

Accelerating Integrated Urban Climate Action

Achievements and Impacts of the
Urban-LEDS Phase II Project
2017 - 2021





**Accelerating Integrated Urban Climate Action
Achievements and Impacts of the Urban-LEDS II Project**

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Ms. Maimunah Mohd Sharif

Under-Secretary-General and Executive
Director, United Nations Human Settlements
Programme (UN-Habitat)



Cities are at the heart of the climate crisis. They can be at the forefront to the solution to set out low emission, resilient, green, and inclusive urban development pathways – if they receive the support from national governments, the technical assistance, tools and access to finance they need. Integrated low emission and climate resilient development is not only an instrument to curb climate impacts but to build liveable, healthy and clean cities, where all people have access to basic services and infrastructure. Local climate action is critical to achieve national climate action commitments and global climate goals. The time for climate action in cities is now.





Mr. Gino Van Begin

Secretary General, ICLEI -
Local Governments for Sustainability



“Urban-LEDS phases I and II - as ICLEI climate action flagship projects - guided accelerated local action while testing new and innovative approaches on integrated climate action, finance, governance and reporting. We were delighted to partner with UN-Habitat, jointly implementing a wide range of activities in more than 8 countries around the globe. We are highly appreciative of European Union funding and the practical support from the European Commission. The aggregated project results are outstanding, and could only be delivered in such a strong partnership approach.

Through Urban-LEDS, more than 70 cities across the EU and in 8 project target countries received support from ICLEI and other experts to upscale climate action. The legacy was delivered through tailor-made support, guiding the development of new and updated climate action plans, identifying local priority projects seeking access to finance, while enhancing multilevel governance. Peer learning and exchange added a dynamic element of connecting to colleagues and peers facing similar challenges and opportunities. Urban-LEDS I and II helped inform an innovative approach to integrated climate action (climate change adaptation, resilience and mitigation) for subnational governments, regardless of territory size or place. We are excited to see local leadership in cities, towns and regions - and we aim to build on the Urban-LEDS success and strong partnership outcomes.



Executive Summary: Urban-LEDS II Project Impact

The climate emergency is generally regarded as the defining challenge of our time. As confirmed at the Conference of the Parties 26 to the United Nations Framework Convention on Climate Change (COP26), it is in cities, whose consumptive demand account for nearly 70 percent of global greenhouse gas emissions, where action must be taken to meet the global goal of carbon neutrality by mid century.

More than 11,000 cities have started taking such action. Their plans aim to reduce greenhouse gas emissions in building and construction, transport, energy and waste to build the resilience of urban infrastructure, environmental and health systems, and to support the most vulnerable communities, recognizing that climate change can aggravate displacement and will increasingly contribute to migration to urban areas. National governments are increasingly supporting this: 84 percent of updated NDCs now have strong or moderate urban content.

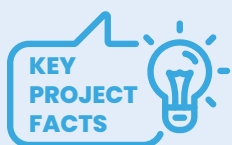
It is in this context that the Urban-LEDS phase II project, implemented by UN-Habitat and ICLEI and funded by the European Commission, sought to accelerate the pace of change in cities through targeted support to 72 local governments and 8 national governments¹ to enhance integrated low emission and climate resilient development, access to finance and multi-level governance. This phase built on the results of phase 1 which ran from 2012 - 2016.

A tailor-made offer of support was provided to the local governments engaged in the project, based on ICLEI's GreenClimateCities (GCC) Program, guiding progress on local climate action, identifying local contributions to the Nationally Determined Contributions (NDCs), and connecting to national

processes. National government policy support to enhance multi-level governance was provided using UN-Habitat's tools and process support, especially within the framework of NDCs and National Urban Policies. The project also supported the improvement of effective monitoring and reporting systems through an integrated MRV (Measuring, Reporting, and Verifying) process, vital to tracking progress and accelerating climate action within cities.

In each target country, the project selected two to three 'model' cities which received deep-dive technical assistance and four to six 'satellite' cities for light-touch but crucial support. Capacity building and peer learning/exchange was also offered to the Satellite Cities and European Cities. Urban Low Emission Development Strategies and corresponding Climate Action Plans (CAPs) were developed and/or updated, with a special focus on exploring local finance and investment needs. As an implementation project of the Global Covenant of Mayors for Climate & Energy (GCoM), Urban-LEDS II has been instrumental in mobilizing 12 new cities to commit to the GCoM during the project period, and helping 32 that had already committed in phase 1 to accelerate and deepen their climate action journeys.

Plans without mechanisms for implementation are likely to falter. The project offered support on building investment strategies, capacity-building, and technical cooperation. In this framework, a total of 22 different demonstration pilot projects were identified and implemented - deploying renewable energy capacity, improving energy efficiency, tackling air pollution, and promoting nature-based solutions. Local action is also limited without national government cooperation and support. UN-Habitat supported the Colombian and Lao PDR governments



NAME

Accelerating climate action through the promotion of Urban Low Emission Development Strategies (Urban-LEDS II)

Start Date

01 April 2017

End Date

31 December 2021

Duration

57 Months

Total Budget

€8M

Funding mechanism



European Union

(DCI-ENV/2017/384-555)

Consortium

UN-Habitat HQ and regional offices in Lao PDR, Rwanda and Colombia, ICLEI World Secretariat and 5 ICLEI regional offices active in Europe, Bangladesh, Brazil, Colombia, Indonesia, India, Lao PDR, Rwanda and South Africa

¹ Bangladesh, Colombia, Rwanda, Lao PDR, Brazil, South Africa, India, Indonesia.

to integrate climate change into national urban policies, and the Rwandan Ministry of Finance and Ministry of Infrastructure to enhance their COVID recovery through designing climate-friendly investments, in cooperation with the NDC Partnership and GIZ.

Over 10 peer learning exchanges involving local and national government staff have been vital to the project's success. Local and national government staff and stakeholders have benefited from tailor made training, study tours, workshops, and webinars. The local governments' planning and

implementation of climate action did not only lead to regional benefits, but also supported national climate action plans that effectively contribute to global climate change mitigation and adaptation, and provide access to secure, affordable, and sustainable energy.

The infographic below highlights in numbers the achievements of the project over its four years. The rest of this report explores the approach and impacts of the project in multi-level governance, peer to peer exchange, demonstration projects, before giving detailed profiles of the action in each of the projects 17 model cities.

Figure 1 Urban-LEDS in numbers



General note: The aggregated number of climate actions, climate commitment targets, community GHG inventories (GHG-Is) and Climate Risk and Vulnerability Assessments (CRVAs) reflects those cities which have reported to the CDP-ICLEI Unified Reporting System. A total of 36 Urban-LEDS II project cities reported here in 2019, 2020 and 2021. Data prior to that has been accounted for from the cCR.

*Rwandan cities may not publicly report - permission from the National Government pending. Climate actions of Rwandan cities are included in the aggregated number, based on actions in Climate Action Plans.

**Methodology on estimated emissions reductions: (i) Annual reductions were converted to lifetime reductions by multiplying the total number of years of the action duration by the expected annual reductions per action. (ii) These numbers are aggregated as projected total lifetime emissions reduction from all reporting entities.

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The Urban-LEDS Cities Network

The Urban-LEDS II project was implemented in 8 countries including Brazil, India, Indonesia, and South Africa (all from Phase I of the project from 2012-2016) and those newly added in Phase II; Bangladesh, Colombia, Lao PDR, and Rwanda.

Through well-defined city selection criteria with relevant stakeholders from the respective countries, the project generally selected two to three 'model' cities (for deep-dive support) and four to six 'satellite' cities (for light-touch but crucial support) per country. In each newly added country, the Urban-LEDS II project provided capacity-building and technical cooperation to help the selected model cities develop and implement Urban Resilience, Low Emission Development

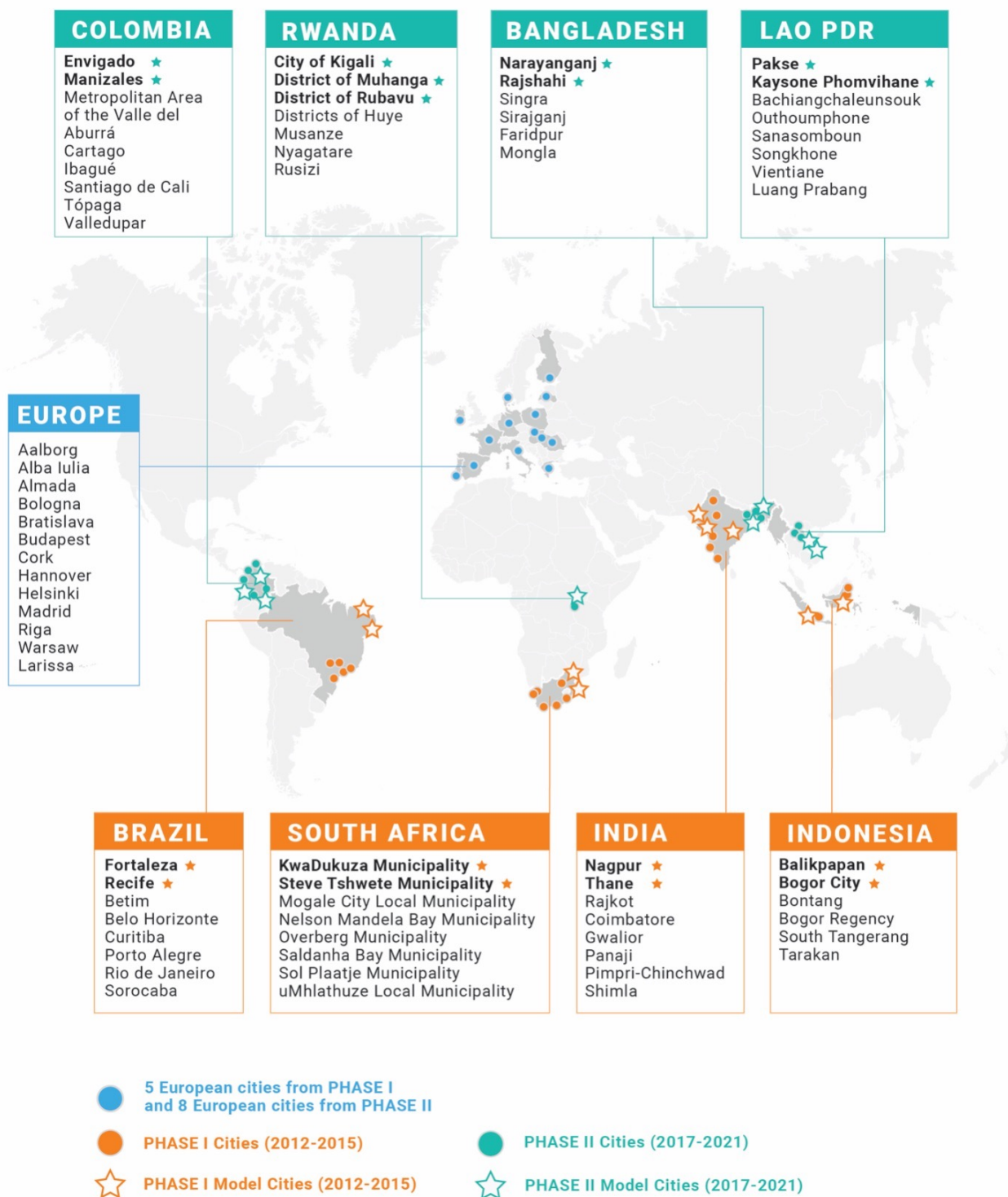
Strategies, and corresponding Action Plans. In the existing phase 1 countries, the focus was on supporting cities to implement their plans by developing investment plans and measuring, reporting, and verifying results.

Satellite cities were generally beneficiaries of capacity development opportunities and peer exchange with the model cities. This helped to create an enabling environment for knowledge and experience sharing and peer-learning. In addition, 13 European cities were also engaged as resource cities to the participating cities and supported peer-to-peer exchange and cooperation (see Urban-LEDS cities network below).



Aerial view of the area Bairro Santo Antonio, Recife. © UN-Habitat

Figure 2 Participating Urban-LEDs cities



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Guidance to local governments

What is an Urban LEDS?

An Urban Low Emissions Development Strategy (Urban LEDS) defines a pathway to transition a city to a low emission, resilient, green, and inclusive urban economy, through its integration into existing city development plans and processes. Although the name of the strategy may be different city to city, the intent remains the same.

GreenClimateCities (GCC) program and process

The GreenClimateCities (GCC) Program offers cities a proven process methodology for advancing step-by-step toward

climate neutrality. This methodology and its associated Measuring, Reporting and Verification (MRV) framework were tested by the cities engaged in the Urban-LEDS II project.

The GCC methodology is a 9-step process in 3 phases: Analyze, Act and Accelerate – each unfolding into three sub-steps – outlining how climate risks and vulnerabilities can be assessed and options (to achieve low-to-no emissions development and climate adaptive development) can be identified and integrated into urban development policies, plans, and processes. It consists of a wide range of resources, tools, and guidance notes to support local and regional governments to deliver ambitious climate action. This includes guidance on integrating low emission and climate resilient development into urban development policies, plans, and processes and ways to improve local-national dialogue and cooperation to enhance climate action.

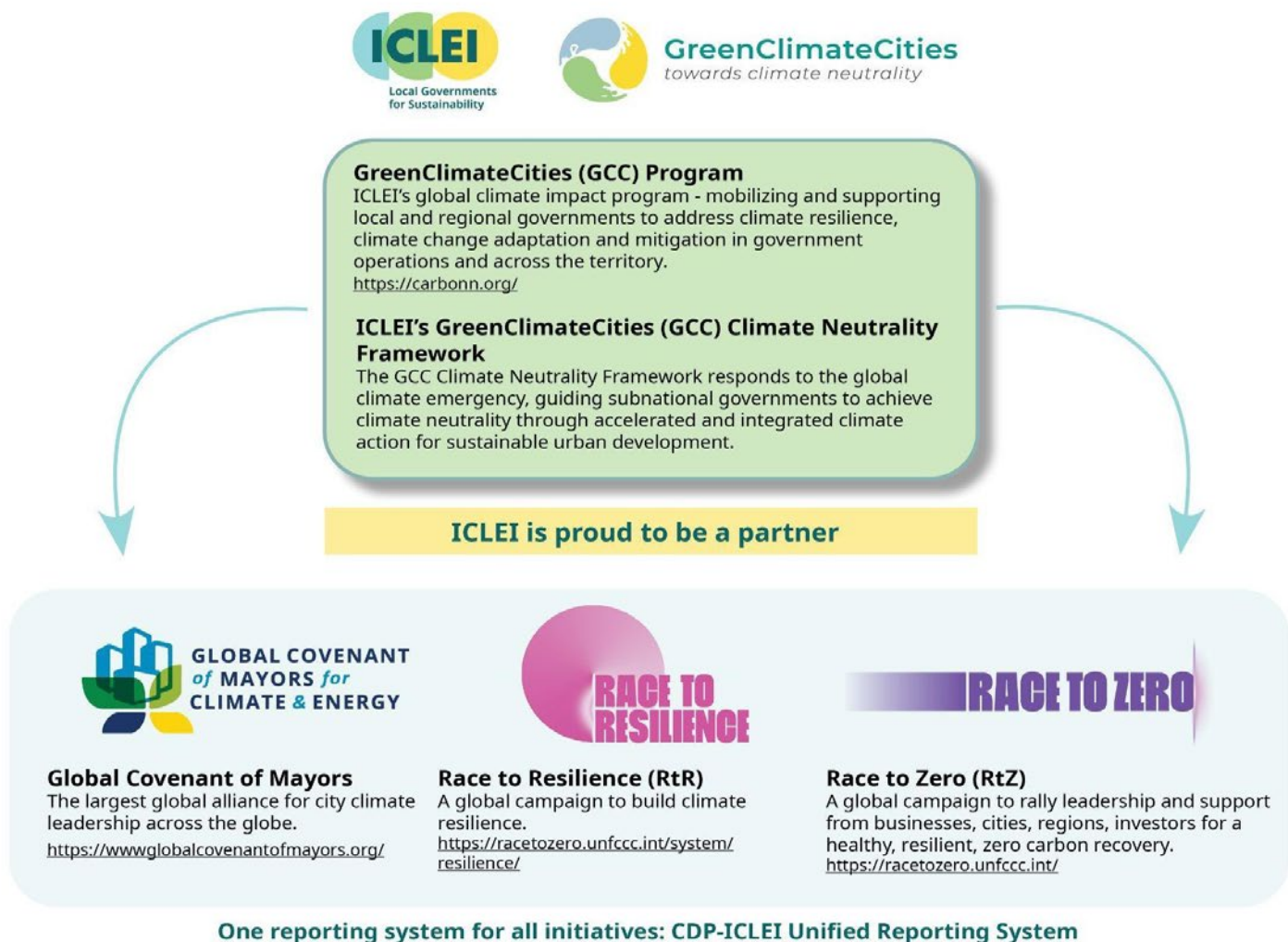
Figure 3 GCC Methodology: Analyze, Act and Accelerate Urban-LEDS cities



The GCC is a continuous process and designed to continue sustaining cities' climate action and sustainable development approaches beyond the Urban-LEDS II project. Though flexible and enabling cities in their different contexts to engage at their own pace, the associated Measuring Reporting and Verification (MRV) component ensures the cities demonstrate their local commitments, capacities, and results.

Participating cities can continue to benefit from the GCC program, which offers a global network of cities, towns, and regions committed to tackling climate change and sustainable development, focusing on people, policy, finance, and technology.

