



United Nations Trust Fund  
for Human Security



UNITED NATIONS  
CAMBODIA



# CITIES FOR ALL:

Inclusive, Smart and Sustainable  
Urban Development in Cambodia

SMART CITY ASSESSMENT REPORT

December  
**2023**



UN-HABITAT



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# ABBREVIATIONS

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<b>AIMF</b>	Association Internationale des Maire Francophones
<b>ASCN</b>	ASEAN Smart City Network
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>CSO</b>	Civil Society Organisation
<b>EIA</b>	Environmental Impact Assessment
<b>FDI</b>	Foreign Direct Investment
<b>GGGI</b>	Global Green Growth Institute
<b>GIZ</b>	German Corporation for International Cooperation
<b>ICT</b>	Information and Communication Technology
<b>ISP</b>	Internet Service Provider
<b>JICA</b>	Japan International Cooperation Agency
<b>MoE</b>	Ministry of Environment
<b>MoI</b>	Ministry of Interior
<b>MPWT</b>	Ministry of Public Works and Transport
<b>MLMUPC</b>	Ministry of Land Management Urban Planning and Construction
<b>NCDD</b>	National Committee for Sub-National Democratic Development
<b>NCSD</b>	National Council for Sustainable Development
<b>NGO</b>	Non-Governmental Organization
<b>NSDP</b>	National Strategic Development Plan
<b>PPP</b>	Public-Private Partnership
<b>PSP-I</b>	Pentagonal Strategy - Phase I
<b>RGC</b>	Royal Government of Cambodia
<b>RSP-IV</b>	Rectangular Strategy – Phase IV
<b>SDG</b>	Sustainable Development Goal
<b>SEZ</b>	Special Economic Zone
<b>SME</b>	Small and Medium Enterprise
<b>SNA</b>	Sub-National Administration
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UN-Habitat</b>	United Nations Human Settlements Programme
<b>UNOPS</b>	United Nations Office for Project Services
<b>UNTFHS</b>	United Nations Trust Fund for Human Security

# EXECUTIVE SUMMARY

This assessment is based on the planning and development situation in the four largest cities in Cambodia. Using a People Centered approach based on the Human Security Methodology and the Smart Cities concept, the assessment identifies the existing challenges and potential solutions of the cities. It proposes future development solutions to the smart city authorities and shows how the use of a road map can identify responses and explore options to meet the needs of Cambodian citizens.

To gather this information the assessment was based on the four Cambodian cities of Siem Reap, Battambang, Sihanoukville and the Capital of Phnom Penh. These four cities have experienced of engaging with the ASEAN Smart Cities Network and have developed several smart cities projects in line with their development plans and roadmaps. In each of the four cities, workshops were held with the local authorities, interviews were conducted with a range of city stakeholders and site visits were made to gather information on the city's ecosystems and future

growth trends. About 400 stakeholders were consulted through consultative workshops or interviews. Two series of site visits, consultative workshops and interviews were organized. The first one focused on data collection and analysis and a second series of visits were undertaken to validate the findings with local stakeholders. Master questions and facilitation processes were used during the data collection phase which gathered information related to the citizens' priority needs and challenges.

To analyze the first set of data, seven indicators' using a People Centered approach were adopted to identify challenges from a peoples' perspective. The second data set was analyzed using a city level five-dimensions approach, to identify solutions from a city perspective. The two data sets were combined and 15 action areas developed within a matrix, covering all stakeholders inputs. This 15 point matrix, showcasing challenges and solutions side by side, along with Smart City response and support proposed by the project' experts team.

## *Below are some of the main identified challenges:*

- Lack of detailed information on the land use and planning documents and the difficulties of enforcement of land use and development regulations.
- Conflicting land uses and inadequate infrastructure investment.
- Mobility in the cities was not optimized, particularly for pedestrians and public transportation.
- Liquid and solid waste infrastructures and processes lack a holistic approach
- Problems of access to hygienic food and potable drinking water
- Access to healthcare facilities was not available for all citizens
- Citizens and city visitors needed to be protected against threats and dangers
- There needed to be a better coordination of responses of emergency services
- Road and footpath safety needed to be improved.
- The Smart City development needs technology provision, resource funding and capacity building, which are currently lacking.
- Essential infrastructures need to be improved through coordinated design and development processes.
- The general coordination of administrative processes needs to be improved.
- Reliable information needs to be provided to support citizen interaction with city developments
- The economic development of the city needs to be stimulated
- Cities need to showcase their investment opportunities to attract sustainable funds and ensure their long-term growth and economic development.

### ***Suggested solutions paths:***

The cities' stakeholders' inputs also brought solutions' elements to address the identified challenges. These have been organized within the 15 areas of actions, and are providing paths to systemically solve and prevent the priority challenges to arise, with suggestions like: Integration of Sustainability and climate change risks within development plans; improvement of information exchanges between cities; creation of cities solid waste management standards; ensure that every citizen can access quality healthcare; ensure coordinated risk and emergency responses; provision of technical tools, practical skills, and knowledge of best practices on Smart City development; development of feedback and citizen participation in city initiatives; promotion of local businesses, local products, and local employment; etc.

### ***Smart City response and support:***

In order to support the abovementioned solutions, the project' experts have been formulating a series of proposed smart responses, to illustrate how the Smart City could effectively be used as a lever to address challenges and accompany the cities, in particular, with dynamizing their economy, increasing citizens life quality, and ensuring an overall inclusive and sustainable oriented development. An accent was put on digital tools and technologies supporting information efficient exchange, long term strategies, resilient infrastructures, optimized planning, entities coordination, investments facilitation.

### ***Below are some of the key recommendations:***

- A digital transformation to support the Smart City development as an opportunity to bring a series of compatible standards.
- The elaboration of related solutions would be needed to organize city categories and profiles, that fit with their challenges, abilities, and specific requirements
- A policy framework for the regulatory and institutional arrangements of the Smart City development.
- A National Roadmap to guide the development of the Smart City framework.

# 1 INTRODUCTION:

## 1.1. Project Background

UNOPS and UN-Habitat are implementing the project “Cities for all: inclusive, smart and sustainable urban development in Cambodia” funded by the United Nations Trust Fund for Human Security (UNTFHS) under the coordination of UN Resident Coordinator’s Office in Cambodia. This one-year project, starting from March 2023 to March 2024, has the overall objective to identify the challenges of urban citizens and the Government using a human security approach to promote sustainable, inclusive, and innovative Smart Cities in Cambodia.

Capacity building is a component of this program, with a focus on practical knowledge sharing for national and sub-national officials with responsibility for Smart City development. This includes experience sharing with Smart City development in other countries.

The rapid economic growth and development of Cambodia’s main cities has contributed to the country’s graduation from a Least Developed Country (LDC) status and towards achieving Upper Middle-Income status by 2030.

Urban development has not always been sustainable and inclusive. The poor and vulnerable urban communities continue to experience multiple unmet needs and challenges. These include a lack of urban planning, resulting in disorganized development, inadequate transportation systems and lack of access to basic services such as water, sanitation and electricity.

Public services such as healthcare, education, and waste management systems are not keeping pace with the rapid growth of the cities, leading to inadequate access and poor quality of services for urban residents. National and sub-national governments lack the resources to invest in innovative development approaches. Smart Cities can respond to the growing needs of urban citizens and introduce advanced technology to ensure ‘leaving no one behind’.

The project’s main outcome is to support the Royal Government of Cambodia’s development of Cambodian cities with a citizen centric approach, when developing their Smart City Roadmaps. The priority is to support the most vulnerable to access to public services through the use of digital networks.

This rapid assessment aims to provide an in-depth analysis of the potential for sustainable development using a Smart Cities approach in Cambodia’s four main cities, namely Siem Reap, Battambang, Preah Sihanouk and Phnom Penh by applying the human security and people-centered development approach.

This assessment expands the findings of an earlier study in Preah Sihanouk city and through data collected from site visits, consultative workshops, and stakeholder interviews.

The validated key findings and proposed solutions together with reference to the existing National Roadmap will be used to prepare a revised Roadmap to guide Smart City development for the coming five to ten years.

To undertake the in-depth assessment, selected local communities, and stakeholders involved in the potential Smart City ecosystems were consulted. Consultations were also held with national and sub-national governments, civil societies, and the private sector to include their perspectives about Smart Cities. The discussions included the ongoing challenges in the context of post-Covid19 recovery, global economic crises, and climate change.

## 1.2. Assessment Framework:

The project “Cities for all: inclusive, smart and sustainable urban development in Cambodia” is being implemented from March 2023 to March 2024. The main activities are: rapid assessment, desk review of literature, capacity strengthening, roadmap development, implementation proposals and partnerships and resources mobilization.

The project supports the Royal Cambodian Government’s Smart City Steering Committee to prepare a Roadmap on Smart Cities. In the current phase, the rapid assessment focuses on laying the foundations for the Policy Document and Roadmap. The comprehensive responses, documents and full set of priority activities will be addressed in the next steps of the “City for All” project. This will include support to roadmap development, facilitation of partnerships and resources mobilization, consultative workshops on the assessment and roadmap documents. Policy documents and other responses are expected to be developed by future projects.

The “City for All” project will suggest implementation strategies through a people centered approach. It will establish clear directions and actionable steps. This project will support the collaboration of resources required for national level action.

The assessment will undertake an inclusive and participatory approach at the national and sub-national level focusing on four cities, namely, Siem Reap, Battambang, Preah Sihanouk and Phnom Penh. The findings from the rapid assessment will support the development of the Ministry of Interior’s National Smart and Sustainable Cities Roadmap.

This assessment will ensure that the Roadmap addresses the needs and aspirations of urban citizens in Cambodia, especially the integration of a people-centered approach, with a focus on marginalized and vulnerable communities.

The field assessment was conducted in only four target cities, namely Battambang, Phnom Penh, Siem Reap and Sihanoukville due to time and resources limitations and are only indicative to guide Smart City development in Cambodia.

# 2 COUNTRY CONTEXT

## 2.1. National context:

Smart City development is a means to address the challenges of rapid urbanization, through promoting sustainable economic growth, improving the delivery of urban services, and encouraging environmental development.

Smart Cities are characterized by their use of enabling technology to support efficient work, life, recreational and learning opportunities. They encourage economic growth and facilitate the creation of sustainable living environments in urban areas and the promotion of cities that are sustainable, inclusive and efficient.

Cambodia has the potential for Smart City development because of its rapid urbanization, technological advancement, government support and its environmental challenges. It provides fertile ground for Smart City based development.

Cambodia nominated Phnom Penh, Siem Reap and Battambang cities as pilot cities for the ASEAN Smart Cities Network (ASCN) at its launch in 2018. This reflects Cambodia's commitment to Smart City development to support sustainable economic growth and enhance residents' quality of life.

The city of Preah Sihanouk is one of three pilot cities for the Smart City Innovation Lab (SCIL). This was an initiative launched in 2019 by the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), which aims to support innovative and Smart City development in secondary cities.

