

# Green City Development Guidelines





GGGI Technical Guideline No. 2  
**Green City**  
**Development Guidelines**

# Acknowledgment

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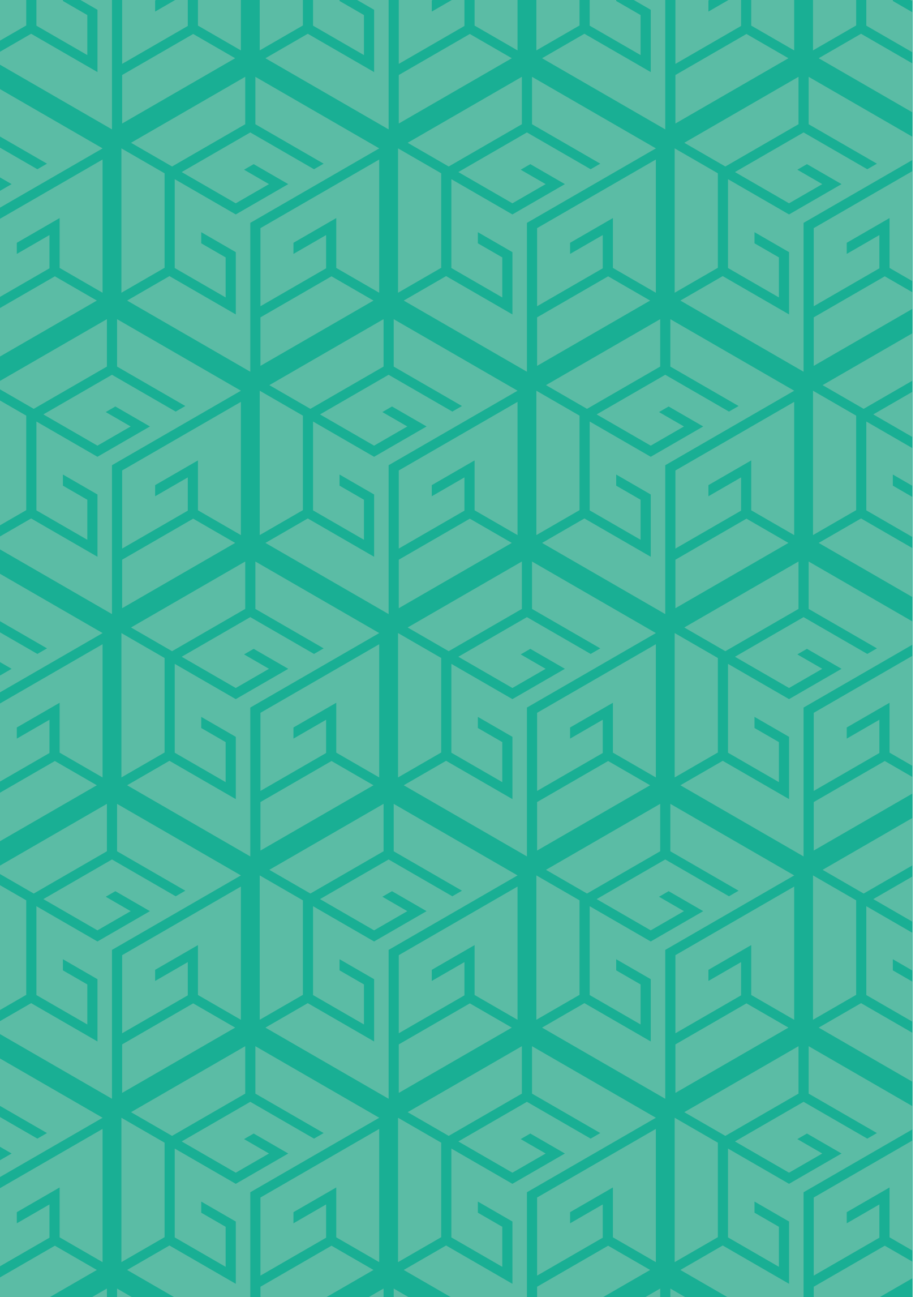
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# List of Abbreviations

ADB	Asian Development Bank
CAMe	Mexico's Environmental Commission for the Megalopolis
CDIA	Cities Development Initiative for Asia
CIPP	City infrastructure investment programming and prioritization
CSO	Civil society organization
ESMP	Environmental and social management plan
GCD	Green city development
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
INDC	Intended Nationally Determined Contribution to the Paris Agreement
MCA	Multicriteria analysis
M&E	Monitoring and evaluation
PR&SI	Poverty reduction and social inclusion
SDG	Sustainable Development Goal
SPRSI	Safeguards, poverty reduction, and social inclusion
UNFCCC	United Nations Framework Convention on Climate Change





# Introduction

The Global Green Growth Institute (GGGI) is an international organization dedicated to supporting and promoting strong, inclusive, and sustainable economic growth in developing countries and emerging economies. GGGI interventions are premised on the promise of green growth—a simultaneous advancement of economic growth, environmental sustainability, poverty reduction, and social inclusiveness.<sup>1</sup>

GGGI develops and delivers its global products and services in partnership with government bodies, international organizations, academic institutions, civil society organizations (CSOs), and the private sector. Its interventions emphasize change in four themes—energy, land use, water, and green city development (GCD)—where member countries have highlighted gaps and demonstrated success, and that are therefore considered key to transforming these countries' economies.

Countries often have various definitions of a “city” and “urban areas.” These definitions are based on criteria such as population size and density, government structure, type of economic activity, physical characteristics, level of infrastructure, or a combination of these or other criteria. Thus, there is often a huge discrepancy in the definition of a “city” in one country versus another. GGGI recognizes these differences, and refers to a “city” in this document as any urban area that satisfies the criteria to be considered a “city” in the country of concern.

As much as the definition of a “city” varies, there is also not a concrete definition of a “green city” or a common understanding of the criteria for cities to be considered green. “Green city,” in these guidelines, is understood as an urban area that moves toward long-term environmental protection, social inclusion, and economic sustainability. Green cities produce more for less. In that sense, GCD is the process in which cities become more resource-efficient, climate-resilient, low-carbon, and socially inclusive and equitable.

## Objectives of the GCD Guidelines

The GCD Guidelines provide guidance on how to plan and implement GCD at every stage of the GGGI Value Chain. They serve as reference for government officials, GGGI staff and consultants, and other stakeholders who are working on areas related to or looking to develop a project on green cities. They provide a starting point and strategies to take toward GCD, as well as the processes to implement and put these strategies into practice.

Based on GGGI's experience, the guidelines include eight steps corresponding to the four stages of the GGGI Value Chain (See page 6). They offer neither a manual nor a step-by-step toolkit. Depending on the context and situation of the country and city, the government can decide to begin at the relevant stage and carry out the suitable steps to develop green cities. By developing the GCD Guidelines around the GGGI Value Chain, GGGI ensures that its service offering is consistent across all of its strategic themes and reflects its value proposition for GCD.

The GCD Guidelines aim to (1) outline key GCD concepts, (2) give a set of recommended actions for policy makers and project managers to start with while allowing flexibility and customization in the country of practice, and (3) provide an overview as to the services GGGI can offer to its partner governments. The guidelines showcase GGGI's approach and commitment to work side by side with governments to promote and implement green cities.

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<sup>1</sup> GGGI, *Strategic Plan 2015–2020, Accelerating the Transition to a New Model of Growth*, (2014):11.

# Why Green City Development?

Cities are at the forefront of green growth. Apart from being functional units, they are, for developing and developed countries, a central place of production, consumption, and administration. Given the closely intertwining development challenges they face, cities are where the battle for sustainability and prosperity will be won or lost.

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## International Commitments

### Sustainable Development Goal (SDG) 11: Sustainable Cities and Communities<sup>2</sup>

More than half of the world's population of 7 billion now live in urban areas. By 2050, that figure is estimated to rise to 6.5 billion people—two-thirds of humanity.

The rapid growth of cities in the developing world, coupled with increasing rural-urban migration, has led to a boom in megacities. In 1990, there were 10 cities with 10 million inhabitants or more. In 2014, megacities numbered 28, home to 453 million people.

Extreme poverty is often concentrated in urban spaces, and national and city governments struggle to accommodate the rising population in these areas. Making cities safe and sustainable means ensuring access to safe and affordable housing, as well as upgrading slum settlements. It also involves investing in public transport, creating green public spaces, and improving urban planning and management in a way that is both participatory and inclusive.