Figure 4 ICLEI's GreenClimateCities program



iii Engaging National Governments

Multi-Level Governance

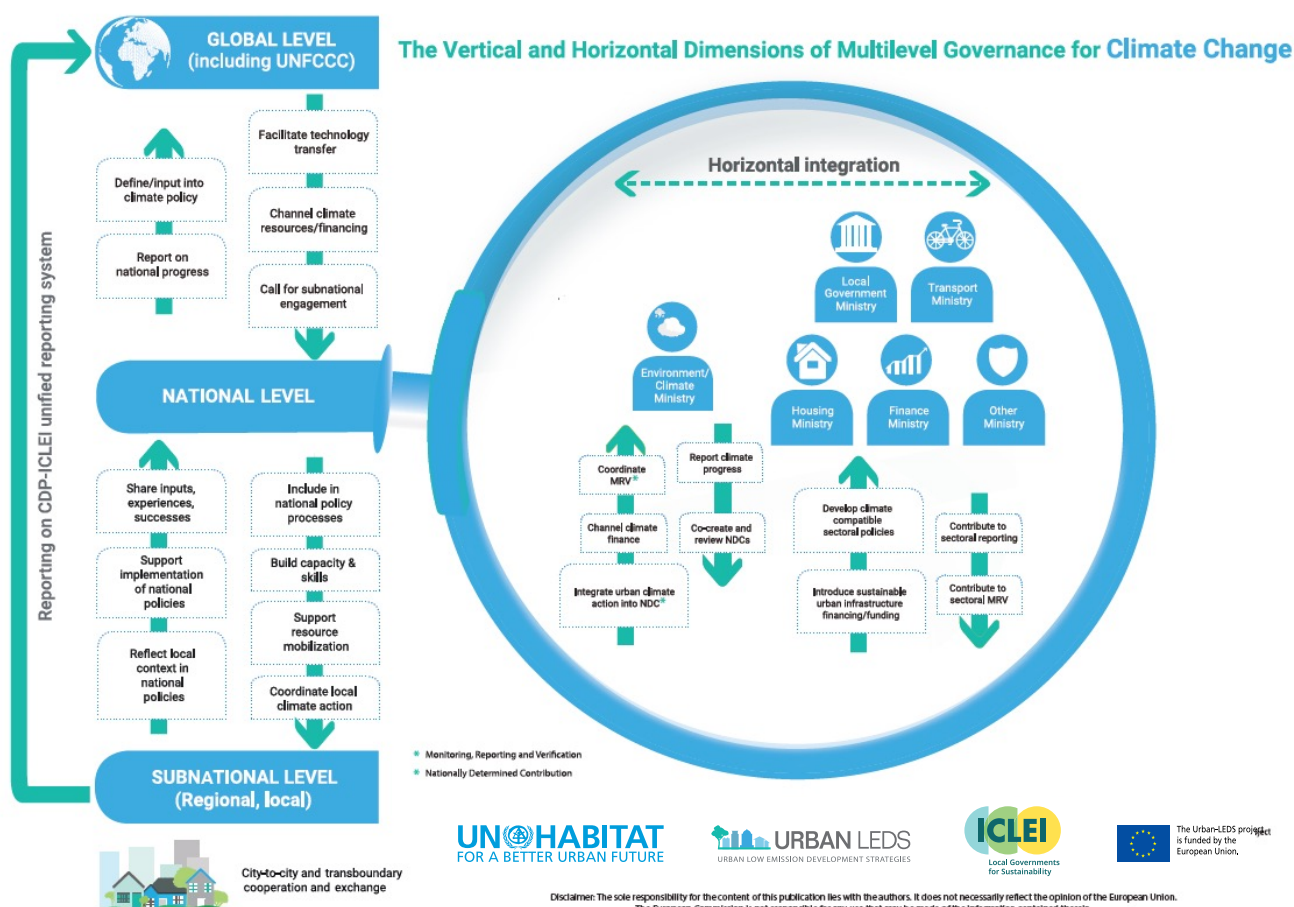
The projects approach to Multi-level governance

In the climate change context, multi-level governance has been defined by [GIZ \(2020\)](#) as the “structural and institutional setting in which different levels of government distribute roles and responsibilities, coordinate and cooperate on climate action, as well as the specific instruments that are implemented at different levels of government to support and implement local climate action”. Only by supporting systems of collaboration between and within national and local government can we ensure climate change can be tackled successfully while meeting development goals

The diagram below shows the important components of multi-level governance for climate change action that were the focus of the Urban-LEDS project. This included both vertical coordination among governments at various levels as well as with other stakeholders; and b) horizontal coordination within and amongst governments (and their departments) at the same level as well as coordination with and amongst non-State actors. Crucially, horizontal integration between multiple government departments is important to ensure that efforts to tackle climate change are not siloed in one Ministry - but are also integrated into policy domains in which high carbon and climate risky investments may continue to be made.

The project supported several global activities to further the goals of an integrated approach to climate action across policy domains and scales:

Figure 5 Urban-LEDS Multi-level governance conceptual framework



In 2020, UN-Habitat led the production of a guide for national government staff to [Enhance Nationally Determined Contributions \(NDCs\) through the integration of urban climate action](#). The guide provides practical opportunities for incorporating urban climate action and human settlement issues into the NDC revision and enhancement process, drawing on existing knowledge and networks. The guide was produced in a collaborative effort with a wide variety of expert contributors from; Arup, the Coalition for Urban Transitions, C40, the Environment, Forest & Climate Change Commission of the Federal Democratic Republic of Ethiopia, the Environmental Protection Agency of Liberia, GIZ, Global Covenant of Mayors for Climate & Energy, Global Green Growth Institute, Go Green for Climate, ICLEI, the NDC Partnership, REN21, UNDP, UNEP, UNFCCC, and the University of Southern Denmark.



During an event at COP26, UN-Habitat released a preliminary analysis of the urban content of the latest round of NDC submissions from March 2017 to September 2021. This analysis, building on that conducted on the first round of NDCs in 2016, revealed that:

- Over two-thirds of the NDCs analysed have a strong or moderate urban content (132 of 157).
- NDCs with urban content have significantly increased in comparison with the 2016 analysis (69% to 84%)

The 2021 in-depth country analysis in three pilot countries (Colombia, Rwanda and Philippines) revealed that:

- Urban climate responses are not always aligned with the identified urban climate challenges.
- The urban content in the NDCs is not always fully harmonized with the urban content in other national climate policies.

- The lack of urban content in the NDCs does not necessarily equate with a lack of urban content in other national climate policies.

Such global resources and findings, made possible by the Urban-LEDS project, are fed into global policy discussions and partner support programmes, as well as being used directly in Urban-LEDS countries during the project period, as detailed in the next section.



National level policy and capacity building support

National government support followed domestic priority areas and were decided during the project, determined by national government interest, and need.

Multi-level governance analysis reports and factsheets were produced in [Lao PDR](#), [India](#), [Indonesia](#) and [South Africa](#). In addition, the project supported multi-level governance pilot activities in several countries - including, but not limited to:

Lao PDR: Capacity building on effective national-local climate change response

On request of the national government, UN-Habitat developed five capacity building guidelines for national, provincial and District officials focusing on integrating climate change into policymaking and implementation in the areas of finance, governance, legal frameworks and MRV. Subsequent analysis aimed to support the integration of climate change adaptation into the spatial planning framework and urban strategy, and on the linking of domestic priorities on green growth with urban low emission development. [Find out more here.](#)



Colombia: Integrating climate change into national urban policies

UN-Habitat supported the Ministry of Housing, Cities and Territory as well as the Ministry of Environment and Sustainable Development, to apply three of UN-Habitat's normative guides to the national context in Colombia, namely: [Addressing Climate Change in National Urban Policies](#); [National Urban Policy: A Guiding Framework](#)"; and [Enhancing NDCs Through the Integration of Urban Climate Action](#). Three salient overarching issues that could benefit both the National Urban Policy as well as the NDC processes include: (i) fostering public-private partnerships; (ii) increasing the reach and ambition of climate goals; and (iii) continuing the process of fiscal decentralization and providing greater autonomy to the regions and municipalities backed by operational and financial instruments. [Click here](#) to access a case study on the policy advisory work completed in Colombia.



Rwanda: Strengthening the urban dimension in the Rwanda's NDC process

UN-Habitat helped the Rwanda Ministry of Finance and Economic Planning (MINECOFIN) to link their NDC implementation to the urban planning framework of the country. To advance the implementation of the NDC in the cities, UN-Habitat assisted in selecting rapidly implementable, bankable, and transformative green city projects, prioritized at District and national level, which can sustain the implementation of the NDC in the short-term. Within the shortlisted projects, one is an urban upgrading and rehousing project, which has successfully passed the first stage of [City Investment Facility](#) call. [Click here](#) to access a case study on the policy advisory work completed in Rwanda.

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Peer-to-peer learning and global visibility

Principles of peer-to-peer learning in the project

Peer-to-peer learning facilitates the sharing of experiences, and greatly helps to improve the understanding of available low-emission technological solutions, as well as strategy development, through mutual learning. By crossing their national borders (whether physically or virtually) and discussing experiences, policies, and solutions with colleagues in a different environment, these exchanges encourage partners to think more strategically about the options for tackling their own climate challenges, and better identify opportunities and possible ways to further address these. The reciprocal exchange fostered by Urban-LEDS followed a Global South-South-North multilateral approach, where everyone's experiences and lessons learned become a resource to enrich the discussion.

European Study Tour

One of the highlights of the peer-to-peer exchange opportunities offered by Urban-LEDS was the Study Tour organized from 17 to 24 July 2019. 28 representatives from 24 Urban-LEDS II cities in 16 countries participated in eight full days of intense field visits, exchanges and showcasing of innovative solutions and approaches to adapt and to mitigate the impacts of climate change in urban areas.

The tour was hosted by the European Urban LEDS cities of Helsinki (Finland), Bologna (Italy) and Warsaw (Poland) covering a wide range of priority sectors and topics previously identified as the most relevant by the engaged cities such as smart mobility, districts heating and cooling, private-public partnerships, urban regeneration, energy communities, adaptation and mitigation strategies, water-waste management, green roofs, energy efficiency and cultural heritage. Cities representatives had the opportunity to learn, see first-hand and discuss the solutions implemented with key implementing partners within these communities, and zooming-in on these in smaller groups. Find out more about the [Low emission development practices during European study trip](#).

International Networking Seminar

The fully virtual [International Networking Seminar](#) on the 28 and 29 July 2021 allowed exchange despite COVID-19 restrictions. The Seminar comprised two days of sessions, including regional deep dives, where cities had the chance to zoom in on results and progress in each of the four continents and plenary session, which gave the opportunity to showcase experiences across regions on key issues such as access to financing and multi-level governance.

A Mayoral roundtable taking stock of the measures and policies implemented through the knowledge and support provided by Urban-LEDS. This roundtable was complemented by an exchange of best practices among national governments and two marketplaces where Urban-LEDS cities had the chance to pitch the most innovative solutions planned or implemented as part of their low emission strategies.

Visibility at global events

Urban-LEDS cities and the project overall had the chance to participate in several International events spreading best practices and achievements resulting from the cooperation within the project. These events took place at the [World Urban Forum](#) (WUF), [DaringCities](#), the [Innovate4cities Conference](#) (I4C) and the [UN Conference of the Parties \(COP\)](#)

At COP26 in Glasgow Urban-LEDS had a regular space at the Multilevel Action pavilion co-hosted by the Local Governments and Municipal Authorities constituency. Urban-LEDS hosted a daily spotlight session- "Time4MultilevelAction Dialogue" - highlighting the key role, and current best practices, of cities in delivering on the goals of the Paris Agreement, in cooperation with national and subnational governments, and the crucial

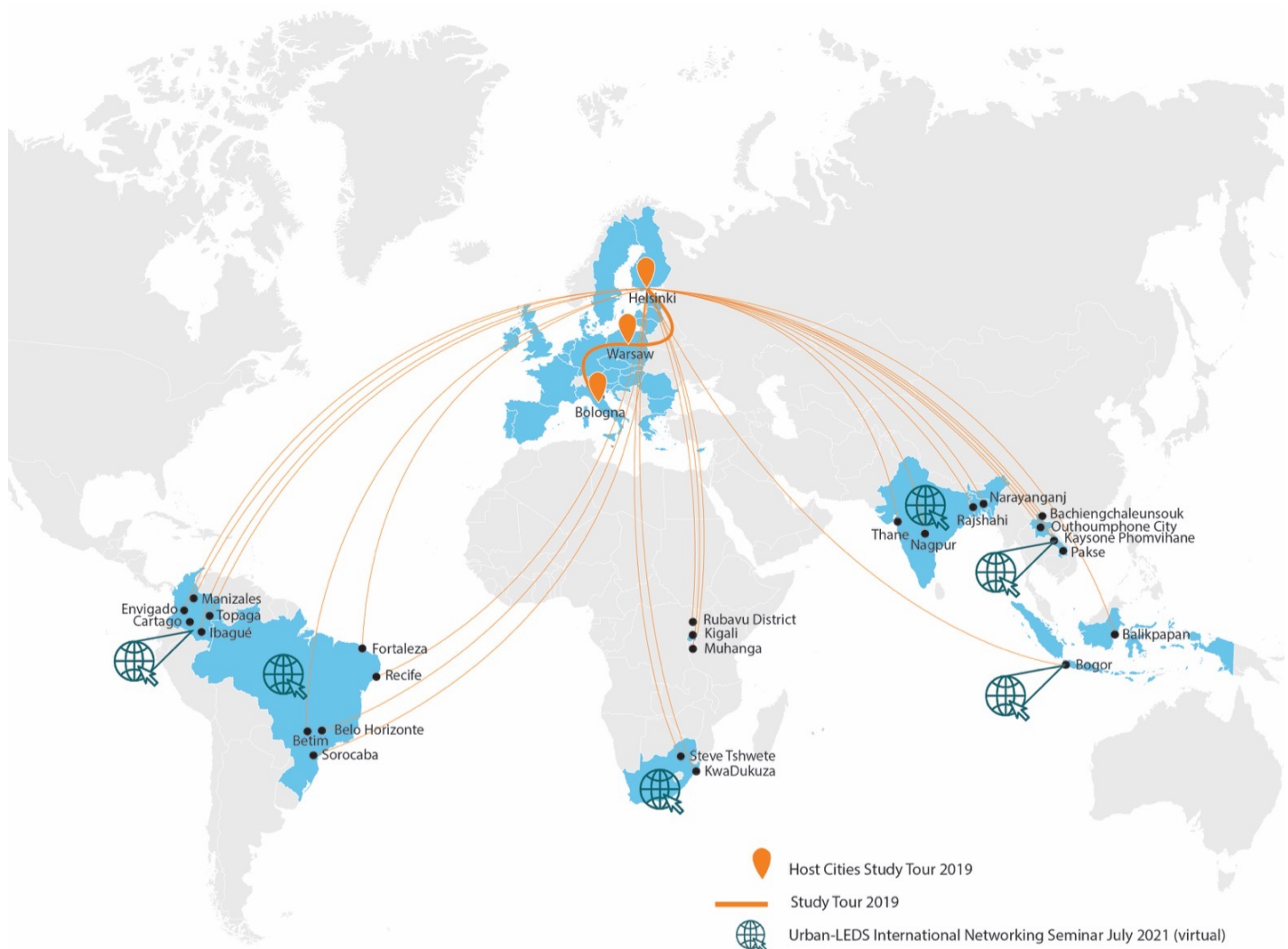
benefits of mainstreaming vertical and horizontal integration of level of governance in accelerating climate action.

Urban-LEDS also provided support to the fully virtual [Innovate4Cities 2021 Conference](#) focused on the nexus between science, practice, and innovation driving inclusive, resilient, and climate-neutral cities. With over 880 speakers and 190 sessions, the event highlighted more than 500 urban innovative solutions to address climate change and

brought together more than 7000 practitioners, researchers, policymakers, innovators, youth, and business leaders.

A final project reflection webinar took place in January 2022 to celebrate the progress made in the journeys taken by project cities and national governments and reflect on lessons learnt. You can access the [recording here](#). All project webinars are available to watch on the [project website](#).

Figure 6 Map of city participation in two Urban-LEDS global peer exchange events



Participant presenting the outcome of group work exercise. © UN-Habitat



Participants during the 2018 Urban-LEDS European Study Tour. © UN-Habitat



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Global snapshot of all pilot projects



BRAZIL

The installation of a photovoltaic system and energy efficiency measures at the Herbert José de Souza Municipal School and the creation of an Educational Center for Renewable Energy represent environmental initiatives with pedagogical purposes for students and the community in general.

The assistance provided by Urban-LEDS and ICLEI South America helped establishing a partnership between Recife's City Government and CELPE (local energy provider) to mobilize funds for the installation of a photovoltaic system and energy efficiency measures at the Woman's Hospital of Recife, and the creation of an Educational Center for Renewable Energy.



COLOMBIA

Installation of a photovoltaic system at the main building of the Secretariat for Environment and Agricultural Development (SMADA) and a Communication Platform in the Heliodora Park, to enable dissemination of the city's climate agenda.

Installation at the Carlos Julio Umaña School (IECJU) of a photovoltaic system and fixtures for addressing energy efficiency, as well as the creation of an Educational Center for Renewable Energy for pedagogical purposes and environmental initiatives.



RWANDA

Enhancing the resilience and resource efficiency of local health systems of the City of Kigali and the District of Muhanga by installing rooftop rainwater collection systems, water efficient systems, energy efficient systems, and solar hot water geysers.

Reducing the operational cost of current public lighting along the Lake Kivu beachfront with a public lighting retrofitting programme.



SOUTH AFRICA

Reducing the demand for energy to improve resource efficiency of buildings and street lights and ultimately curb GHG emissions by installing smart meters and undertaking baseline audits.



BANGLADESH

Implementation of evidence-based air quality management practices with the installation of stationary sensor-based Ambient Air Quality Monitoring Systems (AAQMS).

Installation of 11.76 kW grid solar photovoltaic systems at a public library building and at a public healthcare center of the city.

An initial technical assistance and baseline assessment of floral wealth led to an open

green space plan for the city, with demonstration actions, such as plantations, that contribute to create awareness among the citizens on the significance of open green spaces in the city.

Implementation of energy efficiency measures and trainings to show the potential of energy conservation measures in buildings and to enable future replication.



LAO PDR

The implementation of a solar photovoltaic system to power the existing water pumping systems at the Nouhak Phoumsavanh public park, together with energy-efficient lighting technologies, are contributing to reduce GHG emissions at Kaysone.

Energy-efficient lighting technology, such as the installation of new sets of LED solar street lights at the Red Square, to showcase sustainability solutions and also contribute to GHG emissions reduction.

INDIA

Realization of a baseline study to develop a city-wide plan for augmentation of local water resources and demonstrate effective means of ground water recharge/aquifer recharge and rainwater harvesting.

Preparation of Nagpur's Local Biodiversity Strategy and Action Plan (LBSAP) by documenting biodiversity through a baseline assessment of floral and faunal wealth.

Tactical interventions to design and develop children centric climate resilient parks in Nagpur.

Installation of an Early Warning System (EWS) to reduce losses and react proactively to tackle water logging/-flooding, as well as increase climate resilience by an early warning system with IoT based application.

Evaluation of existing and projected carbon sequestration potential (CSP) of the tree and mangrove cover in the city and proposal of actions to enhance the natural carbon sink, along with identification of potential plantation sites, species etc.

INDONESIA

Reducing greenhouse gas emissions and the consumption of liquid petroleum gas (LPG) of 50 households by optimizing the utilization of methane gas released from the Manggar Landfill of the City of Balikpapan.

Application of circular economy with hydro-pyrolysis technology to improve solid waste management at community level and to reduce GHG emissions from the waste sector, with the associated production of valuable products from the waste, such as fertilizers.

By using methane gas from the decomposition of domestic wastewater in the communal wastewater treatment plant at Sindang Sari Village for cooking purposes, GHG emissions are reduced.

vi Model City climate action progress

Bogor City, INDONESIA



Basic Information and Statistics

118.5 KM²

Size

1,043 M

Population

0.98%

Population growth rate (p.a)

N/A

Urbanization rate

Idr 45,940

City annual budget (2020)

Vision for sustainable urban development and climate action:

Making Bogor a Family Friendly City by creating a healthy, smart, and prosperous community.

