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Review of the implementation of the programme of work 2017-2018**Sustainable urban development and smart sustainable cities****Guidelines for the Development of a Smart Sustainable
City Action Plan****Note by the Secretariat***Summary*

One of the activities of the “United Smart Cities” programme is the development of Cities Action Plans. These plans provide strategic and practical directions to local authorities to implement the recommendations of the Smart Sustainable City Profile, a comprehensive analysis of the city performances according to the Key Performance Indicators for Smart Sustainable Cities elaborated in 2017.

This document supplements and enhances Smart Sustainable City (SSC) leaders’ ability to develop and implement an action plan for their city by providing the basic framework to guide them through the action plan drafting process. The first part of the guidance introduces components of an action plan. The second half provides concrete examples and tools to guide the development of the plan.

The Committee is invited to review this study and approve its online publication and use once revised and edited.

GUIDELINES FOR THE DEVELOPMENT OF A SMART SUSTAINABLE CITY ACTION PLAN

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INTRODUCTION

THE U4SSC INITIATIVE

In May 2016, the UNECE and the International Telecommunication Union (ITU) jointly launched the United for Smart Sustainable Cities (U4SSC) initiative¹.

U4SSC is a global smart city initiative which provides an international platform for information exchange, knowledge-sharing and partnership-building, with the aim of formulating strategic guidance to achieve the Sustainable Development Goals (SDGs) and implement the New Urban Agenda and other international agreements.

Besides the ITU and the UNECE, 14 other United Nations agencies, programmes, funds and secretariats support this initiative, including the Secretariat of the Convention on Biological Diversity (CBD), the Food and Agriculture Organization of the United Nations (FAO), UN-Women, the United Nations Commission for Africa (UNECA), the Economic Commission for Latin America and the Caribbean (ECLAC), the Secretariat of the United Nations Convention to Combat Desertification (UNCCD), UN-Habitat, the United Nations Environment Programme (UNEP), including the United Nations Environment Programme Finance Initiative (UNEP-FI), the Secretariat of the United Nations Framework Convention for Climate Change (UNFCCC), the United Nations Industrial Development Organization (UNIDO), the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS), the World Meteorological Organization (WMO) and the World Trade Organization (WTO).

The key functions of U4SSC are:

- to develop guidelines, policies and frameworks for the integration of ICTs into urban operations, based on the SDGs, international standards and urban key performance indicators (KPIs); and
- to help city leaders to streamline smart city action plans and globally establish best practices and feasible targets that urban development stakeholders are encouraged to meet.

THE KEY PERFORMANCE INDICATORS (KPIs) FOR SMART SUSTAINABLE CITIES

Within the framework of U4SSC, the UNECE and the ITU developed, together with the other 14 UN entities and several partners, the KPIs for smart sustainable cities. Since their creation, these KPIs have been gathering substantial momentum and are already playing a role in helping cities monitor their progress towards Sustainable Development goals. Over 50 cities worldwide are already implementing these indicators, including Singapore, Dubai, Montevideo, Moscow and Valencia

The KPIs include 92 indicators (core and advanced) covering the 3 dimensions of sustainable development: economic, environmental, and socio-cultural. The KPIs encompass the following topics: ICTs, transport, productivity, infrastructure, spatial planning, innovation, air quality, water and sanitation, waste, public spaces, energy, education, health, culture, safety, housing, food and social inclusion. The indicators are fully aligned with the Sustainable Development Goals (SDGs) and serve as a tool for evidence-based decision making, progress monitoring and achieving the SDGs at the local level.

¹ Information on the U4SSC is available at <http://www.unece.org/housing-and-land-management/unity-4-smart-sustainable-cities-u4ssc.html>

THE USC PROGRAMME

The “United Smart Cities” (USC)² Programme was launched in May 2014 in Geneva and is a multi-stakeholder programme which aims to address the major urban issues in particular in medium-sized cities globally and supports the implementation of the 2030 Agenda at the local level.

The main objectives of the Programme are:

- To assess the performance of cities in the areas of environmental sustainability, economic and social development and culture
- To analyse the cities’ strengths and weaknesses and set priorities for action in terms of infrastructure, investments and technology integration
- To support cities in formulating sustainable urban development priorities and making the most efficient use of its resources and create sustainable investments and employment opportunities
- To enhance cooperation between citizens, the public and the private sector and other relevant stakeholders at local and national level on urban development activities
- To increase the city’s visibility and awareness of its unique value at the international level
- To achieve major progress on all the Sustainable Development Goals (SDGs) by 2030

At the general level, the Programme delivers the following outputs: Smart Sustainable Cities Profiles; Smart Sustainable Cities Action Plans; United Smart Cities platform; Capacity-building and training and financial advisory services.

THE SMART SUSTAINABLE CITIES PROFILES

The Profiles are a comprehensive analysis of the city performances of a city. By using the above-mentioned U4SSC KPIs, the Profiles measure the city's performance against the indicators and provide an accurate analysis of the information on relevant factors for all urban development activities, including business & economy, social issues, strategic urban planning, governance etc. In fact, they identify the areas where action is required most urgently, and gives recommendations for the city to implement, in order to improve its sustainable development.

THE CITY ACTION PLANS

In order to implement the recommendations of the Smart Sustainable City Profile, USC experts, in cooperation with local experts, support cities to develop City Action Plans. Plans list the recommendations of the city profile and provide a full and strategic and practical scheme to implement the recommendations. The plans, furthermore, give information on the financial resources needed, the targets and goals for each recommendation/project and the people or departments responsible for their implementation.

The plan can be used by local authorities to prioritize and organize their work and identify the financial sources to implement the planned projects.

THE USC PLATFORM AND MARKETPLACE

The USC Marketplace is an on-demand sustainability advisory service and digital collaboration platform. The platform provides an ideal setting for effective collaboration between city representatives,

² Information on USC is available at <http://www.unece.org/housing/smartcities.html>

companies, financiers and top smart city experts locally and internationally. It also supports effortless coordination and development of multiple projects by diverse teams among various stakeholders. The platform enables an innovative match between a project idea and solution providers. Besides that, multi-disciplinary expertise can be easily sourced into the projects in order to refine them into solid concepts that are ready to be financed. The marketplace is hosted by the Organization for International Economic Relations (OIER), UNECE’s partner in the USC programme, at <https://solved.fi/usc/>.

CAPACITY-BUILDING AND TRAINING

The programme includes capacity-building activities both for national and local authorities in the form of stakeholder workshops in various phases of the programme. The workshops bring international experts who will train local and national authorities on selected topics. The activities will enhance the capacity of the local and national authorities to apply specific methodologies on gathering data, on implementing solutions to foster economic growth, urban planning, energy efficiency, etc. This will support the city to achieve the SDGs at the local level.

