantly worsened the situation with large-scale pollution of the sea at most local beaches, prompting the government to draw plans to upgrade the treatment capacity to 30,000 m³ of wastewater per day.⁹⁵ The government, supported by development partners, also intends to rehabilitate and expand the sewage system, raise public awareness, and introduce free connection to the sewage system. At the time of writing, MPWT has prepared a draft of a wastewater management plan for Sihanoukville with support of the Beijing Urban Construction Group.

As a coastal and tourist town, appropriate wastewater management is an important part of Sihanoukville's sustainable city development. In general, it will improve the aesthetic appearance, wellbeing of citizens and tourists, water quality, and environment. An additional opportunity could be to treat the slurry from the treatment plant in a biogas unit, which would reduce the amount of dry matter in the slurry and generate usable biogas and fertilizer. In addition, developing decentralized sanitation and fecal sludge management in outer parts of the city will ensure efficient coverage of the whole city, including poorer, non-sewered peri-urban areas.

Solid Waste

Sihanoukville's waste collection system does not cover the entire urban area, with approximately 40% of households having access to waste collection services. Some areas have narrow streets, which make them inaccessible for waste collection vehicles. Additionally, waste collection companies do not have sufficient workers and equipment to extend their services. The landfill site is also far away from the city. Among additional challenges are the general lack of awareness of waste management and limited pub-

lic participation in addressing their waste problems. A new waste management company was appointed in 2017, but problems persist as the amount of daily waste generation is growing very rapidly. Because of its fast growth, the city of Sihanoukville has seen the amount of rubbish produced skyrocket to 1,000 tons per day in 2019, up from just 100 to 200 tons per day in 2015.

As part of the response to these challenges, the city intends to expand solid waste collection coverage to 100% of urban areas, organize community-based waste collection in inaccessible areas, introduce waste separation that makes recycling possible, develop landfills of better standards, and raise public awareness and mobilization. If implemented, all these activities will be important elements in the sustainable city development. Opportunities that could provide additional contributions to green growth include the facilitation of market and business development around waste sorting and recycling, waste-to-energy projects based on incineration, and refuse-derived fuel or gas extracted from landfills.

Air pollution

The coal-fired power plant is expected to significantly impact the air pollution levels of the city, and growing investments in industry and tourism will only accentuate the problem in the future. Burning coal also releases other harmful pollutants, such as sulfur dioxide (SO₂), nitrogen oxides (NOx), and particulates. These pollutants are known to cause and aggravate respiratory diseases, damage lung tissue, and can lead to premature death. They can also harm vegetation, crops, and water quality.⁹⁶ Additionally, open burning of waste by residents is widespread in Sihanoukville.

Sea-level rise and flooding

Sihanoukville is vulnerable to the effects of sea-level rise and coastal erosion. Homes in low coastal areas are especially vulnerable, which is exacerbated by the poor quality of house construction and a lack of basic urban services and infrastructure. Coastal erosion will affect beaches, posing a serious threat to the tourism sector. Loss of life among fishermen and damage to housing is common due

⁹⁵ Pech Sotheary, "Sihanoukville wastewater plant upgrades receive greenlight," Khmer Times, last modified May 24, 2019, <https://www.khmertimeskh.com/50607407/sihanoukville-wastewater-plant-upgrades-receive-greenlight/>⁹¹ Biochemical oxygen demand: used as a gauge for the effectiveness of wastewater treatment plants.

⁹⁶ T.M. Chen, W.G. Kuschner, J. Gokhale, and S. Shofer, "Outdoor air pollution: nitrogen dioxide, sulfur dioxide, and carbon monoxide health effects," *The American Journal of the Medical Sciences* 333, no. 4 (2007): 249-256.

to increasingly severe storms and a lack of reliable meteorological information. Increased wet season rainfall is likely to add to existing flood problems and is exacerbated by preexisting serious issues regarding sewage and solid waste management.

Urban planning

In addition to the specific interventions discussed above, there is a need to place sustainable city development within an urban planning framework to ensure contributions to Cambodia and the city's overall vision and goals and to address additional challenges. An efficient approach would be to integrate sustainable city concepts and actions into the city master plan and land use and investment plans, including in future revisions. Sihanoukville is still in the early stages of developing its master plan, and with appropriate assistance from the provincial government and LMUPC,

there is a scope in the short term to integrate and raise the profile of sustainable city development, including in the sectors outlined above.

Other land-use planning challenges involve identification of preservation areas and national parks and improving the transport system (including promoting public transportation and facilities for "soft" traffic; i.e., bicycles and pedestrians). A four-lane highway is being built by a Chinese construction company to connect Sihanoukville to Phnom Penh. The city lacks a suitable bus transit station and public transport system, which will be of increasing importance as the population continues to grow with increased employment opportunities offered by the SEZs. A network of mini-buses should greatly help the movement of people.

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
1	Development of sewerage networks as well as decentralized wastewater systems (Koh Rong and Koh Rong Sonlorm).	Prevent wastewater from discharging into the sea. Improve the quality and cleanliness of beaches in order to attract more tourists and reduce negative impacts on the environment along the beaches.
2	Development of measures and systems for green technologies to reduce the rapid increase of municipal waste, such as incinerators, RDF, waste-to-energy plants, etc.	Reduce the amount of waste. Improve the quality and beauty of the city and reduce the negative impacts of waste on the environment and people's well-being.
3	Development of sustainable supply chain for recyclable waste. Set up a more comprehensive waste collection and disposal system, including a sanitary landfill.	Improve solid waste management to become more sustainable in Sihanoukville. Encourage a formal business set-up in the supply chain of waste that will create green jobs. This will contribute to the reduction of waste in the city and raise the city's beautification as well as improve the environment.
4	Improvement and restoration of all natural reservoirs, canals, ponds, retention systems, and waterways in the city center.	Reduce urban flooding and remove blockage that normally causes damage to roads and properties.

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
5	Development and enforcement of green building standard and establishment of robust monitoring mechanism with high consideration of safety, environmental friendliness, and energy efficiency.	Ensuring that each building complies with green building standards on safety and environment protection.
6	Establishment of a standard bus station outside the city center and improvement of roads, including parking spaces and sidewalks.	Reduce traffic congestion in the city center. Improve air quality and city beautification in order to attract more tourists and benefit the local population. The current bus station is temporarily located in the city center, in the city garden in front of the museum.
7	Establishment of public spaces and standard multi-purpose recreational grounds.	Improve city beautification, public health, and people's well-being.
8	Development of Municipal Land-Use Master Plan (based on the existing Provincial Land-Use Master Plan).	Improve the sustainable use of land, zoning, and infrastructure development for the city.
9	Installation of solar energy for public lights.	Raise the beauty of the city, create a safer inner-city commute, and improve energy efficiency.
10	Promotion of cleaner manufacturing.	Adopt and enforce regulations around resource efficiency and pollution control and promote adoption of renewable energy and resource-efficient technologies in manufacturing.

Source: consultation with Sihanoukville Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2015)
Population	78,380
Population density (person/km ²)	400.1
Poverty rate	6.81%
Area (km ²)	195.90
Literacy rate (workshop presentation)	99.5%
Key economic sectors	Service and port
Share of employment in different sectors	
- Agriculture	6%
- Manufacturing	3.9%
- Services	90.1%
Outward migration (abroad)	570
Average number of motorbikes per household	0.9
Number of people who are in debt (bank or micro-finance)	4,759
Number or households in slums/informal settlements	972
Number of households that are impacted by heavy storms	5
Number of households that are impacted by floods	0
Number of households that are impacted by droughts	0
Percentage of households with access to solid waste collection services	40%
Percentage of households with access to sanitation	83.89%
Percentage of households with access to piped water	63.08%
Percentage of households with access to electricity	98%
Amount of solid waste generated per day (2018 estimation)	150 tons



Sihanoukville



KEP

2.1. Introduction

Kep is a historic tourism area located in the coastal zone of Cambodia. The small coastal town has a population of 21,210 (2018) and has strong ecotourism potential with well-known sites, such as the crab market, Kep National Park, and Koh Thonsay (Rabbit Island). The city is relatively clean and was awarded medals, such as the National award (three Rumdul flowers) for Clean City and the ASEAN City for Sustainable Environment award.