Achieving sustainable development necessitates significantly transforming the way we build and manage our urban spaces. Sustainable city life is one of 17 global goals that make up the 2030 Agenda for Sustainable Development. An integrated approach is crucial for progress across the multiple goals.

### Intended Nationally Determined Contribution (INDC)<sup>3</sup>

The 2015 Paris Agreement, adopted on December 12, 2015, in Paris, France, seeks to accelerate and intensify the actions and investment needed for a sustainable, low-carbon future. Its central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above preindustrial levels and to pursue efforts limiting the temperature increase even further to 1.5 degrees Celsius.

The agreement also aims to enhance the ability of countries to deal with the impacts of climate change. Parties must submit to the Conference of the Parties their national reports on the implementation of the convention.

In their INDCs, countries, including Ethiopia<sup>4</sup>, Indonesia<sup>5</sup>, Laos<sup>6</sup>, Morocco<sup>7</sup>, Peru<sup>8</sup>, and Vietnam<sup>9</sup>, have specified actions on cities and urban areas as measures to achieve greenhouse gas (GHG) emission mitigation targets. As most development and environmental challenges run across sectors that are highly interdependent, issues are often most pressing, urgent and complex in cities.

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2 "Goal 11: Sustainable Cities and Communities," United Nations Development Programme, <http://www.undp.org/content/undp/en/home/sdgoverview/post-2015-development-agenda/goal-11.html>.

3 "Intended Nationally Determined Contributions (INDCs)," United Nations Framework Convention on Climate Change (UNFCCC), [http://unfccc.int/focus/indc\\_portal/items/8766.php](http://unfccc.int/focus/indc_portal/items/8766.php).

4 Government of Ethiopia, *Intended Nationally Determined Contribution (INDC) of the Federal Democratic Republic of Ethiopia*, UNFCCC, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Ethiopia/1/INDC-Ethiopia-100615.pdf>.

5 Government of Indonesia, *Intended Nationally Determined Contribution*, UNFCCC, [http://www4.unfccc.int/submissions/INDC/Published%20Documents/Indonesia/1/INDC\\_REPUBLIC%20OF%20INDONESIA.pdf](http://www4.unfccc.int/submissions/INDC/Published%20Documents/Indonesia/1/INDC_REPUBLIC%20OF%20INDONESIA.pdf).

6 Government of Laos, *Intended Nationally Determined Contribution*, UNFCCC, <http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Laos/1/Lao%20PDR%20INDC.pdf>.

7 Government of Morocco, *Intended Nationally Determined Contribution (INDC) under the UNFCCC*, UNFCCC, <http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Morocco/1/Morocco%20INDC%20submitted%20to%20UNFCCC%20-%205%20june%202015.pdf>.

8 Government of Peru, *Intended Nationally Determined Contribution (INDC) from the Republic of Peru*, UNFCCC, <http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Peru/1/iINDC%20Per%C3%BA%20english.pdf>.

9 Government of Vietnam, *Intended Nationally Determined Contribution of Viet Nam*, UNFCCC, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Viet%20Nam/1/VIETNAM'S%20INDC.pdf>.

More than half of the world's GHG emissions come from urban areas. A number of cities around the world have shown farsighted leadership in setting targets as well as in devising and implementing plans to reduce GHG emissions. Cities can reduce their GHG emissions while simultaneously addressing other pressing local environmental problems such as air pollution, waste, and transport, not to mention other challenges such as local economic development. The challenge is to link climate change to local environmental and other developmental priorities.

On the supply side, there are strategies that make certain alternative sources of energy more attractive to users than fossil fuels. On the demand side, a better planned city with a reduced urban sprawl, greener buildings, and better public transport can cut a city's carbon footprint while at the same time providing a better quality of life to its citizens and an environment that is more attractive for business.<sup>10</sup>

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## Climate Resilience and Environmental Sustainability

Cities have extensive environmental impacts, consume a disproportionate share of natural resources, produce high levels of pollution, and concentrate harmful emissions precisely where the population is most densely distributed.

Further, climate change and some patterns of urbanization can lead to increased vulnerability. Lack of urban planning and infrastructure in developing countries presents an opportunity to mainstream green growth throughout planning and policy making, including when making infrastructure investments.

GCD looks beyond traditional environmental policy to exploit sustainable urban planning tools and practical experiences. It focuses not only on strengthening policies but also on designing and developing green bankable projects to attract green investment from the public and private sectors. Green cities can offer greater safety from environmental hazards and climate change than more dispersed settlements do.

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## Social Inclusion and Poverty Reduction

Due to the current and projected scale of rural-urban migration, cities of developing countries will be integral to achieving national and international (e.g., SDGs) social inclusion and poverty reduction objectives.

Today, 75 percent of the world's poor still live in rural areas, but the share of the poor living in urban areas is rising.<sup>11</sup> Youth (under 18 years old) are predicted to make up 60 percent of urban populations by 2030, and they are overrepresented among the urban poor.<sup>12</sup>

Most of them, particularly from migrant families or being migrants themselves, live in unplanned settlement areas—often in broken-down conditions—and suffer from high levels of unemployment.

Green growth comes with an element of social inclusion, affording vulnerable people with opportunities to gain the necessary skills and work experience to be competitive in the job market. This is an investment with a potential high return and a promising tool to strengthen social cohesion and national unity.

Green cities are committed to climate mitigation and adaptation measures, promoting a circular economy and improving the environment for the well-being of their residents. They are also keen to boost economic development and implement a range of programs that create decent green jobs at the local level. To bring the two together, targeted interventions are needed—with an active role for local government—to ensure that the people furthest from the labor market can also benefit from job opportunities in the green economy.

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10 "Climate Change," United Nations Human Settlements Programme, <http://unhabitat.org/urban-themes/climate-change>.

11 World Bank, *World Development Report, Agriculture for Development* (2008), <http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/0..contentMDK:21501332~pagePK:478093~piPK:477627~theSitePK:477624,00.html>.

12 Ursula Grant, *Urbanization and the Employment Opportunities of Youth in Developing Countries* (2012), <http://unesdoc.unesco.org/images/0021/002178/217879E.pdf>.

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## Economic Growth

For most cities, green economic development is a key part of their overall political agenda. Cities facilitate economic growth through efficient resource allocation, productivity gains, lower transaction costs, economies of scale, and innovation. Cities in emerging economies—especially those of China, India, and Brazil—are likely to contribute more than 45 percent of the global gross domestic product (GDP) growth from 2007 to 2025.<sup>13</sup>

To sustain and bolster the momentum that urbanization creates, sound policy making and investments are vital. Investing in urban infrastructure is a fundamental mechanism to expand the productive capacity of the economy, create new business opportunities and jobs, and improve the overall efficiency of the urban system. It can also provide opportunities for cities to integrate new technologies, stimulating urban innovation and helping cities leapfrog outdated technology and move toward a more resource-efficiently built environment.

With cities moving toward development, the country will generate more resources to move up the global value chain, from an exporter of natural resources and manufacturing goods, to a producer of high-quality services and high-technology products.

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<sup>13</sup> McKinsey & Company, Urban World: Mapping the Economic Power of Cities (2011), <http://www.mckinsey.com/global-themes/urbanization/urban-world-mapping-the-economic-power-of-cities>.



# GGGI and Green City Development

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## GGGI Strategic Plan 2015–2020 and Thematic Priorities

The GGGI Strategic Plan 2015-2020, titled *Accelerating the Transition to a New Model of Growth*, focuses primarily on issues related to GCD, energy, land use, and water. These four areas are where (1) countries have experienced substantial bottlenecks; (2) existing challenges are compounded by the effects of climate change; (3) many of the SDGs converge; and (4) comprehensive approaches such as GCD present unique opportunities to meet multiple SDGs and national country targets by 2030.

These four areas are highly interdependent, and GCD is at the intersection where sectoral issues are often most pressing, urgent, and complex. In developing a suitable solution, GGGI looks from a wider perspective and addresses the problem from a holistic viewpoint; thus, the development of one area does not negatively impact another. The GCD Guidelines reflect this principle and highlights its applicability across all themes in the urban setting.