FINANCIAL ADVISORY SERVICES

Another key support given by USC is linked to the financing of projects. USC assists cities to identify their priorities through the profile and then identify how they will finance the above projects as described in the action plan. Using the UN publication “Guidelines on tools and mechanisms to finance smart sustainable cities projects” as its methodology, USC support cities to identify the financing strategies and the tools which are the most appropriate for its recommendations/projects. The services range from project support, roundtables and bilateral meetings with investors and finance institutions and industry and capacity building. USC has a large number of partners, including finance entities, funds, development banks and private investors, who are willing to invest in valuable projects which can make a positive impact on cities and communities.

Figure 1: The United Smart Cities Process



STATEMENT OF PURPOSE

The document presented here supplements and enhances Smart Sustainable City (SSC) leaders' ability to construct and implement an action plan for their city by providing the basic framework to guide them through the action plan drafting process. The first part of the guidance introduces components of an action plan. The second half provides concrete examples and tools to guide the development the plan.

This document links the three phases of the United Smart Cities (USC) Process shown in figure 1.

In fact, after the Smart Sustainable City Profile with recommendations is elaborated, these recommendations can then be leveraged to develop action items through the development of the action plan. Action items are a set of specific, discrete, outcome-orientated tasks needed to complete each goal or recommendation. Phase 2 is the development of the Action Plan. The action plan uses the recommended measures from the City Profile to develop a clear list of action items, along with funding and financing, and timeline for implementation. The action plan process also identifies a monitoring plan to track activities and outcomes which will then bring to the third phase of the process. This guidance document provides the necessary structure, definitions, and tools to aid in the development of such a plan.

UN SUSTAINABLE DEVELOPMENT GOALS (SDG)

The UN Sustainable Development Goals (SDGs) call for global economic, environmental and social progress. In particular, SDG 11 specifically calls for bolstering resilience, safety, inclusivity, and sustainability of cities. The guidance presented here is one step in a larger process toward the realization of this goal. The "United Smart Cities" programme is focused on providing cities with the tools and guidance to realize the SDGs at the local level.

DEFINING A SMART SUSTAINABLE CITY (SSC)

For a city to become "smart", technology, especially information and communication technology (ICT) is deployed to enhance efficiencies and connectivity. Investments in ICT can stimulate innovation and productivity. However, being smart is not enough. Sustainability is necessary to enhance the longevity of economic and social progress. Using technology and data, smart sustainable city programmes target the people in the city to improve their wellbeing, productivity, and the long-term resilience of the community. By incorporating the sustainability ideals alongside the technological change occurring in cities, the UNECE and ITU have defined the smart sustainable city as the following:

A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects. UNECE and ITU, October 2015³

³ The definition has been endorsed by the partners of U4SSC and available at <https://www.itu.int/en/ITU-T/ssc/united/Pages/default.aspx> and http://www.unece.org/fileadmin/DAM/hlm/documents/2015/ECE_HBP_2015_4.en.pdf

DEFINITION OF TERMS:

1. Sustainability: Defined as the “process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs”⁴
2. Information Communication Technology (ICT): “Includes any communication device or application such as radio, television, cellular phones, computers, satellite systems as well as network hardware and software and associated services.”⁵
3. Wellbeing: Includes having access to food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond the control of the individual⁶
4. Productivity: Labor productivity is a measure of development. Formally defined as the output per unit of labor. Increases in productivity indicate economic growth and further improvements in living standards.⁷
5. Resilience: “the ability of any urban system to maintain continuity through all shocks and stresses while positively adapting and transforming towards sustainability.”⁸

⁴ The term sustainable development here defined is found in the Report of the World Commission on Environment and Development: Our Common Future. 1987. accessible here: <http://www.un-documents.net/our-common-future.pdf>

⁵ Definition sourced from: United Nations. Toolkit on Disability for Africa: Information and Communication Technology and Disability <https://www.un.org/esa/socdev/documents/disability/Toolkit/ICTandDisability.pdf>

⁶ This definition originates from Article 25 of the Universal Declaration of Human rights. 1948 available here: <http://www.un.org/en/universal-declaration-human-rights/>

⁷ For a further understanding of labor productivity see: http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/econ_development/labor_productivity.pdf

⁸ The definition and a further description can be found here: UN-Habitat. Resilience. <https://unhabitat.org/resilience/>

CHAPTER 1: THE SMART SUSTAINABLE CITY ACTION PLAN

DEFINING THE ACTION PLAN

While action plans can take many forms, action plans are mainly tools of coordination. Action plans address long-term goals and strategic vision through specific actionable items. The document conveys to the stakeholders, in particular investors, decision makers, and the local community, why the Smart Sustainable City concept can benefit the city, and how change will occur. Action plans prioritize issues within the city into actionable items with the intent to achieve positive outcomes. The plan is output orientated, with distinct strategies to achieve the stated goals.

Action plans coordinate partnerships across the public, private, non-profit sectors, and the community. The action plan development process will vary; therefore, city leaders should allow ample time for input and feedback from stakeholders. It is recommended to allow the drafting process to last up to three months to give ample time to develop a comprehensive plan, be inclusive, and focus on the tasks at hand.

ACTION PLANNING STRATEGY

GOVERNANCE AND ORGANIZATION

City leaders should consider constructing a strong governance policy and strategic organizational charts prior to developing the action plan itself. Those in charge of the development of the action plan or the organizing committee within the city government should consider the following points in particular:

- i. The first is an **identification of rules, practices, and expectations for participation** to be applied to the entire action plan. This should be considered as a contract with all those involved in implementing the action plan. There is a need to identify the proper level of regulatory and legal oversight, especially with regards to land use and permitting. Much of this is identified in the City Profile, however, reiterating it in the action plan provides clear channels of accountability and the presence of due diligence necessary for attracting future investment.
- ii. A critical task of the action plan is to decide which **office/agency/individual is responsible for coordination and overseeing** actions of the implementation of the plan. The City Profile has outlined the local institutional framework by identifying key national, regional and local government structures. City leaders should use this to help organize responsible parties to develop and oversee the goals associated with their respective indicator areas.
- iii. The complexity of the plan reflects the need to identify subordinate offices in charge of respective tasks. A clear **organizational chart** with an accompanying outline of duties and responsibilities of each actor should be produced for each major goal in the plan. It is recommended this be presented in a clear, unambiguous manner. This enables accountability and transparency throughout process.