While some progress has been made in the pilot cities, Cambodia faces challenges in advancing its Smart City initiatives including resource constraints, limited technical capacity and a lack of a coordinated national approach. However, there is a strong political will to establish a national Smart City policy framework, to share best practices and ensure efficient and effective Smart City solutions.

In order to address financial concerns, the implementation of the National Smart City Roadmap will facilitate in providing a framework for strategic investments.

Cambodia recently held its national elections, and this creates an opportunity for the implementation of policies in the context of Cambodia's vision for 2050, as described in the Pentagon Strategy and Cambodia's long-term goals of economic growth and development.

### The "National Pentagonal strategy"

This document describes strategic directions and key

priorities of the government. The strategy emphasizes sustainable economic growth and prosperity for everyone along with an increase in quality of life and the strengthening of public institutions' skills and efficiency, of crucial infrastructures and digital transformation.

The concept of a people centered approach and an inclusive, sustainable and Smart City development shares many of the objectives of the national strategy, and closely aligns with common priorities. From the citizen centric perspective, the essential infrastructures and basic services provision, through the sustainable socio-economic growth and up to the increased capability and efficiency of public institutions supported by digital transformation. The project is also fully aligned with the "strengthening of urban management and modernization" that is a key component of the "Resilient Sustainable and Inclusive Development" (Pentagonal Strategy - Phase 1 - Key priority Number 4).

### The National Digital Policy Documents:

Cambodia is strengthening its policy framework to allow the country to move ahead with its digital transformation. Recent policy documents include:

- The "Cambodia Digital Economy and Society Framework 2021-2035", where "digital technology combined with urban development" is acknowledged as a component of a "Smart City".
- Smart Cities from this digital framework perspective are seen "as cities equipped with and using digital technology to improve their operational capacity by sharing information with the public and improving the quality of public services and social welfare" (Annex 2 Glossary P119 - N59: Smart City).
- The "Cambodia Digital Government Policy 2022-2035", where an integrated digital government is elaborated, including data centralization, citizen interactions, data-based decision making and collective use of information, up to a smart government stage where the full potential of digital technology is achieved.
- Some notable strategic goals promote the development of digital government infrastructure, and digital capacity building and innovation and strategies like digital connectivity for infrastructure, and building human capital, collaboration with technology companies and digital startups.
- These are supported by priority actions like: such as "Formulate a digital policy for Smart Cities"; and "Develop technical standards for a Smart City", which are proposed for a 2026 to 2030 phase.



### Organic laws and the Decentralization Process.

The 2008 law defines the roles and responsibilities for the Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans within the frame of the country's decentralization process. This framework, supporting other ongoing reforms, needs to be considered when elaborating the Smart City regulatory framework and institutional arrangements, as it supports project implementation at the local level.

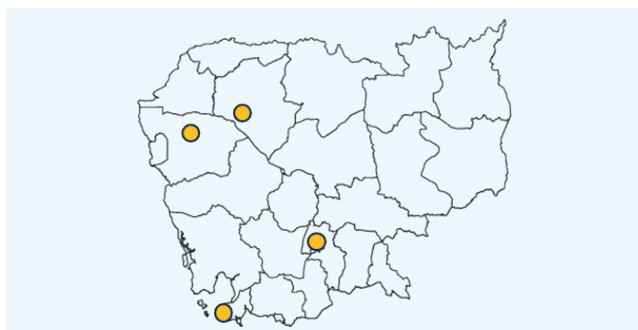
### The "Safe Village, Commune" Policy.

This policy aims to enhance the overall well-being, and quality of life for people within villages and communes across the country. It is already in place at the local level across the country and will support the implementation of the related Smart City efforts in the context of safety and security.

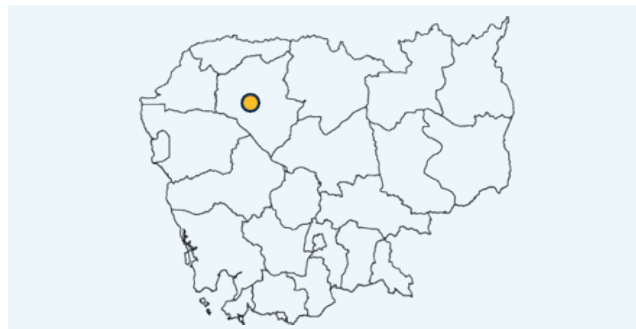
## 2.2 Provincial - Municipal Context:

The Cambodian cities of Phnom Penh and two provincial capitals, Siem Reap and Battambang, were integrated with the ASEAN Smart City Network in 2018. The provincial capital city of Preah Sihanouk is a regional Pilot - Smart City Innovation Lab – UN-ESCAP, with an autonomous port socio-economic zone which is a key point for Cambodia sea trade. These cities are well connected with national and international links including tourism, trade, cultural, economy, and information exchange. They have benefited from capacity building and have already started to implement several Smart City initiatives, with the support from development partners such as the Japanese International Cooperation Agency (JICA), the Asian Development Bank (ADB), the World Bank (WB), the French Development Agency (AFD). They have invested in infrastructure with support from the Australian Department of Foreign Affairs and Trade (DFAT), UN-Habitat and others.

The status of the four main cities is described below.



### Siem Reap :



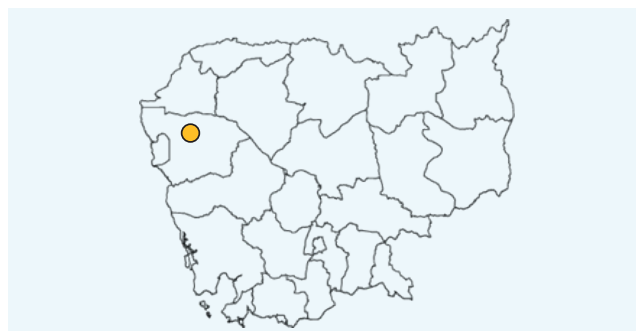
#### Institutional framework established or proposed

- Establishment of a Smart City Committee
- Proposal of a Division for Smart City which is currently proposed at the national level, and the establishment of a Smart City Working Group (SCWG).
- The SCWG will involve provincial and municipal authorities, as well as the relevant technical line departments, to ensure the development of the Smart City initiative.

#### Technical framework

Siem Reap has already developed a Smart City Roadmap for the period 2023-2035, with support from JICA to implement some Smart City pilot initiatives. This includes training to enhance its capacity to implement Smart City technologies and practices.

### Battambang :

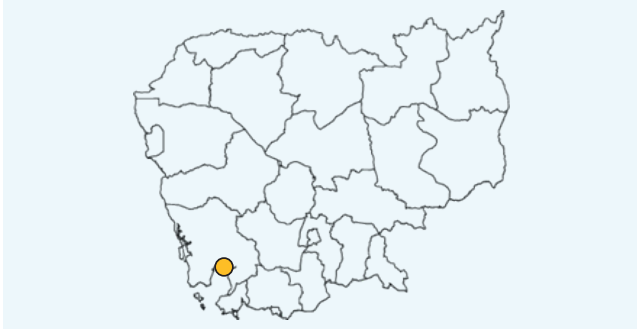


In 2015 Battambang prepared a comprehensive master plan, known as the Vision for Battambang 2030, to guide its future development.

The city has been working with development partners in 3 main areas, namely solid and liquid waste management, street and public space management and a master plan study for a Smart City with support from the Smart Japanese Asian Mutual Partnership (JAMP-2022).

Some priority projects have already started such as a clean Sangkat development and riverfront area development project, a green industrial park and a new bypass road to keep heavy traffic outside of the city center.

### Preah Sihanouk :

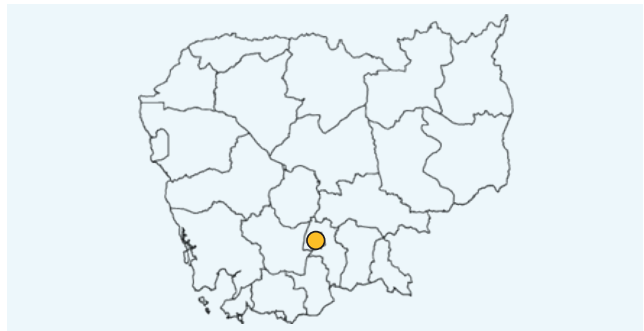


Preah Sihanouk has been collaborating with UN-Habitat to develop its Smart City potential with a set of 15 recommended actions with a human focus.

In addition, with Australian Department of Foreign Affairs and Trade (DFAT) support, it has defined 12 strategic priorities with a digital focus.

Both approaches are relevant to the main challenges related to the city's sustainable and Smart City development

### Phnom Penh :



Phnom Penh 2022-2035 is a sustainable city Strategic Road Map. This document provides an overview of Smart City readiness, including identifying the main priorities and future directions, practical action and examples of pilot projects, some of which have been launched already. The document also provides the framework for a strategic master plan being developed with support from the Association Internationale des Maires Francophones (AIMF)

The Phnom Penh Sustainable City Plan 2018-2030 is a sustainable city plan, providing a roadmap for policy makers, local administrators and their national and international development partners to pursue the implementation of urban green growth with support from the Global Green Growth Institute (GGGI).



The interviews were held with representatives from the private sector, NGOs and academic institutions. Site visits were made to complement the information gathered during the interviews.

One workshop was held in each of the four cities. There was a total of 224 participants who included deputy governors, city council members, city vice mayors, representatives from provincial departments such as education, transport, posts and telecoms, urban planning Sangkat and Commune councilors, civil society organizations and development partners.

The workshops' introductions were given by the MOI representatives, the local Provincial and Municipal representatives and representatives of UN-Habitat and UNOPS.

Presentations were made to the participants to introduce the assessment process and its context within the National Sustainable and Smart City Roadmap development. The presentations included a description of the components of the project including definitions for resilient, sustainable, green, smart, inclusive cities, logical concepts and practical examples.

These are related to the development of a Sustainable and Smart City concept for Cambodia, supported by a People Centered Approach. The People Centered Approach was explained through practical examples from the ASEAN regional pilot cities.

To structure the workshop discussions the participants were asked to respond to the following questions (extract provided below):

- What are the city's general needs and challenges? (Then if no (not enough) spontaneous inputs arising this suggestion frame were provided: it could relate to urban planning and land use, infrastructures and services, new technologies and skills, stakeholder coordination, healthcare, economy, food, security, housing etc).
- How has covid-19, the economic crisis and flooding affected the city and how to improve city resilience when facing crises and disasters?
- The People Centered Approach: how can the Smart City integrate all its citizens in urban development plans?
- Has your city had some experience with Smart City, Green City, Sustainable City concepts and projects, could you relate some successes about this?
- Can you related about your City Smart imitative experiences, challenges and lessons learned?
- What do you suggest should be included in the National Smart City development process?

For the stakeholder interviews the questions were the same but with request for more specific inputs according to the experience of the participants

The cities findings have been synthesized and are shown in Annex 01



Workshop in Battambang 20 September 2023

- “Group N6: The goal of a smart city is to make the city responsive to citizens’ needs”.