The city center is geographically located along the beach and surrounded by many small islands. There are three main areas of urban activity: Kep Beach, located on the southern seashore; the crab market, which is also located on the seashore, about 1 km west of the beach; and another

larger inland market, further east of the beach. KEP also has a national park, hills, mangroves, and salt fields. The city is part of the ASEAN Highway 123 and 33A development program.

Kep city has its own targets for socioeconomic development, focusing on tourism, agriculture, and handicrafts. Its geographic area has less potential for industrial growth, making it an ideal case for sustainable city development, and is poised for significant growth in the coming years. It is gradually being discovered by international tourists who are attracted by its relatively untouched beachfront and an exciting cuisine influenced by the abundant supply of fresh seafood, such as crab, squid, and fish.

Table: Key Demographic Statistics: Kep (socioeconomic statistics of Kep, 2017)

Description	2015	2016	2017	2018
Population	20,608	21,018	20,694	21,210
Annual growth rate (%)	0.2	2.0	-1.5	2.5
Female population	10,545	10,822	10,655	10,824
Sex ratio (females per 100 males)	105	106	106	104
Number of families	4,528	4,545	4,562	4,601
Average family size	4.5	4.5	4.5	4.5

2.2. Sustainable City Sector Analysis

Tourism

With its coastline, beaches, islands, mangroves, and a national park on the edge of town with high biodiversity, Kep has a natural potential for building its economy on sustainable tourism. Fresh seafood and local farm products are also widely available, including the famous crab market. There is a disused railway station in Kep, branching off the

Phnom Penh-Sihanoukville line. Being a relatively quiet and small coastal city, Kep could attract mid- to high-end tourists who appreciate a closeness to nature and relaxed lifestyle, in contrast to mass tourism. This potential is recognized by the municipality, which sees sustainable tourism and ecotourism as the main economic sector for Kep and a key element in its sustainable city development.

The city faces numerous challenges in the further development of the tourism sector, mostly related to human and

financial resources. High-potential land bought through real estate investments and by speculators often lies idle without further development, even when the necessary permits have been obtained. The supply of fresh seafood is sometimes not sufficient to cover the demand, and there is a risk of resource depletion by over-fishing. There is also a lack of physical infrastructure to underpin tourism development; for example, a clean water supply, wastewater treatment, management of solid waste, and a reliable energy supply. The city is vulnerable to climate change impacts and natural disasters, such as increased sea temperatures, heavy rains, and storms. Turning the potential for sustainable tourism into reality requires the city to continue developing physical infrastructure. This includes expanding the piped water supply to the entire city, installing public toilets and waste collection bins/containers along the beaches, and improved management of solid and liquid waste. Other options include installing streetlights powered by solar energy.

By enforcing existing regulations and through stakeholder dialogue, the city can incentivize private tourism operators to adopt green standards for reduced water and energy consumption, the use of renewable energy systems (e.g., solar water heaters and PV electricity), waste recycling, and wastewater treatment. This can also include better management of hotels, resorts, and gardens and the use of locally produced food in restaurants.

The city can further develop ecotourism by upgrading the tourist port to make it more attractive, based on green principles. This could be achieved by installing a renewable electricity supply (e.g., PV), sewage collection and treatment, and introducing green modes of land and sea transport—electric tuk-tuks, cars, public buses and boats, and improved lanes for bicycles and pedestrians.

To integrate the principles of sustainable tourism in Kep, the municipality should establish a dialogue mechanism with private tourist operators and civil society. This would enable discussions on green tourism principles and objectives, a rollout of priority actions, marketing, and promotion activities. It could also be used to mobilize public participation in green activities and organize skill development activities. The existence of such a public-private dialogue mechanism could be an important factor in attracting national and international finance for projects and investments in green and climate-friendly projects.

Solid waste management

The current waste collection system in Kep covers only 31% of households, and recycling options are limited by the lack of economy of scale. There is very limited recycling, and the existing landfill does not comply with appropriate standards. Adding to these challenges is the lack of public participation and awareness of how to reduce, separate, and dispose of waste. This is partly due to the limited educational efforts toward communities.

In response to these challenges, the city aims to promote the 3R principles of “Reduce, Reuse and Recycle” in managing solid waste. It intends to launch public awareness campaigns to maintain a good city environment, including maintaining clean beaches. The city also aims to improve waste collection/management services and infrastructure, add more waste collection trucks to cover 100% of the urban area, and improve the landfill. The ADB is currently supporting a study for establishing a landfill that meets acceptable standards. This creates opportunities to develop small businesses around the collection, sorting, processing, and marketing of recycled waste. The city could explore partnering with the neighboring town Kampot to increase the viability of recycling facilities. This may contribute to job creation and income generation while reducing air pollution from open burning.

Wastewater management

The city lacks a sewage piping system and wastewater treatment plant that prevents the discharge of untreated water directly into the sea. None of the households are currently connected to a sewage drainage system. This situation is obviously a challenge for Kep’s sustainable city development image and threatens the city’s profile as an ecotourism destination. In response, the city intends to develop a sewage system comprising sewage pipes and a treatment plant with a capacity of 5 tons a day, growing to 24 tons a day in 2030. A wastewater treatment plant and public toilets are currently being built to service the crab market area, with support from ADB, and a small drainage and treatment system has also been built to improve the water quality at the main beach. In addition, the city will promote pretreatment (e.g., septic tanks) in households and businesses. The topography of the city makes it challenging to establish a centralized system, and the city may be better suited to decentralized sanitation. At the time of writing, MPWT is planning to develop a wastewater management plan for the city with the support of the Beijing Urban Construction Group.

Small businesses

Kep has several small businesses that specialize in local foods, such as crab meat, fish sauce, salt, and pepper. With a growing number of tourists often interested in buying local artisanal products as souvenirs, there is a business case for expanding this area. Certified products that can be easily transported and legally exported could be in high demand, and there is the scope to develop additional businesses around organic and healthy foods. Natural products from the sea (based on shellfish, fish, seaweed, etc.) are increasingly regarded as a healthy choice, with a growing market.

In addition, agricultural lands around Kep are fertile and can carry many different crops, including high-value pepper, which the region is already famous for, and fruits, such as mangoes and durian. Visiting fishermen, farms, and businesses involved in producing these products can even become an additional tourist attraction. Developing and marketing these areas can create local jobs—inclusive of women—reduce outward migration, and contribute to poverty reduction and social inclusion.

There are several challenges facing further development of high-quality ocean and farm-based products, including limited skills and technical knowledge on sustainable fishing, growing, harvesting, processing, and marketing. The quality of the current products does not yet meet the standards required for the tourist market, and selling prices are consequently low. Both fishing and farming are vulnerable to the consequences of climate change, including an increasing frequency of droughts, floods, and hurricanes. For fishermen, overfishing of specific species may be a problem. For farmers, water shortages are sometimes a problem, partly due to a limited system for irrigation. Finally, there is a lack of investment, which is capital for these businesses.