CHAPTER 2: ACTION PLAN STRUCTURE AND STRATEGY

KEY CHARACTERISTICS AND ELEMENTS OF THE ACTION PLAN

Action plans should be clear, concise and implementable. Action plans have three major components:

- a. Specific Goals
- b. Identification of Actors and Resources
- c. Time Management and Process Monitoring

a. Specific Goals: Vision, objectives, action items

Specific goals arise from the long-term strategic vision for the city. Each city will have unique challenges and different desired outcomes. It is the vision that shapes what the city aspires to achieve. The objectives or goals equate to the targeted outcomes desired by a city.

Action items are the specific activities needed to accomplish an objective.

From the development of the KPIs and the recommendations of City Profile, goals and action items have largely been identified. It is the role of the Action Plan to refine the recommendations from the City Profile, into actionable items.

b. Identification of Actors and Resources: Strategy

In order to fulfill objectives and implement action items consider the following elements:

- 1) Actions to be taken;
- 2) Leader of these actions
- 3) Timeframe for them to take place;
- 4) Resources (people, capital, etc.);
- 5) Stakeholders and monitoring mechanisms;

Determining these elements allows for the development of strategy to identify the necessary resources, evaluate existing resources, further build partnerships with stakeholders, and identifying the appropriate individuals, groups and resources that need to be gathered to effectively achieve the desired outcomes.

c. Time Management and Process Monitoring

The process by which the goals will be achieved is the most important part of the plan. This process is not easy, and highly complex. Once specific goals and action items are clear and concise, the best mix of stakeholders and adequate resources are identified, the implementation must be monitored for effectiveness and adhere to time-bound restraints. Monitoring the progression, and documenting achievements are critical for continued engagement with partners,

TIP BOX

SPECIFIC GOALS-Ask: What do we want to achieve?

ACTION ITEMS – Ask: How will we accomplish what we want to achieve?

STRATEGY- Ask:

- 1) What actions need to be taken?
- 2) Who will lead these actions?
- 3) How long is needed for them to take place?
- 4) What is needed to perform to expectations (people, capital)?
- 5) Who should be aware of what is occurring and how is the action being monitored?

funding opportunities, and community engagement. Maintaining time constraints is as important as being mindful of budget constraints. Exceeding schedules increases costs and dilutes effectiveness of future planning.

STRUCTURING THE ACTION PLAN

VISION AND GOALS STATEMENT

The long-term vision is dynamic and reflective of the changes that are happening to the city. The first step in the action plan is developing the vision and goals statement. This statement will be unique to every city and draw heavily from the City Profile. The city indicators fall into three broad categories: Economy, Environment, and Society & Culture. These categories can be used to shape the city vision.

GUIDING PRINCIPLES

It is recommended to develop guiding principles to support a strong vision. The guiding principles are developed from the city's core values and are reflective of the Sustainable Development Goals (SDGs), the New Urban Agenda and the Geneva UN Charter on Sustainable Housing.

For example, in the "Guiding Principles for City Climate Action Planning" document [10], UN Habitat presents the following guiding principles; *Each specific goal should be: Ambitious – Inclusive – Fair – Comprehensive and Integrated-Relevant – Actionable – Evidence Based – Transparent and Verifiable.*⁹ These principles were developed through an open platform for stakeholders. The multi-stakeholder platform included local officials, planners and others. Another option is to adapt the ISMART framework,¹⁰ discussed further here in Chapter 3 [page 17] to ensure goals are independent, simple (specific), measurable, achievable, relevant (results driven), and timely (time bound). These principles guide the desired goal planning process. These guiding principles are present through the entire planning process and can be unique to each city.

GOALS AND OUTCOMES

Following the vision statement and guiding principles, the goals, objectives, activities, and desired outcomes are clearly stated. The goals are outcome orientated and should follow a framework such as an input-output model or logic model (to be discussed in Chapter 3). Goal outputs are reflective upon the quality of planning and subsequent actions that take place over the course of the activities. Overall the relationship between goals, objectives, activities, and outputs leading to outcomes is one that requires structure and organization.

In this section of the action plan the following sections are recommended:

⁹ Further information on the guiding principles can be found in UN-Habitat. 2015. "Guiding Principles for City Climate Action Planning" starting on page 3. The document is available for download here: <https://unhabitat.org/books/guiding-principles-for-climate-city-planning-action/>

¹⁰ First appearing in Doran, George T Doran's article "There's a SMART way to write management's goals and objectives," the SMART framework is a common framework applied in management practices. The framework has been modified since to include: I (Independent), to ensure the goals are clear and focused. Found here: ITU-T. 2016. Y.4903/L.1603 Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals. pages 3-4

I. IDENTIFICATION/PRESENTATION OF BASELINE INDICATORS

The City Profile established the baseline indicators through the KPIs for Smart Sustainable Cities. The identification of these indicators should be presented to maintain the connection to the three silos of economy, environment, and society and culture, all interconnected through information and communication technologies (ICT). Ask: 1) Where does the stated goal fit in this process? 2) What are the associated actions and activities that need to occur to realize this goal?

The clear matching of each goal to a baseline indicator is imperative to monitor and evaluate accomplishments at each stage of process. Through this analysis the city is aware of its respective issues, which ones take priority, and what needs to be addressed and formalized into actionable projects.

II. OBJECTIVES AND ACTIVITIES

Each goal requires objectives and specific activities to take place to achieve the desired results or outcome. Objectives provide strategic planning, and the activities outline the specific actions needed to achieve a desired outcome.

III. DESIRED OUTCOMES: PERFORMANCE TARGETS

Each goal needs a series of targets in order to achieve the desired outcome. The targets represent the incremental outputs of specific activities and are important in the monitoring process to assess progress toward a desired outcome.

IDENTIFICATION OF KEY ACTORS AND STAKEHOLDERS

The identification of key actors is complementary to the governance plan. Ideally, key partners are involved in the drafting of the action plan. Stakeholders are brought in as necessary as the action plan is further developed. In this section of the action plan key actors and stakeholders should be identified and presented with clear task designation.

Based on the City Profile work and existing partnerships within a city, key partners need to be involved in the overall planning process. This allows for two outcomes: 1) Multiple points of view and diversity of thought in the planning process 2) Commitments of key partners from the beginning allowing for greater potential for consistent participation and positive outcomes.

STAKEHOLDER PARTNERSHIPS

When identifying the main partners who have a stake in the action plan it is recommended this takes the form of a formalized process, such as a memorandum of understanding, where partners pledge and sign an agreement. Alternatively, letters of support indicating their involvement and dedication to the process could be submitted to the lead agency.

The City Profile process already was successful in bringing together many key stakeholders. Stakeholders can be identified from a variety of sources and should be organized according to expertise, in addition, cross-functional teams should be formed.