Strategic Plan 2015–2020 defines three strategic outcomes that GGGI strives to achieve by 2020:

- 1. Strengthened national, subnational, local green growth planning, financing, and institutional frameworks.** This strategic outcome specifies the need for effective national planning, accompanied by effective financial and institutional frameworks, to enable tangible actions on the ground. The GCD Guidelines facilitate this outcome by providing guidance on assessing the city's socioeconomic, political, and environmental conditions, and helping cities develop their urban policies, strategies, and plans. By establishing a clear vision, goals, baselines, and targets for the process, the government ensures that its policy framework is ready to provide a legitimate and enabling environment for green city actions.
- 2. Increased green investment flows.** This translates plans into concrete bankable projects contributing to the achievement of green growth. The guidelines give significant attention to the design and application of the investment prioritization framework and criteria, which help both the public and private sectors identify and prioritize investment options. A pre-feasibility study and/or a feasibility study should be conducted to be able to access finance. Robust monitoring and evaluation (M&E) systems are built into the project and maintained throughout the process from concept to implementation. These systems ensure continuous assessment of the social and environmental safeguards so GGGI-supported projects adhere to the national and relevant international standards aimed at protecting vulnerable people and the environment, as well as continued learning and development for both GGGI and its partner governments.
- 3. Improved multidirectional knowledge sharing and learning between South-South and South-North-South countries on green growth.** Effective knowledge management is built into the content of and approach in developing the GCD Guidelines. Firstly, GGGI developed the guidelines in consultation with several countries, including Cambodia, Ethiopia, Mexico, the Philippines, Rwanda, Uganda, and Vietnam, which enhanced internal knowledge sharing and paved the way for a community of practice on green cities. Secondly, the GCD Guidelines are not a static set of processes, but they constitute a continuously evolving document that will be refined over time based on South-South and South-North-South knowledge exchange. This could be done through presentations or consultation workshops with the participation of experts and practitioners from interested countries. Finally, having elaborated the process to develop green cities, these guidelines make it easier to disseminate the knowledge accumulated on green cities between governments, development partners, and other stakeholders. The guidelines give a set of recommended options that policymakers and project managers can start with while allowing flexibility and customization in the country of practice. Overall, with a systematic approach to developing a green city, the GCD Guidelines can be communicated across a wide range of audiences, thus enhancing multidirectional knowledge sharing and learning.

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## GGGI Value Chain

The GGGI Value Chain is a flexible planning and implementation framework that takes into account the different institutional capacities and sectoral conditions in partner countries. The backbone of the GCD Guidelines, it gives an overview of the GGGI corporate delivery model and ensures that GCD is consistent with GGGI's strategy and service offering.

Figure 1: GGGI Value Chain



The value chain sets out GGGI's approach to planning and implementing green growth. It starts with undertaking policy-level work (on the left-hand side), followed by crafting sector-specific strategies and prioritizing projects, and ends by developing bankable projects and accessing finance for their implementation (on the right-hand side). Through this approach, GGGI ensures that policy work directly translates to implementation; it is designed and enforced to aid the delivery of green growth.

# How to Develop Green Cities?

The GCD Guidelines include eight steps that form a coherent and strategic approach toward GCD. The whole process calls for a robust M&E system as well as environmental and social safeguards to ensure that each GCD activity will be implemented efficiently and not pose environmental and social risks.

The following steps are based on GGGI's experiences in GCD. Depending on the needs and priorities of the city, the government can decide which steps are best suited to their local setting.

Figure 2: Steps to Develop Green Cities



## Diagnosis and Green Impact Assessment

The first two steps give a deep understanding of the country's economy, socioeconomic challenges, and policies that govern its cities, to aid in drafting locally appropriate strategies and plans for economic growth and development. An inclusive stakeholder analysis and institutional assessment should also be carried out at this stage.

### Step 1. Macroeconomic and Social Review

Macroeconomic and social review explores the overall macroeconomic and social environment of the country in relation to its cities. It covers the country's financial sector, public debt, economic activities, and employment rate. The purpose is to give a wider perspective to GCD as the process forms part of the larger, national socioeconomic development.

The review also explores the different cities' respective roles, strengths, weaknesses, threats, opportunities, and socioeconomic offering, as well as their interconnectedness. In that way, the city's strategies toward GCD will not only ensure socioeconomic growth and environmental sustainability locally but also contribute to the country's economy.

A recent collaboration with the Global Commission on the Economy and Climate and the Ethiopian Development Research Institute is one notable example of GGGI's work in this area. The study (see Box 1) explored how Ethiopia could harness urbanization to secure high and sustainable economic growth and achieve middle-income country status by 2025.

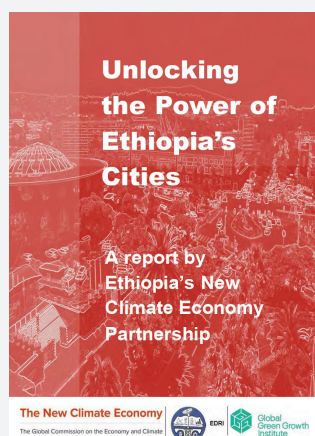
## Step 2. Institutional Assessment and Stakeholder Analysis

Institutional assessment refers to the analysis of the institutional arrangements and stakeholders involved in the urban landscape, including (1) key government agencies responsible for urban management and urban-related issues, (2) CSOs active in the urban sector, and (3) private sector actors such as developers, construction companies, architects, and engineers.

This step also involves examining the decision-making process and line of authority when it comes to urban issues. Understanding the bureaucracy is crucial to designing the right strategy, implementing GCD plans at later stages, and ensuring effective partnerships with key stakeholders.

### Box 1: Unlocking the Power of Ethiopia's Cities

The government of Ethiopia aims to double the country's GDP per capita and radically reduce poverty in 10 years' time through an ambitious industrial policy and sustained economic growth. The country's annual economic growth rate currently stands at around 10 percent. GGGI, together with the Global Commission on the Economy and Climate and the Ethiopian Development Research Institute, conducted a major study in 2015 on how Ethiopia can harness urbanization to secure high and sustainable economic growth and to achieve middle-income country status by 2025.



The report, titled *Unlocking the Power of Ethiopia's Cities*, highlights the importance of building compact, more efficient cities. It proposes creating a sustainable national urban system across the country and makes recommendations to support the government's five-year Growth and Transformation Plan.

Ethiopia's urban population is expected to grow by more than 20 million people from 88 million in the next 10 years. Meanwhile, the urbanization rate is projected to increase from the current 19 percent to 25 percent by 2025. The number of people living in cities could reach 150 million by 2040.

In the face of an increasing urban population, Ethiopia can learn from the experience of other developing countries. In some developing economies, too much growth in rapidly expanding capital cities has left them struggling with problems like population-related health conditions and forcing them to divert scarce resources to provide services such as basic housing and sanitation to a sprawling urban population.

To support the growth of Addis Ababa, the report recommends expanding a network of regional cities that evolve along strategic economic corridors, in line with the government's emerging urban development strategy. This would diversify economic activity and distribute wealth across the country, strengthening links with regional and international trading partners and accelerating development. By contrast, failing to set up this network would be a missed economic opportunity.

The report calls on the Ethiopian government to set up clusters of cities in planned development areas and corridors—eight in total—spread across the country. This would allow each cluster, or even a city within each cluster, to specialize in specific commercial, service, or industrial activities, complementing each other.

Source: GGGI, *New Report: Unlocking the Power of Regional Cities Can Transform Ethiopia (2015)*, <http://gggi.org/new-report-unlocking-the-power-of-regional-cities-can-transform-ethiopia>.

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## Sector/Subsector Strategy and Planning

This stage sets out a road map for cities to plan and strategize GCD actions, from strengthening strategies, policies, and plans of the urban sector, to setting the baseline, visions, goals, and targets, and finally identifying and prioritizing GCD projects.



### Step 3. Assessment of Policies, Strategies, and Plans

Policies, strategies, and plans (herewith refer to as policy as an overarching term) are key instruments to enabling and reinforcing GCD. Assessing the policy framework includes national- and city-level analyses of policies related to urban planning and management. National policy has a great implication on a city's development because it provides the mandate that city governments follow when making their own policies on urban development. At the city level, green public-private partnership, public procurement, and public investment are areas for consideration when reviewing and strengthening a city's policies. Aside from creating an enabling environment for GCD, this step aims to reduce red tape and remove barriers that might potentially affect the implementation of GCD at a later stage.