### 3.3. First field trips: Data analysis

#### 3.3.1. Data from the people center approach

More than 500 inputs, from more than 400 city stakeholders, were proposed from the workshops and interviews. The People Center Approach, based on the Human Security seven indicators, was used to classify the needs of the citizens.



The food and health and the personal safety and community security categories have been combined as the topics they refer to are very similar. The categories are described below, with some examples of the specific information they contain:

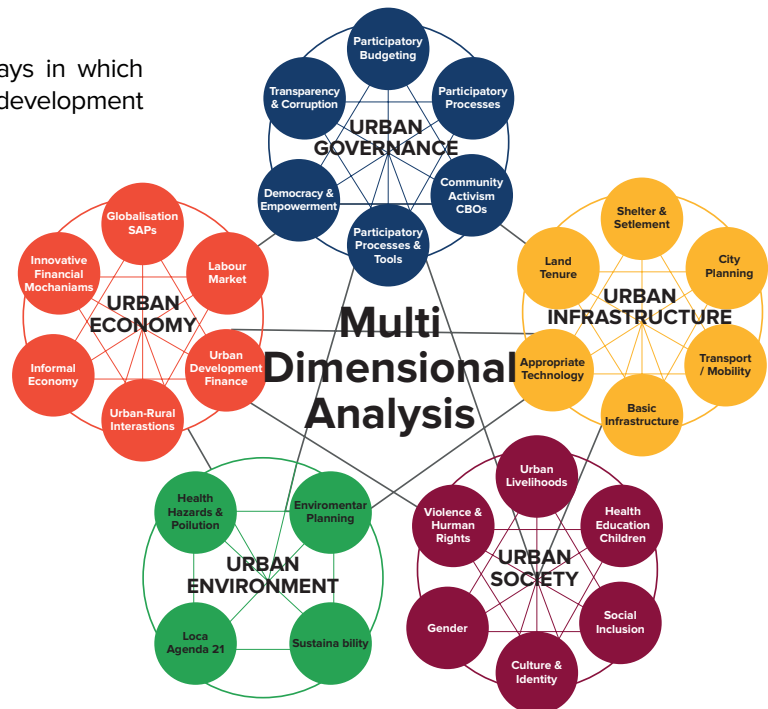
<p><b>Economic impact:</b></p> 	<ul style="list-style-type: none"> <li>➤ Lack of economic diversification to develop job opportunities.</li> <li>➤ Disruption to economic development caused by congestion, Covid and similar pandemics or floods.</li> <li>➤ Lack of budget to finance the city infrastructures development.</li> </ul>
<p><b>Food and health impact:</b></p> 	<ul style="list-style-type: none"> <li>➤ Negative impacts are linked to economic challenges at the household level such access to good quality food and access to potable water.</li> <li>➤ Other negative impacts such as access to quality healthcare services</li> <li>➤ Lack of access to sewerage network and spreading of sewerage at times of floods</li> </ul>
<p><b>Environmental impact:</b></p> 	<ul style="list-style-type: none"> <li>➤ Pollution at times of flooding</li> <li>➤ Solid waste management</li> <li>➤ Compliance of standards for septic tank construction</li> <li>➤ Inadequate budget for city greening</li> </ul>
<p><b>Personal and community security and safety impact:</b></p> 	<ul style="list-style-type: none"> <li>➤ Real and potential for physical threats and robberies</li> <li>➤ Increased risk of diseases risks when infrastructure connections are lacking.</li> <li>➤ Accidents related to mobility such as traffic accidents.</li> </ul>
<p><b>Governance impact:</b></p> 	<ul style="list-style-type: none"> <li>➤ Like the lack of human and financial resources to develop the Smart City</li> <li>➤ Need to improve citizen interaction with city development project.</li> <li>➤ Need for more guidance on innovative developments.</li> </ul>

### 3.3.2. Data from the city multi-dimensions perspective

The second set of data identified initiatives and possible solutions. It was classified using a city multi-dimension focus with the city providing solutions to meet the needs of the citizens.

The five dimensions correspond to the five ways in which urbanization and cities can contribute to meeting development targets and objectives, such as the SDGs.

#### The city 5 multi-dimensions categories:



<p><b>Urban Economy</b></p> 	<ul style="list-style-type: none"> <li>➤ Prioritizing local employment</li> <li>➤ Supporting SMEs with business skills and international standards compliance</li> <li>➤ supporting vocational training-oriented education (TVET) with latest market trends</li> </ul>
<p><b>Urban Environment</b></p> 	<ul style="list-style-type: none"> <li>➤ Preventing import of products containing high levels of polluting chemicals</li> <li>➤ Supporting city green developments</li> <li>➤ Preparing climate change and extreme weather events with mitigation and alleviation plans</li> </ul>
<p><b>Urban Society</b></p> 	<ul style="list-style-type: none"> <li>➤ Implementing quality health services with access for everyone</li> <li>➤ Food hygiene and quality standards promotion</li> <li>➤ Including topics in the education curriculum like environment climate change mitigation and alleviation</li> <li>➤ Sustainable and energy efficient resources management</li> </ul>
<p><b>Urban Governance</b></p> 	<ul style="list-style-type: none"> <li>➤ Expand citizens' access to city information and develop citizen interaction.</li> <li>➤ Improving public services quality standards</li> <li>➤ Allocate financial and human resources to implement Smart City initiatives ...</li> </ul>
<p><b>Urban Infrastructure</b></p> 	<ul style="list-style-type: none"> <li>➤ Enhance reliable telecom and internet coverage.</li> <li>➤ Building separate networks for rainwater, wastewater (gray water) and sewerage water</li> <li>➤ Develop national standards for waste management.</li> <li>➤ Integrate climate change resilience parameters in infrastructures development ...</li> </ul>

## The city 5 multi-dimension framework:

### Cities multi-dimensions:

Cities are multi, rather than single dimensional in character. They contain the interacting spheres of human existence. The different aspects of urban development are all important in influencing immediate issues and future prospects faced by cities worldwide. These interdependencies are a way of understanding the development of cities, that can realise their potential to advance the welfare and wellbeing of all their citizens and meet the needs of the next generation.

## The five primary dimensions:

Cities are significant in the drive to achieve the UN Sustainable Development Goals (SDGs). They depend on the adoption and adaptation of a system of innovative practices, including the strengthening of institutional capacities to implement them.

### The SDG's that are relevant for urban areas are as follows:

- Goal 1:** End poverty in all its forms
- Goal 2:** End hunger, achieve food security and improve nutrition
- Goal 3:** Ensure healthy lives and promote well-being for all at all ages
- Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5:** Achieve gender equality and empower all women and girls
- Goal 6:** Ensure availability and sustainable management of water and sanitation for all
- Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 13:** Take urgent action to combat climate change and its impacts



### 3.3.3. City recent and ongoing initiatives and smart development frameworks

This includes information related to the city’s current sustainable and smart urban development frameworks and main recent achievements and ongoing initiatives.

This information gives a better understanding of the current frameworks used by the cities. It identifies the main projects handled by the most experienced cities in terms of sustainable and smart developments. This could support the framework development for the National Roadmap.

## 3.4. Second field trips: Validation workshops

The second series of field visits in November 2023 were used to validate the findings from the first series of visits and workshops in Siem Reap, Battambang, Preah Sihanouk and Phnom Penh.

### 3.4.1. Data validation

In this 2nd series of one day workshops there were a total of 147 participants (deputy governors, city council members, city vice mayor, representatives from various provincial departments including education, transportation, posts and telecoms, and urban planning, Sangkat/Commune councilors, CSOs, and development partners.) Many attended the first workshops. In addition, representatives from MOI, UN-Habitat, UNOPS and the local authorities were present.

The participants worked in small groups and classified the data as follows: (i) fully agreed, (ii) partially agreed with comments, or (iii) disagreed with reasons.

#### Results of the validation:

- The vast majority of the findings were validated as **“fully agreed”**.
- The comments made were responded by a) clarifications needed on the formulation, b) remarks suggesting to be more specific with some findings, or c) moving some findings from one category to another one to better reflect the findings (i.e. from “governance” to “environment”)

#### Other workshop presentations

Case studies from regional cities were presented to explore the similarities and differences between cities. Participants benefited from learning about Smart City Initiatives from Indonesia and Thailand.

To conclude the workshop, the group discussed information on strategic partnerships and resources mobilization that will be used to support the Smart City Roadmap.



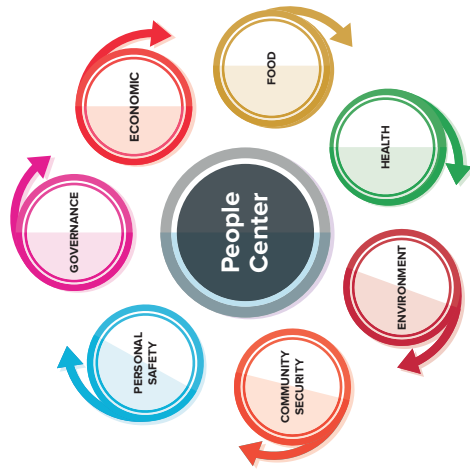
Workshop in Phnom Penh - 04 October 2023



# Smart City for All-rapid assessment

15 main points matrix:

Needs and challenges identified from a people perspective



➤ 4 Cities

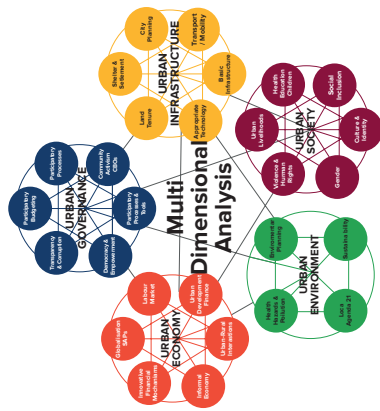
➤ + 400 key city stakeholders

➤ + 500 specific inputs collected

1<sup>st</sup> Data set: Priority needs and challenges

Consolidation of the two data sets highlight 15 main points

2<sup>nd</sup> Data set: Directions towards Solutions



Directions towards a solution ported by the City

- #01- Land use & planning
- #02- Temporary shelters
- #03- Urban mobility
- #04- Clean and green cities
- #05- Solid waste
- #06- Storm and waste water networks
- #07- Food and potable water
- #08- Healthcare facilities
- #09- Safety and security
- #10- Smart City development (readiness)
- #11- Environment and Natural Resources Development
- #12- Coordination (general)
- #13- Services Delivery (inclusive & quality services)
- #14- Communication & Interaction
- #15- City Economic Development

# 4 KEY FINDINGS AND 15 POINTS MATRIX

## Consolidation process:

The rapid assessment of the four target cities has been developed from more than 500 suggestions made by more than 400 city stakeholders. These have been classified into needs, challenges and solutions to overcome the challenges.

The data from the two field visits, including the workshops, interviews and on-site visits have been combined and have been classified in a matrix with 15 components that can be used to support the Smart City development.

From the needs and challenges, and their respective suggested solutions paths, responses were developed which can support the proposed Smart City proposals. The details are given in Annex 02.