Given the contributions this area can provide to the sustainable city development—including income generation, job creation, social inclusion, and a more sustainable use of Kep's natural resources—the city intends to encourage business owners and create an enabling environment for investors. From a green growth perspective, there should be a focus on developing the market for locally made, sustainably produced products by actively stimulating interest from the tourist sector, where the tourists at hotels, guesthouses, and restaurants are the main customers.

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
1	Development of a comprehensive wastewater treatment system for Kep city, including decentralized solutions for the islands.	The system should include a mixture of onsite and offsite sanitation according to the location. This will reduce the amount of wastewater discharge into sea, beaches, and waterways.
2	Development of an improved landfill on a reserved 14 hectares of land at Damnak Cham Oer, Sangkat Prey Thom. Promotion of 3R and improvements in waste collection and transport.	Reduce the amount of waste in the city and in public spaces. Decrease the negative impacts on the environment. Raise the beauty and cleanliness of the city to attract more tourists and improve people's well-being.
3	Awareness raising on waste management (particularly on waste reduction), wastewater, and sanitation as well as environmental protection at the household and commercial levels, including restaurants, hotels, and guesthouses.	Reduce the amount of waste in the city and public spaces and the impact of wastewater. Lower the negative impacts on the environment. Raise the beauty and cleanliness of the city to attract more tourists and improve people's well-being.

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
4	Establishment of mangrove community-based ecotourism.	Attract more tourists into the city, creating jobs and generating income for local communities while protecting the mangrove forests.
5	Restoration of dikes and reparation of two water tanks at Ou Krosom and Kompong Tralach.	Create more jobs and yield greater agricultural outputs.
6	Conduct feasibility study on the development of renewable energy sources, such as solar and wind energy.	Identify potential opportunities in the development of renewable energy sources and mobilize investments. This will contribute to the sustainable development of the energy sector and create local green jobs.
7	Introduction of green modes of land and sea transport—electric tuk-tuks, cars, public buses and boats, and improved lanes for bicycles and pedestrians.	Boost the local economy and local jobs. This will also ensure environmental sustainability in Kep.
8	Promotion of sustainable tourism through setting up a dialogue mechanism with the private sector and CSOs.	Improve the tourism industry to focus more on environmental sustainability.
9	Promotion and marketing of local produce, such as seafood, fruit, pepper, and salt.	Boost local businesses and improve the market for local produce, which Kep has a comparative advantage due to seafood, fruits, pepper, and salt.
10	Improvements in the clean water supply.	Address the shortage of clean water during the dry season.

Source: consultation with KEP Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2016)
Population	19,553
Population density (person/km ²)	255.89
Poverty rate (workshop presentation)	11.1%
Area (km ²)	76.41
Literacy rate (workshop presentation)	97.6%
Key economic sectors	Tourism
Share of employment in different sectors	
- Agriculture	94.9%
- Manufacturing	0%

Indicators	Data (2016)
- Services	5.1%
Outward migration (abroad)	333
Average number of motorbikes per household	0.7
Number of people who are in debt (bank or micro-finance)	2,390
Number of households in slums/informal settlements	14
Number of households that are impacted by heavy storms	38
Number of households that are impacted by floods	9
Number of households that are impacted by droughts	37
Percentage of household with access to solid waste collection services	31%
Percentage of households with access to sanitation	39.39%
Percentage of households with access to piped water	0%
Percentage of households with access to electricity	41.1%
Amount of solid waste generated per day	34 tons



Kep



KAMPONG CHAM

2.1. Introduction

The capital city of the province of Kampong Cham is home to about 50,000 people over a 22 km² area, making it one of the most densely populated cities of Cambodia.⁹⁷ The city benefits from its proximity to Phnom Penh, located approximately 125 km away, and the Kizuna Bridge across the Mekong River, which opened in 2001 and, for the first time, connected eastern and western Cambodia. Built over three years with funding from the Japanese

government, the bridge forms the focal point of the river-side development that aims to greatly improve the profile of the city. The city offers the usual mix of natural and cultural tourism that characterizes much of Cambodia but offers a unique destination: Koh Paen—an idyllic rural island in the middle of the Mekong that is now connected to the mainland by a new bridge.

Table: Key Demographic Statistics: Kampong Cham (Socioeconomic statistics, 2017)

Description	2015	2016	2017
Population	40,419	40,925	48,781
Annual growth rate (%)	N/A	1.3	8.0
Female population	N/A	N/A	24,725
Sex ratio (females per 100 males)	100.6	99.0	--
Number of families	8,888	9,050	9,234
Average family size	4.5	4.5	--

2.2. Sustainable City Sector Analysis

Tourism

Kampong Cham has promising potential for sustainable tourism, which can be further developed within a sustainable city concept and become another pillar in the green economy. There are natural and historical attractions in and around the city, including heritage buildings, the Nokor Bachey pagoda, and the iconic bamboo bridge. The Mekong River offers opportunities for river-based

tourism, such as cruises or water sports. The island of Koh Paen, in the middle of the Mekong River, has a beach and good potential for ecotourism. In addition, while limited in numbers, there are some decent hotels, guesthouses, and restaurants as well as approximately 60 parks and well-paved roads.

⁹⁷ Socio-economic statistics 2017 for Kampong Cham

The city faces several challenges in realizing its tourism potential. The general infrastructure and service level for tourists is still low (e.g., a lack of travel agents and only one information center), the visiting time of tourists is generally short, and many heritage buildings and tourist spots are not well maintained. In addition, solid waste and wastewater management is poor, making the city less attractive. The two river ports are run down and below acceptable standards. Certain attractions are far away and not easily accessible for tourists, and the risk of flooding from the Mekong and heavy rains is a threat to the tourism infrastructure.

In response to these challenges, the city intends to launch initiatives to maintain and rehabilitate public parks and historical attractions, sustain the bamboo bridge (which is an attraction to domestic and international tourists), upgrade the ports, develop the riverside, and encourage hotels to comply with national and international sustainability standards. The city also realizes the need to better disseminate information to travel agents, develop the capacity of hospitality staff and service providers, and continue branding the city as a sustainable city and tourist destination.

There are several options to further strengthen sustainable tourism development, in addition to what is already being considered by the municipality. Apart from improving solid waste and wastewater management, this can include improving facilities for green transport (e.g., bicycle lanes and pedestrian areas), promoting electric vehicles (tuk-tuks, cars, and buses), and the rehabilitation of heritage buildings. Finally, the city could develop new resorts on the hills, along the river, and on the islands, designed to cope with possible flooding and using resources efficiently (including energy and water and waste).

Given that the tourism sector in Kampong Cham is still at its early stages of development, it would be relevant for the city, in cooperation with stakeholders in the tourism sector, to establish a framework for green tourism development as a subset of the overall city master plan. Apart from ensuring better coherence, such framework would make the tourism sector more attractive to development partners and domestic and international investors.

Green industry and trade

Kampong Cham is already a business center for the province. The proximity to Phnom Penh (a 2.5-hour drive) and the Vietnamese border (a 1.5-hour drive), together with the possibilities for river transport and good road connectivity,

provides good opportunities for small- and large-scale companies to operate in and around the city. Other comparative advantages include existing marketplaces, the availability of land for business development, the availability of hotels and restaurants, and that the city generally offers a safe and secure environment.

As Kampong Cham Province is largely agricultural, the city has good potential to expand its role as a wholesale market center for fresh products—including corn, cassava, cashews, mangoes, and bananas—and as a center for small or large industries (agri-businesses) that produce and market agriculturally based products for the domestic and international markets (e.g., Vietnam).