In strengthening policies, it is important to keep in mind the following principles:

- National policies need to be effectively translated into subnational policies. Integrating national and subnational actions will achieve policy coherence, which is necessary to enforce implementation. Moreover, national policies have to be drafted with subnational contexts in mind to render them relevant in addressing local challenges or stimulating green actions.
- A holistic approach is necessary to enhancing the implementation of GCD. Not one specific policy such as that on wastewater treatment or on green transportation can address GCD; it would need a range of national regulations and policy instruments to facilitate the process. Also, there are often trade-offs between sectors, and a coordinated approach is necessary to balance and carefully manage these trade-offs to develop win-win solutions. Similarly, the responsibility of achieving GCD does not rest on any particular national institution; such responsibility typically runs across a number, if not all, government agencies. Thus, in assessing the policy and institutional framework, it is important to bear in mind the interconnectedness of different policies and approach them from a holistic viewpoint.
- The simplicity of the policy package plays a crucial role in determining enforcement and implementation. Though policy instruments, in general, are sophisticated, it is important to keep the policy package simple and straightforward to ease the dissemination and understanding of such policies. An overly complex system of regulations and incentives often results in ineffective implementation.

#### Box 2: National Road Map for Green Secondary Cities Development in Rwanda



Recognizing that cities are drivers of development, the government of Rwanda has made a commitment to transform capital Kigali and six secondary cities into poles of growth through its Economic Development and Poverty Reduction Strategy II (2013–2018).

GGGI supported the government of Rwanda in developing its National Road Map for Green Secondary Cities Development, a practical guide to develop the secondary cities of Huye, Muhanga, Nyagatare, Rubavu, Musanze, and Rusizi as hubs of urban job creation, green infrastructure, and investments, anchored on low-carbon and climate-resilient urban planning.

To effectively respond to the complexity of urbanization and achieve a greener growth path in Rwanda, the road map spells out guidelines on the fundamentals, pillars, and pull factors of GCD:

- Fundamentals: good governance, urban planning, and environmental and social safeguard policies
- Pillars (subsectors of urbanization): building, energy, urban mobility, production and distribution of water, sanitation, and waste management
- Pull factors: economic development, job creation, and quality of life

Furthermore, the road map offers a tool to measure the performance of actions: a monitoring and evaluation process. Branching off the national road map, an investment strategy and a capacity-building program will be developed in order to help implement various proposed actions. They will serve to enable, attract, and accelerate investments and subsector expertise in a sustainable fashion.

## Step 4. City's Baseline Assessment

A baseline assessment is a thorough analysis of the demographic, economic, governance, social, and environmental challenges in a particular locality. It determines the city's needs and suitable areas for interventions, examines its ability and capacity to take on investments, and facilitates monitoring and evaluation.

### City's 360-Degree Examination

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The 360-degree examination is a rapid assessment based on secondary research such as a desk review and consultations with government. It assesses the following areas:

#### Demography and socioeconomic conditions

The assessment provides a general picture of the city's social and economic performance, and reveals areas prone to poverty and vulnerability. It examines the city's financial health and capacity for investment, and presents a basis for assessing social safeguards during the project design and implementation stages. It involves both quantitative and qualitative analyses. Key data include the following:

- Geography and climate: location, area and land use compositions, weather and climate
- Social condition: population, gender, age, education level, ethnicity, employment status, income, wealth inequality
- Economic condition and financial framework: local source of income, central transfer, capital receipts, borrowing, total income, expenditures, debt servicing, outstanding debts, debt service ratios

#### Institutional arrangements and development plans

The assessment provides an overview of the city's institutional arrangements such as the decision-making process and development plans, which comprise the legal and policy framework within which GCD projects operate. It helps establish whether there is adequate political buy-in and a robust policy setting to enable GCD. Key data include the following:

- Institutions responsible for urban management and any issues related to the urban area
- Legislature and policy frameworks
- Environmental regulations
- Social protection regulations
- Master and action plans
- Decision-making processes and frameworks
- Stakeholders
- Community involvement
- Institutional structure to implement development projects

#### Availability and accessibility of infrastructure and services

The review looks at the current state of the city's key infrastructure and will be used to identify gaps and bottlenecks in the delivery of basic services to citizens. Key data include the following:

- Water coverage, availability, cost, and accessibility
- Wastewater management coverage
- Solid waste management
- Road and transport

- Housing
- Grid and energy supply
- Energy demand and consumption
- Land use composition

### Environmental conditions

The evaluation focuses on the city's environmental resources and the extent to which they are preserved or depleted. It delves into the effects of climate change and determines their urgency. Key data include the following:

- Ecological or natural features
- Air, soil, and water pollution
- Current and projected GHG emissions
- Climate change impacts
- Natural disaster frequency and intensity
- Emergency and evacuation plan

### Box 3: Urban Green Growth Strategies for Indian Cities

Indian cities are at the core of the economic transformation envisaged by the government of India. Considering the anticipated growth in cities, local governments face enormous challenges in providing urban infrastructure and services that match the growing demand sustainably while ensuring good quality of life of their citizens. In this context, green growth becomes an attractive alternative economic growth model.

The Urban Green Growth Strategies Program for Indian cities started in January 2014. Implemented by ICLEI–Local Governments for Sustainability–South Asia and the National Institute of Urban Affairs with support and technical inputs from GGGI, the project has concluded with the launch of a three-volume report:

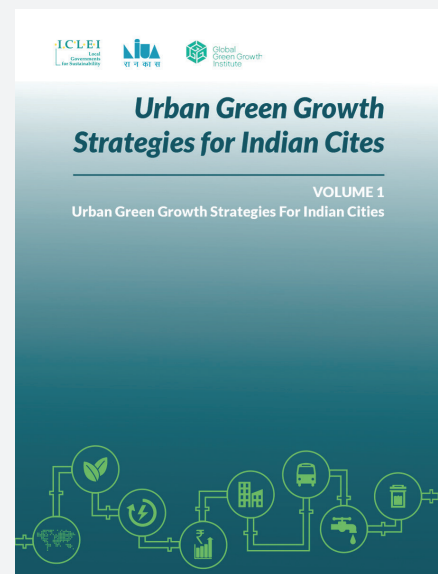
*Volume 1: Urban Green Growth Strategies for Indian Cities*

*Volume 2: Green Growth Profiles of Ten Indian Cities*

*Volume 3: Green Growth Good Practices*

The initiative entailed developing a green growth framework for Indian cities, piloting the same for 10 of these cities and compiling a set of 15 good practices relevant to the Indian urban context. It involved assessing the current status of Indian cities' growth, understanding emerging growth patterns and trends, and developing strategies that can guide growth to achieve multiple development benefits.

As the national government launches new programs such as smart cities, Swachh Bharat Abhiyan, the Urban Renewal Mission, and the HRIDAY (Heritage Rejuvenation and Development) scheme, the reports provide useful inputs to help cities pursue an inclusive green growth agenda.



Source: GGGI, *Urban Green Growth Strategies for Indian Cities* (2015), <http://gggi.org/report-urban-green-growth-strategies-for-indian-cities>.

## Analysis of Financial Capacity

This three-part analysis determines the city's financial strength and capability for investment, which is crucial in formulating bankable projects. More detailed explanation and examples can be found at the *City Infrastructure Investment Programming and Prioritization (CIIPP) Toolkit*<sup>14</sup> developed by the Cities Development Initiative for Asia (CDIA) and the *Green City Development Tool Kit*<sup>15</sup> published by the Asian Development Bank (ADB).

Table 1: Financial Assessment of the City

Local government fiscal assessment	This assessment provides an insight into the local government's creditworthiness, consisting of <b>quantitative</b> data on the city's fiscal space and capacity to leverage finance. It aims to answer these questions: What is the local government's room to maneuver to get infrastructure projects financed from its own budget, and how much is it able to access from external sources?
Local government financial system assessment	This evidence-based, <b>qualitative</b> assessment looks at the city administration's existing structure to manage substantive capital investments. It grades the city based on its history and past investment experiences.
Investment budget forecast	This is a <b>projection</b> of revenue, expenditure, and available funds for investment in the years to come. Using a basic appraisal model, it estimates the municipal investment budget based on data from earlier years, along with macroeconomic data.

Source: CDIA. *City Infrastructure Investment and Programming Investment Toolkit* (2015), 8, <http://cdia.asia/wp-content/uploads/2014/09/CIIPP-Updated-User-Manual-Dec-2015.pdf>.