Commitments

- By 2030: GHG emission reduction of 29-33% against Business-As-Usual levels (baseline year 2010)
- 52% of the total land area of the municipality is slated to be maintained as natural reserves

Strategy

Bogor City ratified the Regional Medium-Term Development Plan (RPJMD for 2019-2024) in 2021. The City's Urban-LEDS II Action Plan is linked to the programs and activities in the RPJMD which could potentially support climate change adaptation and mitigation actions, and the co-benefits resulting from both.

Actions in city enabled by the Urban-LEDS project

Demonstration projects

- **Pilot Project 1:** Community-scale Solid Waste Management using Hydro-pyrolysis Technology, find out more [here](#).
- **Pilot Project 2:** Utilization of Methane Gas from Decomposition of Domestic Wastewater implemented in the Communal Wastewater Treatment Plant (WWTP) of the Sindangsari sub-district in East Bogor. Read more [here](#).

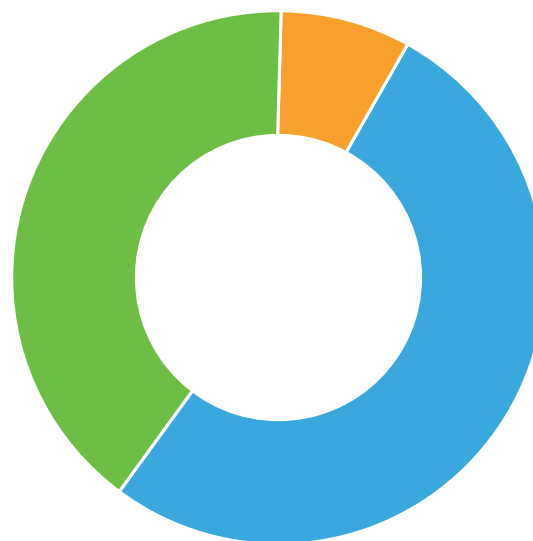
GCoM signatory and badges awarded



Access to finance interventions and TAP applications. Our City Transportation or ANGKOTKU:

This project was submitted to the TAP in 2021 and supports the local mid-term development plan of Bogor city. The project would like to provide a platform where Supir Angkot (drivers) and customers can connect efficiently leading to improved income. In addition, it will improve the Bogor City Transportation Systems. The city has received its scoring assessments with indicated recommendations for improvement of the project proposal's bankability.

Community GHG inventory



Bogor GHG Emissions (Mton CO₂e)
for 2018 using GPC Framework
Total: 2,222.611

AFOLU.....	0.25%
Waste.....	8.09%
Transportation...	51.63%
Energy.....	40.04%

Climate Risks and Vulnerability Assessment

Climate Trend:

- **Increase in temperature and increase** in the frequency of extreme air temperatures is predicted
- **Erratic rainfall:** A decrease in rainfall of up to 18% in some parts of the city, and a 27% increase in rainfall in others.
- **Decreasing water availability:** Overall, the availability of water for the City of Bogor will decline in the future.

- **Adaptation plan:** Adaptation action options are divided into soft intervention and hard intervention and are expected to increase climate resilience in water, agriculture and health sectors. The regulatory and policy framework to enact these measures through spatial planning are planned to be implemented in Bogor City as part of its Medium-term Plan or RPJMD Program of 2019-2024.

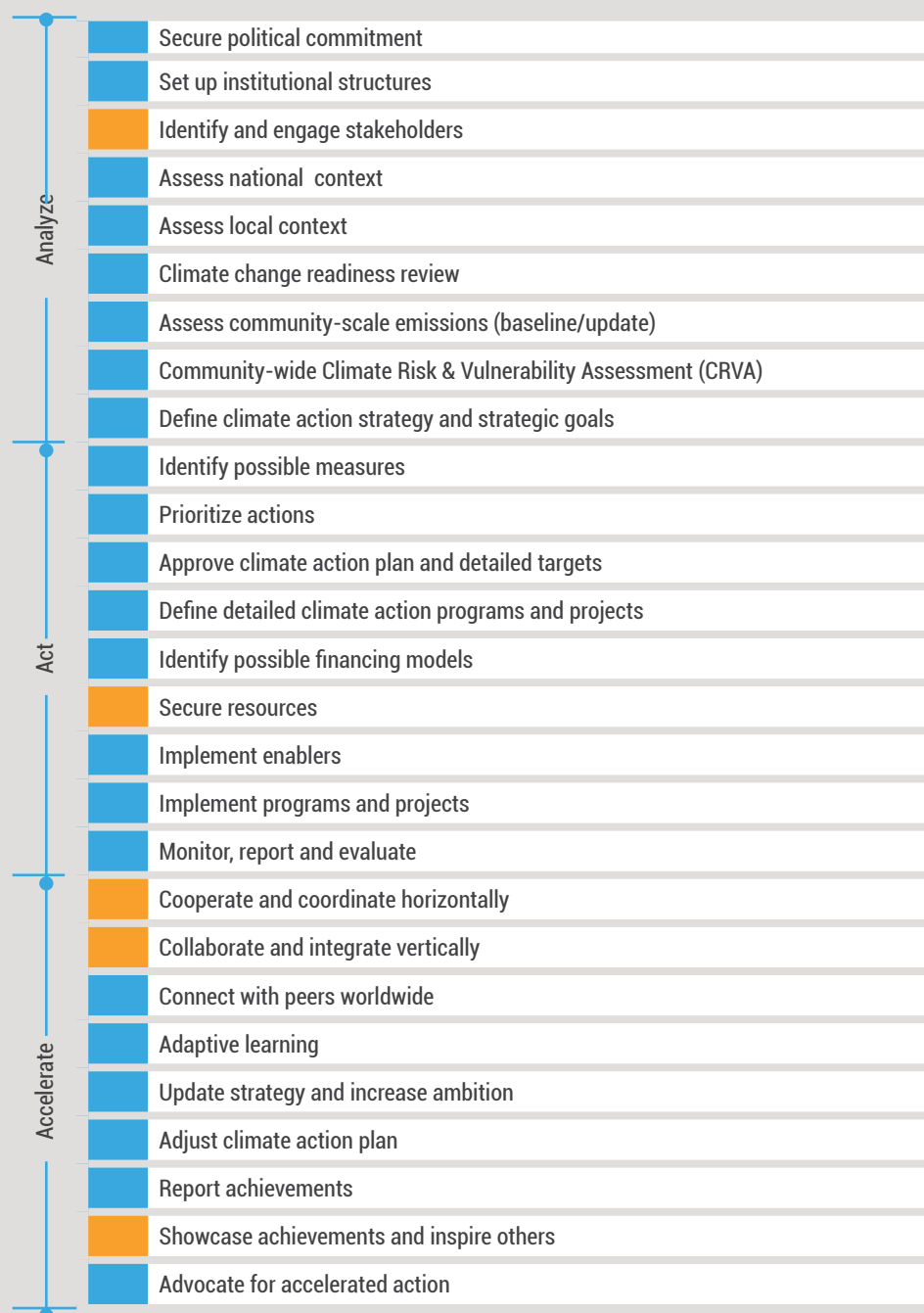


“Reflecting on this four-year phase II journey, it is clear that the benefits of the Urban-LEDS project have strengthened the direction of Bogor City’s development towards Green City, Smart City and Heritage City and support the Indonesian Government towards Net-Zero Emission.”

Dr. Bima Arya,
Mayor of Bogor City

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Balikpapan, INDONESIA



Basic Information and Statistics

503.33 KM²
Size

655.179 M
Population (2020)

1.74%
Population growth rate (p.a)

N/A
Urbanization rate

Idr 102,389 B
City annual budget (2020)

Vision for sustainable urban development and climate action:

Making Balikpapan a livable and environmentally sound city with a green economy.

Commitments

19.39% until 2020 from the baseline year of 2010. Renewal commitment on GHG emission reduction by 2030 is being formulated.

Strategy

A revised Climate Action Plan was developed during the Urban-LEDS project.

Actions in city enabled by the Urban-LEDS project

Demonstration projects. Pilot Project 1: Optimization of the Methane Gas Utilization at Manggar Sanitary Landfill:

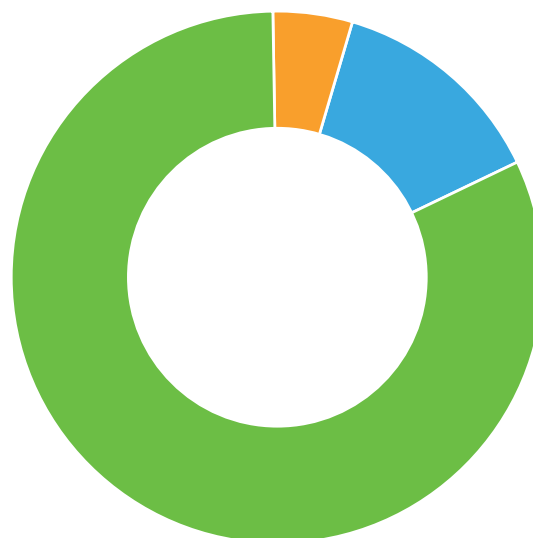
The pilot project aimed at reducing methane gas flaring at Manggar Sanitary Landfill and improve resource circulation by providing the 50-household beneficiaries near the landfill with biogas they can use for cooking. Read more [here](#).

GCoM signatory and badges awarded:



Access to finance interventions and TAP applications. Waste to Energy Pandansari Market, Balikpapan City:

Urban-LEDS supported Balikpapan City Government's commitment to reduce waste to landfill (Zero Waste to Landfill, via sorting and processing waste at its source), in this case, organic waste from the Pandansari market is processed into energy and compost. The proposed project has been presented to finance experts and has received technical assistance through which a model that helps make a business case has been created.



Balikpapan GHG Emissions (Mton CO₂e)
for 2018 using GPC Framework
Total: 3,791.406

AFOLU.....	0.17%	Transportation...	13.21%
Waste.....	4.52%	Energy.....	82.11%

Climate Trend

- **Increase in temperature:** with the average ranging from 0.66oC – 1.04oC and an increase in the frequency of extreme air temperatures in the future (> 32oC and 35oC).
- **Variable rainfall:** -7% in Balikpapan City and South Balikpapan, and up to +21% in East Balikpapan.
- **Decreasing water availability:** Water availability is projected to decrease leading to a water balance deficit in July and August. The occurrence of daily rainfall higher than 50 mm/day is also projected to increase.
- **Sea level rise:** Sea level rise will pose risks in areas located on the coast of Balikpapan. It is projected that about 250-300 ha of Kariangau and Teritip will be potentially inundated.
- **Adaptation plan:** In Balikpapan City's Adaptation Plan to be implemented, it addresses issues related to potential reduction in water availability by prioritizing strategic climate program on installation of rainwater tanks, infiltration well, and development of desalination supporting infrastructure that is expected to reduce inundation by 26%.



“To accelerate Balikpapan City towards a low carbon development trajectory and climate resilience, the city continues to reduce GHG emissions by developing a set of environmental and low emission city regulations and policies including renewal of the city’ GHG emission reduction target by 2030. ”

Mr. Rahmad Mas'ud
Mayor of Balikpapan

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



KwaDukuza, SOUTH AFRICA



Basic Information and Statistics

633 KM²

Size

276,719

Population

37.8%

Population growth rate (p.a)

86.8%

Urban population

usd103.1 M

City annual budget (2012)

Vision for sustainable urban development and climate action:

By 2030, KwaDukuza will have achieved its transition to low carbon development and will be a distinctive urban launch pad for the Richards Bay / uMhlathuze Corridor, a job-rich green manufacturing, renewable energy and logistics hub, a thriving tourism destination, a model of integrated resource management and climate change adaptation, and a "Shaka1-inspired interface" with its traditional hinterland.

Commitments

By 2030: 42% reduction in community-wide GHG emissions against Business-As-Usual levels (baseline year 2012). By 2025: 100% of households using electricity for lighting (baseline of 90.2% in 2011)

Strategy

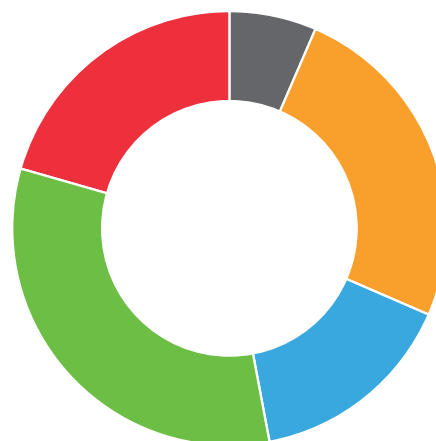
In January 2016 the Municipality approved their [Low Emission Development Strategic Framework and Action Plan](#) which has also been integrated into the City Development Strategy and Integrated Development Framework

Actions in city enabled by the Urban-LEDS project

- **Pilot projects:** Building energy metering programme in seven local municipalities in South Africa: This project reduced demand for energy to improve resource efficiency of buildings and ultimately curb GHG emissions by installing smart meters and undertaking baseline audits and building capacity of officials in energy management. Read more [here](#).

GCoM signatory and badges awarded

Badge	Phases: 6 completed out of 9
MITIGATION	Inventory Target Plan
ADAPTATION	Assessment Goal Plan
ACCESS TO ENERGY	Assessment Target Plan



**KwaDukuza GHG Emissions (Mton CO2e)
for 2014 using GPC Framework**
Total: 768.25

Waste.....	49.31%	Manufacturing ...	31.89%
Transportation...	24.99%	Commercial	20.84%
Residential.....	15.86%		

Access to finance interventions and TAP applications

Urban-LEDS enabled KwaDukuza to prepare and submit a TAP application for their project "Planning for Sea Defenses against climate change for the KwaDukuza Coastline". The project assesses the feasibility of providing protection to the shoreline from rising sea levels at Ballito.

Community GHG inventory

Climate Risks and Vulnerability Assessment

The [Climate Risk and Vulnerability Assessment](#) (CRVA) indicates that the three highest climate risks are rain and thunderstorms, flooding and landslides. These are anticipated to increase in frequency and intensity and will have a high impact on many sectors and services.

Most the settlement areas' vulnerability scores lie close to 10 on the vulnerability index. This indicates that most settlements have low access to basic services such as access to water, emergency services, and healthcare, and have high socio-economic vulnerabilities such as household poverty level, unemployment rate, poor regional connectivity, or high economic pressures such as inequality and lack of inclusivity, size of economy and GDP growth/decline rate.

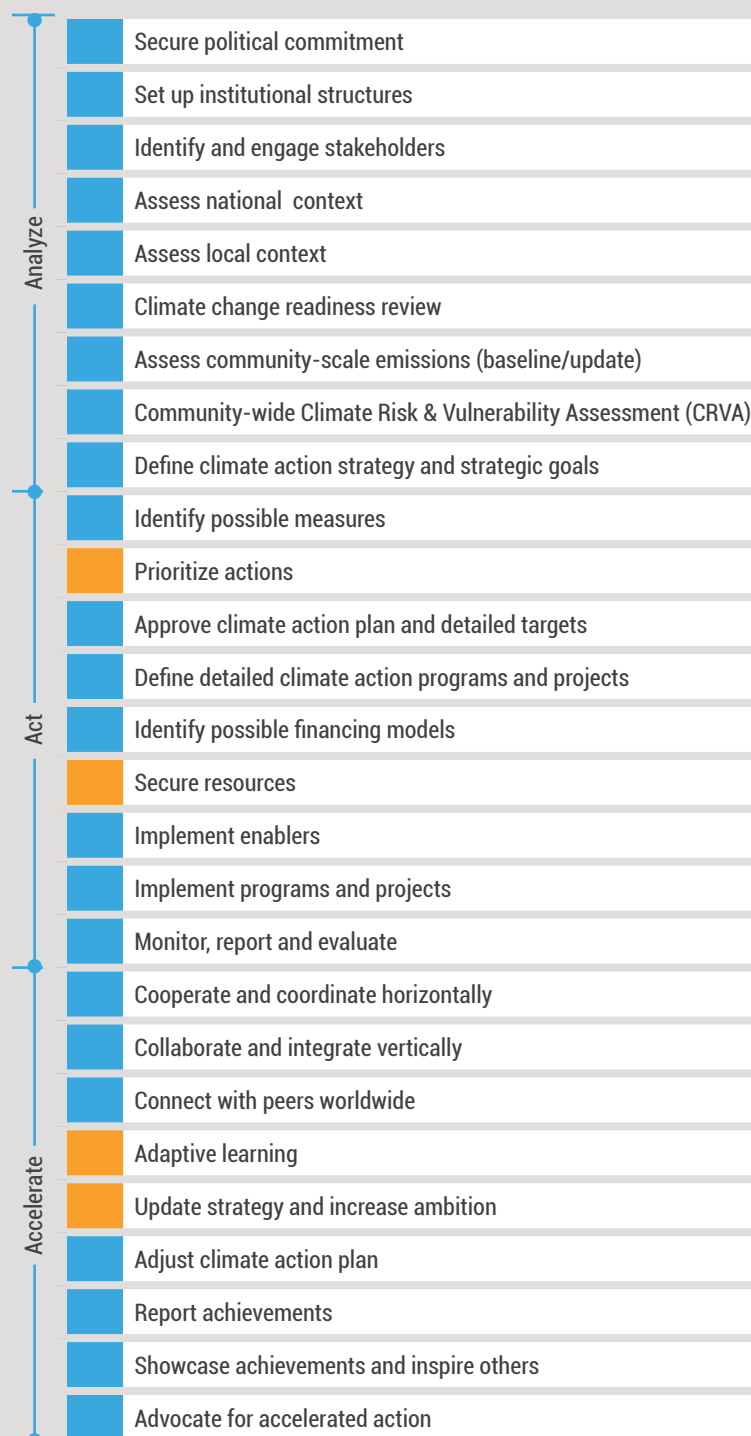


"Climate change is the most serious global challenge of our time. Being one of the local municipalities in the country to pitch for Compact of Mayors status is a reaffirmation of our commitment in the fight against climate change. Our vision statement holds true of our successful interventions on the climate challenge. There is a clear indication that we are a progressive city in the making, on our path towards a low carbon economy. Together we can do more!"

Ricardo Mthembu
Mayor of KwaDukuza
Municipality

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Steve Tshwete, SOUTH AFRICA



Basic Information and Statistics

39, 967 KM²

Size

289,717

Population

4.4%

Population growth rate (p.a)

289,717

Urban population

usd 99.43 M

City annual budget (2012)

Vision for sustainable urban development and climate action

In 2030, Steve Tshwete will be an integrated, harmonious, and green locality, with an empowered, prospering community surrounded by natural and fresh air, and enjoying crystal-clear, safe and clean water.

Commitments

2030: 42% emissions reduction in line with the national peak plateau and decline long-term mitigation scenario (baseline 2012).