## 4.1. Priority Challenges and Solution Paths, from Four target cities

This section identifies the key findings from the four target cities, with their most urgent challenges and proposes possible solutions.

The methodologies used were the 'People Center approach' to identify the challenges and the 'City Multi Dimensions' analysis to identify possible solutions.

The analysis and consolidation of the city stakeholders' findings led to the elaboration of the 15 points matrix, covering all inputs from the workshops and interviews and classifying them so that they can be used to inform the Smart City development.

The challenges are shown side by side with the proposed solutions to demonstrate how they are related. Multiple challenges can be aligned with one or more solutions and similarly a few challenges can align with multiple solutions.



Workshop in Sihanoukville - 17 November 2023

## #01- Land use and planning

The challenges and solutions of land use planning emphasize the need for detailed land use planning and its enforcement, support for economic and infrastructure development, the importance of sustainability and a response to climate change risks.



### Challenges

- Lack of detail in land use and planning components.
- Conflicting projects near each other
- Lack of identified projects.
- Development plans are not enforced.
- Conflicting projects near each other
- Lack of existing land use information
- Lack of national or large-scale development projects hampering economic development
- Inadequate investment in city infrastructure
- Not enough government support for infrastructures development these are sometimes happening but are not enough.



### Solutions

- Cities need a land use planning tool for city development to guide the development of infrastructures and future city expansion, taking into account local conditions and development potential.
- For achieving the city's long-term vision, land reservation, and public land provision for future public investment projects is required.
- The detailed plans should include land use regulations and development densities.
- Sustainability and climate change risks should be included in development plans.

## #02- Temporary Shelters

The responses to the issue of temporary shelters emphasize the need for improvement in the quality of life in the context of urban development plans and when relocation is required consideration is given to employment opportunities and provision of infrastructures.



### Challenges

- Need to propose sustainable long-term options that allow communities to access higher life quality in the context of development plans.
- Relocation sites are not provided with adequate infrastructures, are too far from employment opportunities or lack access to financial support.
- For those who are being considered for relocation need to provide support such as temporary administrative addresses and civil documents and infrastructure connections



### Solutions

- Develop solutions such as land ownership and housing options, access to infrastructure on existing or relocation sites.
- Support for income options including skill development.
- Develop preventive measures such as supporting housing and infrastructures options for low-income categories and laborers.
- Sharing of best practices from existing housing projects on climate change resilient housing, green and affordable building materials
- Provision of relocation options for migrants, those displaced for "public interest" projects such as infrastructures and those who are unauthorized occupants of lands
- Develop people centered relocations before starting major projects.

### #03- Urban mobility

The responses under urban mobility include the need for improvements in road conditions, increase in parking facilities near offices and markets and improvements in public transport.



#### Challenges

- Poor quality of secondary road construction
- Insufficient budget for road maintenance
- Poor quality roads have a negative impact on economic development.
- Lack of parking around shopping areas and markets
- Lack of public transport



#### Solutions

- Improve traffic management including law enforcement.
- Road network and parking facilities to be developed in accordance with the development plan.
- Improve road maintenance and increase budget.
- Ensure connectivity between different modes of transport.
- Improve connectivity between local, provincial and national modes of transport by road, river and rail.

### #04- Clean and Green Cities

Under clean and green cities priority was given to a reduction in littering and the provision of more green and recreational spaces



#### Challenges

- Improve citizens' behavior on littering and waste management.
- Provide more green spaces and more recreation places.
- Improve quality of urban living and promote a green future and establish standards for open spaces in development plans.



#### Solutions

- Develop awareness campaigns and integrate the clean and green concept within the Smart City development.
- Integrate green components within the city development plans.

### #05- Solid Waste

The challenges and solutions under solid waste management included more recycling, public participation and an increase in budget allocation.



#### Challenges

- Implementation of solid waste management systems including strengthening of regulatory framework, adequate infrastructure, innovative technologies, waste recycling, public awareness and private, public participation.
- Improve citizens' awareness and participation in solid waste management.
- Increase budget for solid waste management.



#### Solutions

- Improve information exchanges between cities.
- Create city standards for solid waste management.
- Integrate sustainable waste treatment methods such as recycling, segregation, waste to energy, sanitary landfill etc.

## #06- Storm and wastewater facilities

A dedicated storm water network was proposed and a separation of storm water, gray and black water drains with treatment of gray and black water before discharge.



### Challenges

- Develop dedicated stormwater networks to reduce flooding and improve environmental conditions.
- Ensure that septic tank drainage does not enter storm water drains.
- Separate gray and black wastewater
- Treat wastewater before discharge
- Coordinate wastewater and stormwater networks with land use plans



### Solutions

- Develop a dedicated storm water drainage system linked to natural drainage networks and retention ponds.
- Design flood prevention within the context of climate change.
- Ensure that stormwater networks are developed in accordance with city land use plans
- Implementation of septic tanks at project or building level.

## #07- Food and potable water

Proposals included improved access to quality food and potable water for vulnerable populations and enforcement of hygiene and food safety standards.



### Challenges

- Provide quantity and quality food access for vulnerable populations at times of crisis such as Covid and extreme weather events.
- Ensure that food is free for toxic chemical treatment.
- Ensure that everyone, especially vulnerable people have access to affordable potable water.



### Solutions

- Integrate the development of the city's safe water supply network into development plans.
- Improve enforcement of hygiene and food safety standards.
- Support public health with the limitation on the advertisement and sale of cigarettes and alcohol.

## #08- Health facilities

Under health care, the priorities were access to facilities for all both at primary health care and specialist levels and promotion of good health practices.



### Challenges

- Ensure that all the population has access to healthcare facilities.
- Sub-national healthcare facilities need to be available with adequate skilled human resources, treatment facilities and budget and all should have access.
- Primary health care facilities need to be available for all to reduce preventable diseases and to provide for the needs of women and young children.



### Solutions

- Ensure that every citizen can access quality healthcare.
- Ensure that the provision of the different health care services is planned in an optimized way at city levels.
- Support health improvement and promote good health treatment and practices.

## #09- Safety and Security

Proposals made under safety and security included improved responses to emergencies and protection from theft and personal attacks supported by the safe village and commune process in urban areas.



### Challenges

- Reduce crime and dangerous activities and protect citizens from threats, theft, personal attacks and use of drugs.
- Need to improve emergency responses to accidents, fires and health emergencies.
- Improve safety of cyclists and pedestrians
- Need to adopt the “village, commune safety and security policy in cities.
- More mass awareness campaigns and training programs to promote safety and security among the population, especially for women and children.



### Solutions

- Set up surveillance cameras at strategic locations and supporting control center
- Creation of dedicated trained security services for all
- Ensure coordinated risk and emergency information.
- Support “safe village, commune” implementation in urban areas.

## #10- Smart City Development

Smart City development provides opportunities to bring in digital technology to improve city planning and development, but this requires additional financial and technical resources and staff training.



### Challenges

- More resources required for Smart City development.
- Provide additional professional human resources, ICT training and technical equipment for the city authorities.
- Provide financial and management resources for the implementation of Smart City initiatives.
- Ensure digital deployment leaves no one behind.



### Solutions

- Implement programs to equip local authorities with digital skills.
- Ensure effective integration of new technologies.
- National Ministries to prioritize practical training of SNAs and LAs, on Smart Cities technical aspects.
- Provide human resources, technical tools, and practical skills and knowledge of best practices on Smart City development.
- Integrate climate resilient infrastructures, within the Smart City planning.
- Develop partnerships with other cities on Smart City development.

## #11- Environment and Natural Resources Development

Improved environmental conditions and the development of natural resources in compliance with existing codes were proposed together with the provision of more resources for maintenance of urban infrastructure.



### Challenges

- Integrate environmental development features in compliance with existing environmental laws, such as the recently adopted Environment and Natural Resources Code (2023 ENR Code).
- Provide sufficient resources for the development and maintenance of urban infrastructure including waste management practices and climate resilience.



### Solutions

- Cambodian specific development and management of infrastructures
- Use land use information to support infrastructure design which includes energy efficiency, climate resilience and accessibility for all.

## #12- Coordination (general)

The development of Smart Cities required improved coordination between inter-government organizations and local Smart City initiatives supported by training on project design and management.



### Challenges

- Need to improve coordination in, methods, tools and approaches for inter-governmental organizations involved in Smart city initiatives.



### Solutions

- Provide local authorities with practical training methods on coordination of project design and management.

## #13- Services Delivery (inclusive and quality services)

Access to city services is a challenge especially for vulnerable citizens and the provision of a one window service was proposed as part of a response to reach every citizen.



### Challenges

- Limited financing and lack of coordinated service delivery are negatively affecting citizens especially vulnerable people



### Solutions

- Ensure that essential infrastructures and basic services effectively reach every citizen.
- Develop a city planning matrix tool, to support city development with public services processed through a one window service.
- Implement social insurance for all.

## #14- Communication & Interaction

Citizens' participation is important for the successful development of Smart Cities, and this requires reliable data to be openly available and a feedback process established.



### Challenges

- Need to develop access to reliable data.
- Increase citizen participation in city developments.
- Need to promote successful projects.



### Solutions

- Facilitate interactive communication with the citizens,
- Develop feedback and citizen participation in city initiatives.

## #15- City Economic Development

The future development of Smart Cities requires support for economic development and the proposals included support to SME's and the need to develop special economic zones and tourism opportunities.



### Challenges

- Support required through incentives from the government for SMEs and individual businesses in various sectors, including tourism, agriculture, education and healthcare.
- Diversify the tourism sector, particularly ecotourism, by expanding the range of high-quality services and hospitality.
- Need to add value to agricultural products to increase value for local and international markets.
- Need to further develop and modernize special economic zones Lack of adequate skills need to be provided by technical and vocational education and training.



### Solutions

- Supporting SMEs, with training, strengthened competitiveness and improved market access.
- Promote local businesses, local products, and local employment
- Support associations of local businesses with TVET
- Diversify tourism activities and services.
- Develop hospitality quality standards.
- Collaborate with the private sector to develop services and events for business travelers.
- Develop an agriculture market for food processing, organic agriculture to comply with international standards.
- Develop innovative business models to support Smart City financing.

## 4.2. Smart City response and support:

Following the city stakeholders consolidated findings on challenges and solutions, a series of proposed responses, elaborated by the consultant team, with the aim of providing support from the Smart City perspective, are developed below.

These "Smart responses" are showcasing how relevant use of ICT based technologies and tools could support the suggested solutions in systematically addressing the identified challenges.

These proposed responses are aligned with the concept of a Smart approach where the use of ICT's is supporting the development of inclusive, resilient, and sustainable cities in Cambodia.