## Identification of the City's Needs and Areas for Interventions

There are several tools that effectively assist in identifying specific needs and necessary interventions for GCD.

### Needs assessment matrix

A needs assessment matrix aims to identify gaps in current conditions against a future desired state. It covers four areas: policy and governance, environmental management, financial management, and implementation. The sectors to be assessed include, but not limited to: sanitation, wastewater, solid waste, transport, and urban planning. The matrix is completed by noting the gaps that each sector is facing under the four areas. It is recommended that this process be done in consultation with government and other identified stakeholders.

Table 2: Example of a Needs Assessment Matrix<sup>16</sup>

	Policy and Governance	Environmental Management	Financial Management	Implementation
Sanitation <sup>16</sup> (example)	Institutional fragmentation  Lack of policies and effective governance and regulation for sanitation	Less than 3 percent to 5 percent of households are connected to a sewerage network  The majority of households with toilets are connected to septic tanks that are poorly designed or maintained; most effluent thus likely to be discharged without treatment	Low public and private sector investment	Weak sector planning and monitoring  Weak performance of utilities
Wastewater				
Solid waste				
Transport				
Urban planning				

14 CDIA, *City Infrastructure Investment and Programming Investment Toolkit*, (2015), <http://cdia.asia/wp-content/uploads/2014/09/CIIPP-Updated-User-Manual-Dec-2015.pdf>.

15 ADB, *Green City Development Tool Kit*, (2015), <http://www.adb.org/documents/green-city-development-tool-kit>.

16 ADB, *Republic of the Philippines—National Urban Assessment* (2014), 59–61, <http://www.adb.org/sites/default/files/publication/42817/philippines-national-urban-assessment.pdf>.

## Green City Activity Mapping

The green city activity mapping shows the landscape of activities by development partners in the concerned sector. The mapping locates areas that resources are allocated to and those that are lacking. It will enable country programs to identify areas that require attention and a niche position to intervene, thus, minimizing the duplication of effort and maximizing impacts. The development partners listed in the table is for reference. In practice, the table should list key partners that have significant resources and presence in the specific sector of concern.

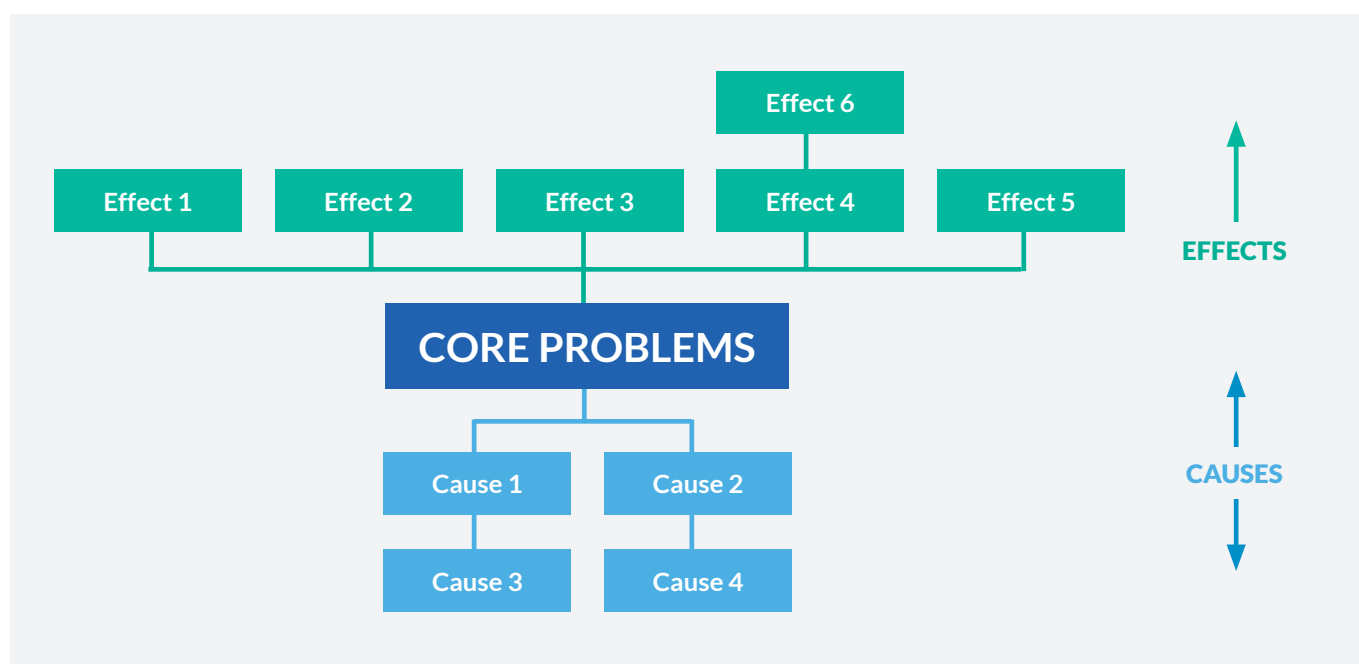
Table 3: Example of a Green City Activity Mapping

Specific Sector (e.g., Water Supply)	ADB	World Bank	JICA	KOICA	GIZ	Others
Issues addressed						
Government counterpart						
Funding amount						
Outputs						
Project duration						
Project implementation mechanism						

## Problem Tree

The problem tree—also called situation analysis or problem analysis—sketches out the anatomy of a problem’s causes and effects. It highlights the linkages and relationships between various factors that contribute to the problem. It helps cities look at the issue not from an isolated point of view but from a wider perspective. It is an essential tool to identify suitable solutions to complex issues.

Figure 3: Problem Tree Analysis





## Step 5: Setting the City's Vision, Goals, and Targets for GCD

For GCD to succeed, the government needs to come up with a clear vision, goals, and targets for the process, in consultation with communities and other stakeholders such as CSOs, development partners, and the private sector.

The baseline identified in step 2 forms the basis for establishing the vision, goals, and targets for GCD, which are defined as follows:

- **A vision** is a long-term aspiration that high-level leadership sets out for its city's green development. It is how the leaders see their city in 10–20 years' time and provides the needed direction to realize GCD.
- **Goals** are short-term objectives to guide the design of GCD interventions and strategies.
- **Targets** specify the desired outcomes of GCD activities in each sector, for example, GDP, poverty headcount, and access to clean water. Setting clear targets is an important step to translate a vision and goals into specific activities.

A city's GCD process will have a higher chance of success when it focuses on clear, specific domestic priorities, strategic sectors, and socioeconomic-environmental issues that are integrated with wider economic development visions set at the national level.

### Box 4: Mexico: Environmental Commission for the Megalopolis (CAME)

Many of the world's urban areas continue to spread over adjacent administrative boundaries. There is a need to govern these large areas in a coherent way. For example, the metropolitan area of Mexico City, which is home to about a third of the country's population (more than 30 million people) and accounts for a similar share of the national economy, extends over the territories of two states and the Federal District, and includes as many as 58 municipalities.



In 2013, Mexican federal and local authorities created the Environmental Commission for the Megalopolis as a metropolitan governance structure aimed at supporting policies, programs, and actions that encourage sustainability and green growth in the country's central region.

CAME has an organ of governance composed of state governors, the Mexico City mayor, and the federal minister of environment and natural resources. It offers an integral national-local platform to facilitate understanding, cooperation, and coordination in areas of common interest, as well as provide evidence for informed policy and decision making.

As its first intervention at the subnational level in Mexico, GGGI has been supporting CAME in developing a set of green growth initiatives. It has provided CAME with assistance in evaluating the feasibility of economic instruments to influence the choices of transport among travelers toward the least carbon-intensive and pollution options such as green license plates and other economic incentives. GGGI also supports efforts to expand the air quality monitoring network on the megalopolis, develop communication strategies on air quality data for key stakeholders, and homogenize vehicle pollution standards across the region.

Source: "Supporting Mexico's Transition to a Green Economy at the Subnational Level," GGGI, <http://gggi.org/supporting-mexicos-transition-toward-a-green-economy-at-the-subnational-level>.