Strategy

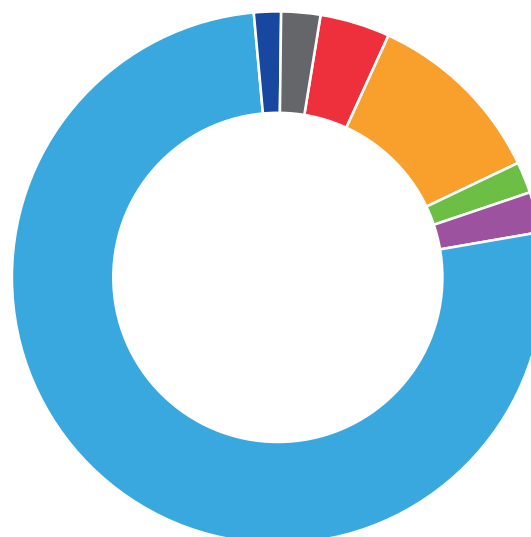
[Steve Tshwete's Low Emission Position Statement](#)

centers around priority action sectors including Local Economic Development, Job creation and Human Resource Management; Electricity Services and Performance Management; Spatial planning and land-use management/human settlements; Environmental management/solid waste management; Water and sanitation; Public Participation and communication.

Actions in city enabled by the Urban-LEDS project

- **Pilot projects:** Building energy metering programme in seven local municipalities in South Africa: This project reduced demand for energy to improve resource efficiency of buildings and ultimately curb GHG emissions by installing smart meters and undertaking baseline audits and building capacity of officials in energy management. Read more [here](#).

GCoM signatory and badges awarded:



**Steve Tshwete GHG Emissions (Mton CO₂e)
for 2018 using GPC Framework
Total: 3,864.47**

AFOLU.....	2.43%
Distribution losses.....	4.43%
Transportation.....	11.4%
Energy.....	1.83%
Residential.....	2.51%
Manufacturing	75.90%
Commercial	1.58%

Access to Finance

A TAP application was developed and submitted for Establishment of Material Recovery Facility (MRF), in Steve Tshwete in order to reduce the huge amount of waste disposal at the city's landfill.

STLM staff were trained on how to make applications for national government Energy Efficiency Demand Side Management (EEDSM) funding

Community GHG Inventory

Climate Risk and Vulnerability Assessment:

The CRVA highlights a projected increased average monthly temperature of 1.4 to 3.5 degrees by 2050, and a longer dry season coupled with a shorter rainy season.



"I do not have adequate words to describe how it has been working with ICLEI. We have just unveiled the Doornkop off-grid solar PV system, and we have seen how the community stands to benefit. If you see the infrastructure that has been installed, if you see the lights on, the refrigerator can be used...you see that this is possible. So I can describe it as a very exciting experience."

Councillor Mike Masina
Executive Mayor of Steve
Tshwete Municipality

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Muhanga District, RWANDA



Basic Information and Statistics

647.7 KM²
Size

319,141
Population (2012)

2.6%
Population growth rate (p.a)

111%
Urbanization rate (2002-2012)

121%
Urbanization rate (2012-2020)

Vision for sustainable urban development and climate action:

The Rwanda Vision 2050, which articulates the long-term strategic direction for “the Rwanda we want” and the enabling pathways to achieve this ambition. This national vision guides the District Council.

Commitments

- **Mitigation Contribution:** The combined unconditional and conditional contribution is a 38 per cent reduction in GHG emissions compared to BAU in 2030, equivalent to an estimated mitigation level of up to 4.6 million tCO₂e in 2030.
- **Adaptation Contribution:** A total of 38 adaptation indicators have been developed to be aligned with baselines and adaptation targets.

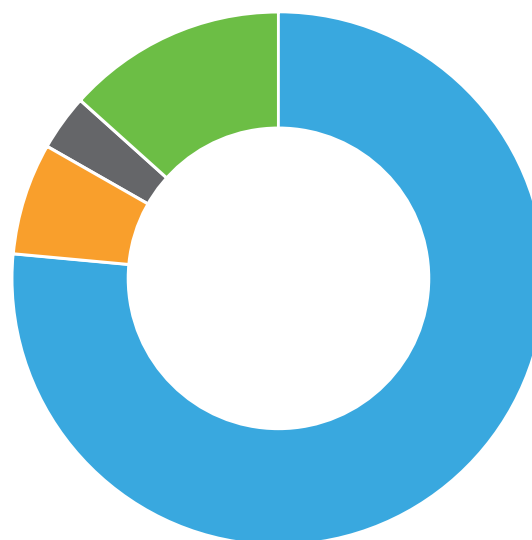
Strategy

An Integrated Climate Action and Low Emission

Development Plan (2021) addressing local priorities and highlighting core climate actions that are in line with the NDC of Rwanda to help reduce the impact of and contribution towards climate change in Muhanga has been finalized and approved by the City Council in October 2021.

Actions in city enabled by the Urban-LEDS II project

- **Pilot projects:** Green Health Centres with rainwater harvesting systems and energy-efficient fixtures: The project installed rooftop rainwater collection systems, water efficient systems, energy efficient systems, and solar hot water geysers at the Gitarama Health Centre. It also included the installation of water and energy recording devices that could be used to measure the impact of the interventions. Read more [here](#).



**Muhanga GHG Emissions (Mton CO₂e)
for 2018 using GPC Framework
Total: 32.48**

■ Transportation... 76.68% ■ Manufacturing... 3.33%
■ Residential..... 6.73% ■ Commercial 13.27%

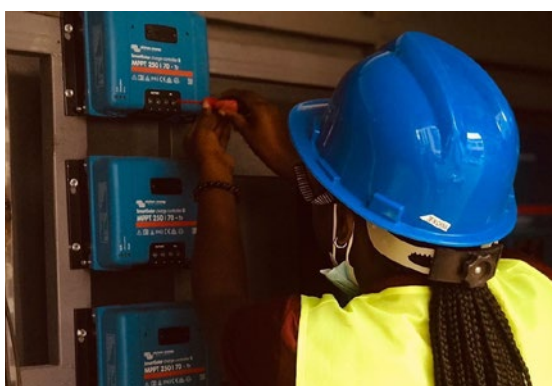
Access to Finance

A TAP application was developed and submitted for the “Retrofit of Muhanga Community Centres”, in Muhanga District. To help access the needed finance, Urban-LEDS engaged a finance expert to identify potential sources of project development support for the project cities in Africa. This was in recognition of the challenges faced by local governments, especially those categorised as secondary cities like Muhanga. Furthermore, training on finance was held as part of the LoCS4Africa congress whilst other relevant finance trainings were carried out throughout the project period, of which Muhanga District representatives were in attendance.

Community GHG inventory

Climate Risks and Vulnerability Assessment

The Climate Risk and Vulnerability Assessment (CRVA) indicates that the three highest climate risks are severe winds, floods and landslides. These are anticipated to increase in frequency and intensity, with an increase into unplanned areas where there is inadequate infrastructure and services are often lacking. The biggest sectors under the threats of climate change are transport, emergency services, land-use planning, food and agriculture.



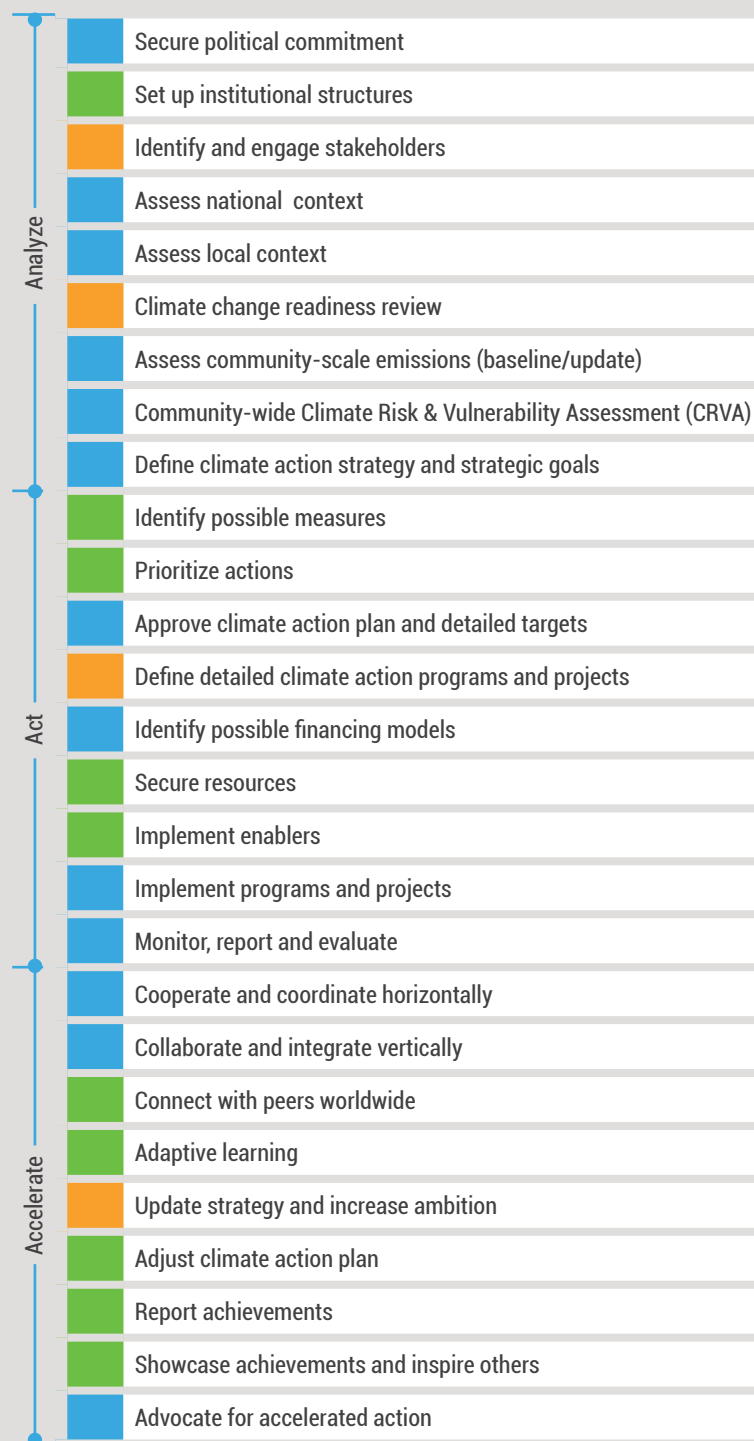


"I would recommend other government institutions implement these kinds of projects for various reasons. They help reduce the impact of climate change by capturing rainwater. They protect the environment and build resilience to flooding and soil erosion. The project also helps the population and the health centre to reduce the bill of their water and electricity use."

Mr Ezechiel Niragire,
Environmental Protection
Officer and Urban-LEDs II
focal point,
Muhanga District

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Rubavu District, RWANDA



Basic Information and Statistics

388.3 KM²
Size (2018)

1,039/KM²
Population

2%
Population growth rate (p.a)

137%
Urbanization rate (2002-2012)

182%
Urbanization rate (2012-2020)

Vision for sustainable urban development and climate action

The Rwanda Vision 2050, which articulates the long-term strategic direction for “the Rwanda we want” and the enabling pathways to achieve this ambition. This national vision guides the District Council.

Commitments

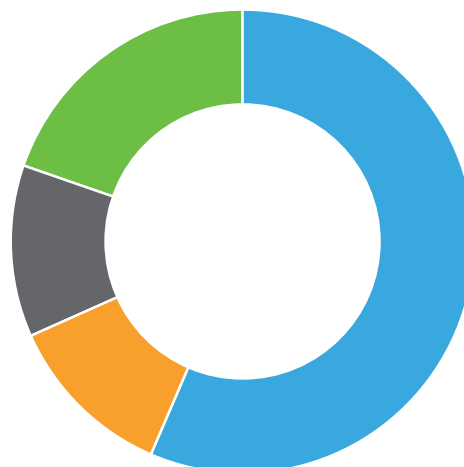
- **Mitigation Contribution:** The combined unconditional and conditional contribution is a 38 per cent reduction in GHG emissions compared to BAU in 2030, equivalent to an estimated mitigation level of up to 4.6 million tCO₂e in 2030.
- **Adaptation Contribution:** A total of 38 adaptation indicators have been developed to be aligned with baselines and adaptation targets.

Strategy

In line with Rwanda's Vision 2020, Rubavu District has designed key strategic interventions set out in its District Development Strategy aligned to the National Strategy for transformation. .

Actions in city enabled by the Urban-LEDs II project

- **Pilot projects:** Urban-LEDs implemented a Solar Street lighting pilot project in the District's buildings and on the Lake Kivu beachfront. The project is characterised by a public lighting retrofitting programme that reduced the operational cost of current public lighting along the Lake Kivu beachfront. This pilot assisted the Rubavu District to build back better as a critical component of the post-COVID-19 economic recovery and broader energy security. Read more [here](#).



**Rubavu GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 28.53**

Transportation... 53.43% Manufacturing... 11.62%
Residential..... 12.22% Commercial 19.73%

- **Access to Finance:** A TAP application was developed and submitted for the “Mount Rubavu ecotourism for environmental protection and local green economic development”. To help access the needed finance, Urban-LEDs engaged a finance expert to identify potential sources of project development support for the project cities in Africa. Furthermore, training on finance was held throughout the project period and as part of the LoCS4Africa congress.

Community GHG inventory

Climate Risks and Vulnerability Assessment

The [Climate Risk and Vulnerability Assessment](#) (CRVA) indicates that the top three climate risks are rain and thunderstorms, flooding and landslides. These are anticipated to increase in frequency and intensity, and will have a high impact on many sectors and services.

These, and other hazards as outlined in the CRVA, impact a range of sectors and the biggest threats are for **emergency services, food and agriculture**, followed by transport, energy, water and sanitation, public health, land-use planning, education, commercial and community.



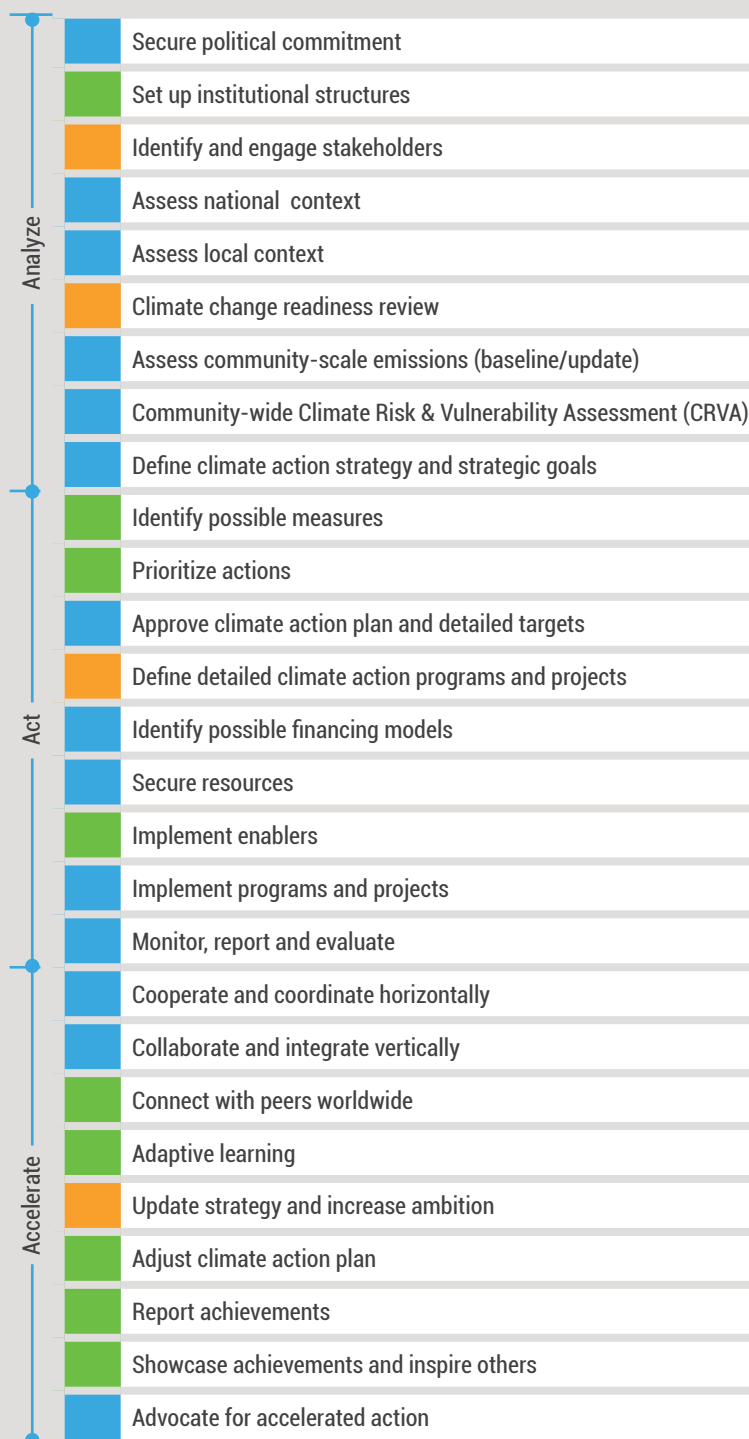


"We have actively seen that this type of project has helped us reduce greenhouse gas emissions. We recommend other local governments to implement this kind of initiative in other institutions.... the value of the project is that it has saved us money. The money that we have saved impacts on the citizens as we are now able to do other things. The pilot demonstration project, [which has helped put street lighting on Kivu beach] directly helps communities now have safe access to the beach..."

Mr Innocent Ntibatekereza,
District Electrical Engineer,
Rubavu District

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Kigali City Council, RWANDA



Basic Information and Statistics

738 KM²

Size (2018)

1,667,021

Population (2017)

2%

Population growth rate (p.a)

N/A

Urbanization rate (2002-2012)

N/A

Urbanization rate (2012-2020)

Vision for sustainable urban development and climate action

"Kigali Yacu – Our Kigali! The Centre of Urban Excellence in Africa", "To Build and Sustain a City of Character, Vibrant Economy and Diversity through Strong Partnership with Stakeholders to Provide Responsive, Rapid and Effective Urban development."

Commitments

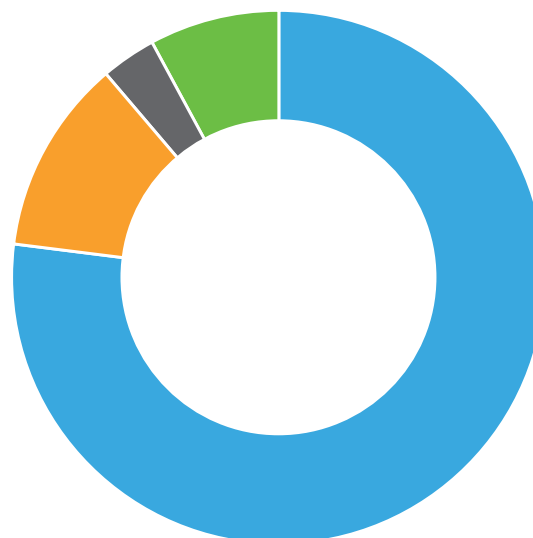
- **Mitigation Contribution:** The combined unconditional and conditional contribution is a 38 per cent reduction in GHG emissions compared to BAU in 2030, equivalent to an estimated mitigation level of up to 4.6 million tCO₂e in 2030.
- **Adaptation Contribution:** A total of 38 adaptation indicators have been developed to be aligned with baselines and adaptation targets.