With Smart Sustainable Cities, it is often non-apparent connections that have the greatest value. Patterns and spillovers from other sectors may result in novel identification of solutions to inherent

problems, not otherwise seen in respective silos. Commonly, stakeholders are drawn from the following areas: policy makers, regulators, private sector investors/developers, private sector owners/operators, local business owners, the general public.¹¹

COMMUNITY ENGAGEMENT STRATEGY

In a small to medium sized city, where local private and non-profit partnerships are of key importance to ensure success, coordination between all stakeholders is essential. The Smart Sustainable City concept places great value on open channels of communication between government, the public, and private partners. Thus, an engagement strategy should foster an environment where elected officials involved in the plan are identifiable and reachable by both partners and citizens. By being mindful of partnerships and the contribution of each actor, public, private, non-profit, and community members can continue to work together to figure out the way forward in both action planning and implementation. Engaging the community will ease the pathway towards being able to complete the goals set forth by the City Profile and reduce time barriers for each priority to be achieved. This will also grant a bottom-up approach necessary for the success and the sustainability of the plan's measures.

It is recommended that the public be consulted about what they need and want in their communities. Therefore, a community engagement plan should be included as part of the action plan. Reaching out directly (*inform*) and interacting (*engage*) with the people to best understand what they see as relevant to their communities can help to smooth implementation barriers and be more effective in delivery. Furthermore, the community should be *involved* in the decision-making process. Ultimately innovative ideas can originate from the public, leading to more inclusive plans. This *collaboration* allows for a more open, transparent process, reducing risk from public opposition to project plans. The public can be engaged through direct consultation or innovative ways to connect digitally to the public. Some strategies will be discussed further in Chapter 3. Public acceptance and open transparent decision-making are imperative to the process. Therefore, community engagement should be included in the partnership identification process. Involving key partners at the earliest stage possible is key to being able to prepare an action plan that is implementable.

TIMELINE OF GOALS AND ACTIONABLE ITEMS

There are two components of developing a timeline. The first is a long-term desired target date for completion of each goal. The second is a timeline of the action items and activities necessary to achieve each goal. The first should be included in the vision statement and can be coordinated with the SDGs. The second is critical for success of the action plan. The timeline of action items is critical for a successful implementation. Therefore, the timeline should reflect the necessary steps needed to accomplish a comprehensive implementation strategy.

The integrated planning process should be mindful of resource allocation. If multiple action items, due to the context of interaction inherent in the process, utilize the same resources, they need to be scheduled accordingly. While each goal and action items should be independent in concept from each other, certain activities will not be able to happen while others are in progress. This can be due to resources constraints or simply prerequisites needed for the action item to be able to be completed.

¹¹ List adapted from EU-SCC Smart Cities and Communities Stakeholder Platform page 17: "Cisco Smart City Framework."

Smart Sustainable City planning results in synergies; as the planning process reaches across multiple projects and requires coordination between multiple existing resources. In a smart sustainable city, traditional silos will overlap, such as transportation and energy, and there is a need to be aware of the cross-functional resources and inputs needed in the action plan development. This become clearer when timelines take the form of a work plan. The work plan details not only the scheduled completion time and associated activities but also all resources needed to complete the task.

FUNDING AND FINANCING STRATEGY

The commitments obtained through the partnership process helps to identify sources of funding. Sources come from both public agencies and private partners. Financing institutions and investors should have been identified as part of the partnership process. In addition to monetary resource, non-financial resources should be accounted for at this time. If there is not sufficient pool of skilled workers, the city may have to bring in outside help or develop a worker training program to be able to support the implementation of new technology and processes.

When developing a financing strategy through the action plan, city leaders should pay close attention to recommendations produced by the City Profile. Key recommendations will vary by city depending on the strength of legal and financial institutions. It is recommended to establish a long-term financial plan for each project to guarantee current costs to build, but more importantly to identify dedicated funding streams to operate and maintain the projects for many years to come. Identifying new streams of revenue is also critical for this component of the plan. Two components of this section of the action plan are:

I. COST ESTIMATES

Funding and financing follow closely with the involvement of stakeholders and actors. The preparation of cost estimates and the sources of funding are closely linked. The city should have target costs for each priority, and through the identification of funding sources determine which projects may be eligible for private involvement. It is also recommended to continually track actual compared to estimated costs as the projects progress.

II. PROPOSED METHODS OF FUNDING AND FINANCING

For most cities the first step in determining methods of funding and financing is to identify government resources. These can be in the form of dedicated funds, project specific taxes, grants, and other publicly available funding.

Public-private partnerships (PPP) are also an attractive option for revenue generating projects. When involving private partners through PPP keep in mind, the private sector finances the project, it does not pay for it, unless the project is completely privatized. Public-private partnerships are an attractive option if there is a clear revenue stream identifiable from the project. The value of entering into a PPP or P3 is the reallocation of risk and responsibilities between the partners. Asset recycling is a type of PPP method that may be attractive for some cities. This involves the selling or leasing of existing assets and using the proceeds to invest in a project elsewhere. Another alternative funding source is using data as a possible funding mechanism. This could be in the form of weather, air quality, traffic data being sold or rented to a larger firm or NGO. This is an emerging field and topic of revenue sources, particularly

for infrastructure assets as ICT grows in use in the public sphere. U4SSC has a companion publication detailing tools and mechanisms to finance Smart Sustainable Cities.

MONITORING MECHANISMS

The use of workplans for each task and setting target dates for each task should be done to monitor the completion and task components of the action plan. Monitoring should include channels of feedback to the participants as well as disseminating information to the public. Reporting procedures need to be established as consistent processes across all areas.

Examples of questions that should be reported on consist of:

- 1) Are tasks being completed a) on time b) within budget?
- 2) Have any innovative solutions/partnerships been created/identified?
- 3) Are externalities being present?
 - Were they positive or negative?
 - Were they utilized or mitigated?

The use of a "score card" can be useful to track set stages of completion. For example, if the project is related to water quality, set multiple targets to reach the goal. As each target is reached these can be reported as "successes" to the public, building recognition and trust in the process.

I. ACCOUNTABILITY AND TRANSPARENCY

A necessary component of monitoring is the accountability and transparency of each task. Who is the leader or set of lead actors for a specific task? These people or the agency should already have been clearly identified in the organization and identification of key actors. The progress and outcomes of each task are tracked and are to be available for public scrutiny. Smart sustainable cities bring together data and people. The people should have open access to reporting data, not only for accountability purposes, but for potential public innovation and contribution to the smart sustainable city process.

II. CONTINGENCY PLANNING

Contingency planning is essential for any action plan, as unexpected events always occur. Planning in this regard should reflect the plan at every level.