There are many challenges that need to be addressed to further develop this manufacturing and trading potential. The level of investment in productive activities is low, and products from existing businesses do not comply with national and international standards. Adding to this are the low quality of the waste and drainage system and a high vulnerability toward the impacts of climate change, such as flooding from heavy rains and the Mekong River and erosion of the riverbanks.

In response to the lack of investments, the city intends to launch initiatives that will attract investment and be part of the sustainable city development. Among the most important initiatives is the establishment of an SEZ, where small- and large-scale industries will be allowed to operate. This offers the opportunity to enforce compliance with environmental and social standards from the outset.

Solid waste

As with most Cambodian cities, there is much required to develop the sustainable management of solid waste. In Kampong Cham, only 56% of households have access to waste collection, and waste recycling is very limited. The waste collection services are expensive and slow, there is a lack of trucks, and the existing landfill is 25 km outside the city. The sector is not attractive to investors, and there is no real competition among service providers. Furthermore, awareness of waste removal among people is low, which results in a lack of public participation and a general lack of information regarding how to deal with waste.

In response, the municipality is planning several initiatives to promote solid waste management and recycling. This includes raising public awareness of hygiene, waste separation, recycling, proper storage of waste, and waste disposal services as well as installing rubbish bins in

schools and public spaces. The municipality also intends to expand waste collection in a more efficient manner, implement waste sorting and recycling, and locate landfills at a suitable distance from business and residential areas. Finally, the city wants to create proper competition among the waste collection companies. The sorting and recycling of waste represents attractive business opportunities for local SMEs and waste collection companies. Establishing a new improved landfill and using the waste at the landfills for energy production (e.g., landfill gas or incineration) can improve the environment and create an additional income stream for the waste companies, thus making the business more attractive.

Wastewater

Currently, the sewage system in Kampong Cham reaches approximately 53% of households. There is no treatment plan, and the wastewater is discharged directly into the Mekong River, thus reducing the water quality, undermining tourism potential, and negatively impacting cities further downstream. The sewage system, which was built during colonial times, does not separate rainwater and sewage water and is gradually collapsing, with many blockages. Hotels and businesses do not have septic tanks. Consequently, there is high demand for investments; however, the city has faced a lack of public funding and investment partners. At the time of writing, MPWT is planning to develop a wastewater management plan for Kampong Cham with the support of the Beijing Urban Construction Group.

The city is aiming to mobilize investments from public and private sources or development partners for a new sewage system with separate pipes for sewage and drainage, culverts for rainwater and sewage, and a sewage treatment plant. In addition, the city intends to raise the awareness of households, businesses, and public/private institutions on better management of wastewater as well as encourage enterprises and households to construct their own primary treatment plants (e.g., septic tanks) before discharging the wastewater into the system.

A fully functioning and up-to-standard sewage treatment system is a key element in sustainable city development and would contribute to better health, a cleaner environment, and making the city more attractive. Using the treatment slurry for soil improvement or for biogas production could add significant value.

Erosion from the Mekong River

The city is greatly affected by the annual flooding of the Mekong River, which brings large volumes of silt. The rising water causes significant erosion of the river embankments and potential damage to roads and infrastructure along the river. The city faces vulnerability at a specific spot where the river turns. This spot faces the brunt of the water currents, so strengthening the riverbanks in the area would help to minimize damage. The city also faces occasional flooding due to heavy rainfall and rising water levels of the Mekong, with the most recent being in 2018.

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
1	Improvement of the current waste management system, including a sanitary landfill and MRF.	Develop a well-established landfill and recycling station. Raise public awareness of waste separation and storage and improve waste collection services through competition.
2	Restoration and expansion of the drainage and sewerage network.	Prevent flooding from heavy rains and protect infrastructure, such as roads, from flood damage. Reduce wastewater from discharging into natural water sources. Raise the city's beautification.
3	Development of a centralized wastewater treatment plant.	Prevent wastewater from discharging into natural waterways, such as canals, ponds, rivers, and streams. Improve sanitation and environment as well as people's health and well-being.

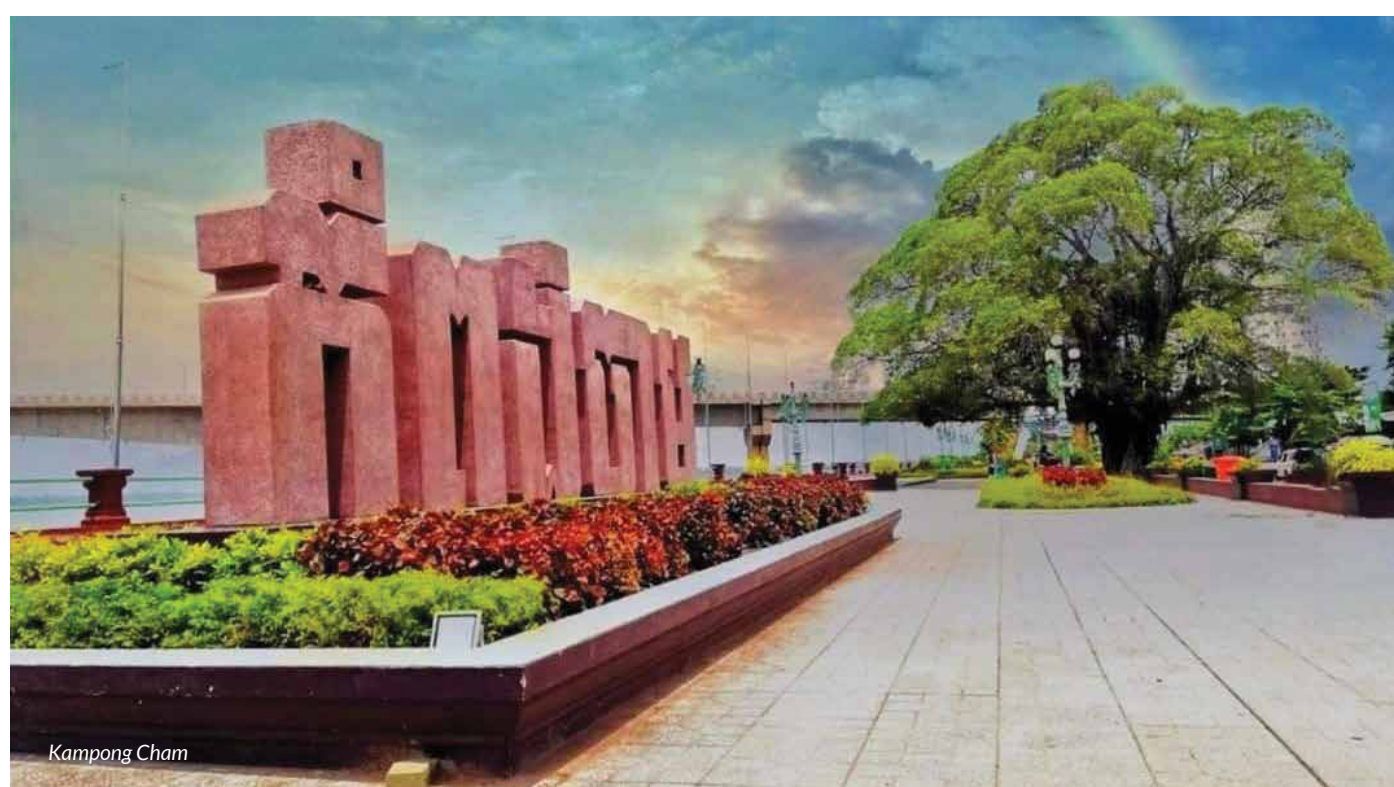
No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
4	Construction of riverfront protection system.	Prevent the city from flooding as well as the city's infrastructure from flood damage; protect people's property.
5	Expansion of road network in the city, including bicycle lanes and sidewalks.	Improve public transportation, reduce traffic accidents, and provide better agricultural product transportation from rural to urban marketplaces.
6	Improvement of tourism attractions.	Conserve the bamboo bridge and improve Koh Paen to attract more domestic and international visitors/tourists to the city.
7	Prepare the city's land use master plan, including zoning for industrial parks such as green SEZs.	Conduct proper zoning for satellite cities, land use planning, and zoning to improve the city's road network. Plans to include a tourism development framework.
8	Improvement of clean water supply	Strengthen the efficient use of clean water through a reasonable water usage fee; all households will have access to clean water.
9	Improvement of bus station and public parking spaces.	Reduce traffic congestion and traffic accidents. Improve the air quality. Increase and improve parking spaces in the city center.
10	Improvement of the public space with multi-purpose recreational grounds.	Raise the beauty of the city and construct buildings resilient to climate change. Improve people's health and wellbeing.