## #01- Land use and planning

- Cities need a simple land use planning tool, supporting local conditions and development potential.
- The city's land use plan will ensure coherent planning and overall city development. This data will also guide the development of infrastructures for future city expansion.
- To support the city's long-term vision, land reservation, and public land provision for future public investment projects, is required.
- The land use plan should include land use regulations and development density.
- Sustainability and climate change risks should be included in development plans.
- Digitalize the land use and planning information to provide the basis for all development works for the city and its infrastructures.
- The digitalized land use and planning information can provide different layers according to city profiles.
- The involved actors will need to be trained in its use.
- The digital land use plan will identify conflicting and land use functions.
- The digital land use plan will support the planning of infrastructures according to existing needs and future expansion.
- The digital land use plan will allow land to be reserved for future public land management and adequate infrastructures provision and its layers will provide plans for mobility infrastructures, energy systems and water development.
- Scenarios can be tested according to local conditions and digital tools will support resilience and mitigation for climate change and extreme weather events that cause flooding and landslides and other related events.
- The digital land use plan can ensure compliance with land use regulations.
- Ensure that each of the Smart City responses meets the identified challenges.

## #02- Temporary Shelters

- Use digital planning support to develop options for those in temporary shelters.
- Use the city digital land use and infrastructures information to determine best options for development projects that optimize benefits for stakeholders.

## #03- Urban mobility

- Develop safety standards for all modes of transport.
- Integrate parking requirements in digital land use planning.
- Use digital tools to monitor the development and maintenance of the road network.
- Create an application to provide the users with best options to go from one place to another.

## #04- Clean and Green Cities

- Use digital infrastructure design tools to facilitate the integration of green areas within a city planning, ensuring adequate design and technical compliance.
- Include green and recreational facilities in Smart City Development plans including sidewalks, tree planting and riverside recreational development.

## #05- Solid Waste

- Use digital technologies to enhance waste management and facilitate interactions between citizens, collection firms, and authorities with user friendly applications.
- Use digital tools to facilitate the provisions of solid waste management skills through training.
- Develop a city digital standards tool, dedicated to solid waste management, processes and stakeholders' coordination,
- Support for waste treatment, recycling and circular economy development.

## #06- Storm and wastewater networks

- Integrate rainwater infrastructures in the city digital planning and land use matrix.
- Using digital tools to provide, at city scale, nature-based solutions such as existing retention ponds and drainage networks.
- Use digital design tools to plan for extreme weather events (rainfall) and plan for capacity requirements for the impact of climate change.

## #07- Food and potable Water

- Integrate within the city digital planning, potable water supply network provision.
- Support local food quality and affordability, by encouraging local food production and supply.
- Use digital tools to support food hygiene and safety controls and certifications.

## #08- Health facilities

- Ensure an effective, resilient and sustainable healthcare system with affordable access for every citizen.
- Use digital technologies to ensure access to quality treatment and medicines to health practitioners,
- Introduce registered healthcare services on digital maps to inform patients about the location of services healthcare NGOs and pharmacies.
- Introducing online doctors' consultation.
- Use digital technology to promote awareness of good health practices, information promotion and dissemination.

## #09- Safety and Security

- Use of CCTV tools and control center, to provide technology support with real time information exchange.
- Use digital tools to support lost and found service, and to match lost property with owners
- Strengthen law enforcement with the combination of digital surveillance cameras and coordination of field forces.
- Develop a monitoring center of meteorological data through digital tools, to provide local information on extreme weather events.

## #10- Smart City Development

- Ensure Smart City policy and regulations are in place.
- Through digital learning toolkits and modules for Smart Cities illustrate practical examples
- Use digital tools to analyze the city's development progress and the new challenges it faces.

## #11- Environment and Natural Resources Development

- Ensure that citizens understand and support project cycle digital tools, as a supportive process to follow project development.
- Use innovative approaches for citizens to understand city development.
- The digital planning tools will also facilitate the city to review and ensure compliance with plans and permissions.

## #12- Coordination (general)

- Provide digital based learning tools to support the introduction of new technologies on project management and monitoring.
- Develop and implement digital governance tools (data platforms) and operational processes to allow access to information by city stakeholders.
- Support projects validation and administrative decisions with digital secured workflow technologies.
- Explore the provision of a minimum E-Governance toolkit for each city,

### **#13- Services Delivery (inclusive & quality services)**

- Using digital technologies to support the cities with the provision of guidelines to integrate infrastructure and basic services within their design, planning, and Smart City framework.
- Support LAs with the digital tools to be used for public services delivery.
- Support financing to support infrastructures and services and develop an adequate budget for each city.
- Integrating digital literacy and digital social service usage, within vulnerable communities, with the support of NGOs, CSOs, civil society.
- Use digital platform to link social initiatives and coordination and optimization of their resources.

### **#14- Communication & Interaction**

- Develop a digital city application, for tourists, citizens, investors and others giving general city information including information on emergency services and the possibility of citizens feedback!
- Develop citizen-based apps such as those for tuk tuks
- Create digital platforms for the authorities and institutions, to facilitate exchange of information between the government and citizens.
- Promote through digital channels successful city projects and Smart City initiatives.
- Share through digital platforms on the Smart City information on initiatives in other cities.

### **#15- City Economic Development**

- Develop online business information platforms.
- Organize e-commerce training and information provision related to digital business for SMEs.
- Support with digital platforms, effective access to city skills and e-learning practical training in Khmer language.
- Develop online marketplaces.
- Organize city business groups through online platforms.
- Use digital tools to develop PPPs frameworks and develop innovative Smart City business models.

# 5 CONCLUSION - MOVING FORWARD

The assessment was based in the four Cambodian cities of Siem Reap, Battambang, Sihanoukville and Phnom Penh using a People Centered approach based on the Human Security Methodology and the Smart Cities concept. It identified the challenges and potential solutions of the cities and proposed future development solutions using a Smart Cities approach from which a Roadmap for Smart City development can be developed.

In each of the four cities, site visits were made, workshops were held with participants including deputy governors, city council members, city vice mayors, representatives from provincial departments including education, transportation, posts and telecoms, and urban planning, Sangkat and Commune councilors, civil society organizations and development partners. In addition, interviews were conducted with a range of city stakeholders. Two series of workshops were organized. The first series of workshops in each of the four cities focused on data collection and analysis and the second series of workshops were used to validate the findings with local stakeholders.

Seven indicators using a People Centered approach was used to identify the challenges from a peoples' perspective and at the city level a five dimensions approach was used to identify possible solutions. From the data sets 15 action areas were used to classify the challenges and proposed solutions and from this potential Smart City responses were developed.

The findings suggest that Smart City development will be an opportunity to use digital tools to improve and coordinate city development and provide an opportunity for citizen participation. In addition, it will create the possibility of cities to share experiences both within Cambodia and with Smart City programmes in other countries. The Smart City approach will ensure that essential infrastructures and basic services are provided for everyone in the city and interaction between citizens and concerned government departments and city authorities as partners in the city's development. It will also ensure that the challenges faced by vulnerable communities are addressed and they have equal access to infrastructure and basic services on the principle of no one being left behind.

## **Recommendation to move forward:**

This assessment and proposals for development solutions, based on local consultations will be useful in policy formulation on the regulatory and institutional arrangements needed for Smart City development and a National Roadmap for a development framework with practical steps and actions using a digital framework.

## **Next steps:**

Building on successful initiatives and existing activities such as those in Phnom Penh and Siem Reap Cambodia can:

- Develop a Roadmap and action plan to support the development of the Smart City framework, policy documents and institutional arrangements.
- Initiate a capacity building programme that will support national and subnational authorities to develop and use digital tools and Smart City approaches to development.
- Develop the partnerships and resource mobilization to support the Smart City implementation phase.
- Prepare and finance Smart City pilot projects.

## **Conclusion: Cambodian Cities potential:**

Cambodia has today a unique opportunity to develop its own Smart City model with inclusive and sustainable development, while supporting economic growth and resilience.

In a situation where climate change and extreme weather events are becoming more frequent creating food and water threats amongst other things, Smart Cities create an opportunity to invest in local ecosystems and leverage the country's global development and resilience.

The population of Cambodian cities is growing rapidly, in common with all the countries in the region and this can create an opportunity for a Smart City approach to support resilient systems that support improvements in the life quality for its citizens and for citizens to become partners in its development through the digital processes that are an integral part of the Smart City Programme. The Smart City approach will optimize city and national resources.

Cities need to be supported by adequate financing and the technical tools to maximize the benefits, and its line ministries and local authorities to have the professional skills.

## Annex 01: Four Cities Key findings (extracts)

Key findings of each City – Siem Reap | Battambang | Preah Sihanouk | Phnom Penh - (extracts)

### Part 1:

Key findings using the 7 People Center (Human Security) indicators, to provide information on priority needs and challenges from a people perspective.

#### Indicator 1 – Economic Impact

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>➤ Road Congestion</p> <p>Roads and sidewalks are obstructed with parked vehicles and informal stalls, causing traffic and pedestrian congestion.</p>	<p>➤ Need for economic diversification</p> <p>There is a need for promoting and diversifying local economic development through support for small and medium-sized enterprises (SMEs).</p>	<p>➤ Need for improved traffic and transport management</p> <p>There is a lack of appropriately located parking spaces in the city and ad hoc parking restricts access to shops and markets.</p> <p>Public transport should be developed to provide safe and affordable mobility within the city.</p> <p>The development of railroad infrastructure will encourage the city's growth.</p>	<p>➤ Need for city wide and sustainable infrastructure improvement</p> <p>This includes improved road connectivity, sewerage systems and public gardens to enhance residents' quality of life</p>
<p>➤ Reduction of flooding in the city</p> <p>Improve the city's drainage network capacity and storm water retention facilities taking into account increased rainfall due to climate change.</p>	<p>➤ Introduction of apps for residents and tourists</p> <p>Apps to identify and map tourist attractions and provide access to city services.</p>	<p>➤ Need to develop building codes and ensure their compliance.</p> <p>Enforcement of the building regulations.</p> <p>Building Codes and real estate development regulations need to be further developed.</p>	<p>➤ Traffic congestion challenge</p> <p>Traffic congestion is having a negative impact on economic development and the quality of life in the city as well as causing air pollution and traffic accidents.</p>

#### Indicator 2 - Food and Indicator 3 - Health

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>➤ Improve hygiene standards</p> <p>Improve access to drinkable water for all so that people do not use unsafe sources</p> <p>Improve and enforce hygiene standards at the point of sale of food, especially fresh meat and fish</p>	<p>➤ Improve awareness on health-related topics</p> <p>Improve awareness on hygiene, the environment and health care.</p>	<p>➤ Improve family's ability to manage household budget in the context of inflation in food prices and decrease in incomes</p> <p>Prioritize expenditure and identify essential items to maintain good health</p>	<p>➤ Improve access to basic utilities especially water supply, drainage and electricity which are essential for maintaining household health and security</p>

<p>➤ Improve access to health care facilities</p> <p>Provide improved access to health care facilities and use ICT network to develop better access to health care system.</p>	<p>➤ Improved sewerage systems</p> <p>Connect all households to gray water and sewerage system.</p> <p>Ensure there is no leakage or overflow from sewerage system.</p>	<p>➤ Improve basic infrastructures access</p> <p>Ensure basic infrastructures for every city inhabitant especially access to drinkable water and electricity to reduce water related diseases.</p>	<p>➤ Ban advertising of products that damage health especially cigarettes and alcohol</p>
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#### Indicator 4 - Environment