Items to consider planning for include:

- a. Leadership changes
- b. Labor market shocks
- c. Funding shortfalls
- d. Private partner bankruptcy or otherwise removing themselves from the deal
- e. Resource misallocation or unexpected loss of promised resources

In all of these cases, a secondary, and possible tertiary source should be identified in the contingency plan.

III. RESILIENCE

Resilience should be worked into the plan. The ability to bounce back from failure is important. Not every element of the plan will be able to be achieved. Therefore, the plan should remain flexible, and as open and transparent as possible. Failures will occur, but as

long as all the necessary steps have been taken to be thorough and information has been effectively communicated, it will help to mitigate fall out.

IV. DEALING WITH UNINTENDED CONSEQUENCES

In order to deal with unintended consequences, it is recommended to develop a manageable institutional structure at the city level.

Smart Sustainable Cities require constant communication and coordination across institutional levels. Cross-sectional teams developed in the planning process need a clear structure of reporting and accountability.

Unintended consequences of policy implementation are common. Often demonized as negative impacts, in some case unintended consequences can be positive, and there has to be a way to capture them and either support effect. Negative unintended consequences can sometimes be out of everyone's control. The possibilities of such things occurring should be brainstormed during multi-stakeholder sessions in order anticipate their possibility and to be able to take steps to mitigate their impact on the process. While this is difficult, there should be a mechanism within the action plan to account and make city leaders aware of the potential of such things occurring.

SUMMARY OF CHAPTER 2: DEFINING, STRUCTURING, GOVERNING, AND DEVELOPING THE ACTION PLAN FOR SUSTAINABLE SMART CITIES

In summary, building upon defining and overall governance and organizational strategy in chapter 1, chapter 2 continues with structure and strategy of the action plan. In this section the key characteristics and elements are discussed. The three key components are: 1) Specific Goals 2) Identification of Actors and Resources 3) Develop a time management plan and process monitoring mechanism. The action plan should take the following form: Begin with guiding principles and a vision statement. Action items are drawn from the city profile recommendations, the community is engaged, and the identification and census of key actors and resources is compiled. Following the clear identification of the specific goals, key actors and resources, a time-line for each activity is established, key persons are assigned, and cost estimates and source of funding/financing is identified. Finally, any further necessary activities are outlined, expected results are stated, a monitoring mechanism is identified, and a contingency plan is prepared.

CHAPTER 3: TOOLS AND RESOURCES FOR TRANSLATING THE CITY PROFILE INTO AN ACTION PLAN

TOOLS FOR IMPLEMENTATION:

The first two chapters of the document broadly outlines components recommended for inclusion in the action plan. This section provides further tools and guidance to transform the information gathered in the City Profile into the action plan. Once the structure of the action plan is understood, the next step is to provide simple guidance to translate the city profile into practice. Not all suggested methods here should be used but are rather presented as a reference of tools for city leaders to draw from to help construct the final action plan.

CRAFTING SPECIFIC GOALS:

UNDERSTANDING KEY PERFORMANCE INDICATORS (KPIs)

The City Profile process produced prioritized recommendations based on a set of defined indicators, or Key Performance Indicators (known as KPIs). These indicators span the functional areas of the Economic, Environmental, and Social and Cultural dimensions of cities. The City Profile process coordinates international and national experts, local staff, and other stakeholders to identify the baseline conditions of KPIs seen as relevant to the city. A fact-finding mission is commenced. Once complete, the findings are consolidated in order to identify deficiencies in sustainability within the city. Recommendations and potential activities are elaborated on through the development of the City Profile.

There are two types of indicators, those that are universally applicable, and those that are more specific to a subset of cities based on local characteristics. The first are indicators that reflect broad, overarching problems facing many cities: targeting action areas such as economic growth and environmental preservation. The latter are reflective of the level of development and local expertise existing in a specific city: action items reflect the need for clean water wells, or cashless payment systems. However, the city profile recommendations are given with priority levels, but not feasibility.

It is therefore the role of the action plan process to take what is given in the City Profile to translate the recommendations into goals with deliverable outcomes.

GOAL FRAMING:

The ISMART framework which was applied to the key performance indicators (KPIs) can be used to aid in framing the goals for the action plan. As presented by the UNECE and ITU Smart Sustainable City KPIs are: Independent, Simple, Measurable, Achievable, Relevant, Timely. These principles can also be applied to develop each recommendation into a goal. A structure is provided to guide all of the elements needed to achieve the desired goal and allow for monitoring and evaluation of the process.

- 1) Independent: As with the KPIs, goals need to be independent to avoid overlap. This ensures a targeted approach to the activities as action items needed to achieve each goal.
- 2) Simple: Clear and concise goals are easiest to convey to key partners and stakeholder. While the process to achieve the goal may be highly complex, the desired outcome needs to be conveyed clearly.

- 3) Measurable: Ensuring simplicity in defining each goal, leads to determining a simple measurement of progress. For each goal there should be a clear and unambiguous way of measuring and monitoring the process.
- 4) Achievable: Goals need to be achievable. Not every problem will be solved but progress, through monitoring, needs to be trackable and finite. Goals also need to be realistic for the community.
- 5) Relevant: The goals should be realistic and align with the vision statement, recommendations and needs of the city and communities.
- 6) Timely: Ensuring achievable and realistic goals suggests that the goals are timely and relevant to the existing city and community. A time-bound schedule of implementation is necessary to signal to stakeholder and others that the goals is achievable and there are the necessary resources to complete the goal.

In addition to using a structure such as ISMART it is helpful to ask the following questions:

- 1) Why is the identified goal necessary?
- 2) What is the objective and how can it be accomplished?
- 3) What needs to be done to complete the objective?
- 4) What will be the impact of this goal?
- 5) What is the applicability to the Smart Sustainable City vision?
 - a. How does it integrate into existing infrastructure?
 - b. What are the regulations surrounding this area?
- 6) What is the desired result?

These questions can help clarify and produce a plan for each goal. Each goal then needs to be prioritized based on the feasibility of the timeline and available resources, based on the unique conditions of each city. Some prioritization has already been given in the city profile. This section provides further guidance to fitting the priorities to each unique cities characteristics and available resources.

PRIORITIZATION AND FEASIBILITY

1) *TIME-BOUND GOAL DEVELOPMENT:*

Priorities and goals are identified through the city profile process, as mentioned in the previous chapter, cities should consider assembling actors prior to determining a time schedule. The key partnerships and stakeholders can help to identify the feasibility and overcome resource restraints that will be present in the planning process. Broad target dates can be determined early on in the process, but actionable time-bound goals should be carefully thought out with the help of stakeholders.

There are three timeframes for goals: Short, Medium, and Long. Below they are explained further to guide the planning process.