Source: consultation with Kampong Cham Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2016)
Population	40,925
Population density (person/km ²)	1,847.63
Poverty rate (workshop presentation)	1.8%
Area (km ²)	22.15
Literacy rate (workshop presentation)	99.5%
Key economic sectors	Service, trade, and tourism
Share of employment in different sectors	
- Agriculture	16.1%
- Manufacturing	2.5%

Indicators	Data (2016)
- Services	81.4%
Outward migration (abroad)	720
Average number of motorbikes per household	1
Number of people who are in debt (bank or micro-finance)	1,733
Number or households in slums/informal settlements	92
Number of households that are impacted by heavy storms	1
Number of households that are impacted by floods	0
Number of households that are impacted by droughts	0
Percentage of households with access to solid waste collection services	56%
Percentage of households with access to sanitation	75.08%
Percentage of households with access to piped water	97.16
Percentage of households with access to electricity	99.5%
Amount of solid waste generated per day	70 tons





BAVET

2.1. Introduction

Located on National Road 1 at the border with Vietnam in Svay Rieng Province, the town of Bavet is home to several SEZs and casinos. Casinos benefit from the influx of tourists from Vietnam who are prohibited from gambling in their own country. The town is largely agrarian with pockets of development. It is composed of five sangkats, spread over a large rural geographical area. The central sangkat (Sangkat Bavet), which is where most of the economic activity is, is located right beside the border. It sees a daily influx of several hundred Vietnamese workers employed at the SEZ and casinos. Outside National Road 1, SEZs, casinos, and the border areas, the town has seen very little in terms of development. The benefits resulting from its geographic lo-

cation have yet to be translated into overall socioeconomic development and overall prosperity for its people.

The city of Bavet is unique as the population growth of the city is heavily dependent on the two sources of employment, the casinos and the industries located in the SEZs, both catering to and leveraging the city's proximity to Vietnam. However, these comparative advantages could quickly erode, should there be future legislation legalizing gambling by locals in Vietnam and if the wages of workers employed in the SEZs rise to a point where they are no longer competitive, making the population growth of Bavet susceptible to externalities beyond the direct control of the city's government.

Table: Key Demographic Statistics: Bavet (Socioeconomic statistics of Bavet, 2016)

Description	2012	2013	2014	2015
Population	38,733	38,795	39,744	39,747
Annual growth rate (%)	2.5	0.2	2.4	0
Female population	20,021	19,791	20,458	20,516
Sex ratio (females per 100 males)	107.0	104.1	106.1	106.1
Number of families	8,659	8,778	8,927	9,971
Average family size	4.5	4.4	4.5	4.0

2.2. Sustainable City Sector Analysis

Tourism

Currently, Bavet's 11 casinos are the basis for the tourism sector, which are largely dependent on visitors from nearby Vietnam. Given that most of the tax revenue from casinos goes directly to the government, the economic benefits for the city are limited. Further, the number of visitors from Vietnam may reduce drastically in the future, as gambling laws are relaxing in Vietnam. Therefore, the city should develop alternative tourist attractions to keep the sector in business.

Among the challenges for the development of tourism are a lack of natural sites; few parks and public spaces; and a low-quality and limited supply of hotels, guesthouses, and restaurants. Adding to this is the lack of skilled laborers and the insufficient supply of local foods.

To make Bavet more attractive, the city has plans to build a total of 30,000 m² of parks; promote construction of new quality hotels, guesthouses, and restaurants; and increase tourist information services. There are also intentions to develop natural attractions outside the city center, in Yeay Daun Hill and Prey Koki forest community, including access roads.

This new thinking around Bavet's tourist sector opens opportunities for greening of the sector, along the lines of sustainable city development. This can include designing parks with high biodiversity, dustbins, public toilets, and recreational facilities and promoting the use of sustainable building materials, energy efficiency, renewable energy (e.g. PV and solar water heaters) in hotels and guesthouses, water conservation, and waste recycling. The Yeay Daun Hill and Prey Koki forest community attractions could be designed as ecotourism sites, with attention to preserving natural and cultural heritage. There is good potential for generating incomes from producing specialized food products from local farms and aquaculture (e.g., organic) that can be served in restaurants and processed and sold as souvenirs. Building a green tourism profile has the potential to attract more tourists, improve the environment, strengthen the economy, and create jobs that are inclusive of the poor and disadvantaged groups.

Industries

With its location on National Highway 1, right next to the international border with Vietnam and close to the deep water port in Ho Chi Minh City, Bavet is ideally placed for businesses that are targeting trade and export/Import. This potential has led to the establishment of five SEZs with 58 factories, employing approximately 61,093 workers, including 29,851 female workers from local areas. There are also 2,463 foreigners, of whom 615 are women, currently working in factories. Among products are garments, footwear, bicycles, nuts and bolts, and packing materials.

The SEZs in Bavet have a strong footprint on the local environment. There is no transportation system for workers commuting to the SEZs, and National Highway 1 sees daily congestion. Water is taken from underground and is becoming depleted (e.g., in the Manhattan SEZ), and there is no sewage water system.

Given that SEZs are under the management of the Council for the Development of Cambodia (CDC), and thus outside the jurisdiction of the municipality, the city has limited influence on the planning and operations of SEZs. Only in specific issues related to environmental or social impact—such as discharging polluted wastewater or conflicts with workers—does the city authority, provincial government, and CDC cooperate to solve the problem.

The SEZs pose some challenges to Bavet's sustainable city development. On one hand, the city can benefit from the economic activities (e.g., job creation and accommodation for workers); on the other hand, the city carries the burden regarding the environment (e.g., waste, traffic congestion,

and the pollution of air and water) and, at times, social unrest (e.g., striking workers).

From an overall sustainable city point of view, the challenges are to ensure sustainability in the present operations and further development of the different SEZs. This can include whether the raw materials are produced or extracted with appropriate environmental and social considerations; the production process is happening in a safe, clean, and healthy working environment (complying with the principles of "decent: work), with limited pollution of air, water, and soil; and the final product is resource efficient and recyclable. Adding to this is the sustainability of the infrastructure and services, which underpins the production, including energy and the water supply, management of solid and liquid waste, transport, and communication.

Since the sustainable performance of the SEZ is of key importance for Bavet and its inhabitants, the provincial authorities need to have a close dialogue with CDC to ensure that the SEZs do not become "islands" isolated from sustainable city development—instead, actively contributing to the development as well as to national targets for sustainable development.

For Bavet, a sustainable city approach holds good potential for developing businesses also outside the SEZs and thus contribute even more to local sustainable growth and employment. This could be in green production processes, such as agro-processing, based on local sustainably grown crops or fibers, or resource-efficient knowledge-based industries (e.g., information technology). Handicrafts and specialized foods produced locally could find a market in the tourism sector. An economic development outside the SEZ would reduce outward migration, requiring mobilizing investments in the city and surrounding areas and targeted training and skills-upgrading activities that are inclusive of women and marginalized groups.