## Step 6: Identification and Prioritization of GCD Projects

### Identification of GCD projects

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Transforming an urban center into a green urban space will take a great amount of time. Drawing up possible interventions that are relevant to all identified green growth goals (step 5) can initiate the process of change. These interventions fall under three categories:

- **Short-term investments and actions**, or pilot, demonstration projects to test innovative approaches and prove the viability and benefits of urban green growth
- **Comprehensive sector reforms**, which will likely take time to be prepared, approved, and implemented, but they would give the city a sustainable framework for the urban management of the given sector
- **Knowledge products**, which will address knowledge gaps or areas where data collection and analysis are needed to carry out evidence-based planning and policy making

### Prioritization of GCD projects

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The identified interventions will undergo assessment, so as to identify the projects that are most affordable, offer maximum impacts, and meet the needs and demands of the city. These projects include proposals to strengthen an already existing service or establish a new service in a specific sector.

#### Infrastructure Investment Assessment

CDIA has developed a prioritization framework and a scoring system for infrastructure investment projects. In general, the technical team should come up with the prioritization criteria based on the requirement and nature of the project.

The criteria developed by CDIA to be used for infrastructure investment projects are as follows:

- Project purpose
- Public response
- Environmental impact
- Climate impact
- Economic and financial issues
- Social and gender issues
- Feasibility of implementation

The scoring system includes a minimum score, a maximum score, and a scoring weight attached to each criterion. The weight signifies the level of influence and importance of a particular criterion in identifying the most suitable and affordable projects. A questionnaire will form the basis for the scores, which once determined, will go into a summary sheet. The tabulated final score will then be compared between projects.



Table 4: Prioritization Scorecard

	Lowest Score	Highest Score	Weight
<b>Project purpose.</b> This index looks into the necessity of the project compared to other proposed interventions, based on the stated city development objectives. It tries to identify projects of strategic importance for the development of the locality, so it factors in the consequences of delaying the projects and the status of existing services. Projects that have impacts beyond the municipal boundaries, come with a multiplier effect on other sectors, or are indispensable to other facilities and services earn additional points. (5 questions)	1 0 (normalized)	15 10 (normalized)	14.29%
<b>Public response.</b> This index gives an idea about the project’s public desirability from the perspective of different user groups and stakeholders. It looks into the political support within the administration and whether there has been articulated positive or negative response from resident groups, nongovernmental organizations, or the public at large. Public consultation is an essential element in any planning process and the question of whether there has been such a consultation is worth paying special attention to. Finally, a local “champion” or advocate for the project can make or break that project’s image in the media and among the greater public, and is therefore an influential factor in the equation. (7 questions)	-1 0	19 12 (normalized)	14.29%
<b>Environmental impac.</b> This index gives an indication of the project’s impact on the environment locally and within the urban region or regional ecosystem. Distinguishing between direct and indirect impact, it identifies the project’s potential environmental benefits and costs, and gives higher scores to projects that make an improvement to living standards, public health, and a green environment. (4 questions)	-6 0 (normalized)	12 10 (normalized)	14.29%
<b>Climate impact.</b> This index gives an indication of the project’s contributions to climate change mitigation and long-term environmental sustainability (e.g., renewable energy and recycling). Weight is given to projects that directly target environmental issues and develop infrastructure for cleaner and climate-resilient urban environments. (4 questions)	-2 0 (normalized)	11 10 (normalized)	14.29%
<b>Economic and financial issues.</b> This index scores the project based on its projected economic benefits and financial sustainability. Projects that create employment locally or have a positive contribution to the local or regional economy receive a higher ranking. It is important that the project not only delivers value for money but also will be sustainable through revenue generation, external funding support, etc. (12 questions)	-5 0 (normalized)	35 10 (normalized)	14.29%
<b>Social and gender issues.</b> This index scores the project’s potential to improve the quality of life of citizens. Projects with explicit gender and pro-poor focus get more points. Projects that create local employment or have a positive contribution to the local or regional economy receive a higher ranking. Further, it is important that the project both delivers value for money and does not burden certain groups in society with charges they cannot afford. (8 questions)	-5 0 (normalized)	19 10 (normalized)	14.29%
<b>Feasibility of implementation.</b> This index gives an idea of the likelihood that the proposed project will actually be implemented. It takes into account the sources of funding, budget implications, and implementation capacity of the administration. It also identifies any external factors that may negatively impact the outcome of the proposed project. (8 questions)	-8 0 (normalized)	19 10 (normalized)	14.29%

## Multicriteria Analysis

A multicriteria analysis (MCA) offers a way to identify the most feasible options with maximum impacts among projects that are not infrastructure investment-specific, or when conditions (e.g., resources, data, government requests, or capacity) dictate that an infrastructure assessment cannot be completed. It entails engaging stakeholders to score individual projects against a set of predetermined criteria, which can be weighed against each other to create a list of prioritized projects.

GGGI has developed an MCA<sup>17</sup> to assist cities in prioritizing projects for GCD, and it includes the following set of criteria:

- Perceived high need, demand, or priority
- Likely financial support from external sources (donor agencies and/or private entities)
- Cost-savings benefits
- Supportive policy and institutional environment for project implementation
- Tested technology, business model, and/or project approach
- Availability of local operators or suppliers for project implementation
- High green growth demonstration effect
- Poverty reduction or social inclusion benefits
- Green job creation benefits
- Environmental benefits

Each project will get a score of 0 to 3 for each criterion, for a maximum total score of 30. In case there is inadequate information on the project to enable even approximate scoring, the project should score a 0 for that criterion, as the lack of information effectively poses a risk to the project. The CIIPP toolkit published by CDIA, the Cambodia Green City Strategic Planning Methodology developed by GGGI, and the GCD toolkit published by ADB explain in more detail the prioritization process and the scoring system.

Table 5: Assessment Criteria

Criterion	Rationale	Scoring
Stakeholder priority		
1. Perceived high need, demand, or priority	Within the city, there is a greater perceived demand or need for project investment in some sectors than others. Sectors with higher perceived demand or need receive higher priority. A qualitative assessment of expressions of interest in similar projects determines the likelihood of external support for projects.	0 – Project addresses a sector that is not a priority. ..... 1 – Project addresses a sector of moderate priority for stakeholders. ..... 2 – Project addresses a sector of high priority among stakeholders. ..... 3 – Project addresses multiple sectors, at least one of which is of high priority for stakeholders.

<sup>17</sup> GGGI, *Cambodia Green City Strategic Planning Methodology* (2016).

Criterion	Rationale	Scoring
Financial feasibility		
2. Likely financial support from external sources (donor agencies and/or private entities)	Urban areas in Cambodia face severe financial constraints relative to investment needs. Projects that are more likely to attract foreign sources of funding should therefore receive higher priority. The highest score is reserved for projects with private sector interest. The appraisal of likelihood of external support for projects is based upon a qualitative assessment of expressions of interest in similar projects.	<p>0 – No known donor or private sector interest in developing the project.</p> <p>1 – Some external interest in the sector but no formal project development has taken place.</p> <p>2 – Some external interest in the project or similar projects, with some project proposals developed by donors.</p> <p>3 – Some private sector and donor interest in the project or similar projects.</p>
3. Cost-savings benefits	This criterion gives higher scores to projects with greater cost-savings potential. The worst-performing projects will offer no costs savings. Better-performing projects will offer cost savings relative to alternative investment options in terms of investment costs and/or operation and maintenance costs but are still unlikely to be financially self-sustaining. The best-performing projects will offer positive cost savings or revenue streams that will enable them to be financially self-sustaining. An assessment of crude payback period can determine potential cost-savings benefits.	<p>0 – Project offers negative or neutral cost savings.</p> <p>1 – Project offers limited cost savings, or offers cost savings relative to alternative schemes.</p> <p>2 – Project offers moderate cost savings (payback period between five and 10 years, or based on a qualitative assessment of cost savings).</p> <p>3 – Project offers significant cost savings (payback period of less than five years, or based on a qualitative assessment of cost savings).</p>
Technical and operational feasibility or deliverability		
4. Supportive policy and institutional environment for project implementation	A supportive institutional environment is important to ensuring the success of an investment project. This criterion evaluates the extent to which policies and the institutional environment for the project will pose a risk to the project's success. It requires a qualitative assessment of relevant policies and the institutional environment.	<p>0 – Necessary policy support is lacking and the institutional environment inadequate.</p> <p>1 – Necessary policy support and institutional arrangements for effective operation are weak or not enforced, and appear to reduce the viability of the project.</p> <p>2 – Satisfactory policy support and institutional arrangements to enable this type of project, although it is unclear if they are sufficient to enable project viability.</p> <p>3 – Strong, well-defined, and enforced regulations, clear policy support, clear institutional arrangements, and proven capacity for the project, which increase its viability.</p>
5. Tested technology, business model, and/or project approach	Green solutions often involve the application of alternative, nonconventional technologies, as well as innovative business models and project approaches. Adopting such technologies, business models, and project approaches inevitably increases project risk. The assessment is based on a qualitative review of application of similar technologies, business models and project approaches.	<p>0 – No known experience with the technology, business model, or project approach in Cambodia or similar contexts, i.e., in low- and lower-middle- income countries.</p> <p>1 – International experience with the technology, business model, or project approach exists, but there is no known experience for this type of project in Cambodia.</p> <p>2 – Limited Cambodian experience, although the technology, business model, or project approach is proven elsewhere in similar circumstances.</p> <p>3 – Significant proven Cambodian experience with the technology, business model, or project approach.</p>