- a) Short-term goals and related action items are generally easily identifiable and discrete. This means that specific action items are identified, resources exist to implement them, and the

timeline of completion is less than 2 years. Often, these goals are considered “low-hanging fruit.” Identifying short-term goals may be beneficial to some cities, particularly ones with limited budgets. Short-term goals are such items as:

- 1) Identify technologies to improve infrastructure;
- 2) Develop a plan to attract foreign and local investment;
- 3) Rebuild a piece of deteriorating infrastructure;

b) Medium-term goals and related action items generally have timelines of 2-5 years. They are usually more complex in nature than short-term goals, require additional resources, but still have discrete outcomes. Examples of a medium-term goals are:

- 1) Establish an economic growth plan;
- 2) An affordable housing development;
- 3) Installation of a new IT system;
- 4) Monitor air, water quality and pollution levels;

c) Long-term goals and related action items are the most complex and resource intensive, but often have the greatest impact to a community. Long-term goals expect to take more than 5 years to complete and some may be potentially ongoing with time-bound targets. Examples of long-term goals resemble items such as:

- 1) Build social equity
- 2) Improve existing infrastructure
- 3) Invest in human capital
- 4) Improve health outcomes
- 5) Maintain local historic cultural venues and resources
- 6) Ensure affordable housing

Some recommendations and goals can easily be translated into action items. For example, to monitor air and water quality, the activity would be to create an air pollution monitoring system. Here it is apparent to differentiate between goals and action items. Goals are the larger desires or “big picture” such as reducing air and water pollution. Activities for this goal would consist of an integrated effort from the public, private and citizenry, to reduce unnecessary waste, reduce emissions, provide wastewater treatment, and education for citizens. Each of these would have to be broken into a separate action item with specific activities in order for it to be achieved.

2) DETERMINING FEASIBILITY

Along with the identification of time frames, priority scores should be considered in order to plan and distribute resources appropriately.

The outcome of the action plan development is a clear list of costs, funding and financing, realistic timeline of approach, with a transparent monitoring process. It may be beneficial, even after priorities and recommendations have been presented by the City Profile and other facts-finding activities to engage in further analysis of each goal or action item. This process will help to identify potential barriers that could deter a desired outcome and present a way to overcome such hurdles.

This section outlines two common approaches to evaluating the feasibility and desirability of a given goal. During the process of compiling the City Profile performance was evaluated using the KPIs.

a) Benefit Cost Analysis (BCA)

Benefit-Cost Analysis, also referred to as Cost-Benefit Analysis, is a systematic method to evaluate the strengths and weaknesses of a given approach. For example, recommendations highlight that in order to improve efficiency of a transportation network certain roads need to be removed and additional public transportation networks are recommended to be built. A systematic approach identifying economic impact, social benefit, realistic funding sources will help to guide the project toward a cost effective, socially beneficial outcome.

BCA has two main advantages:

- i. It helps to give guidance as to whether an investment or decision is justifiable and/or feasible. Do the benefits outweigh the costs?
- ii. BCA is also helpful for comparing across projects, or further prioritizing recommendations presented in the City Profile. The City Profile already has categorized recommendations into three priority levels, 1-3, with level 1 being the most urgent. If there are multiple level 1 priority recommendations, but the city is faced with a restricted budget and resources this process can help to further refine the action plan time line. Comparing projects based on benefits returned may be helpful for further prioritization.

b) Strengths-Weaknesses-Opportunities-Threat (SWOT) analysis

SWOT analysis is similar tool as BCA and can be used in combination with BCA. Usually structured as a matrix, it is a more qualitative analysis targeted at stimulating discussion and brainstorming during project planning.

The process focuses on both internal and external factors. Strengths and weakness are generally internal, and opportunities and threats are focused on the external environment.

When conducting a SWOT analysis consider asking the following questions:

- 1) *Strengths*. Which characteristics of the project give it an advantage over others?
- 2) *Weaknesses*. Which characteristics of the project could place it at disadvantage relative to others?
- 3) *Opportunities*. What resources in the physical or economic environment of the project could be exploited to its advantage?
- 4) *Threats*. What resources in these environments could cause trouble in implementing the project?

These methods for determining goal sequencing and feasibility can be helpful when coordinating the action plan.

Figure 2: SWOT Analysis Diagram



COORDINATING KEY ACTORS AND RESOURCES

IDENTIFICATION OF "CHAMPIONS"

Identifying stakeholders and key partners is vital for developing and implementing a successful action plan. During the action plan development, it is therefore recommended to identify a "champion" for each initiative. A champion is an individual or group that takes charge and acts as the key proponent of a specific project. This has become a common recommendation for difficult or long-term complex projects. The National Council of Public-Private Partnerships recommends that a champion be a recognized public figure who can serve as the spokesperson and advocate for the project.¹²

For the action plan guidance, it is recommended that a champion be identified or arise to advocate for a project that could be deemed difficult. This can be applied to any project, not just those that engage a public-private partnership. Projects that come across public or political opposition can greatly benefit from having a strong person or persons to coordinate outreach, aid in minimizing misconceptions, and push the project forward between reluctant partners.

If it is anticipated that a project will face potential opposition, either from internal or external sources, then a champion should be considered.

¹² To read more about the necessity for a "champion" access NCPPP. 7 Keys to Success. <https://www.ncppp.org/ppp-basics/7-keys/>

DEFINING POTENTIAL PARTNERSHIPS

An action plan will only be as successful as the level of effort and coordination put in to the implementation. Therefore, it is imperative that the right mix of stakeholders and a targeted, serious approach to community engagement be executed. There are four main types of partnerships a city will wish to explore:

- 1) Public-Private
- 2) Public-Public
- 3) Public-Non-Profit
- 4) Public-People

Public-Private partnerships in this context can mean both financial partnerships, but also coordination and commitments to outcomes in the community. Commitments from private partners to provide in-kind contributions or take on a philanthropic partnership within the community can be classified under a looser defined public-private partnership.

Public-Public partnerships are ones that reach across public agencies or levels of government to forms interdisciplinary team and intergovernmental coordination. The legal framework for each city is identified through the City Profile process. This can vary widely but is necessary to be able to identify proper authority and regulatory channels. Beyond the legal framework potential partnership within government should be identified.

Public-Non-Profit partnerships engages the non-profit sector with the public-sector objectives. These partnerships are especially important in the environmental and cultural objectives.

A Public-People partnership is the engagement of the community in the process.

COMMUNITY ENGAGEMENT STRATEGIES

Community engagement strategies are important, especially to receive buy-in from the community. Political risk, in the form of public opposition can hinder and halt projects. The outreach of the action plan itself will engage the public but it should include strategies to engage along each goal implementation stage. Community engagement should focus on reducing political risk and to solicit partnerships and innovative ideas from the community. A Smart Sustainable City is about people, and they should be included in the development of it.