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>➤ Improve waste management with households' participation</p> <p>Improve disposal of waste with cooperation of households</p> <p>Improve collection of waste-by-waste management companies</p>	<p>➤ Promote the clean city and green infrastructures</p> <p>Need to support the promotion of cleanliness, at all levels, and for citizens to better understand that a Smart City includes clean villages, and clean cities.</p> <p>Sustainable green infrastructures need to be promoted for their development and implementation.</p>	<p>➤ Land use plan to include promotion of positive environmental impact</p> <p>The land use plan has to provide complementary and environmentally compatible zoning for all land uses and avoid conflicting land uses such as land fill next to school.</p>	<p>➤ Provide green spaces</p> <p>To ensure adequate provision of green spaces for recreational purposes and improved environmental conditions.</p>
<p>➤ construction policy and legal permit compliance</p> <p>Ensure construction projects are being undertaken in compliance with legal permits and construction policies regarding city infrastructures and beautification.</p>	<p>➤ Improvement of living conditions in temporary settlements</p> <p>Improve the provision of infrastructure and living conditions in temporary settlements</p>	<p>➤ Improvement of waste management processes</p> <p>Dispose of waste in appropriate areas such as landfills that are designed to prevent environmental pollution and pollution of the surrounding land and water</p>	<p>➤ Introduce technologies to monitor waste management and pollution control</p> <p>Use digital technology to control air pollution and water contamination and improve environmental conditions</p>
<p>➤ Increase resources for city beautification</p> <p>Increase resources available to enhance the management and beautification of the Siem Reap River.</p>	<p>➤ Increase resources for greening the city</p> <p>Increase resources for greening the city including improvement of the Battambang River areas.</p>	<p>➤ Increase green areas and integrated green infrastructures</p> <p>Improve the street and road networks with a sustainable green dimension</p> <p>Improve and increase recreational areas with a green dimension.</p>	<p>➤ Develop construction policy details and improve enforcement</p> <p>Approval construction projects prior to their implementation to ensure public safety, and promote responsible urban development.</p>

## Indicator 5 - Personal security and 6 - Community safety

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<ul style="list-style-type: none"> <li>➤ Need to strengthen security measures</li> </ul> <p>Strengthen security measures to reduce the threat of robberies and accidents. Dedicated police services and trained civil servants. Instal surveillance cameras and a control center</p>	<ul style="list-style-type: none"> <li>➤ Improved technologies and processes for safety and security</li> </ul> <p>Implementation of surveillance cameras in some areas of the city Improve the roads, cross-roads, and sidewalks designs to improve and introduce surveyance cameras.</p>	<ul style="list-style-type: none"> <li>➤ Enhance safety and security measures.</li> </ul> <p>Improve nighttime safety and security. Develop security camera networks and its effective monitoring</p>	<ul style="list-style-type: none"> <li>➤ Ensure adequate access to basic infrastructures</li> </ul> <p>Ensure the access to all the city residents to minimum quality standards of infrastructure, for water, energy, roads and waste management to ensure safe living conditions.</p>
<ul style="list-style-type: none"> <li>➤ Develop policies to manage safety in temporary shelter areas</li> </ul> <p>Reduce exposure to diseases to people living in in-adequate infrastructures areas. Improve safety from criminals.</p> <p>Reduce inappropriate behavior within fragile groups of persons.</p>	<ul style="list-style-type: none"> <li>➤ Improve digital public services</li> </ul> <p>Continue to develop and expand public services using ICT technologies for civic registration, all land administration process, ID card issuance, and other services</p>	<ul style="list-style-type: none"> <li>➤ Safety &amp; Security related impact due to: road conditions and traffic regulation</li> </ul> <p>There is a need to improve the condition of the road network, to allow safe travel with vehicles.</p> <p>The traffic regulations need to be better followed by people driving in the city to avoid traffic accidents.</p>	<ul style="list-style-type: none"> <li>➤ Support “safe village, commune”</li> </ul> <p>Implementation of the “safe village, commune” policy to maintain social order and security within the community.</p>

## Indicator 7 - Governance

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<ul style="list-style-type: none"> <li>➤ infrastructures development framework to be complemented with integrated sustainable implementation</li> </ul> <p>Increase resources for implementation, maintenance and operation of infrastructures</p>	<ul style="list-style-type: none"> <li>➤ Need of adequate resources to handle proper Smart City development</li> </ul> <p>Provide resources, including human, technical, and financial resources and technology.</p> <p>Increase Provincial and City budgets for infrastructures development and expansion.</p>	<ul style="list-style-type: none"> <li>➤ Improve land use planning for detailed development</li> </ul> <p>Elaborate land use planning to optimize development and land use control Ensure balanced distribution of the different land uses to ensure adequate provision of infrastructure and services for the city to grow economically and to improve the quality of life of its inhabitants.</p>	<ul style="list-style-type: none"> <li>➤ Need holistic digital developments to support the Smart City implementation</li> </ul> <p>Develop digital systems to enhance decision-making especially for , infrastructure, Develop digital programmes for human resource development and materials and equipment management.</p>
<ul style="list-style-type: none"> <li>➤ Increase human and financial resources to deliver public services.</li> </ul> <p>Need for funds for human resources, development of technical skills, finances, and technology equipment</p>	<ul style="list-style-type: none"> <li>➤ Need of better communication and information availability</li> </ul> <p>Improve access to information, for citizens information and local authorities' coordination.</p>	<ul style="list-style-type: none"> <li>➤ Support long term vision and sustainable infrastructures</li> </ul> <p>Support the city to reach its strategic objectives of sustainable and smart development.</p> <p>Integrate transportation solutions into the city master plan Include climatic risks and climate change in the planning of resilient infrastructures.</p>	<ul style="list-style-type: none"> <li>➤ Need for Smart City tools to support optimized urban development</li> </ul> <p>Internationally and regionally, the need for Recognize Smart City development to support challenges, faced by urban areas,</p>

<p>➤ Develop a clear and comprehensive land use plan</p> <p>Develop a comprehensive plan for the establishment of hospitals, residential areas, schools, and a range of essential services such as restaurants, entertainment venues, and guest houses.</p> <p>Improve infrastructures that are lacking according to some areas and to forecast the need for the city 's future development.</p>	<p>➤ Need for engagement of Smart City stakeholders</p> <p>The concept of a Smart City should be widely shared and communicated to all relevant stakeholders</p>	<p>➤ Development of public services and ICT tools</p> <p>Organize how digital supportive tools will work, how they will coordinate together, and how the city actors will be trained to use them to support their daily activities.</p>	<p>➤ Need of commitment by citizens and government officials</p> <p>This is essential for the implementation of a Smart City project.</p>
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## Part 2:

Key findings using 5 City multi-dimensions, to provide suggestions with solutions paths, from a City perspective.

### 1. Urban Economy:

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>Launch advertising campaigns and events in collaboration with the private sector</p> <p>Enhance the quality of tourism related services,</p> <p>Diversify tourism attractions for both international and local tourists</p>	<p>Increase economic resilience when crisis occurs for citizens and SMEs:</p> <p>Taxes, interest rates and loans payment with flexible options.</p>	<p>Supporting local individuals and SMEs to develop within conventional and emerging markets</p> <p>Provide skills support, TVET related education, grants and resource funding.</p>	<p>Development of local markets, such as the “one village, one product”</p> <p>Promote SMEs and local products growth,</p> <p>Support local industries and enhance the competitiveness of locally made products,</p>
<p>Diversification of the industry sector and handicrafts by strengthening small and medium-sized enterprises (SMEs).</p> <p>Explore emerging markets for local products and increase local products competitiveness.</p> <p>Promoting job creation and providing skill training programs to enable individuals to adapt to emerging markets.</p>	<p>Develop employment opportunities for the local population,</p> <p>Support TVET with latest market trends to align skills provision,</p> <p>Support SMEs with skills development,</p> <p>Support business capabilities for products for export.</p>	<p>Strengthen the tourism sector,</p> <p>Promote existing and new attractions (night market, food courts),</p> <p>Improve quality and standards (starting with food and hygiene).</p>	<p>Improve e-payments systems,</p> <p>Online-marketplaces, online meeting and documents processes, digital business skills.</p>



<p>Allocate adequate financial resources from the central government to effectively implement Smart City initiatives and projects outlined in the roadmap.</p> <p>Enable the city to achieve financial autonomy in revenue collection and expenditure</p> <p>Promote public-private partnerships (PPPs) to attract private investments.</p>	<p>Preservation of existing heritage buildings</p> <p>Create new attractions for tourists.</p>	<p>Develop local agriculture - aquaculture and farming with green - organic field practices.</p> <p>Use the SEZ to increase local interactions and strengthen the local economy.</p> <p>Extension the current port warehouses</p> <p>Turn the city into a business center</p> <p>Support public-private partnerships</p>	<p>Promotion of international and local tourism</p> <p>Flexible policies for visas,</p>
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## 2. Urban Environment and sustainability

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>Develop a plan to address climate-related hazards</p>	<p>Disseminate information about natural disasters.</p> <p>Implement measures to mitigate risks associated with wastewater overflow, city flooding, and waste management</p>	<p>Consider climate change) when designing city infrastructure to ensure their resilience.</p>	<p>Improve the resilience of the city to climate change</p>
<p>Undertake project impact assessments before project implementation</p> <p>Address the needs of affected communities and individuals.</p> <p>Monitor completed and ongoing projects as part of project impact assessment</p>	<p>Continue efforts to enhance the city through initiatives such as tree planting, gated communities and public spaces, sidewalk improvements and the installation of solar panels</p>	<p>Improve waste management infrastructures</p>	<p>Encourage citizens to plant more trees and reduce the use of plastics.</p>
<p>Prepare resettlement plans before the relocation of affected communities.</p>	<p>Implement measures to reduce the import of products containing high levels of chemical substances and conduct chemical tests.</p>	<p>Construct infrastructures that will be resilient and in accordance with the master plan.</p>	<p>Integrate sustainable development considerations into development projects for long-term environmental, social, and economic benefits.</p>

### 3. Urban Society and education

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
Provide Technical and Vocational Education and Training (TVET) skills, such as agriculture, technicians, hospitality, waste management ...	Improve the quality health facilities by improving equipment and ensuring an adequate number of doctors.	Extend public services and infrastructures (roads, parks, sewerage systems) to reach all communities.	Implement a social protection program for the most vulnerable population.
Provide support for family-based agricultural production to achieve financial self-reliance	Create employment opportunities for the local population.	Introduce environmental and sanitation topics into the education curriculum.	Implement measures to ensure access to clean drinking water and promote hygienic food handling.
Implement a social protection program including social insurance coverage for the general population.  Provide relocated citizens with land ownership rights and ID-poor cards.	Promote a culture of food quality	Raise awareness on Smart City concepts among citizens, local authorities, and government entities.	Consider implementing restrictions on alcohol advertising through media and in public spaces

### 4. Urban Governance:

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
Enhance public awareness and education to encourage citizens' understanding and participation in city development in partnership with local authorities.  Consult people and before initiating development projects.  Conducting project impact assessments to maximize benefits for citizens	Mobilize partners and networks associated with Smart Cities to foster knowledge-sharing.  Allocate adequate financial resources from the central government to implement Smart City initiatives and projects identified in the roadmap.  Allocate a budget for Smart City initiatives such as road connectivity within Sangkats, sewerage system, health and education etc.	Ensure law enforcement, specifically in the areas of urban planning and construction.  Address the issues of illegal and unfinished buildings.	Promote E-government and human resource development within public administration.  Establish ongoing professional development among government officials and provide them with incentives and recognition for their exceptional achievements.  Ensure government officials have a clear understanding of their roles, responsibilities, and their organizational structures.  Ensure that citizens have access to relevant information regarding service delivery, processes, and decision-making.