Strategy

Addressing local priorities and highlighting core climate actions in line with the NDC of Rwanda to help reduce the impact of and contribution towards climate change in Kigali. This feeds into the Cities Integrated Development Strategy as well as Rwanda's NDC and identifies local climate actions in priority sectors including energy, agriculture, forestry, waste and mining.

Actions in city enabled by the Urban-LEDS II project

- **Pilot projects:** Green Health Centres with rainwater harvesting systems and energy-efficient fixtures: The project installed rooftop rainwater collection systems, water efficient systems, energy efficient systems, and solar hot water geysers at the Gahanga Health Centre. It also included the installation of water and energy recording devices that could be used to measure the impact of the interventions. Read more [here](#).



Kigali GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 414.97

- Transportation... 76.75%
- Residential..... 11.81%
- Manufacturing ... 3.33%
- Commercial 8.10%

- **Access to Finance:** Urban-LEDS developed a **concept note for a financing mechanism** for the roll-out of energy efficient street lighting in Kigali was therefore developed. This concept was submitted to funders and partners, such as FONERWA, for funding to develop a full feasibility study.

Community GHG inventory

Climate Risks and Vulnerability Assessment

- The Climate Risk and Vulnerability Assessment (CRVA) indicates that the three highest climate risks are rainstorms, floods and landslides. These are anticipated to increase in frequency and intensity, with an increase into unplanned areas on steep slopes where there is inadequate infrastructure and services are often lacking.
- The biggest threats are for **commercial, emergency services, energy, food and agriculture, public health, transport, as well as water supply and sanitation.**



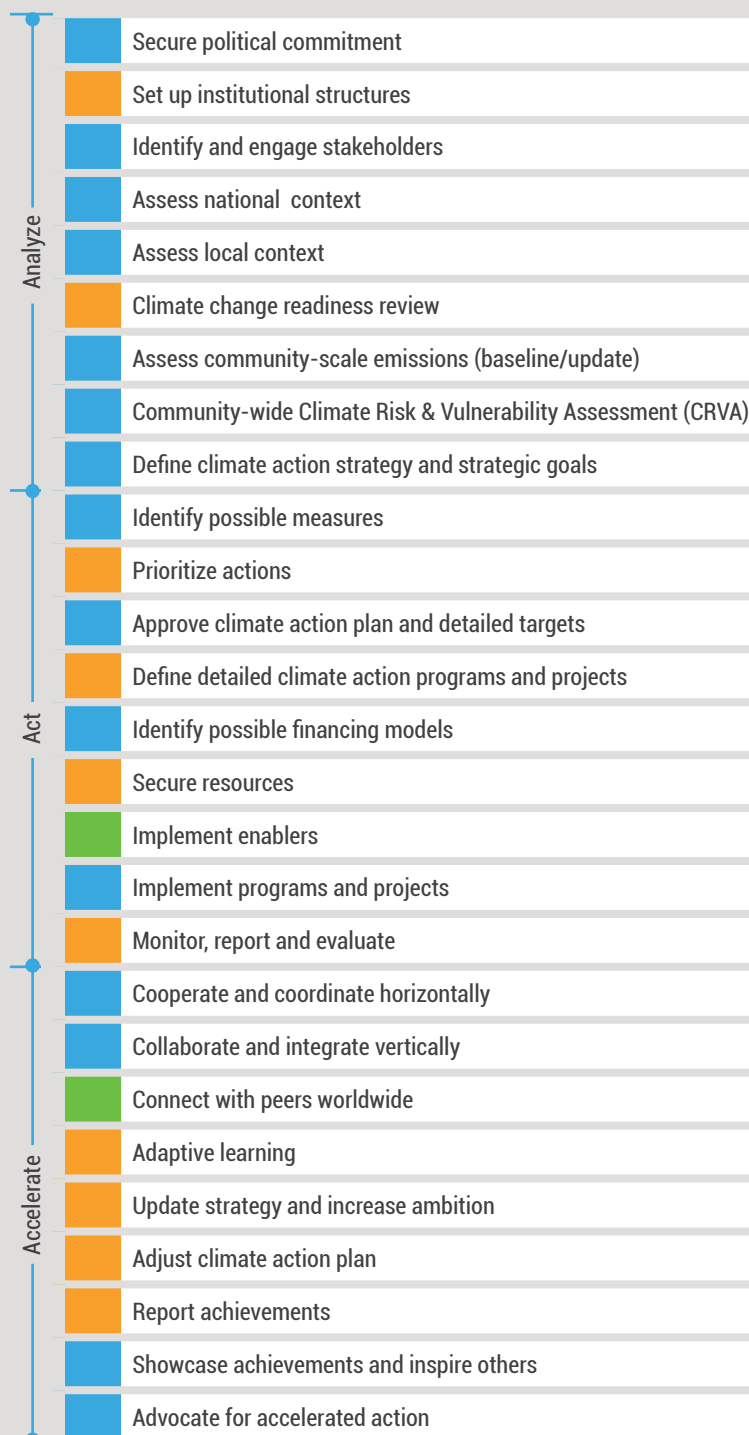


"The City of Kigali is committed to working with all stakeholders in addressing the challenges of climate change, and recognises the critical need for support to Africa's local governments to allow transformative climate action to occur, with urgency."

**Pudence Rubingisa,
Mayor of Kigali**

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Manizales, COLOMBIA



**MANIZALES
+GRANDE**

Basic Information and Statistics

571.8 KM²

Size

400,154

Population

0.35%

Population growth rate (p.a)

N/A

Urban population

usd182.8 M

City annual budget

Vision for sustainable urban development and climate action

By 2050, Manizales seeks to be a Carbon Neutral city, committed to climate actions to reduce GHG emissions and build a resilient territory, oriented to risk management and prevention of extreme weather events.

Commitments

- By 2030: GHG emission reduction of 15% against Business-As-Usual levels (baseline year 2018)
- By 2050: GHG emission reduction of 46% against Business-As-Usual levels (baseline year 2018)

Strategy

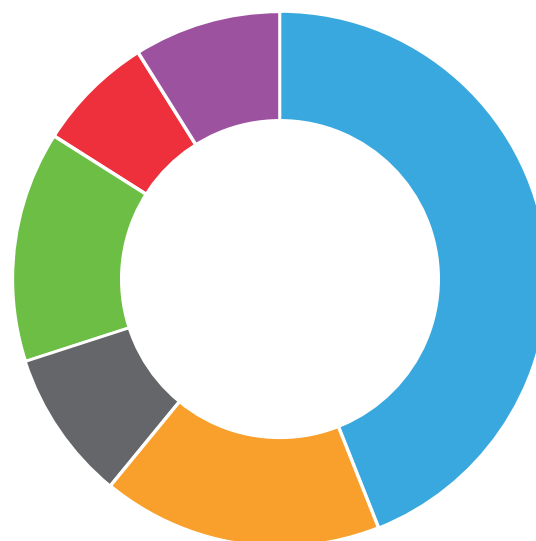
A Low Emission Development Strategy addressing local priorities aligned with the commitment to Race to Zero. This strategy feeds into the city's climate action plan which identifies actions with the total mitigation potential of 191.245 tCO₂e in 2050.

Actions in city enabled by the Urban-LEDS project

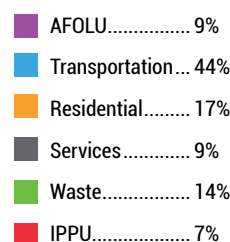
GCoM signatory and badges awarded



Community GHG inventory



Manizales GHG Emissions (tCO₂e) for 2020 using GPC Framework



Climate Risks and Vulnerability Assessment

The flood risk index shows significant variations throughout the analyzed period, intensifying considerably. -The risk of heat waves is concentrated in the west-central part of Manizales. The risk of *Aedes aegypti* (mosquito that can spread dengue fever, chikungunya, Zika fever, Mayaro and yellow fever viruses, and other disease agents) proliferation increases considerably due to the projected threat, concentrated in the central-west zone of Manizales. -One of the main aspects that make Manizales vulnerable are changes in land use in hillside areas, and mass migration because of extreme weather events.

Adaptation plan (part of the CRVA)

Include improving the structures of municipal buildings, strengthen local policies and education on risk management for instincts and civil society.

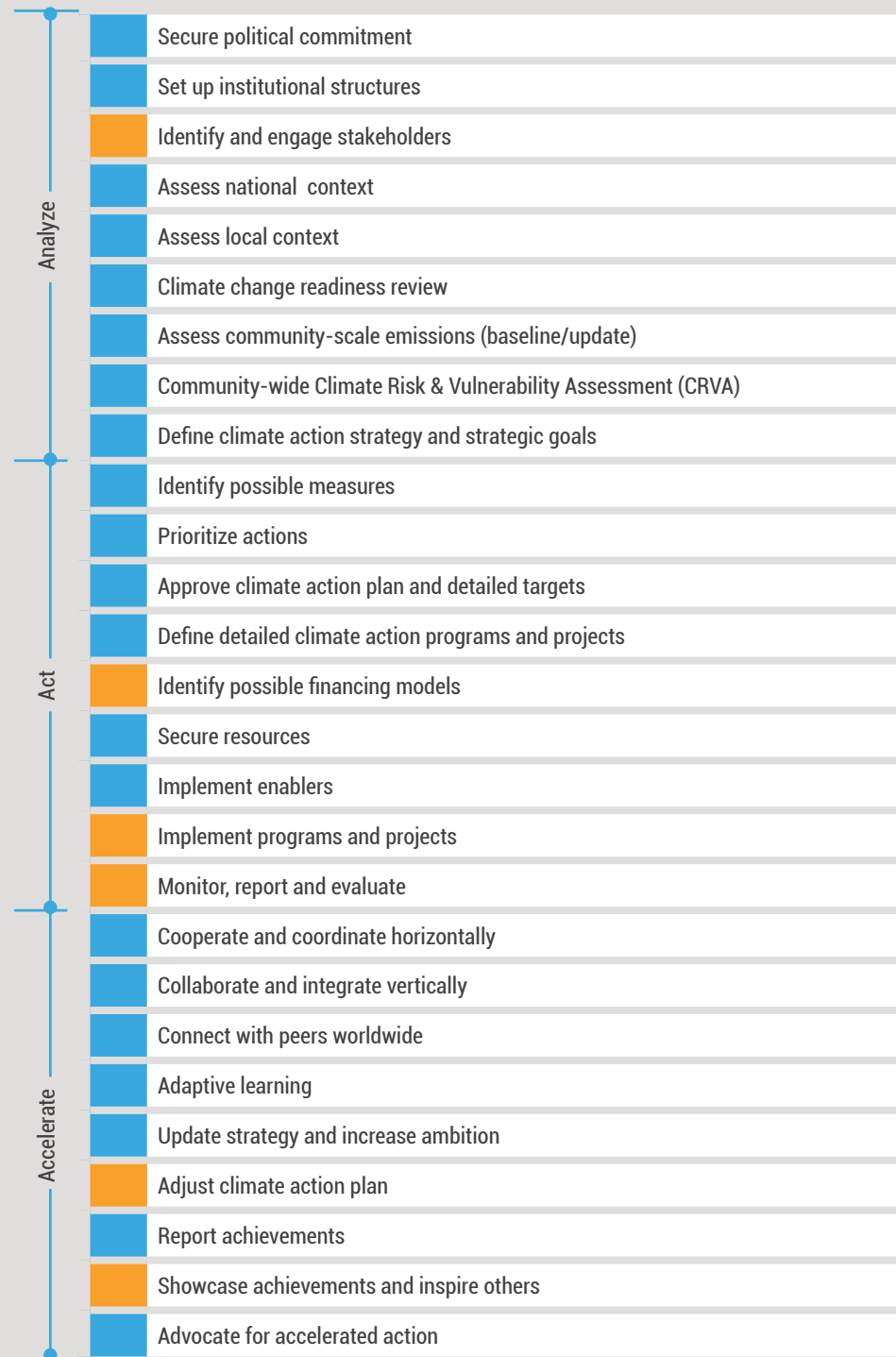


“Climate change poses significant risks, but also generates opportunities for the growth, development and competitiveness of our city. Climate solutions can be adopted and implemented through environmentally friendly technological innovations. That is why we seek to turn our territory into a sustainable city, which promotes an inclusive and competitive quality of life. This can be achieved through participation and consultation with different groups in society, who are facing the real and current problems of our city influenced by national and international dynamics.”

Mayor
Carlos Mario Marin Correa

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Envigado, COLOMBIA



Alcaldía de Envigado

Juntos
SUMAMOS
por Envigado

Basic Information and Statistics

78 KM²

Size

238,173

Population

2.1%

Population growth rate (p.a)

N/A

Urban population

usd 5.413 M

City annual budget

Vision for sustainable urban development and climate action

Envigado envisions being carbon neutral by 2050 and is committed to actions to reduce GHG emissions and build a resilient territory, oriented to risk management and the prevention of extreme weather events.

Commitments

- By 2030: GHG emission reduction of 8% against Business-As-Usual levels (baseline year 2018)
- By 2050: GHG emission reduction of 19% against Business-As-Usual levels (baseline year 2018)

Strategy

A Low Emission Development Strategy committing to the Race to Zero while addressing local priorities. This strategy feeds into the city's climate action plan which identifies actions with the total mitigation potential of 191.245 tCO₂e by 2050 in the following priority sectors: biodiversity and water resources, urban development and urban habitat, low carbon mobility, agricultural development and value chain, energy diversification and waste reduction, information, science, technology and innovation, risk management and climate change & education and communication on climate change.

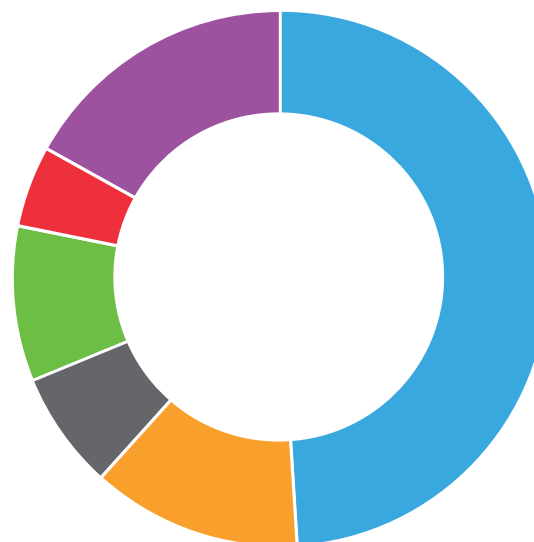
Actions in city enabled by the Urban-LEDS project

- **Pilot project of photovoltaic solar power plant:** Installation of a photovoltaic solar power plant and energy efficiency measures in the Secretary of Environment and Agricultural Development in the Municipality of Envigado, Antioquia. Read more [here](#).
- **Communication strategy in climate change:** A pedagogical proposal was developed to disseminate topics related to climate change and renewable energies, through the Heliodora Park of the Municipality of Envigado. Read more [here](#).

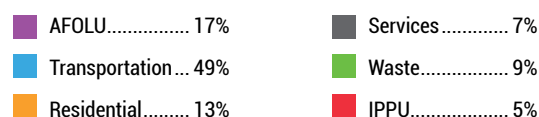
GCoM signatory and badges awarded



Community GHG inventory



Envigado GHG Emissions (tCO₂e) for 2020 using GPC Framework



Climate Risks and Vulnerability Assessment

Meteorological events are a threat to 25% of the urban area and 61% of the rural area of the municipality of Envigado. In addition, areas near micro-basins and streams threaten torrential avenues and flooding. This analysis shows that sewerage and housing are highly vulnerable and sensitive for both rural and urban areas. The scarcity of water resources will decrease the availability for the generation of electricity necessary to respond to current and future energy demand.

Selection of adaptation measures proposed in the AMVA study on the impact of climate change:

- Update the municipal risk management system
- Update and implement protocols for responding to extreme hydroclimatic events
- Continue with training spaces for vulnerable populations on climate risk management

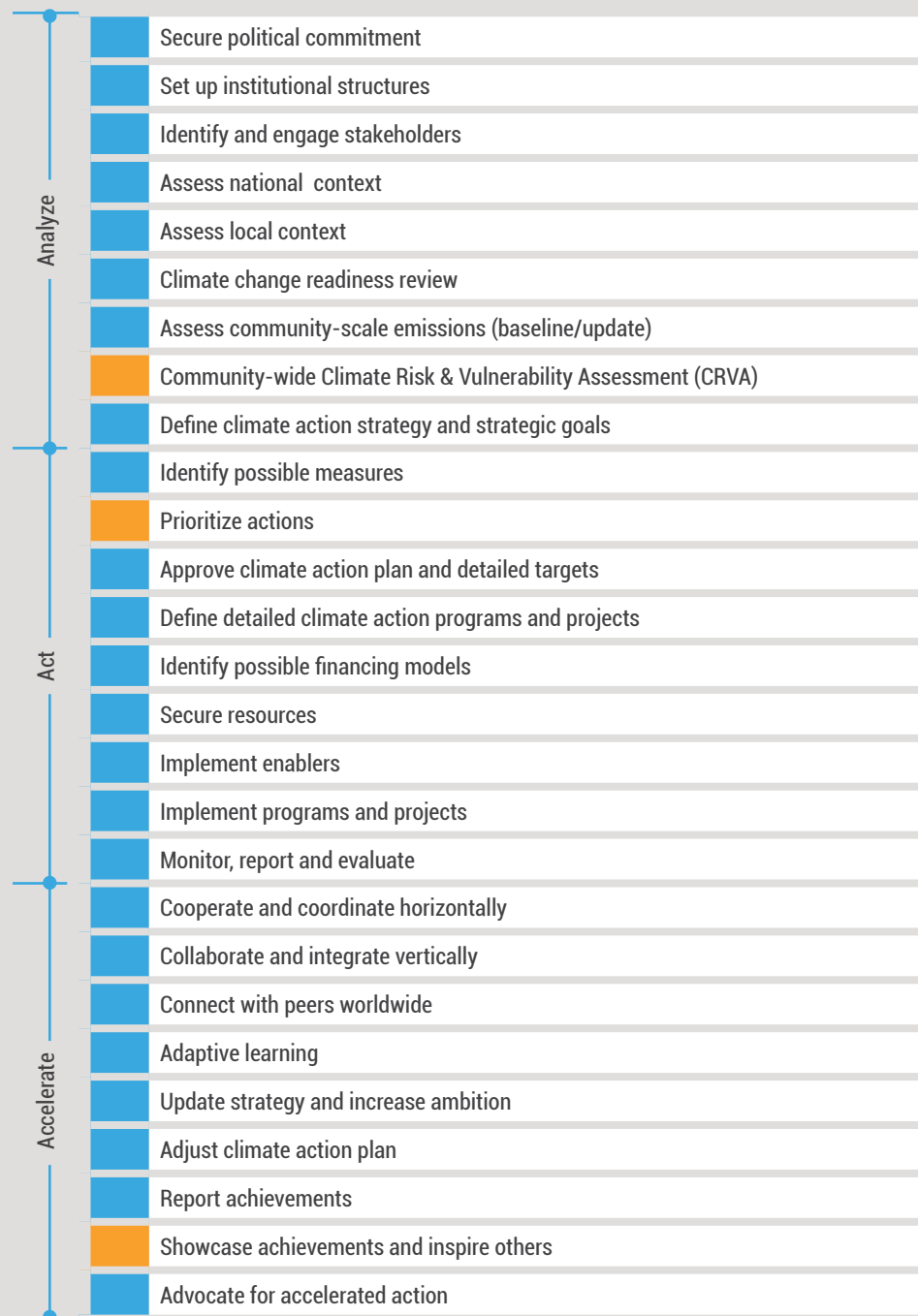


“Within the framework of the Urban-LEDS II project, the update of the Comprehensive Plan of Territorial Climate Change Management (PIGCCT) has been advanced. With the leadership of ICLEI - Local Governments for Sustainability and through the consultancy Anthesis Lavola, we have refined our short, medium and long term strategy to ensure a low carbon growth and define the indicators that will allow us to monitor compliance.”