A good community engagement strategy recruits outside of the "usual suspects." Passionate citizens are important to a good community. But it is also important to reach out to those who are not actively engaged on a regular basis. Community members should be given as many ways possible to discuss and be involved in forthcoming plans. Creative examples of community engagement strategies range from the use of "telephone townhalls" where citizen can call in and discuss and vote on projects or plans for their community to ice cream wagons being placed in neighborhoods to be a central meeting point for residents, along with traditional townhall meetings. Engagement can take place in-person, over the phone, and online. The goal of community engagement is to include as many people as possible, and to consider resources initially not obvious to the planning boards. In some cases, projects may need expedited approval, but ensure that the public is fully aware of the benefits to them when pushing a project forward. It is also important to reiterate the process (as shown in figure 3) and keep the community informed and engaged throughout the planning and implementation stages.

A typical community engagement strategy follows the subsequent pattern:

Figure 3: Community Engagement Elements



TIME MANAGEMENT, ACCOUNTABILITY, AND TRANSPARENCY

CREATING A WORKPLAN

A workplan can be used to track the timelines of goals and associated available resources. Workplans generally consist of the following items:

- 1) Each task or activities necessary to achieve each goal;
- 2) A start and end date for each task/activity;
- 3) Responsible parties;
- 4) Resources allocated;
- 5) Estimated and Incurred costs;

A work plan can also be used as a tracking mechanism to report and keep track of coordinated activities.

Table 1: Sample Work plan

Goals	Tasks and Actions	Start Date	Responsible Persons	Est. Cost	Resources	Actual Costs	Target End Date
Goal 1	1.1						
	1.2						
	1.3						

DEVELOPING A SCORE CARD

A score card system with incremental achievements can be used to monitor progress and is a simple way to disseminate progress to the public. A score card gives incremental achievements with corresponding scores. This can be a useful tool for cities to monitor progress and claim achievements at a micro level that will help with public acceptance and morale. A score card can help with time

management as well. As each incremental task is achieved, the corresponding time it took to achieve each task is also recorded and reported. This helps to maintain on time delivery of projects and services and bring awareness to projects that are lagging behind schedule. All projects should have set check-in times reporting on progress at a preset time to determine progression.

Table 2: Sample Score Card

Goals		Scoring					
		1	2	3	4	5	Complete
Goal 1	Goal Criteria	Target 1	Target 2	Target 3	Target 4	Target 5	

OPEN DATA PORTALS

The use of ICT infrastructure to report progress should not be absent from the priorities of the action plan, if a city is advanced enough to accommodate an open data platform. An open data portal can both be a time check on project progress if a designated date is set for data release, and a measure of transparency.

One of the first priorities for any Smart Sustainable City should be to establish a data management system to effectively monitor progress. Open data sharing should be considered to be part of the process, so that the projects can be effectively monitored to best garner public support, as well as further outside investment. This may not be feasible in all cities but is an essential piece of becoming a Smart Sustainable City. Open data platforms allow for citizens to not only monitor progress but also encourages innovation and applications development by community members or outsiders that could improve city services.

CONTINGENCY PLANNING

Contingency planning is essential for any action plan, as unexpected events always occur. Set reporting schedules tied to the monitoring process can help determine if a shock or other problem has occurred. Having working groups organized to deal with issues that arise unexpected within topic areas will be able to react quickly and present alternative solutions. If the action plan is open and transparent, problems that arise should be easily identifiable and solvable with a strong contingency plan in place.

PROCESS PLANNING AND CHANGE MANAGEMENT

PROCESS PLANNING

Once goals are defined, framed, time-bounded and feasibly has been determined, implementation can follow. However, before launching into action it is essential that process monitoring is fully organized, accompanying the implementation process. Essentially, once developed, an action plan is a change management guide, identifying goals, problems, developing a strategy, and preparation for action, all key components of any change management system. However, these strategies allow for greater

understanding of the shared values across interior city departments to encourage greater integration and shared goals within the city government. This is not only a process that will change the city, but the structure which governs it as well.

A common method for process planning and change management is the theory of change¹³ a method that allows for the visualization of inputs (activities) to outputs-outcomes. Logic models, such as the Participatory Impact Pathways Analysis (PIPA) method can also be used.

I. MOVING FROM INPUTS TO OUTCOMES – THE THEORY OF CHANGE

With each goal, specific inputs are being made in the form of physical, financial, and time resources. These inputs are put to work through activities. The activities result in outputs. This process culminates in outcomes that are then translated into impacts. This process can be tracked through a variety of methods, most commonly a simple spread sheet or score card system, as shown in table 2. For each goal, modeling the desired change and necessary inputs and activities creates a better understanding of outputs and outcomes resulting from the implementation of the goal.

Figure 4: The Theory of Change



II. PARTICIPATORY IMPACT PATHWAYS ANALYSIS (PIPA)¹⁴

PIPA is a coordinated effort between project leaders, key stakeholders, and the community or targeted populations to determine if, how, or will the current project be progressing in achieving desired outcomes. This method is one that allows program planning to accompany the action plan through process evaluation and tracking. PIPA development is often in the form of a workshop where key personnel are gathered to construct the “pathways” of impact for each goal. This can be done before, during and/or after the process. It is recommended to perform this process prior to implementation. In addition to usefulness in constructing the pathways between inputs and outputs, it can be very helpful in making sure all the necessary partners are participating in the goal implementation process. The outcome of PIPA is a process tracking network similar to that of using the theory of change and can be applied to monitoring the progress of a given goal.

CHANGE MANAGEMENT

Change management allows for reflective tracking of changes occurring inside the organization of the city government. The Smart Sustainable City process should have cross-cutting impact throughout the city structure and governance process. The transformation that takes place will not only be seen in

¹³ Further information on the Theory of Change can be found in [9] UNECE. 2017. “Guidelines on National Action Plan for Sustainable Housing: Developing and Implementing Action Plans in support to Country Profiles” DRAFT on page 13

¹⁴ Further information of PIPA can be found here:
http://www.kstoolkit.org/Participatory_Impact_Pathways_Analysis_%28PIPA%29

the streets but in the deployment of services, and further the understanding of interconnectedness of the nature of cities. A widely used change management method is the McKinsey 7 S model.

I. MCKINSEY 7 S MODEL

McKinsey 7 S, developed by McKinsey & Company in the 1970s and 1980s, is targeted to organizational management but can provide a necessary structure to some cities. Detailed in [6] "McKinsey & Company Enduring Ideas: the 7-S Framework" this method is venerable; however, it is still widely used today and provides a necessary framework that can be adapted to track changes in the transformation of the organizational structure of a city into a smart sustainable city. The method is one of many potential change management frameworks. It focuses on critical coordination, rather than organizational effectiveness.