<p>Support inter-ministerial coordination for the voluntary relocation of temporary shelters/communities,</p> <p>Implement a compensation policy, ensuring a smooth relocation process.</p> <p>Safeguard public land, prevention of encroachment by temporary shelters,</p> <p>Improve the process of granting legal ownership</p>	<p>Develop policies for implementing a monitoring system to track the status and challenges of city development.</p>	<p>Develop specific policies for Smart City development. Explore Smart Cities capacity and institutional building.</p> <p>Set up a municipal-level office dedicated to Smart City initiatives with appropriate human resources.</p> <p>Support the implementation of a Smart City approach, involving sub-national administrations at all levels and engaging citizens.</p>	<p>Establish community or village groups on Telegram, Facebook Messenger, or WhatsApp for information sharing.</p>
<p>Improve public services, in areas related to land and taxes</p> <p>Ensure the effective delivery of public services by implementing digital solutions that enable monitoring of submissions</p>	<p>Implement training programs for all government institutions and agencies to equip them with essential digital skills (D-Essential).</p> <p>National ministries should prioritize capacity building and regularly provide coaching opportunities to sub-national officials, focusing specifically on technical aspects related to Smart Cities,</p>	<p>Relocate occupants of public lands within SEZ through a smooth resettlement mechanism</p>	<p>Establish a map specifically dedicated to Smart City development</p> <p>Integrate technologies into actions and projects to enhance efficiency, effectiveness, in various aspects of governance.</p>

## 5. Urban Infrastructures:

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>Promote public-private partnerships (PPPs) to enhance public services, such as the construction of roads and bridges,</p>	<p>Construct climate-smart irrigation systems.</p>	<p>Rehabilitate the canals and waterways in the city.</p>	<p>Strengthen the development of the digital infrastructures to enhance online communication, digital finance, through secure online platforms</p>
<p>Leverage ICT tools for payment of water, electricity, and public mobility services</p>	<p>Establish dedicated service centers for city buses.</p> <p>Create boat services along Stung Sangkae</p> <p>Re-establish the Veal Bek Chan Airport.</p>	<p>Efficient solid waste and wastewater management</p>	<p>Rehabilitate drainage/ canals and sewerage systems:</p>
<p>100% coverage of electricity, guaranteeing stable and reliable power supply in all villages, health centers, schools, and other essential facilities.</p>	<p>Enhance phone coverage and internet connectivity,</p> <p>Install optic cables in key locations</p> <p>Implement the installation of Wi-Fi networks in public areas.</p>	<p>Strengthen sustainable and resilient systems for health</p>	<p>Implement additional city infrastructure projects to meet the requirements for transforming into a Smart City</p>

## Recently achieved or ongoing activities (supported by development partners) :

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>Significant progress in establishing an effective Smart City framework, which includes the establishment of a Smart City Committee, a Division for Smart City (currently proposed at the national level), and a Smart City Working Group (SCWG). SCWG collectively involve provincial and municipal authorities, as well as relevant technical line departments, to ensure the success of the Smart City initiative.</p>	<p>Establishing a comprehensive master plan, known as the Vision for Battambang 2030, to guide and shape development initiatives (developed in 2015).</p> <p>The City has moved ahead working with development partners within 3 main areas: Solid and Liquid Waste Management   Urban Street and Public Space Management  </p>	<p>Collaborating to develop its Smart City vision potential scenarios.</p> <p>With UN-Habitat and a set of 13 recommended contextual actions to handle, and an approach that prioritizes a human focus.</p> <p>With Australian development support defining 12 strategic priorities, and an approach that prioritizes a digital focus.</p> <p>Both approaches are relevant to the City needs, and are covering the main challenges related to City sustainable and Smart Development</p>	<p>Smart &amp; Sustainable City Strategic Road Map: 2022-2035: This document provides an overview of Smart City readiness, including main priorities and directions, steps and practical processes, and examples of pilots to start effectively the implementation process (some of them have been already launched); the document is also aiming at initiating a comprehensive set of documents to initiate a related strategic master plan</p>
<p>Already developed a Smart City Roadmap for the period 2023-2035, with support from JICA to implement some smart city pilot initiatives, and it also includes training opportunities to enhance the knowledge and capacity related to smart city technologies and practices.</p>	<p>Some priority projects have started like: Clean Sangka Development &amp; Riverfront area development project; Green industrial park, New Bypass Road to bring heavy / logistic traffic outside of the city center.</p>		<p>Sustainable City Plan 2018-2030: provides a roadmap for Cambodian policy makers, local administrators and their national and international development partners to pursue the implementation of urban green growth.</p>

## Recently achieved and ongoing initiatives within the Cities

Siem Reap	Battambang	Preah Sihanouk	Phnom Penh
<p>Constructed 38 road segments using a substantial allocation from the national budget and equipping them with smart camera systems, resulting in the establishment of standardized roads.</p>	<p>Successfully implemented a project to enhance the city by relocating all temporary individuals and communities to newly resettled villages, with their agreement and cooperation.</p>	<p>Trying to increase interaction between local SMEs and bigger firms in the SEZ, in order to boost local economy and indirect revenues</p>	<p>The city has made significant strides in its initiatives, including the development of a new smart expressway (PNP-SHV), the construction of bridges in the Capital, and the introduction of river transportation options such as boats and ships. These achievements showcase the city's capacity to explore new avenues and foster innovation.</p>

Rules and regulations put in place for waste management	There are multiple existing mechanisms and platforms available for collaboration and partnerships with development partners and other stakeholders for the benefits of city development.	Some Public Buses should be available in the near future, some work on the best possible itinerary are ongoing.	The provision of ID-POOR to citizens and the implementation of One-Window Service Offices (OWSO) are essential measures to enhance public service delivery and ensure efficient access to government services.
One-Window Service Offices have been established and are operational, providing streamlined services to citizens	Received awards for being a smart city recognized for its cleanliness, smart initiatives, and environmental efforts.	The Smart Parking project, through a possible Public Private Partnership scenario (with MEF involvement) has been supported by a feasibility study	Establishing a telegram group among relevant institutions enables efficient communication and coordination in responding to citizen requests and addressing their concerns promptly and effectively.

## Annex 02: 15 points matrix table

### Technical work support: 15 areas of action, matrix table document

Priority Needs and Challenges - Recommendation and Directions towards Solutions - Smart City support response proposal.

#### #01 Land use & planning:

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Lack of detail in land use and planning component</li> <li>➤ conflicting projects near each other</li> <li>➤ Lack of identified projects</li> <li>➤ Development plans are not enforced</li> <li>➤ Conflicting projects near each other</li> <li>➤ Lack of existing land use information</li> <li>➤ Lack of national or large-scale development projects hampering economic development</li> <li>➤ Inadequate investment in city infrastructure</li> <li>➤ Not enough government support for infrastructures development these are sometimes happening but are not enough.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Cities need a land use planning tool for city development to guide the development of infrastructures and future city expansion, taking into account local conditions and development potential.</li> <li>➤ For achieving the city's long-term vision, land reservation, and public land provision for future public investment projects is required.</li> <li>➤ The detailed plans should include land use regulations and development densities.</li> <li>➤ Sustainability and climate change risks should be included in development plans.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Cities need a simple land use planning tool, supporting local conditions and development potential.</li> <li>➤ The city's land use plan will ensure coherent planning and overall city development. This data will also guide the development of infrastructure for future city expansion.</li> <li>➤ To support the city's long-term vision, land reservation, and public land provision for future public investment projects, is required.</li> <li>➤ The land use plan should include land use regulations and development density.</li> <li>➤ Sustainability and climate change risks should be included in development plans</li> <li>➤ Digitalize the land use and planning information to provide the basis for all development works for the city and its infrastructures.</li> <li>➤ The digitalized land use and planning information can provide different layers according to city profiles.</li> <li>➤ The involved actors will need to be trained in its use.</li> <li>➤ The digital land use plan will identify conflicting and land use functions.</li> <li>➤ The digital land use plan will support the planning of infrastructures according to existing needs and future expansion.</li> <li>➤ The digital land use plan will allow land to be reserved for future public land management and adequate infrastructures provision and its layers will provide plans for mobility infrastructures, energy systems and water development.</li> </ul>

		<ul style="list-style-type: none"> <li>➤ Scenarios can be tested according to local conditions and digital tools will support resilience and mitigation for climate change and extreme weather events that cause flooding and landslides and other related events.</li> <li>➤ The digital land use plan can ensure compliance with land use regulations.</li> <li>➤ Ensure that each of the Smart City response meets the identified challenges.</li> </ul>
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## #02 Temporary Shelters

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Need to propose sustainable long-term options that allow communities to access higher life quality in the context of development plans.</li> <li>➤ Relocation sites are not provided with adequate infrastructures, are too far from employment opportunities potentials or lack access to financial support.</li> <li>➤ For those who are being considered for relocation need to provide support such as temporary administrative addresses and civil documents and infrastructure connections.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop solutions such as land ownership and housing options, access to infrastructure on existing or relocation sites.</li> <li>➤ Support for income options including skill development.</li> <li>➤ Develop preventive measures such as supporting housing and infrastructures options for low-income categories and laborers.</li> <li>➤ Sharing of best practices from existing housing projects on climate change resilient housing, green and affordable building materials</li> <li>➤ Provision of relocation options for migrants, those displaced for “public interest” projects such as infrastructures and those who are unauthorized occupants of lands</li> <li>➤ Develop people centered relocations before starting major projects.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Use digital planning support to develop options for those in temporary shelters.</li> <li>➤ Use the city digital land use and infrastructures information to determine best options for development projects that optimize benefits for stakeholders.</li> </ul>

## #03- Urban mobility

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Poor quality of secondary road construction</li> <li>➤ Insufficient budget for road maintenance</li> <li>➤ Poor quality roads have a negative impact on economic development</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve traffic management including law enforcement.</li> <li>➤ Road network and parking facilities to be developed in accordance with development plan.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop safety standards for all modes of transport.</li> <li>➤ Integrate parking requirements in digital land use planning.</li> <li>➤ Use digital tools to monitor the development and maintenance of the road network.</li> </ul>