Criterion	Rationale	Scoring
Project impacts		
6. High green growth demonstration effect	Many green investment projects will represent new ways of providing urban infrastructure and services, or other goods. As such, they may provide pilot examples of technologies, approaches, or business models that can be adopted more widely across the country. Projects that have greater potential for wider adoption should be of greater priority. The assessment is based upon a qualitative evaluation of potential demand for similar projects and/or scalability of the delivery mechanism.	<p>0 – No clear potential for further application of the technology, business model, or project approach nationally.</p> <p>1 – Technology, business model, or project approach has very limited potential for replication in Cambodia.</p> <p>2 – Technology, business model, or project approach has moderate potential for replication in similar circumstances in Cambodia.</p> <p>3 – Technology, business model, or project approach has clear potential to be widely adopted throughout the country.</p>
7. Poverty reduction or social inclusion benefits	Poverty reduction and social inclusion (PR&SI) benefits are an important aspect of green growth. The greater the expected poverty reduction or social inclusion benefits (e.g., meeting the needs of excluded groups such as women, minority groups, and the disabled), the higher a project is ranked. Based upon a qualitative assessment of likely poverty reduction or social inclusion benefits.	<p>0 – Project offers no significant poverty reduction or social inclusion benefits.</p> <p>1 – Project offers some indirect poverty reduction or social inclusion benefits.</p> <p>2 – Project offers some direct (and indirect) poverty reduction and social inclusion benefits.</p> <p>3 – Project offers significant and direct (and indirect) poverty reduction and/or social inclusion benefits.</p>
8. Green job creation benefits	Job creation is a key element of green growth. The scores depend on the likely quantity and quality of job creation over the project's life span.	<p>0 – Project offers no job creation benefits.</p> <p>1 – Project will create a limited number of jobs in its initial stages.</p> <p>2 – Project will create a limited number of jobs over its lifetime or a significant number of jobs in its initial stages.</p> <p>3 – Project offers significant job creation over its lifetime.</p>
9. Environmental benefits	Green projects target a range of environmental benefits. The greater the range and extent of environmental benefits, the higher the priority the project should have. Environmental benefits considered under this criterion include reduction in (1) GHG emissions, (2) local air pollution emissions, (3) water pollution, (4) solid waste, and (5) vulnerability, as well as improvement in biodiversity.	<p>0 – Project has no environmental benefits.</p> <p>1 – Project has limited benefits for a single environmental performance indicator.</p> <p>2 – Project has significant benefits for at least one environmental performance indicator.</p> <p>3 – Project offers significant benefits for a number of different environmental performance indicators.</p>

To be effective, prioritization and short-listing of GCD projects need to be conducted in an objective, participatory, and transparent way, with the involvement of all the relevant local government authorities. Engaging the right institutions and senior officials in the process will help ensure the enforcement and implementation of the outcomes.

By the end of this step, two to three investment proposals are prioritized. Pre-feasibility studies will follow, determining the option that is the most economically sound and will be considered for financing.

## Box 5: Cambodia: Green City Planning—From a Vision to Prioritized Actions



Cambodia is at an early stage of transformation from an agrarian to an industrial and urban society. Cities and urban areas house around 30 percent of the total population and account for 50 percent of the GDP. The next decades will see considerable urbanization, especially in Phnom Penh and its vicinity.

To manage increasing urbanization toward sustainable and competitive urban development, the government of Cambodia, in collaboration with GGGI, has been preparing a strategic green city planning methodology for Phnom Penh and other cities. The methodology will serve as guidance for policy makers at national and subnational levels, covering broad areas of intervention such as urban planning, urban vulnerability, energy, transport, built environment, manufacturing, solid waste management, public spaces, and cultural heritage sites preservation.

The methodology proposes a holistic approach that directly targets multiple benefits of GCD, including climate resilience, job creation and urban economic development, environment sustainability, and inclusiveness. Steps to be undertaken to develop a green city planning methodology include the following:

- Establishing green city strategic planning governance arrangements
- Designing a green city shared vision and green urban goals for the city
- Assessing the urbanization context
- Identifying actions to be taken to green the urban sectors through setting green growth goals for the sector and determining short-term investments and actions, comprehensive sector reforms, and measures to re-enforce the knowledge base for urban green growth
- Scenario planning for the city: (1) modeling a business-as-usual scenario, (2) piloting a green growth scenario, and (3) mainstreaming an urban green growth scenario
- Short-listing and prioritizing the 50 proposed green growth actions through carrying out a multicriteria analysis
- Performing an economic analysis of short-listed proposed priority green actions (approximately eight to 15) and an investigation of financing and partnership opportunities to operationalize the green city actions
- Developing implementation arrangements, including focal points, a monitoring and evaluation plan, and a project pipeline review process

On April 28-29, 2016, GGGI and Cambodia's National Council for Sustainable Development organized a two-day national consultation workshop on green city investment project prioritization for Phnom Penh and on capacity development for urban green growth. Held in Sihanouk Vile, this fifth national consultation supported the finalization of the Phnom Penh green city strategic plan by developing a list of potential priority green city investment projects. More than 70 representatives from the Phnom Penh municipality, line ministries, development partners, academia, and civil society participated in the workshop.



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## Design, Financing, and Implementation

At the design, financing and implementation stage, cities conduct preliminary feasibility and feasibility studies, depending on the nature of the project, the amount of investment, and the requirement of donors or investors. These studies determine whether the projects are sound enough to be financed.

### Preliminary Feasibility Study

The pre-feasibility study explores the merit of the prioritized investment option and analyzes it in terms of social and environmental impact. If the result of the study is positive, the investment option will move to the next phase, where a full feasibility study is conducted.

A pre-feasibility study typically involves assessing the following components and aspects of the project:

- Project description
- Local climate, resources, and infrastructure
- Local policies and regulations
- Technical parameters: surveys, mapping, methodologies, data and measures, economic model
- Social and environmental parameters: environmental and social scoping study, key input required for the environmental and social impact assessment, baseline, impact identification and evaluation methodologies, stakeholder engagement methodology

### Feasibility Study

The feasibility study determines whether the project is both technically and financially sound to go to the implementation stage. It provides an overview of the context in which the investment is carried out, the social and environmental impact of such an investment, and especially the net present value and the economic internal rate of return. In general, the feasibility study assesses all components that contribute, affect, and are being affected by the implementation of such an investment.

The assessment includes the following:

- Poverty and social assessment of the area: public consultation, gender assessment, social action plan, indicators for monitoring
- Initial environmental examination: description of the environment, screening of potential environmental impacts and mitigation measures, environmental management and monitoring plan, public consultations and information disclosure, findings and recommendations
- Environmental assessment review procedure: assessment of legal framework and institutional capacity, anticipated environmental impacts, environmental assessment for subprojects and/or components, consultation, information disclosure, grievance redress
- Social impact assessment: livelihood, vulnerable groups, gender and women
- Mechanism: institutional arrangement, monitoring and reporting
- Engineering, technical investigation, and project design: introduction and description of the project, technical field investigation, technical design standards and guidelines, bioengineering measures, climate change adaptation, proposed upgrading alternatives, cost estimate and contract packaging, detailed technical engineering appendices
- Economic evaluation: analytical scenarios, sector or subsector characteristics, cost estimates of alternative scenarios, unit costs and operating data, savings resulting from project implementation, other quantifiable benefits, multiplier and retainer local share of investment or maintenance costs, proxy for social benefits and affected population, alternative economic analysis, sensitivity analysis, distribution of benefits and risk analysis
- Other surveys and analyses as deemed necessary, depending on the sector and nature of the project

All in all, it is vital to formulate proposals that can appeal to investors from a risk and reward perspective, create a policy-friendly environment in a country that is conducive to green growth investments, and provide an enhanced and more incentive-based governance mechanism for private investment.