Braulio Espinosa Marquez,
Mayor of Municipality of
Envigado

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Recife, BRAZIL



Basic Information and Statistics

218,8 KM²

Size (IBGE, 2020)

1.653 M

Population (IBGE 2020)

0.73%

Population growth rate (p.a)

100%

Urbanization rate (IBGE 2010)

usd 110.29 M

City annual budget

Vision for sustainable urban development and climate action

Recife aims to be a resilient, sustainable and carbon neutral city, inclusive to all, prioritizing vulnerable communities, as well as historical communities disproportionately impacted by environmental injustices, respecting the knowledge and traditions materialized in its strong cultural heritage.

Commitments

- By 2037: GHG emission reduction of 50% against Business-As-Usual levels (baseline year 2017)
- By 2050: GHG emission reduction of 100% against Business-As-Usual levels (baseline year 2017)

Strategy

A Low Emission Development Strategy addressing local priorities and in consonance with its commitment to Race to Zero. This strategy feeds into the city's climate action plan which identifies actions with the total mitigation potential of 5,9 tCO₂ (BAU) in the following priority sectors: energy, sanitation, mobility and resilience. A low carbon action plan was published in 2019, including the complete [report in Portuguese](#), a summary in [Portuguese](#) and [English](#), and an animation [video](#) with English subtitles.

Actions in city enabled by the Urban-LEDS project

- **Pilot project implementation:**
- Recife's Woman's Hospital (HMR): The Recife City Hall and Pernambuco's Energy Local Provider (CELPE) inaugurated in August 2021 the photovoltaic solar plant at Recife's Woman's Hospital (HMR). Read more [here](#).
- LEDS Lab Educational Center at EcoNúcleo Jaqueira: a teaching laboratory on topics such as climate change, renewable energies and energy efficiency, and also an exhibition/meeting space for various social actors. Read more [here](#).

GCoM signatory and badges awarded

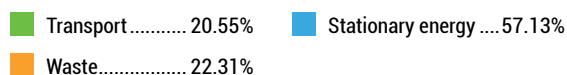


- **Access to finance interventions and TAP applications**
- **Capibaribe Park** ([TAP application](#) in 2018): aims to transform Recife into a park city, increasing the rate of public green areas from 1.2 m² per inhabitant today to 20 m² per inhabitant by 2037.
- **Maratona Verde II** (TAP application 2019): the Second Edition of the Green Marathon seeks to increase the city's arborization with 10,000 tree's seedlings in the beginning of June 2020.

Community GHG inventory



Recife GHG Emissions (Mton CO₂e)
for 2017 using GPC Framework
Total: 3,043.596



Climate Risks and Vulnerability Assessment

- **Sea levels rising**, which could affect buildings next to the coastline.
- **Landslide risk** in hillside areas,
- **Transmissible diseases** by mosquitoes, such as dengue, Zika and Chikungunya, are a threat to the population
- **Heat waves** are aggravated by population densification and urbanization patterns increasing thermal discomfort, worsening air quality and causing respiratory diseases.

Adaptation plan (part of the CRVA)

- Modernization of existing drainage networks
- Urban Requalification (in floodable, coastal and in hillside areas)
- Revitalization/Renaturalization of rivers and canals
- Foster Recife's Afforestation Plan
- Monitoring and reducing waste disposal on slopes and floodplains
- Universalization and modernization of the Sanitary Sewage System

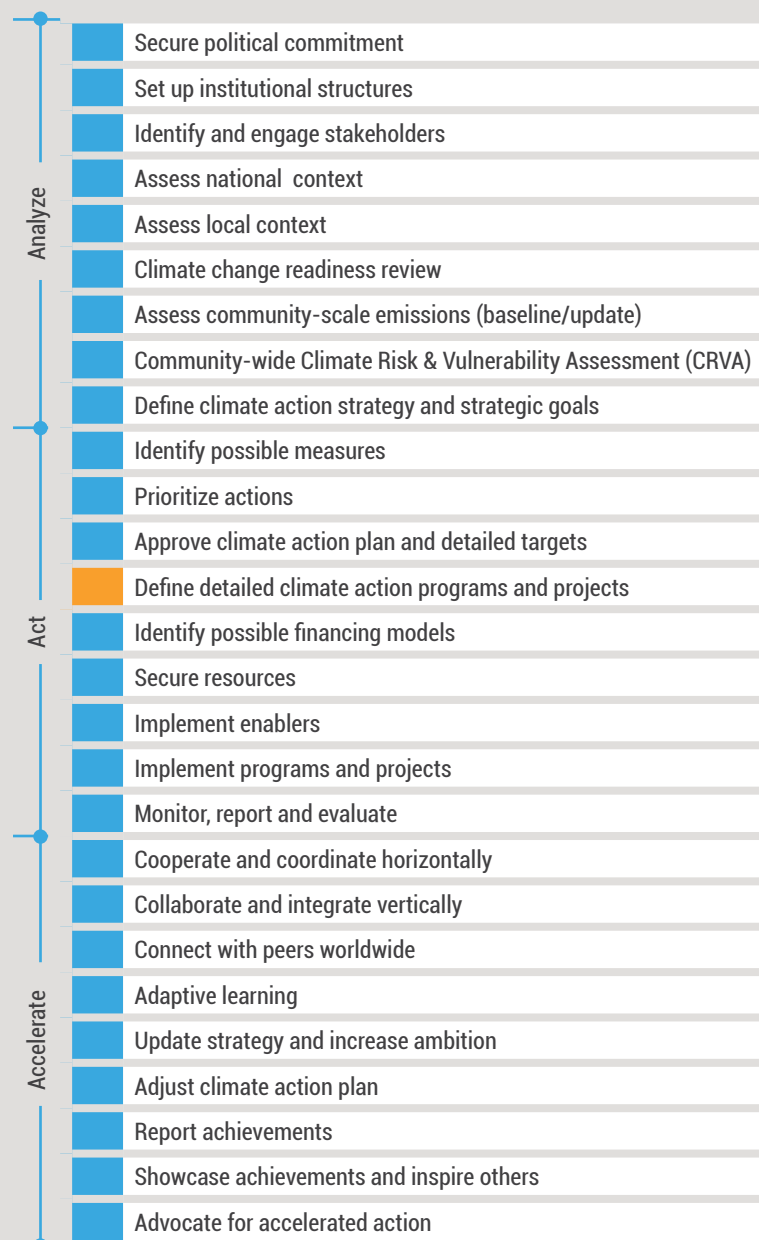


"According to the UN Intergovernmental Panel on Climate Change (IPCC), Recife is the world's 16th most vulnerable city to climate change. That's why we can't wait for others to act. My city was the first in South America to declare a climate emergency in 2019, but the declarations are not enough, so we decided to act. A year later, we decided that our city will achieve climate neutrality by 2050 by developing a concrete action plan to achieve these goals. We also recently joined Race To Zero, for global change local actions are crucial."

Mayor João Campos

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Fortaleza, BRAZIL



Basic Information and Statistics

312.3 KM²

Size (IBGE 2020)

2,686,612

Population (IBGE 2020)

0.92%

Population growth rate (p.a)

100%

Urbanization rate (2010)

usd 1.646 B

City annual budget (2012-2020)

Vision for sustainable urban development and climate action

Fortaleza aims to be a carbon-neutral, resilient, sustainable and inclusive city by 2050.

Commitments

- By 2030: GHG emission reduction of 30% against Business-As-Usual levels (baseline year 2014)
- By 2050: GHG emission reduction of 100% against Business-As-Usual levels (baseline year 2014)

Strategy

A Low Emission Development Strategy addressing local priorities and in consonance with its commitment to Race to Zero Campaign was published in 2020 in their LCAP. This strategy feeds into the city's climate action plan which identifies actions with the total mitigation potential of 9.577 tCO₂e in the following priority sectors: energy, sanitation, mobility and resilience. A Local Climate Action Plan was published in 2020, including the complete [report in Portuguese](#), a summary in [Portuguese](#) and [English](#), and also a [disclosure animation video](#) with English subtitles.

Actions in city enabled by the Urban-LEDS project

GCoM signatory and badges awarded

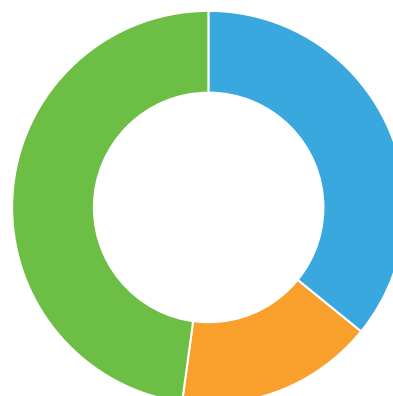


Access to finance interventions and TAP applications

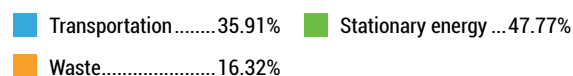
- **Reforestation Plan Fortaleza** ([TAP Application](#) in 2018): launched in May 2014 as an instrument of action planning for afforestation in the city of Fortaleza, with goals established for short, medium and long term.

- **Active Transportation** ([TAP Application](#) in 2018): to (1) reduce CO₂ emissions; (2) stimulate the use of bicycles as a means of displacement in the daily life and not only as an instrument of leisure; (3) encourage accessibility and walkability in urban spaces; (4) improve urban arborization and drainage through the interventions.
- **Consumption reduction strategy for Fortaleza's street lighting park based on the retrofit of conventional luminaires by led luminaires in a 5-year horizon** ([TAP Application](#) in 2019): this will lead at the end of 5 year to an equivalent emissions reduction of 8,300 tCO₂ per year and energy reduction of 61.2 GWh per year.

Community GHG inventory



Fortaleza GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 7483.218



Climate Risks and Vulnerability Assessment

Specific hazards outlined in the CRVA

- The **temperature rise** will affect high density, vulnerable coastal communities and the city's west sector
- The **sea level rises** will cause erosion of dunes and beaches, damage to urban infrastructure, impacts on coastal ecosystems (such as mangroves), and potential flooding of the areas of influence of large rivers.
- Heavy rainfalls or rainfall below the expected amount will cause **prolonged droughts** in some regions and periods, whereas in other periods, the events will cause **floods, overflows and landslides**.



Adaptation plan (part of CRVA)

- Expansion of the city's vegetation cover to reduce the effects of heat waves on public health.
- Increase drainage infrastructure capacity to respond to extreme rains.
- Increase the population's knowledge about climate change and implement a system of climate risk alert.

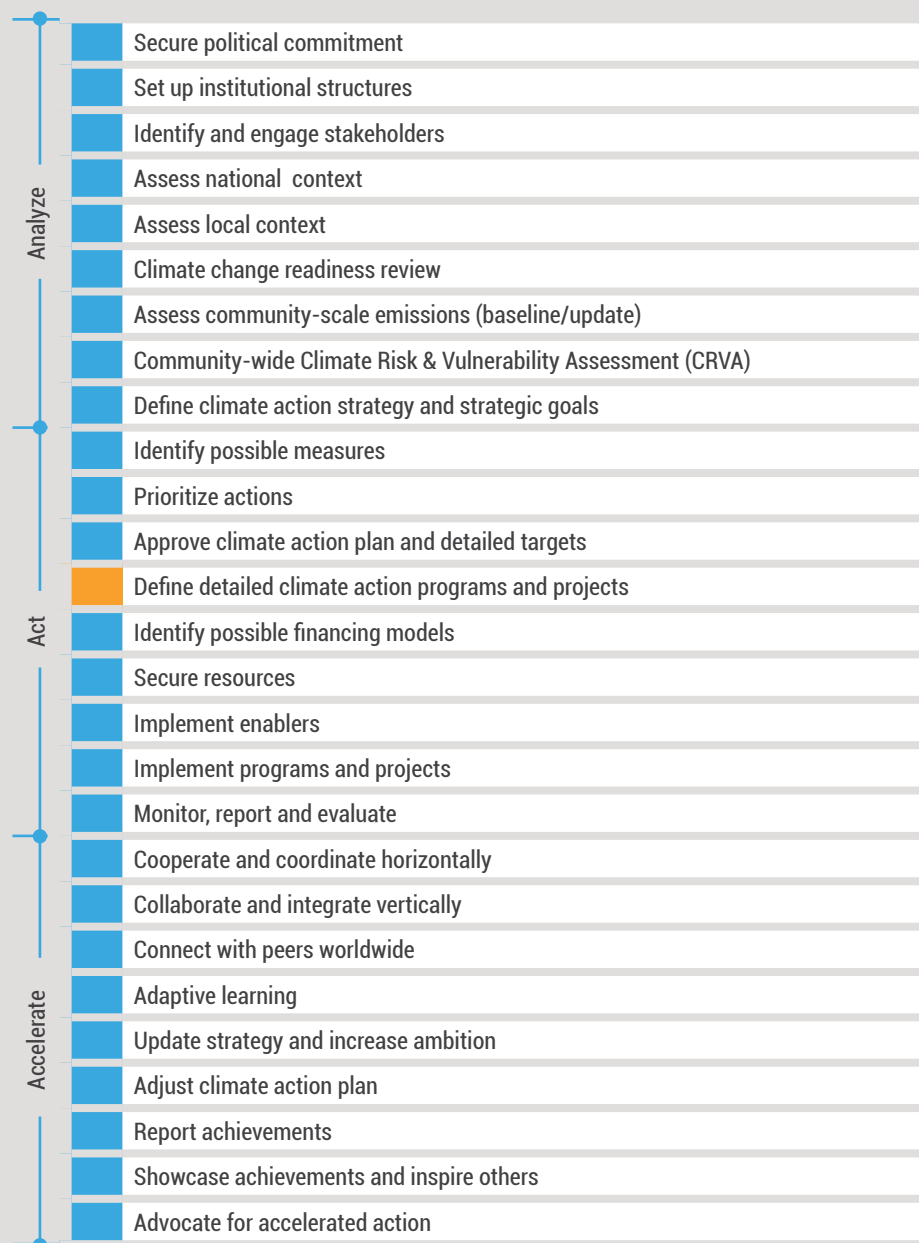


"We want Fortaleza to be a protagonist in the debate about the future, but it requires actions from now, with sustainable practices, incentive policies and initiatives that preserve the environment, encouraging a change in culture. The climate issue has ruled the entire world and Fortaleza's adhesion to Race to Zero shows our commitment to this important agenda."

Mayor
José Sarto Nogueira Moreira,
elected in 2020

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Rajshahi, BANGLADESH



Basic Information and Statistics

97.18 KM²

Size

449,756

Population (2011)

1.25%

Population growth rate (p.a)

100%

Urbanization rate

usd 113 M

City annual budget (2020-2021)

Vision for sustainable urban development and climate action

Become a sustainable, climate resilient city that sustainably manages risks of drought, water scarcity and heat, while furthering inclusive urban development and SDG achievement that addresses the needs of all residents.

Commitments

By 2026-27: GHG emission reduction of 9.64% on an annual basis (baseline year 2017-18)

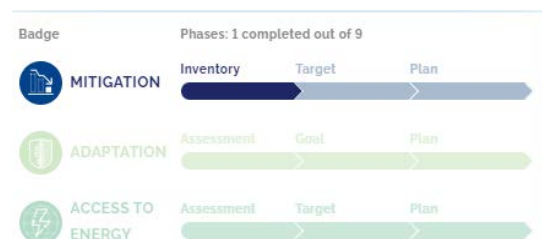
Strategy

The Climate Resilient City Action Plan (CRCAP) (2021-22), approved in December 2021, identifies actions with the total mitigation potential of 60,748 tCO₂ on an annual basis by 2026-27 and addresses local climate risks and vulnerabilities in the following priority sectors: buildings, street lighting, transport, municipal solid waste, water supply, wastewater & urban biodiversity and green space.

Actions in city enabled by the Urban-LEDS project

- Urban Greening and Biodiversity Improvement:** A city-level Natural asset map was prepared to capture Rajshahi's natural resources, with a demonstration plantation project in the river embankment to create an eco-friendly public space that is rich in biodiversity and supports ecosystem services. Read more [here](#).
- Implementing Energy Efficiency retrofits at the main administrative office building of the RCC (Rajshahi City Corporation):** solutions to reduce energy consumption at the building scale. Read more [here](#).

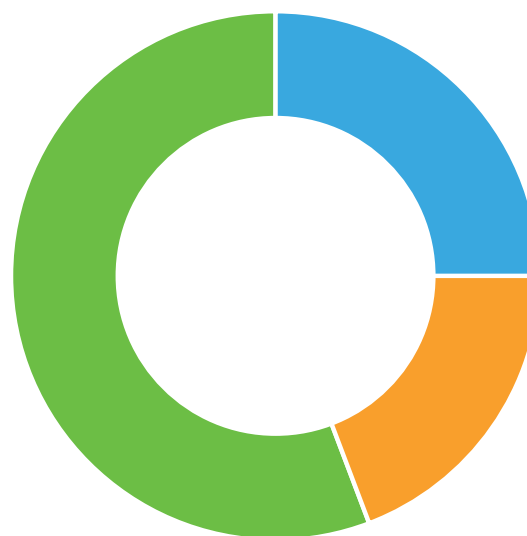
GCoM signatory and badges awarded



Access to finance interventions and TAP applications

Proposal submitted to 'TAP Call 2021': Promotion of Electric Minibus as Low-emission Public Transport in Rajshahi to improve public transport infrastructure, reduce electricity consumption from the grid (10.7% decrease from BAU scenario) and improved safety and satisfaction of all citizens through regulated transport system

Community GHG inventory



Rajshahi GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 630.254

Transportation..... 25%
 Waste..... 19%
 Stationary units..... 56%

Climate Risks and Vulnerability Assessment

Water Supply, Health, Biodiversity, Economy, Solid Waste Management, and Wastewater are identified urban systems vulnerable to climate risks and impacts.