Waste and wastewater

As most other Cambodian cities, Bavet (excluding the SEZs) has waste challenges that need to be resolved, for the benefit of the citizens and the environment and as a necessary element in sustainable city development. Currently, 10% of the population has access to a sewage system, although there is no sewage treatment plant, and 8% have access to collection of solid waste; there is no organized recycling, and the landfill is below standard.

An MRF was recently built that is not currently operational. Additionally, sewer pipes are currently being laid along

1.1 km of NR1 in the central sangkat to channel untreated wastewater from households into an old canal that discharges into a nearby river. Future work supported by ADB may potentially include building a wastewater treatment plant on 20 hectares of land allocated by the government and road improvements. Sewer pipes also exist in the outer sangkat, which are not connected to many households and discharge wastewater directly into lowland lakes, resulting in a loss of biodiversity.

For wastewater, there is a need to establish a sewage system that reaches all households, businesses, and institutions; a separate drainage system (culverts) for storm water; and construction of filter tanks and a sewage treatment plant.

The solid waste problem must be addressed by making the waste collection services more efficient and available to all households, organizing a waste recycling system, and establishing a sanitary landfill. In addition, there is a need to educate citizens, traders, and businesses about proper minimization and storage of wastes as well as encourage them to participate in and use the waste collection services.

An improved waste management system will contribute to sustainable city development and make the city more attractive to current and future citizens and tourists. In addition, the green growth dimension can be further strengthened by using the waste as a resource and business opportunity: for example, selling recycled materials (metals, compost, etc.) or through waste-to-energy projects (biogas or incineration).

Transport

Every day, 300 container trucks drive through Bavet, and 700 trucks transport workers to and from their workplaces. This is happening on narrow roads, creating noise and traffic congestion, and with old substandard trucks, resulting in air pollution and traffic accidents.

There is a need for better traffic management and investment. In a sustainable city context, this can include a ring road to reduce the traffic load in the city, together with a public transport system for commuting workers. Inside the city, this could include better public transport, electric vehicles, better mobility for the poor and disabled, improved biking lanes and pedestrian walkways, and automobile-free zones.

Air Pollution

With the national highway running right through the middle of the city and providing connectivity with Vietnam, the city of Bavet has a significant problem with air pollution caused by the large container traffic that stops on either side of the road, waiting for clearance to cross the border. The city has very few paved roads, and with the SEZs and casinos dependent on the national highway to provide access to workers and staff to access their respective places of work, the problem of air pollution is further exaggerated. There is an urgent need for completing an alternative bypass route, which is under construction, to divert the heavy goods traffic away from the center and thus partly address the problem.



2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Projects	Brief description on the project's social, economic, and environmental benefits to the city
1	Development of the city's sewerage and drainage system.	Protect the city from wastewater and storm water flooding; prevent the contamination of waterways and water supply with wastewater.
2	Development of wastewater treatment plant.	Treat wastewater to a standard acceptable for discharge to the environment or reuse for irrigation.
3	Improvement of solid waste management (within the whole supply chain) and management of the current landfill.	Public awareness raising on the impacts of solid waste on the environment, proper waste separation and storage, and others. The city will have improved waste collection services (more frequent and timely waste collection) and a well-established landfill with waste separation and a recycling station. Introduce and enforce laws and regulations for littering
4	Road improvement and expansion of road network.	Improve public transportation, especially during rush hour, and reduce traffic accidents. Improve freight transportation, which will reduce transportation costs and time.
5	Conduct feasibility study on renewable energy sources.	Provide city and industries with an adequate power supply. Offer power grid connection to all houses in the city with a reasonable electricity fee.
6	Development of tourist sites and strengthen safety and security.	Conserve ancient hills and community forests; improve natural lakes, streams, and public spaces; and transform these natural resources into tourist attraction sites for international and domestic visitors/tourists. Strengthen safety and security for domestic and international visitors/tourists.
7	Establishment of energy efficiency technology in the production lines of factories in special economic zones.	Ensure a sustainable production line in factories within the special economic zones. This will contribute to sustainable development and a better environment.
8	Improvement of solid waste management, wastewater, and sanitation in the SEZs.	Ensure a sustainable production line in factories within the special economic zones. This will contribute to sustainable development and a better environment.
9	Development of the city's Land Use Master Plan (construction).	Advance zoning for industrial, agricultural, and residential developments, among others.
10	Improvement of clean water supply.	Improve clean water quality with a reasonable water usage fee. Expansion of water supply network to all villages in the city.

Source: consultation with Bavet Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2015)
Population	39,747
Population density (person/km ²)	242.7
Poverty rate (workshop presentation)	11.9%
Area (km ²)	206.69
Literacy rate (workshop presentation)	98.98%
Key economic sectors	Factory, Casino, Transportation, and Agriculture
Share of employment in different sectors	
- Agriculture	36.1%
- Manufacturing	0.2%
- Services	63.7%
Outward migration (abroad)	418
Average number of motorbikes per household	0.9
Number of people who are in debt (bank or micro-finance)	3,351
Number or households in slums/informal settlements	69
Number of households that are impacted by heavy storms	1
Number of households that are impacted by floods	0
Number of households that are impacted by droughts	0
Percentage of households with access to solid waste collection services	8%
Percentage of households with access to sanitation	67.2%
Percentage of households with access to piped water	10.01%
Percentage of households with access to electricity	63.82%
Amount of solid waste generated per day (workshop presentation)	20 tons



រដ្ឋសភា
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“រូបព្រះគោឱសភាជី”
 កសាងថ្ងៃទី២៩ ខែតុលា ឆ្នាំ២០២០
 ដឹកនាំកសាងដោយ: លោក ជាំ ណារ៉ុន អភិបាលក្រុងស្ទឹង

SUONG

2.1. Introduction

A small agrarian town in the province of Tboung Khmum, Suong city was established in late 2008. It was categorized as a city in 2014 and is the capital of Tboung Khmum Province, which is located between Kampong Cham Province and Vietnam. Tboung Khmum province was formed when Kampong Cham Province was split in half by a royal decree signed on December 31, 2013.

The town struggles to attract new investment, particularly in tourism, and faces two significant challenges. Firstly, the ongoing brain drain often results in some of the more qualified and trained people leaving the town in search of better opportunities. Secondly, there is an obvious lack of any significant sites that would attract tourists, unlike many other cities in Cambodia. However, Suong offers a clean

slate to develop its urban planning, along sustainable city principles, which makes it unique compared to other more established Cambodian cities. This offers Suong an opportunity to develop its own value proposition to attract new investments and tourism.

Suong has a small population for a settlement that was classified as a city, and the population is expected to remain steady with no significant changes due to migration. The city can expect a certain amount of inward migration due to the new growth opportunities offered by a new town. However, this will be offset by residents leaving the city in search of better opportunities, as Suong has very few strategic advantages that will offer long-term and assured sources of employment.

Table: Key Demographic Statistics: Suong (Socioeconomic statistics of Suong, 2017)

Description	2013	2014	2015	2016
Population	36,984	37,255	39,010	38,650
Annual growth rate (%)	3.2	0.7	4.7	-0.9
Female population	19,157	19,177	20,240	20,041
Sex ratio (females per 100 males)	107.5	106.1	107.8	107.7
Number of families	8,074	8,298	8,381	8,378
Average family size	4.6	4.5	4.7	4.6

2.2. Sustainable City Sector Analysis

Agriculture and trade

Business is the main economic sector in Suong city, followed by agriculture. For agriculture, Suong has fertile soils, good weather, and a low risk of droughts and floods. A large share of the agricultural land is currently covered by rubber plantations, and the province is among the leading producers of cashew nuts and pepper. Rice is another

important crop. Due to its position on National Highway 7 and proximity to Kampong Cham and the border with Vietnam, Suong has high potential to become a hub for producing, storing, marketing, and trading agricultural products as well as supplying equipment and services to the sector, such as agricultural machinery.