More so, it is important for governments to realize that the transition to a green pathway is becoming financially viable, and there is a need to provide frameworks for green growth that can lower policy uncertainties. Key political players need to understand that additional and incremental costs for green growth are an investment to generate new values, technologies and markets, and green growth policies and low-carbon development can be designed in such a way that can simultaneously address multifaceted development needs.<sup>18</sup>

### Box 6: India: Electric Mobility in Public Transportation

Himachal Pradesh (HP), a hilly state in northwestern India, has rapidly evolved in terms of economic growth and holds promise of great progress owing to its rich resources – such as hydropower and forests – and strong horticulture and tourism industries. However, HP faces mobility-related challenges such as a rising number of vehicles (an annual increase of about 10 percent) and an influx of tourists, adversely impacting the fragile Himalayan ecology. There are also acute problems related to parking, congestion, and last-mile connectivity due to the state's tough geographical location.

Electric mobility is seen as a sustainable mobility solution for the future since it can enhance national energy security and contribute to environmental sustainability by reducing GHG emissions, air and noise pollution, and dependence on fossil fuels. Within the context of increasing transportation needs and a growing number of private vehicles, electric buses make for an environment-friendly, high-quality transport solution.

GGGI supported the HP state government in developing and implementing a green growth strategy, and established a business case for applicability of electric mobility to intercity and intracity public transportation. The business case proposal outlined the benefits to establishing a state transport corporation and included an analysis on using surplus hydropower for charging buses at night.

The proposal became the first initiative by any state government in India to get a national grant. The federal government of India approved INR 35 crore (about USD5.5 million) to support HP in procuring 25 electric buses under the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles scheme.

Based on GGGI's recommendations, the HP government announced an exemption from token tax, registration charges, and value-added tax for all electric vehicles for five years. It is also considering plans to introduce an exclusive, discounted electricity tariff for electric vehicles and remove tax barriers to encourage production of electric vehicles in the state.

Sources:

Anand Bodh, "To Save Environment Himachal to Buy 25 Electric Buses," *The Times of India*, May 16, 2016, <http://timesofindia.indiatimes.com/city/shimla/To-save-environment-Himachal-to-buy-25-electric-buses/articleshow/52287829.cms>.

GGGI, *Green Growth Strategy for Karnataka* (2014), [http://ggi.org/wp-content/uploads/2014/12/Karnataka-GG-Case-Studies\\_FINAL\\_Web-Version.pdf](http://ggi.org/wp-content/uploads/2014/12/Karnataka-GG-Case-Studies_FINAL_Web-Version.pdf).

18 Yvo De Boer, "Four Ways to Scale Up Climate Finance for Developing Countries," GGGI, <http://ggi.org/four-ways-to-scale-up-climate-finance-for-developing-countries-by-yvo-de-boer>.



# Safeguards, Poverty Reduction, and Social Inclusion (SPRSI)

Environmental and social safeguards refer to essential systems and processes that help project developers avoid or minimize the negative impacts of projects on the environment and people. Poverty reduction and social inclusion, meanwhile, involves consciously prioritizing interventions that reduce inequality and poverty, and promote the inclusion of all stakeholders. Carrying out appropriate safeguards assessments and making sure that proposed interventions maximize poverty reduction and social inclusion outcomes will be key to the success of GCD projects.<sup>19</sup>

Below is a brief illustration of mainstreaming SPRSI in GCD project design, development, and implementation.

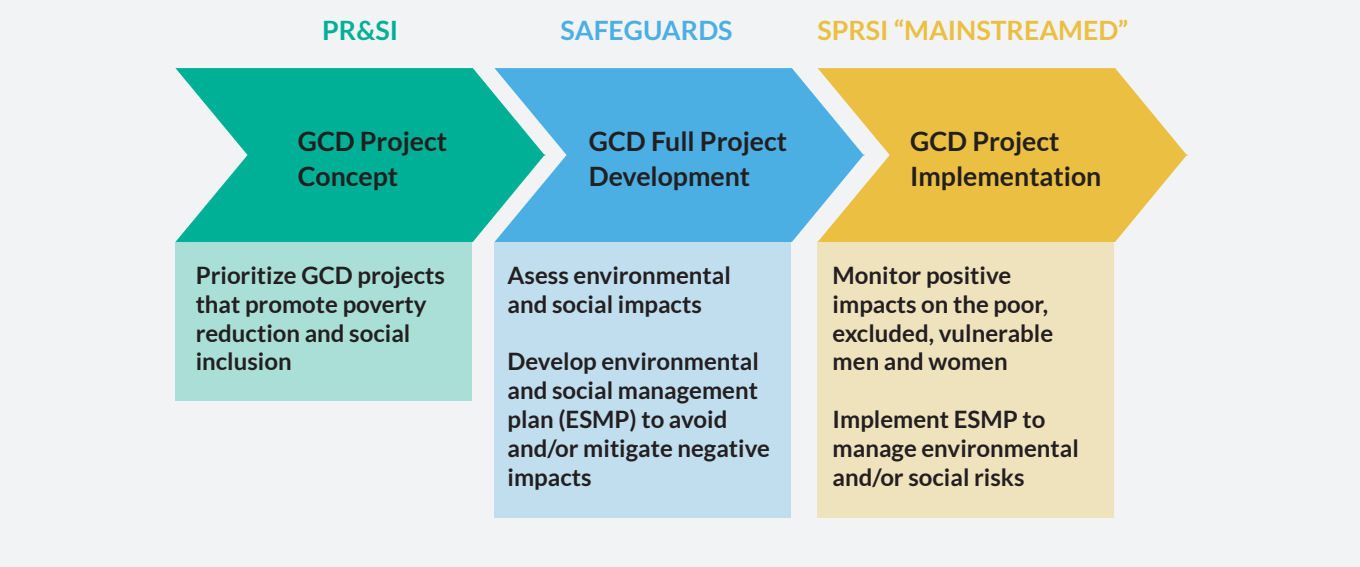
**Safeguards**  
 Avoid or minimize negative impacts on:

- Environment: natural resources (soil, air, water, biodiversity, etc.) and climatic system (climate change, exposure to natural disasters)
- People: men and women, vulnerable groups, indigenous peoples, the poor

**Poverty reduction and social inclusion**  
 Maximize benefits to people and society at large:

- Reduce inequality and poverty
- Improve access to basic social services
- Include all stakeholders

Figure 4: Mainstreaming SPRSI in GCD Project Design, Development, and Implementation



<sup>19</sup> For more detailed information on how to carry out an environmental and social safeguards assessment based on GGGI’s sustainability and safeguards policy, please see *Pro-Poor, Inclusive Green Growth—An Operational Guide*, revision 1, June 2016, page 17 and Annex 3.

# Monitoring and Evaluation

Monitoring and evaluation aims to improve current and future management of outputs, outcomes, and impact. It involves tracking the progress of projects and establishes whether plans and investments require adjustments.

M&E can be used for both individual measures and the overall sustainable urban planning process. For projects to be successful, there's a need to carry out M&E activities regularly, although their frequency might vary, with evaluation taking place at longer time intervals.

M&E, as such, serves as an important tool in developing and implementing sustainable urban plans, as it enables the timely identification of problems, potential successes, and the need to make changes to a sustainable urban plan and its instruments. Providing regular updates about projects to decision makers, potential funding bodies, and local stakeholders can help convince them that GCD has or will deliver benefits to the community, provides value for money, and is worth continuing, or requires modifications to be successful.<sup>20</sup>

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<sup>20</sup> Kerstin Burggraf and Astrid Günemann, *Why is Monitoring and Evaluation a Challenge in Sustainable Urban Mobility Planning?* (Leeds: Institute for Transport Studies University of Leeds, 2014), [http://www.eltis.org/sites/eltis/files/tool/challenge\\_description\\_monitoring\\_evaluation\\_final.pdf](http://www.eltis.org/sites/eltis/files/tool/challenge_description_monitoring_evaluation_final.pdf).





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Green Growth  
Institute

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The Global Green Growth Institute  
19F Jeongdong Building, 21-15, Jeongdong-gil, Jung-gu, Seoul, Korea 100-784

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