<ul style="list-style-type: none"> <li>➤ Lack of parking around shopping areas and markets</li> <li>➤ Lack of public transport</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve road maintenance and increase budget.</li> <li>➤ Ensure connectivity between different modes of transport.</li> <li>➤ Improve connectivity between local, provincial and national modes of transport by road, river and rail.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Create an application to provide the users with best options to go from one place to another.</li> </ul>
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## #04- Clean and Green Cities

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Improve citizens' behavior on littering and waste management.</li> <li>➤ Provide more green spaces and more recreation places.</li> <li>➤ Improve quality of urban living and promoting a green future and establish standards for open spaces in development plans</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop awareness campaigns and integrate the clean and green concept within the Smart City development.</li> <li>➤ Integrate green components within the city development plans.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Use digital infrastructure design tools to facilitate the integration of green areas within a city planning, ensuring adequate design and technical compliance.</li> <li>➤ Include green and recreational facilities in Smart City Development plans including sidewalks, tree planting and riverside recreational development</li> </ul>

## #05- Solid waste

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Implementation of solid waste management systems including strengthening of regulatory framework, adequate infrastructure, innovative technologies, waste recycling, public awareness and private, public participation.</li> <li>➤ Improve citizens' awareness and participation in solid waste management</li> <li>➤ Increase budget for solid waste management.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve information exchanges between cities</li> <li>➤ Create city standards for solid waste management.</li> <li>➤ Integrate sustainable waste treatment methods such as recycling, segregation, waste to energy, sanitary landfill etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Use digital technologies to enhance the waste management and facilitate interactions between citizens, collection firms, and authorities with user friendly applications.</li> <li>➤ Use digital tools to facilitate the provisions of solid waste management skills through training.</li> <li>➤ Develop a city digital standards tool, dedicated to solid waste management, processes and stakeholders' coordination,</li> <li>➤ Support for waste treatment, recycling and circular economy development.</li> </ul>



## #06- Storm and wastewater facilities

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Develop dedicated stormwater networks to reduce flooding and improve environmental conditions.</li> <li>➤ Ensure that septic tank drainage does not enter storm water drains.</li> <li>➤ Separate gray and black wastewater</li> <li>➤ Treat wastewater before discharge Coordinate wastewater and stormwater networks with land use plans.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop a dedicated storm water drainage system linked to natural drainage networks and retention ponds.</li> <li>➤ Design flood prevention within the context of climate change.</li> <li>➤ Ensure that stormwater networks are developed in accordance with city land use plans</li> <li>➤ Implementation of septic tanks at project or building level.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Integrate rainwater infrastructures in the city digital planning and land use matrix.</li> <li>➤ Using digital tools to provide, at city scale, nature based solutions such as existing retention ponds and drainage networks</li> <li>➤ Use digital design tools to plan for extreme weather events (rainfall) and plan for capacity requirements for the impact of climate change</li> </ul>

## #07- Food and potable water

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Provide quantity and quality food access for vulnerable populations at times of crisis such as Covid and extreme weather events.</li> <li>➤ Ensure that food is free for toxic chemical treatment.</li> <li>➤ Ensure that everyone, especially vulnerable people have access to affordable potable water.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Integrate the development of the city's safe water supply network into development plans</li> <li>➤ Improve enforcement of hygiene and food safety standards.</li> <li>➤ Support public health with the limitation on the advertisement and sale of cigarettes and alcohol.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Integrate within the city digital planning, potable water supply network provision.</li> <li>➤ Support local food quality and affordability, by encouraging local food production and supply.</li> <li>➤ Use digital tools to support food hygiene and safety controls and certifications.</li> </ul>

## #08- Health facilities

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Ensure that all the population should have access to healthcare facilities.</li> <li>➤ Sub-national healthcare facilities need to be available with adequate skilled human resources, treatment facilities and budget and all should have access.</li> <li>➤ Primary health care facilities need to be available for all to reduce preventable diseases and to provide for the needs of women and young children.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Ensure that every citizen can access quality healthcare.</li> <li>➤ Ensure that the provision of the different health care services is planned in an optimized way at city levels.</li> <li>➤ Support health improvement and promote good health treatment and practices.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Ensure an effective resilient and sustainable healthcare system with affordable access for every citizen.</li> <li>➤ Use digital technologies to ensure access to quality treatment and medicines to health practitioners,</li> <li>➤ Introduce registered healthcare services on digital maps to inform patients about the location of services healthcare NGOs and pharmacies.</li> <li>➤ Introduce online doctors consultation</li> <li>➤ Use digital technology to promote awareness of good health practices, information promotion and dissemination.</li> </ul>

## #09- Safety and Security

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Reduce crime and dangerous activities and protect citizens from threats, theft, personal attacks and use of drugs.</li> <li>➤ Need to improve emergency responses to accidents, fires and health emergencies.</li> <li>➤ Improve safety of cyclists and pedestrians need to adopt the “village, commune safety and security policy in cities.</li> <li>➤ More mass awareness campaigns and training programs to promote safety and security among the population, especially for women and children.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Set up surveillance cameras at strategic locations. and supporting control center</li> <li>➤ Creation of dedicated trained security services for all</li> <li>➤ Ensure coordinated risk and emergency information.</li> <li>➤ Support “safe village, commune” implementation in urban areas.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Use of CCTV tools and control center, to provide technology support with real time information exchange.</li> <li>➤ Use digital tools to support lost and found service, and to match lost property with owners</li> <li>➤ Strengthen law enforcement with the combination of digital surveillance cameras and coordination of field forces.</li> <li>➤ Develop a monitoring center of meteorological data through digital tools, to provide local information on extreme weather events</li> </ul>

## #10- Smart City Development

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ More resources required for Smart City development.</li> <li>➤ Provide additional professional human resources, ICT training and technical equipment for the city authorities.</li> <li>➤ Provide financial and management resources for the implementation of Smart City initiatives.</li> <li>➤ Ensure digital deployment leaves no one behind.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Implement programs to equip local authorities with digital skills.</li> <li>➤ Ensure effective integration of new technologies.</li> <li>➤ National Ministries to prioritize practical training of SNAs and LAs, on Smart Cities technical aspects.</li> <li>➤ Provide human resources, technical tools, and practical skills and knowledge of best practices on Smart City development.</li> <li>➤ Integrate climate resilient infrastructures, within the Smart City planning.</li> <li>➤ Develop partnerships with other cities on Smart City development.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Ensure Smart City policy and regulations are in place.</li> <li>➤ Through digital learning toolkits and modules for Smart Cities illustrate practical examples</li> <li>➤ Use digital tools to analyze the city’s development progress and the new challenges it faces.</li> </ul>

## #11- Environment and Natural Resources Development

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Integrate environmental development features in compliance with existing environmental laws, such as the recently adopted Environment and Natural Resources Code (2023 ENR Code).</li> <li>➤ Provide sufficient resources for the development and maintenance of urban infrastructure including waste management practices and climate resilience</li> </ul>	<ul style="list-style-type: none"> <li>➤ Cambodian specific development and management of infrastructures</li> <li>➤ Use land use information to support infrastructure design which includes energy efficiency, climate resilience and accessibility for all</li> </ul>	<ul style="list-style-type: none"> <li>➤ Ensure that citizens understand and support project cycle digital tools, as a supportive process to follow project development.</li> <li>➤ Use innovative approaches for citizens to understand city development.</li> <li>➤ The digital planning tools will also facilitate the city to review and ensure compliance with plans and permissions.</li> </ul>

## #12- Coordination (general)

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Need to improve coordination in , methods, tools and approaches for inter-governmental organizations involved in Smart city initiatives</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide local authorities with practical training methods on coordination of project design and management.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide digital based learning tools to support the introduction of new technologies on project management and monitoring.</li> <li>➤ Develop and implement digital governance tools (data platforms) and operational processes to allow access to information by city stakeholders.</li> <li>➤ Support projects validation and administrative decisions with digital secured workflow technologies.</li> <li>➤ Explore the provision of a minimum E-Governance toolkit for each city.</li> </ul>

### #13- Services Delivery (inclusive and quality services)

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Limited financing and lack of coordinated service delivery are negatively affecting citizens especially vulnerable people</li> </ul>	<ul style="list-style-type: none"> <li>➤ Ensure that essential infrastructures and basic services effectively reach every citizen.</li> <li>➤ Develop a city planning matrix tool, to support city development with public services processed through a one window service.</li> <li>➤ Implement social insurance for all</li> </ul>	<ul style="list-style-type: none"> <li>➤ Using digital technologies to support the cities with the provision of guidelines to integrate infrastructure and basic services within their design, planning, and Smart City framework.</li> <li>➤ Support LAs with the digital tools to be used for public services delivery.</li> <li>➤ Support financing to support infrastructures and services and develop an adequate budget for each city.</li> <li>➤ Integrating digital literacy and digital social service usage, within vulnerable communities, with the support of NGOs, CSOs, civil society</li> <li>➤ Use digital platforms to link social initiatives and coordination and optimization of their resources.</li> </ul>

### #14- Communication and Interaction

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Need to develop access to reliable data.</li> <li>➤ Increase citizen participation in city developments</li> <li>➤ Need to promote successful projects</li> </ul>	<ul style="list-style-type: none"> <li>➤ Facilitate interactive communication with the citizens,</li> <li>➤ Develop feedback and citizen participation in city initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop a digital city application, for for tourists, citizens, investors and others giving general city information including information on emergency services and the possibility of citizens feedback</li> <li>➤ Develop citizen based apps such as those for tuk tuks</li> <li>➤ Create digital platforms for the authorities and institutions, to facilitate exchange of information between the government and citizens.</li> <li>➤ Promote through digital channels successful city projects and Smart City initiatives.</li> <li>➤ Share through digital platforms on the Smart City information on initiatives in other cities</li> </ul>

## #15- City Economic Development

A - Challenges	B - Solutions	C - Smart City response
<ul style="list-style-type: none"> <li>➤ Support required through incentives from government for SMEs and individual businesses in various sectors, including tourism, agriculture, education and healthcare.</li> <li>➤ Diversify the tourism sector, particularly ecotourism by expanding the range of high-quality services and hospitality.</li> <li>➤ Need to add value to agricultural products to increase value for local and international markets.</li> <li>➤ Need to further develop and modernize special economic zones Lack of adequate skills need to be provided by technical and vocational education and training.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supporting SMEs, with training, strengthened competitiveness and improved market access.</li> <li>➤ Promote local businesses, local products, local employment.</li> <li>➤ Support associations of local businesses with TVET Diversify tourism activities and services.</li> <li>➤ Develop hospitality quality standards.</li> <li>➤ Collaborate with the private sector to develop services and events for business travelers.</li> <li>➤ Develop agriculture market for food processing, organic agriculture to comply with international standards Develop innovative business models to support the Smart City financing.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop online business information platforms</li> <li>➤ Organize e-commerce training and information provision related to digital business for SMEs.</li> <li>➤ Support with digital platforms, effective access to city skills and e-learning practical training in Khmer language.</li> <li>➤ Develop online marketplaces.</li> <li>➤ Organize city business groups through online platforms.</li> <li>➤ Use digital tools to develop PPPs frameworks and develop innovative Smart City business models.</li> </ul>