"The city of Rajshahi is known as a "Green City" worldwide and is approaching towards climate resilience by implementing sustainable climate interventions prioritized in our Climate Action Plan. With the aim of making Rajshahi city livable, inclusive and sustainable, we are planning to implement more climate resilience projects and scaling up the outcomes of pilot schemes and technical studies under the Urban-LEDS II project."

A.H.M. Khairuzzaman (Liton)
Honorable Mayor
Rajshahi City Corporation

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Narayanganj, BANGLADESH



Basic Information and Statistics

47.22 KM²

Size

709,364

Population (2011)

3.05%

Population growth rate (p.a)

100%

Urbanization rate

usd 85 M

City annual budget (2020-2021)

Vision for sustainable urban development and climate action

Narayanganj aims to become a healthy, liveable city sustainably providing basic urban services to all, while managing air quality and economic productivity by incorporating climate resilience in local decision-making processes

Commitments

By 2026-27: Annual GHG emission reduction of 12.6% over the 2018-19 baseline

Strategy

This city-level Climate Action Plan identifies actions with a total mitigation potential of 133,346 tCO₂ on an annual basis by 2026-27 while also addressing local climate risks and vulnerabilities in the following priority sectors; municipal solid waste, buildings, transport, water supply, street lighting, wastewater and drainage, urban biodiversity & air quality.

Actions in city enabled by the Urban-LEDS project

- **Pilot installation of ambient air quality monitoring system (AAQMS) for evidence-based low emission planning:** installation of three stationary sensor based AAQMS devices with communication modules and data logging system, and a LED display to help monitor air quality and generate awareness within the community. Read more [here](#).
- **Installation of rooftop Solar PV systems for sustainable energy integration at two public buildings** to deliver annual energy savings of about 15,023 kWh and GHG emission reduction of 9,735 tCO₂ for each building. Read more [here](#).

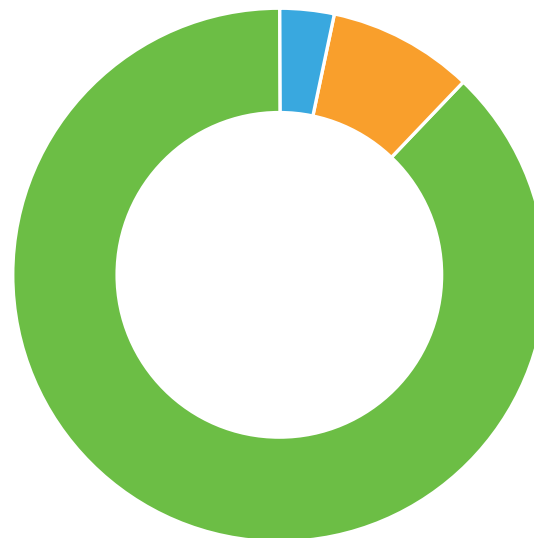
GCoM signatory and badges awarded



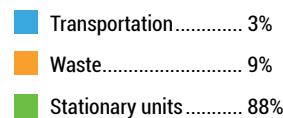
Access to finance interventions and TAP applications:

Restoration of water bodies in Narayanganj, submitted to 'TAP Call 2021', to revive the surface water sources and networks between existing canals and the city's two major rivers, Shitalakhya and Dhaleshwari and implement solutions for restoration of water bodies. This project supports an ongoing initiative on Restoration of 26 Canals in Narayanganj.

Community GHG inventory



**Narayanganj GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 1061.409**



GHG emissions from the community: 1,061,409 tCO₂e (2018-19)

Climate Risks and Vulnerability Assessment

Floods and heat stress are key hazards faced by Narayanganj. Climate risks identified include increase in temperature and decrease in annual average rainfall.

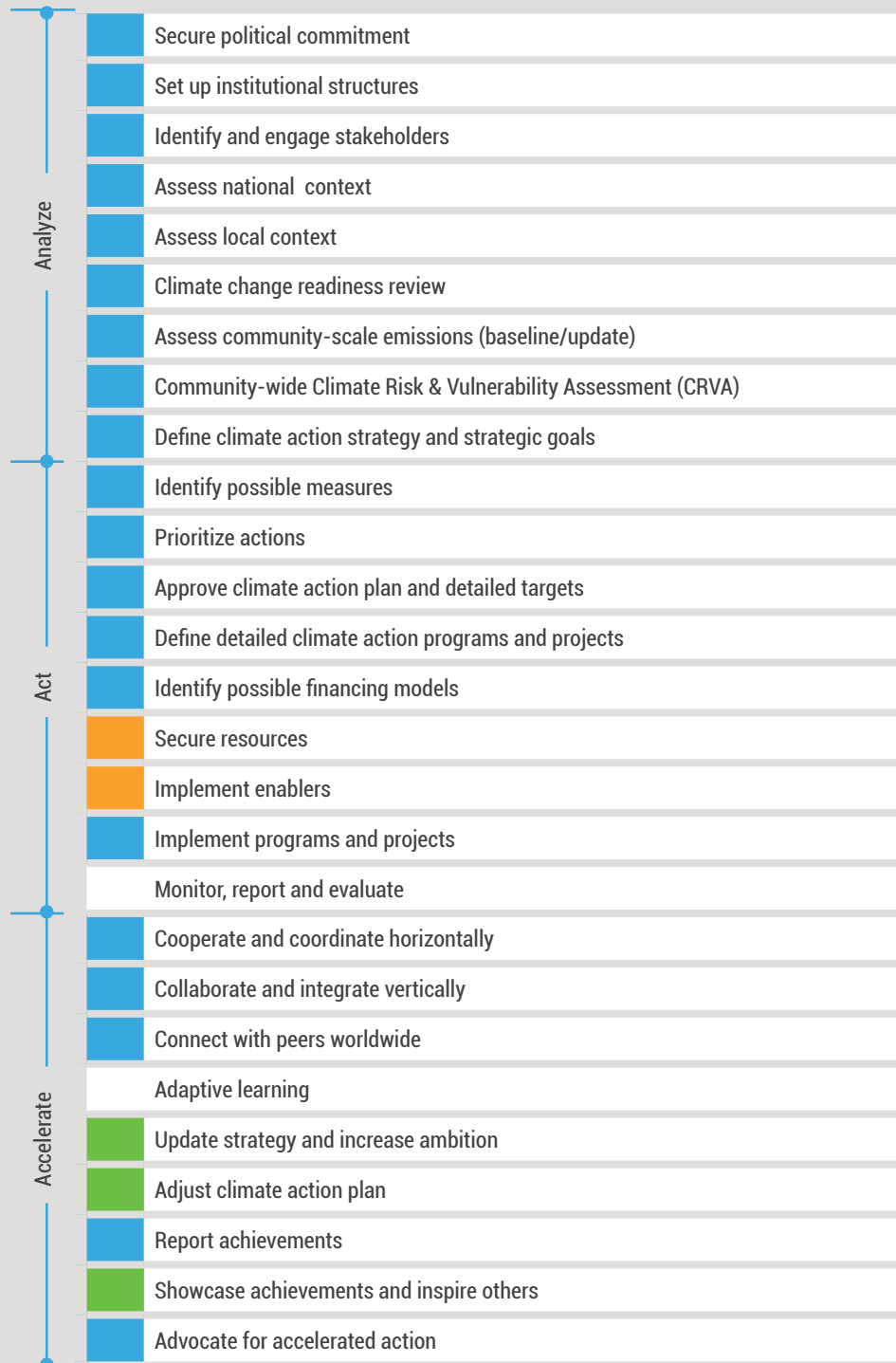


“Vision 2030: The vision of Narayanganj City Corporation is to build an environmentally friendly, climate sensitive, clean, pollution-free, healthy, well-planned city and to provide necessary citizen services in a sustainable manner for all city dwellers.”

Dr. Salina Hayat Ivy
Mayor, Narayanganj City Corporation

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Nagpur, INDIA



Basic Information and Statistics

227.4 KM²

Size

2.4 M

Population (2011)

1.7%

Population growth rate (p.a)

100%

Urbanization rate

usd363 M

City annual budget (2020-2021)

Vision for sustainable urban development and climate action

Undertake participatory governance and become an inclusive and climate resilient city, through provision of smart and sustainable urban services with a focus on sustainable management of urban heat and enhancement of its biodiversity.

Commitments

By 2025-26 GHG emission reduction of 20% against Business-As-Usual levels (baseline year 2017-18)

Strategy

The Climate Resilient City Action Plan (CRCAP) (2021-2022) for Nagpur identifies actions with the total mitigation potential of 614,376 tCO₂ on an annual basis by 2025-26 as well as to address local climate risks and vulnerabilities in the following priority sectors: municipal solid waste, street lighting, buildings, transport, water supply and wastewater.

Actions in city enabled by the Urban-LEDS project

- **Rainwater Harvesting System with Monitoring for Groundwater Recharge in Two Public Schools**, equipped with smart sensors to monitor groundwater recharge and quality. Read more [here](#).
- **Local Biodiversity Strategy and Action Plan** (LBSAP) while also undertaking pilot-scale census and mapping of a portion of the city's trees, creation of a city-wide Natural asset map, and preparation of a pictorial tree handbook. Read more [here](#).
- **Design and Development of Children-centric Climate Resilient Park**, as part of the 'Nurturing Neighborhood Challenge' initiated by the Ministry of Housing & Urban Affairs (MoHUA). It included planting of local plant species, urban farming, bird feeders, rainwater harvesting, sensory walkway, tree labels, and information boards on sustainable lifestyles. Read more [here](#).

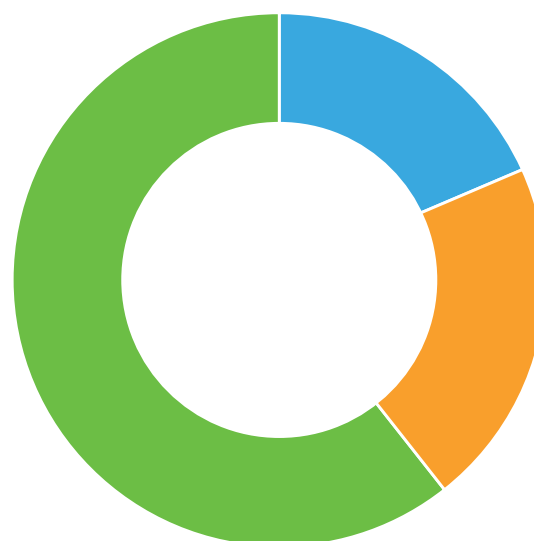
GCoM signatory and badges awarded



Access to finance interventions and TAP applications:

Public Bicycle Sharing (PBS) Infrastructure for Last-mile Connectivity in Nagpur to promote Non-Motorized Transit (NMT) and reduce air pollution and GHG emissions. The proposal will be submitted to 'TAP Call 2021'.

Community GHG inventory



Nagpur GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 3034.548

Transportation.....	18%
Waste.....	21%
Stationary units.....	61%

Climate Risks and Vulnerability Assessment

- Hazards include heat waves, flash floods (high intensity rainfall), and droughts (water scarcity)
- Decreasing green spaces coupled with increasing land surface temperatures, heat waves and urban heat island effect is likely to increase vulnerability of local population, especially slum residents. This situation is exacerbated due to insufficient access to basic municipal services and health facilities

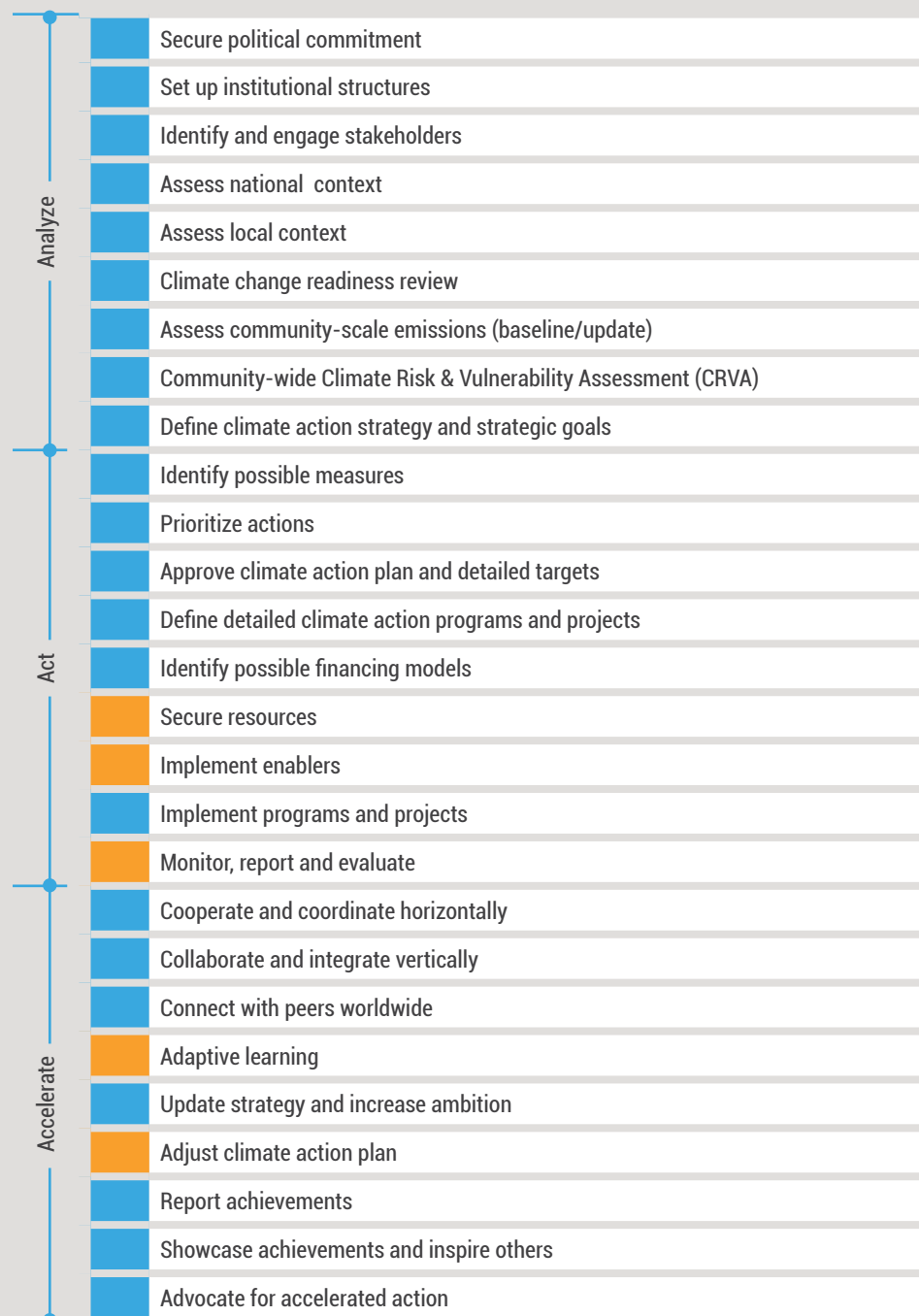


“Nagpur city aims to keep its status of ‘Greenest City’ and become more climate resilient by undertaking smart & sustainable sectoral climate actions identified in our Climate Action Plan. We strive to make our city inclusive, livable and sustainable by implementing actions and scaling up the outcomes of technical studies & pilot projects implemented under the Urban-LEDS II project.”

Mr. Dayashankar Tiwari
Mayor of Nagpur

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Thane, INDIA



Basic Information and Statistics

128.23 KM²

Size

1.841 M

Population (2011)

4.42%

Population growth rate (p.a)

100%

Urbanization rate

usd371 M

City annual budget (2021-2022)

Vision for sustainable urban development and climate action

Thane aims to become a climate resilient city with a socially inclusive community by addressing socio-economic impacts of climate change, mitigating flood risks, enhancing its green cover, and abating air pollution with focus on multi-sectoral and inclusive urban development.

Commitments

By 2025-26: Annual GHG emission reduction of 22% over the 2017-18 baseline

Strategy

This city-scale Strategy and Climate Action Plan, approved by the City Council in December 2021, identifies actions with the total mitigation potential of 511,338 tCO₂ on an annual basis by 2025-26 as well as to address local climate risks and vulnerabilities in the following priority sectors: solid waste, buildings and municipal facilities, transport, water supply and wastewater, stormwater drainage, urban biodiversity and urban environment.

Actions in city enabled by the Urban-LEDS project

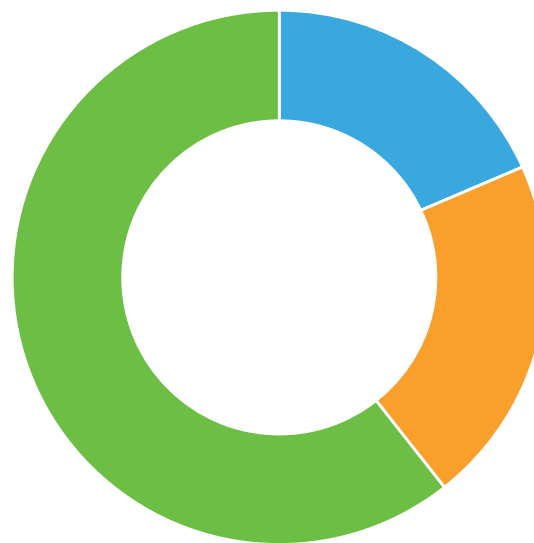
- **Piloting the Thane Urban Flood Alert Network (TUFAN)**, an Early Warning System to address vulnerability to waterlogging and flooding. Read more [here](#).
- **Assessment of carbon sequestration potential of Thane's green cover.**

Total estimated carbon sequestration by trees, mangrove and soil: more than 1.6 million tonnes of CO₂, with an average sequestration rate of 5.59 tCO₂/hectare/year. Read more [here](#).

GCoM signatory and badges awarded



Community GHG inventory



Thane GHG Emissions (tCO₂e)
for 2017 using GPC Framework
Total: 2291.294

Transportation.....	14%
Waste.....	18%
Stationary units.....	68%

Climate Risks and Vulnerability Assessment

- Hazards and climate risks faced by Thane include urban flooding and water logging due to more frequent high intensity rainfall, higher land surface temperature due to increase in mean maximum temperature, and sea level rise
- Factors such as the city's geographical location, unauthorized settlements, encroachments, inadequate urban infrastructure and transportation facilities, insufficient access to basic municipal services, and poor economic condition contribute to local vulnerability.

Status of GreenClimateCities (GCC) process / Milestones

Complete In progress Not yet started



Kaysone Phomvihane City, LAO PDR

Basic Information and Statistics

779.03 KM²

Size

133,857

Population (2019)

1.6%

Population growth rate (p.a)

N/A

Urbanization rate

N/A

City annual budget

Vision for sustainable urban development and climate action

Kaysone Phomvihane's vision is to develop a strong, modern, green, liveable, and sustainable city, in accordance with the 3-Builds Policy, with enhanced human security and a thriving economic growth for trade, services, investment, and tourism.