The model presents seven elements of an organization where alignment is needed in order to achieve cohesive goals: structure, strategy, systems, skills, style, staff and shared values. This framework allows for internal tracking of important internal elements. The elements are interconnected separated into "hard" and "soft" elements.

Hard Elements include:

- i. Strategy – The purpose of the organization and how it aspires to improve
- ii. Structure – The division of activities within the organization and the integration and coordination mechanisms.
- iii. Systems – The identification of formal procedures for measurement and resource allocation

Soft elements include:

- i. Shared Values – the intersection of the other six elements, representing the core vision of the organization.
- ii. Skills - The organization's capabilities and core competencies.
- iii. Staff – The characteristics of current human resources, such as demographic and, education
- iv. Style – The typical behavior/management style of key groups, such as managers.

These elements combine to create an internal monitoring mechanism, tracking changes overtime within the organization. As the needs and goals of a Smart Sustainable City change this framework can be used to monitor and track the shared values, skills, strategy, structure, staff, style, and systems of the planning team. This is done to determine if the right people, communication network, and processes are in place as the plan is implemented over many years.

SUMMARY

Chapter 3 provides further tools and guidance to transform the information gathered in the City Profile into the action plan the tools presented in this section are intended to help with this process. Crafting specific goals are critical for success. The role of the KPIs is to guide the targeted outcomes for each goal. Using techniques such as ISMART and asking relevant questions ensure a clear and concise structure to goal framing. To determine goal feasibility, use key partners and stakeholders throughout the planning process, incorporating their input into tools such as BCA and SWOT. When coordinating key actor resources, it can be helpful to have a "champion" ready to act as the face of the project.

Community engagement is necessary to mitigate potential risks to the project. Using the tools in this section the city leaders should be able to prepare a workplan, develop scorecards, and manage the process of change.

CHAPTER 4: ACTION PLAN DEVELOPMENT SUMMARY

FROM STRATEGY TO IMPLEMENTATION

Action planning is a useful exercise to organize resources in order to realize stated goals. Action planning methodology is presented in three major steps: 1) Establishing governance and organization 2) Developing the plan structure and strategy 3) Tools to implement the action plan. Becoming a Smart Sustainable City is a long and complex task. By recognizing deficiencies, bolstering governance networks, identifying community and government partnerships, finding sources of funding and financing, and implementing monitoring and evaluation methods, a city can realize their goal. This document provides the necessary structure and tools to develop a strong action plan. In conclusion, the action plan methodology is presented.

THE METHODOLOGY

The three main steps for action planning have been summarized above and detailed at length throughout this document. A successful action plan consists of elements of coordination, realistic goal setting, and objective monitoring. The first step is to establish good governance and organization. Step two develops the plan structure and overall strategy. Step three occurs in conjunction with step three as tools are incorporated into the action plan to produce achievable outcomes. In summation, the methodology is presented below:

Action Planning Methodology

Step 1: Establish Governance and Organization

A. Develop Governance Policy

B. Create Strategic Organizational Charts

Step 2: Develop Plan Structure and Strategy

A. Create Vision and Goals Statement

B. Develop Guiding Principles

C. Select Goals and Desired Outcomes

Identify Baseline Indicators from KPIs
Identify Objectives and Activities
Identify Desired Outcome Targets

D. Identify Key Actors and Stakeholders

Formalize Partnerships
Engage Community

E. Establish Timeline

Set long-term desired target dates
Develop reachable target dates for each activity

F. Establish Funding and Financing Strategy

Obtain Cost Estimates
Take account of all available resources

G. Develop Monitoring Mechanisms

State Expected Results
Prepare Contingency Plan

Step 3: Incorporate Tools for Implementation

First, governance is established through the identification of rules, practices, and expectations. A specific office/agency/individual is identified to oversee coordination of the action plan development and a clear organization chart outlining duties of the coordinating body is created. Second, the strategic plan is organized into three major components:

- i. The **identification of specific goals** based on the long-term strategic vision specific to the city. The vision, objectives, and action items have already been identified in the City Profile. The action plan further refines and prioritizes the recommendations into actional items.

- ii. **Actor and resources identification strategy** is the bulk of the action planning. Strategy includes: actionable items, leaders of the actions, timeframe, resources, stakeholders, and monitoring mechanisms.
- iii. **Adherence to time-bound constraints** allows for monitoring of resources, documenting achievements, and continued engagement with partners, funders, and the community. Time and budget constraint monitoring are critical to the entire process.

The plan structure begins with the development of a concrete vision and goals statement, woven together by the guiding principles. Goals and outcomes follow a framework such as an input-output model or logic model and are reflective of the planning team. In developing outcome orientated goals, the relationship between goals, objective, activities, and outputs must be recognized in order to achieve time-bound, realistic outcomes. To ensure this, the following is recommended: 1) Identify and present baseline indicators 2) Outline specific actions needed to achieve a desired outcome 3) Set performance targets along the way to goal completion. The second stage of plan structure is the identification of key actors. This is complementary to the governance plan as key actors should be involved in the drafting of the action plan. Stakeholder partners identified during the city profile process are carried forward and new stakeholders are brought in. The community engagement strategy is tied to the early stages of plan development to ensure open channels of communications between all involved. Once all stakeholders are in place the timeline is solidified, the funding and financing strategy is developed, and monitoring mechanism are established. This part of the strategic plan incorporates mechanisms for accountability, transparency, contingency planning, resilience, and dealing with unintended consequences.

The third and final step incorporates tools for implementation in preparation for Phase 3 of the Smart Sustainable City Project (Implementation and Evaluation). The tools presented include: a) Goal framing through the ISMART framework and time-bound goal development; b) Goal feasibility through benefit-cost analysis (BCA) and SWOT analysis; c) Coordination through the identification of a "champion" and partnership definition; d) Community engagement structure and strategies; e) Time management structures through creating a workplan and/or a score card system; f) Developing an open data platform; g) Contingency planning incorporated into the monitoring mechanisms; h) Tools for process planning and change management are presented. Process planning includes the application of the theory of change, an output orientated framework, and participatory impact pathways analysis (PIPA). Change management allows for an internal monitoring of governance changes occurring due to the implementation of a smart sustainable city plan. One example of a tool to aid in this exercise is the McKinsey 7 S model. This model allows for the monitoring of internal change and coordination.

Overall, the information presented herein allows the user to develop a city action plan that is implementable, time-bound, and realistic. The methodology given here allows each city to break down necessary steps into digestible action items, creating a manageable system. With a strong foundation and plan, the goals of a Sustainable Smart City are achievable.

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