Among the current challenges that need to be addressed is the high cost of farming. This is because farming in Suong is still based on old techniques; the quality of the irrigation system is low; the share taken by middlemen is high; and there is a lack of an organized marketplace where producers, suppliers, and buyers can meet. Adding to this is the decline of international market prices, competition from imported products, and the impacts of climate change.

Among responses are efforts to increase agricultural yields; diversification of crops (to become less vulnerable to fluctuations in market prices and to climate change); and rehabilitating, improving, and expanding the irrigation system. Further, there is a need to strengthen the role of Suong as a marketplace for agricultural products and related services; for example, by establishing a mechanism that coordinates between producers, processors, and buyers and raises the profile of Suong in this area. A further development of the sector also requires targeted capacity building efforts toward local farmers and other market players, including introducing new crops and modern farming techniques.

From a sustainable city and green growth perspective, the focus on agriculture and related services provides additional opportunities that can further raise Suong's profile and create economic growth, jobs, and incomes (inclusive of the poor and marginalized groups) while improving the environment. Among such opportunities is the introduction of more sustainable agricultural practices with reduced inputs of fossil energy, water, pesticides, and chemical fertilizers (e.g., organic farming). Such practices are more job intensive, reduce environmental impacts, and result in better products that may obtain higher prices on the market. Marketplaces in the city can be designed for energy and water efficiency, renewable energy, and waste recycling. Most organic waste can be used for energy production or composting. Additionally, agricultural machinery and local transport would benefit from the introduction of electric tools, machines, and vehicles. Building such a green profile is important in the future branding of Suong and for attracting new domestic and international customers as well as public and private investors.

Solid waste and wastewater

Similar to most cities in Cambodia, Suong has incomplete and inefficient waste management systems, which need to be upgraded as part of sustainable city development. The city generates about 20 tons a day of MSW and 5 tons a day of market waste. The MSW is collected by a private operator based in neighboring Kampong Cham, sending one truck daily to service the whole city, which often re-

sults in slow and late collection. As Suong does not have a landfill, the waste is transported to the Kampong Cham landfill 60 km away, causing high collection fees and GHG emissions. MSW is only collected in 10 out of the 30 villages in Suong, concentrating on the city center. The Suong market is serviced by a separate private operator, and the waste is dumped in the middle of pepper fields 5 km away from the city.

Suong has no sewage system, and only 11% of families and 17% of houses have access to waste collection services.

Currently, the sewage water flows untreated from drainage into ditches that overflow into nearby paddy fields and create environmental and health risks. In response, the city intends to establish a wastewater management system connecting all households, businesses, and institutions, separating sewage water and storm water and leading to a treatment plant. In addition, there is a need to build knowledge on how to manage, operate, and maintain the wastewater system and to increase public awareness on wastewater management.

Regarding solid waste, the city must enhance cooperation with companies and investment partners to establish an efficient waste collection and recycling system with 100% coverage and a well-located sanitary landfill away from residents and productive farmlands. It is also important to reduce littering in public areas (e.g., installing rubbish bins). Finally, there is a need to create awareness among citizens and businesses about waste handling, sorting, and disposal.

An improved waste management system will make the city more attractive to current and future citizens as well as visitors coming for business and trade. There are additional business opportunities in using waste as a resource, including selling recycled materials and implementing waste-to-energy projects (incineration or biogas extraction from landfills).

Transport

The city lacks basic infrastructure in terms of paved roads. Only 16% of roads in Suong are paved, making it difficult to travel to and between nearby villages. There is a need to pave remaining roads and develop a public transport system that connects all villages to the city center. There are options for greening the transport system in the city, such as introducing electric vehicles (e.g., within the municipality fleet and public buses), improving biking lanes and pedestrian walkways, and increasing the number of automobile-free zones.

2.3. Priority Actions

Under the 12 common objectives and 98 common actions outlined in the Sustainable City Strategic Plan, the city has shortlisted the following priority actions:

No.	Projects	Brief description of the project's social, economic, and environmental benefits to the city
1	Development of an improved land-fill for municipal wastes.	Manage waste disposal with long-term protection and natural cover. Minimize the adverse impacts of garbage on water (ground and underground water), soil, the atmosphere, and the environment as a whole.
2	Development of a more efficient collection and recycling system, including the installation of more rubbish bins in the city.	Improve solid waste management and install additional rubbish bins at public spaces/parks. Manage the disposal of rubbish, such as changing people's behavior of littering frivolously. This will protect the environment, increase public order, and raise the beauty of the city.
3	Development of a centralized wastewater treatment plant.	Prevent ground water downstream and underground water from mixing with hazardous wastewater that will ultimately impact crops, natural resources, and people's health.
4	Repair and expansion of the sewerage and drainage networks.	Manage wastewater and remove blockages of stormwater from flowing after heavy rains. Minimize the negative impacts on the environment. Promote bio-security.
5	Establishment of options for fecal sludge management (collection, transport, and treatment/reuse).	Reduce the disposal of fecal sludge to natural ponds, canals, lakes, and waterways. Improve the environment, biodiversity, and public well-being as well as raise the city's beautification.
6	Establishment of public spaces (parks with multi-purpose recreational grounds).	Raise the beauty of the city and improve public health; attract more visitors/tourists and boost the local economy.
7	Transformation of Toul Ta Beng into one of the city's ecotourism sites.	A historical and cultural area that can boost the economic growth of the city.
8	Promotion of traditional Khmer architecture.	Maintain the traditional Khmer design/style for buildings and houses, so that they are standardized and harmonious in order to raise the beauty of the city and attract more visitors/tourists.
9	Construction of additional roads (paved and concrete) in the city and installation of LED lights powered by solar energy.	Raise the beauty of the city and improve public health; attract more visitors/tourists and boost the local economy.
10	Development of agro-product markets to boost the local economy and create green jobs.	Boost the local economy with a comparative advantage of agro-products in Suong. This will increase local revenue and create sustainable employment opportunities for local people.

Source: consultation with Suong Municipality

2.4. Socioeconomic Statistical Information

Indicators	Data (2016)
Population	38,650
Population density (person/km ²)	466.79
Poverty rate (workshop presentation)	14%
Area (km ²)	82.80
Literacy rate (workshop presentation)	98%
Key economic sectors	Trade
Share of employment in different sectors	
- Agriculture	37.8%
- Manufacturing	1.1%
- Services	61.1%
Unemployment/under-employment rate	1.94
Outward migration (abroad)	1,002
Average number of motorbikes per household	0.8
Number of people who are in debt (bank or micro-finance)	1,538
Number or households in slums/informal settlements	60
Number of households that are impacted by heavy storms	0
Number of households that are impacted by floods	0
Number of households that are impacted by droughts	0
Percentage of household with access to solid waste collection services	16.62%
Percentage of households with access to sanitation	
Percentage of households with access to piped water	
Percentage of households with access to electricity	98.9%
Amount of solid waste generated per day	13 tons



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Suong

Methodology of the Study and Analysis

Process and Methodology of the Strategic Plan Development

The development of the Sustainable City Strategic Plan is part of GGGI's Green Urban Development Program (GUDP) in Cambodia, which is being implemented in partnership with the National Council for Sustainable Development (NCSD) and the Ministry of Interior through the General Department of Administration. The goal of the program is to contribute to the RGC's sustainable economic development, minimizing negative impacts on the environment and responding to climate change.

To ensure that the development of the Strategic Plan be carried out effectively, inclusively, and well aligned with the RGC's vision and direction, the Program Management Unit (PMU) has been established, which consists of members from the government program implementing partners and GGGI. The process of the Strategic Plan development involved extensive consultations at both national and subnational levels, with relevant ministries, municipal authorities, development partners, national and international non-governmental organizations, the private sector, and academic and research institutions. The process of the Strategic Plan development took 12 months, starting in January 2017.

Selection of the target secondary cities

The selection of the target secondary cities for the development of this Strategic Plan was made in two phases. The first phase comprised a national consultation with the government implementing partners—NCSD and MoI—which resulted in nine potential secondary cities identified. The second phase involved a scoping study in the nine secondary cities and subnational consultations with provincial/municipal authorities and relevant provincial departments. The study assessed the level of interest and support of the city governments as well as the potential of green growth regarding the geographical area and administrative arrangement. The scoping study provided significant inputs for prioritizing and selecting the cities.

Based on the results from the two consultation phases, a literature review of existing documents, usage of the selection criteria established by GGGI's urban development experts (as summarized in table below), and consideration of the scope of work and available budget, the PMU selected seven cities as cases for the development of the Strategic Plan. These cities were Siem Reap, Sihanoukville, Suong, Battambang, Bavet, Kep, and Kampong Cham.

Selection criteria	Explanation
Potential economic contribution to the national development agenda	The significance of economic activities that could contribute to national economic growth and poverty reduction.
Geographical importance for spatial balance	Importance of the city's sustainable growth in relation to the country's balanced urban and national development.
Interest and commitment of the local government	The perceived level of interest and commitment of the local authorities to pursue sustainable city development.
Population growth	The projected growth rate of the city's population. With increasing population pressures, interventions are required to support a sustainable transition to a larger, more prosperous, equitable, and sustainable urban area.
Extent of social and environmental issues that require immediate actions	The severity of the city's social and environmental challenges that would affect sustainable city development, if not addressed, in the near future.
Policy and institutional environment for sustainable city development at the city level	The extent to which policies and the institutional environment at the city level are likely to facilitate or pose a risk to the project's implementation. A supportive institutional environment is important in ensuring the success of sustainable city development.
External support	The level of support the city has received from development partners and local and international organizations.

Literature review on existing documents

Many important documents relevant to city development and infrastructure investments were collected from the targeted secondary cities, including reports on the development of master plans, the cities' provincial long-term (strategic) development plans, 3-year rolling investment plans, and sector development plans and their annual progress reports as well as relevant policies, guidelines, and national development programs such as the National Clean City Contest Program. These documents were reviewed to assess the green growth potential and opportunities and challenges for sector-sustainable development in the targeted secondary cities.

Field data collection, verification, analysis, and subnational-level consultations

The process of collecting, verifying, and analyzing baseline data and fieldwork in each targeted city was conducted twice. This process included detailed discussions and consultations with local authorities—such as provincial and municipal authorities—relevant provincial departments, the private sector—such as those in the special economic zones in Bavet and Sihanoukville—and local non-governmental organizations. The results from the literature review of the existing documents were also verified by local authorities in each targeted city to ensure data validity and an accurate reflection of the current situation of each city.

Fieldwork	Time frame	Objectives
Scoping study of the first 9 cities	December 2016–February 2017	To understand the current situation regarding socioeconomic performance and geographic area development. Additionally, to understand the current institutional arrangement at the provincial and municipal levels and assess their level of interest and support for the program and development process of the Strategic Plan.
First baseline data collection and verification for the 7 selected cities	July 11–21, 2017	To verify the baseline data collected from the existing documents with local authorities and develop a specific data template for each city profile and for the development of the Strategic Plan. Moreover, to discuss and consult with municipal authorities on each city's priority investment action plan as well as identify the vision and goals.
Second baseline data collection and verification of the 7 selected cities	August 14–25, 2017	To present the plan for the development of the Sustainable City Strategic Plan, verify data (second round) with local authorities, and determine the specific data template for the city profiles. Furthermore, to present and discuss the list of investment action plans, goals, and objectives identified.
Data update	Quarters 2–3, 2019	Ahead of the imminent approval of the plan, GGGI and DGE undertook an extensive data update within the draft.

Consultative and capacity-building workshops at the national level

The national consultative workshops were conducted three times; each time included capacity building on green growth and sustainable city development. The consultation for each workshop involved national and subnational stakeholders—such as line ministries and institutions, provincial/municipal authorities, and line provincial departments from the targeted cities—and multi-stakeholders from development partners, civil society organizations, and the private sector. The

objectives of the workshops were to reflect on and discuss the results of the study and analysis, verify the baseline data and methodologies that were used for analysis, and seek comments on the study recommendations proposed by the consultancy experts for the development of the Strategic Plan. In each consultative workshop, all participants were provided the opportunity to interact, discuss, and assess on the current situation and needs in order to prioritize sustainable city development action plans, using the Multi-Criteria Analysis (MCA) tool and Evaluation Criteria.

A short training course, as part of the capacity-building process, was included in each consultative workshop. Green growth-related topics included sustainable city development planning methodology, solid waste and wastewater management, lessons learnt on sidewalk man-

agement from other countries, and the methods for project prioritization—such as the economic analysis tools: Cost-Benefit Analysis (CBA), Cost-Effectiveness Analysis (CEA), and Multi-Criteria Analysis (MCA).

National workshops	Venue and time	Objectives
Program Inception Workshop and Capacity Building Training – Green Urban Development Program Phase II	June 14–16, 2017 Battambang city	<ul style="list-style-type: none"> • Introduce the program and gain stakeholders' buy-in • Collect feedback on the program's work plan and approach • Provide training for secondary cities and stakeholders on sustainable city development concepts and the Green City Strategic Planning Methodology
National Consultation and Capacity Building Workshop – Green Urban Development Program – Phase II	August 30–31, 2017 Siem Reap city	<ul style="list-style-type: none"> • Present the national-level analysis of green urban development potential in Cambodia • Present the city-level baselines assessment • Discuss the vision, goals, and sector objectives of each city • Provide training on sector-specific topics to city officials
National Consultation and Capacity Building Workshop – Green Urban Development Program – Phase II	November 15–16, 2017 Kampong Cham city	<ul style="list-style-type: none"> • Provide an overview of the draft National Strategic Plan for Green Secondary City and receive feedback from participants • Provide training on the prioritization of sustainable city projects • Discuss the priority actions for green secondary city development • Share the World Bank's urban analysis on Phnom Penh and opportunities for secondary cities • Share GGGI's Background Analysis for Parking Reform in Phnom Penh

Validation on the drafted Strategic Plan

The Sustainable City Strategic Plan was drafted using the official template from the Council of Ministers. The drafting of the Strategic Plan was mainly based on the results of the literature review on relevant policy documents, strategic development and investment plans, and the analysis of city baseline data and sector data. The outcomes from field visits to each city and the consultations with government stakeholders at both national and subnational levels, development partners, and relevant non-governmental organizations also played a significant role in the drafting of the Strategic Plan.

A final validation meeting was organized on July 10, 2018 with representatives from the seven secondary cities, MoI, and NCSD. The draft Strategic Plan was presented during the meeting, and participants were divided into groups to review different sections of the plan. The proposed changes were then collected and reflected in the final draft, which underwent another round of reviews by the Program Management Unit (PMU) before its submission for the official endorsement.