Commitments

- Reduce energy consumption by an average of 10% per year from 2024-2030 compared to the level of energy consumption in a business-as-usual (BAU) scenario;
- Increase the supply of electricity through renewable energy to 2MW by 2030;
- Protect existing forest areas covering 6,504 hectares that serve as carbon and increase urban biodiversity and carbon storage through afforestation to an average of 10% per year from 2024-2030. Hence, targeting an increase in green coverage by 25% per year by 2030.

Strategy

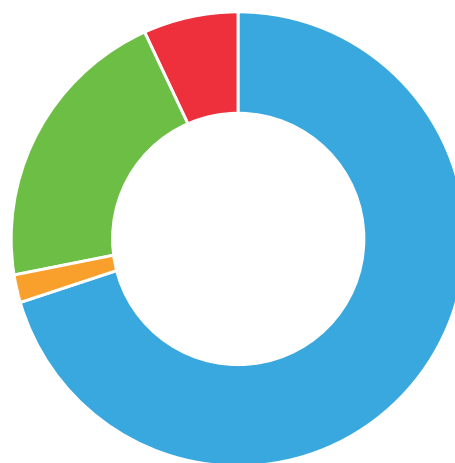
The Urban LEDS Climate Action Plan of Kaysone Phomvihane identifies strategic climate priority sectors selected for Kaysone Phomvihane City's climate action setting. The reduction of CO₂ emissions will come from the energy, waste, agriculture, and ecology sectors in the following priority sectors: energy efficiency and use of solar energy, enhance carbon sequestration by ecosystems, institutional capacity to deploy environmental standards and develop low emissions strategies.

Actions in city enabled by the Urban-LEDS project

- **Demonstration projects. Installation of a 15 kWp Solar Photovoltaic System and Solar LED Street Light Kits:** to reduce GHG emissions in the energy sector at the community level and empower key stakeholders to effectively respond to efficient energy and resource use and seize opportunities for sustainable energy production and consumption.

- **Access to finance interventions and TAP applications. Integrated Solid Waste Management in Kaysone Phomvihane City** to ensure reducing waste generation and increasing the rate of waste recovery and recycling. This TAP proposal for the City has been granted the TAP Seal of Approval and officially entered the TAP pipeline to access to service (capacity building and technical assistance) from TAP partners.

Community GHG inventory



Kaysone Phomvihane City GHG Emissions (tCO₂e) for 2017 using GPC Framework

Energy.....	70.6%	Waste.....	20.8%
Transportation.....	1.9%	Agriculture.....	6.7%

A city-level greenhouse gas emissions (GHG) inventory was developed using 2019 as the base year. Kaysone Phomvihane City had an overall estimated GHG emission of 515,872 tCO₂e in 2019 and accounted for 32,004 tCO₂e removals from the AFOLU sector. The energy sector had the largest share of the total emissions (70,38%), followed by the waste sector (20,71%), AFOLU (6,97%) and transport sector (1,94%). Figure 1: Summary GHG emissions in Kaysone Phomvihane in 2019

Climate Risks and Vulnerability Assessment

As the Kaysone Phomvihane City is situated along the Mekong River, it will have to deal with an increased propensity for flooding, droughts, and extreme weather events. The majority of the villages with the highest vulnerability are areas far from the city center, and located in a major tributary of the Mekong River which exposes them to natural hazards like flooding.



Adaptation plan

installing/enhancing Early Warning Systems especially in vulnerable areas; Developing hazard and risk maps; Enhancing stakeholder engagement; Improving awareness of climate change; Improving drainage and canal systems; Improving/constructing riverbank protection; Relocating/avoiding

construction of houses and infrastructure in flood-prone areas; Improving the resilience of infrastructure to floods; Increasing the resilience of water supply factory/industrial manufacture to avoid leakage of wastewater or chemicals into the environment; and considering wind speed in engineering (infrastructure and house design stage).

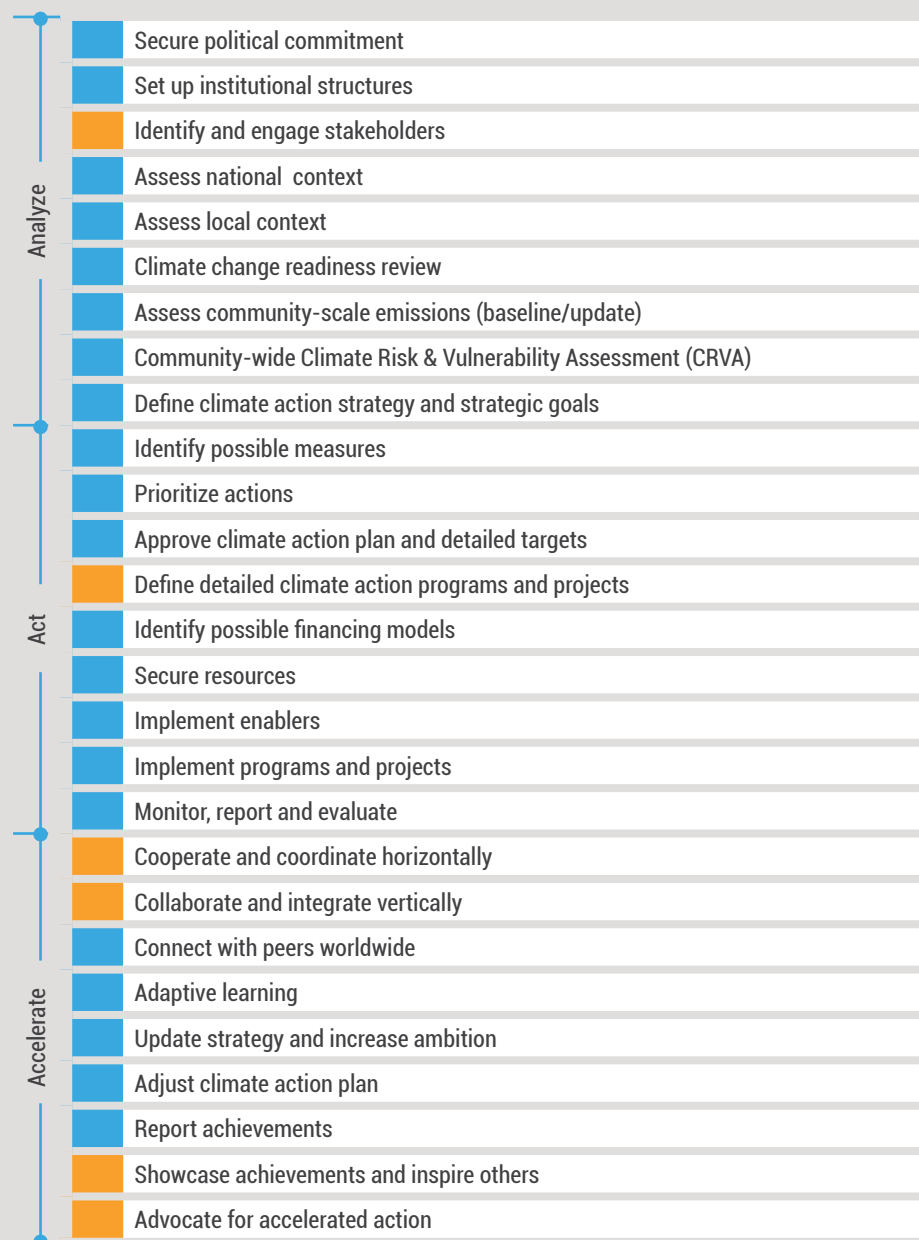


“The City Government of Kayson Phomvihane is committed to formulating and delivering programs that can help us attain sustainable development and climate resiliency. It is imperative that while we advance climate action and reduce our carbon footprint, we also protect those who are most vulnerable to the havoc of climate change.”

**Mr. Prasongsinh Chaleunsouk,
Kayson Phomvihane Mayor**

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



Pakse City LAO PDR

Basic Information and Statistics

125 KM²

Size

82,596

Population (2019)

2.5%

Population growth rate (p.a)

N/A

Urbanization rate (2002-2012)

N/A

Urbanization rate (2012-2020)

Vision for sustainable urban development and climate action

Pakse's vision is to strengthen institutional capacity, develop human resources, commercial production, trade, and service, and become a green, liveable, environmentally friendly, and sustainable city.

Commitments

- Reduce energy consumption by 10% per year from 2024-2030 compared to a business-as-usual scenario;
- Increase the supply of electricity from renewable energy, especially solar electricity to 2 MW by 2030;
- Strengthen forest cover protection targeting 30% of the total area by 2030;
- Increase urban biodiversity and carbon storage through afforestation and planting activities, including integration of urban agriculture by 15% by 2030;

Strategy

The Urban LEDS Climate Action Plan of Pakse City supports its goal for emission reduction and climate resilience for sustainable development through an improved environment and quality of life, infrastructure, economy and business, income and employment, and livelihood of the citizens. The reduction of CO₂ emissions will come from the energy, waste, agriculture, and ecology sectors in the following priority sectors: energy efficiency and use of solar energy, sustainable transportation, enhance carbon sequestration by ecosystems, strengthen institutional capacity to deploy an environmental management system (EMS) and enhance emissions reduction in waste management.

Actions in city enabled by the Urban-LEDS project

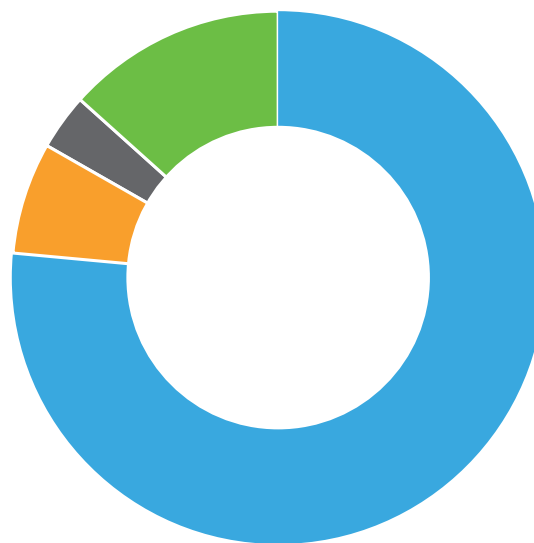
- **Demonstration projects: Installation of 28 Sets of Solar LED Street Light Kits (Red Square Public Park, Sanamdeng)**, to reduce GHG emissions in the energy sector at the community level and empower key stakeholders to effectively respond to efficient energy and resource use.

Access to finance interventions and TAP applications:

- **Waste to Resource and Energy in Pakse City**, to transform waste (like compost- biogas) to resources (e.g. electricity) under the concept of zero waste. The TAP proposal for the waste project in Pakse City has been granted the TAP Seal of Approval and has officially entered the TAP pipeline to access service (capacity building and technical assistance) from TAP partners.

Community GHG inventory

Results of the inventory showed that Pakse City had an overall estimated GHG emission of 354,001 tCO₂e in 2019 and accounted for 19,193 tCO₂e removals from the AFOLU sector. The energy sector had the largest share of the total emissions (63,30%), followed by the waste sector (32,89%), AFOLU (1,16%), and the transport sector (2,65%). The mayor share of the energy sector may be attributed to the energy-intensive operations of the city using fuelwood, charcoal consumption in the residential sub-sector, solid waste disposal, and rice farming. Figure 1: Summary GHG emissions in Pakse in 2019



Muhanga GHG Emissions (Mton CO₂e)
for 2018 using GPC Framework
Total: 32.48

- Transportation... 76.68%
- Residential..... 6.73%
- Manufacturing ... 3.33%
- Commercial 13.27%

Climate Risks and Vulnerability Assessment

According to the Climate Risk and Vulnerability Assessment of Pakse City (developed through the Urban-LEDS II Project), the precipitation and temperature observed in Pakse have continuously increased over the past 30 years. Floods and droughts are the two major hazards of the city, and will be heavily affected by these factors and directly affect the frequency and severity of these hazards.

Adaptation plan

A project on promoting climate change management and low carbon emissions; a pollution control project; a meteorological and Hydrological project; an Empowerment Project, Climate Change Forecasting and Early Warning; Natural disaster reduction, drought and flood prevention projects; a Park and Green Area Improvement Project; and urban environmental management project, with a focus on landfill.

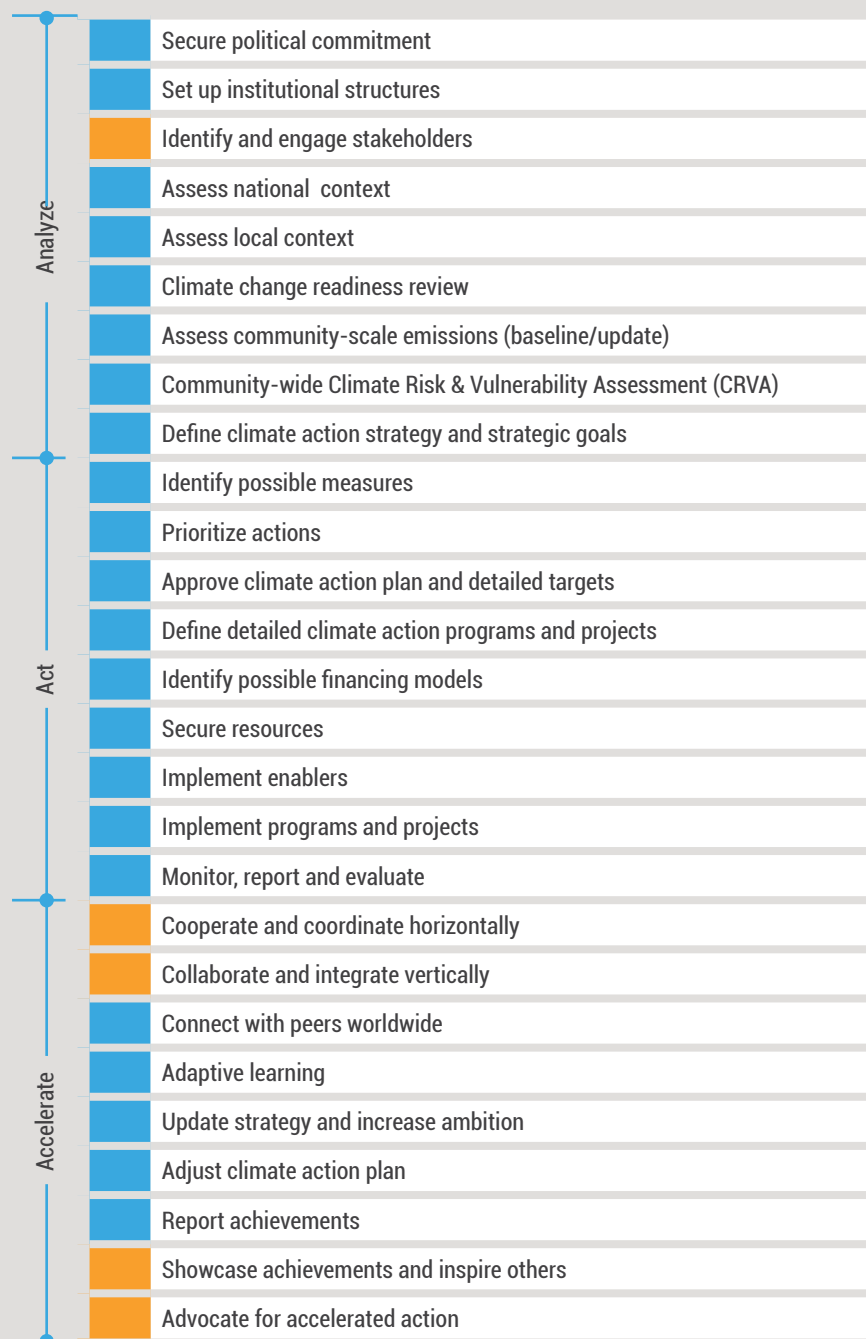


“Mainstreaming climate change and environmental sustainability into local development plans and processes is crucial in accelerating climate action, especially in Lao PDR. As such, building the capacity of government officials and technical staff is imperative to ensure that they are equipped with the knowledge, skills, and tools to develop and implement strategies to promote low emission development.”

**Mr. Boualy Phetsongkham,
Pakse City Mayor**

Status of GreenClimateCities (GCC) process / Milestones

■ Complete ■ In progress ■ Not yet started



vii Insights and highlights from the European Cities

The Urban LEDS II project has been enriched by the participation of 13 European cities that, along the whole course of the project, actively shared their best practices and engaged in peer-to-peer knowledge exchange with Model and Satellite cities around the world.

All the involved cities contributed to and benefitted from capacity building activities to enhance their know-how to identify, develop and prioritize low emissions and climate resilient development projects as well as discuss innovative financing, and business models to unlock climate finance, while also expanding their peer-network worldwide, and supporting the uptake of local climate solutions in cities around the globe.

Aalborg is the capital of the North Denmark Region. It developed a strong collaboration with local businesses and University to foster Climate Action and organized its local policy planning in accordance with the principle and implementation of the SDGs.

Smart mobility and digitalization, energy efficiency in buildings, cultural heritage, citizens engagement are among the main areas of work of **Alba Iulia**, a Romanian city of around 63,000 inhabitants.

Almada holds an outstanding knowledge gained by the local energy agency on innovative financing schemes as well as their sustainable mobility approach and coastal restoration strategies

Innovative adaptation and mitigation strategies that also see the high engagement of the citizens are among the most interesting achievements of **Bologna**, which is well known for the longstanding experience on social innovation.

Building on extensive vulnerability assessment **Bratislava** focused its climate action on adaptation and resilience deepening forest management, green infrastructure, NBS, biodiversity and water management.

Since the declaration of climate Emergency the city of **Cork** has undergone thought an internal re-organization that lead to the approval of the new climate strategies with particular attention on adaptation

The capital city of Hungary, **Budapest** is currently working to mainstream the climate issues across all municipal departments and is currently revising their SECAP to more ambitious targets. Among their focus area there is RES, Sustainable mobility and NBS.

In the "100% Master Plan for Climate Protection", **Hannover** stated its ambition to reduce 95% of GHG emissions by 2035. A big role is played by the private sector that regularly meets and dialogue with the city to contribute in reaching the targets. Main areas of intervention are building energy efficiency and RES

Innovation has been one of the keywords that guided climate action in **Helsinki**, which thanks to the cross-departmental set-up tested new technologies, new partnerships teaming up with the private sector and creative approaches to climate action such as international open call for solutions.

Host of COP25, **Madrid** took important step forward implementing projects of urban mobility, NBS, urban food system and innovative waste to energy solution.

To reduce emissions, **Larissa** embarked on a process of modernisation and sustainable transformation with its centre on inclusion of vulnerable people and citizen's participation.

Taking advantage of its role, **Riga (Latvia)** played an exemplary role for the whole country. Among the main issues they are facing there is energy efficiency and renovation of building stock, use of NBS, and water management.

As capital of Poland **Warsaw** has a leading role in climate action with concrete measures approved in green infrastructure, urban regeneration, water management and energy efficiency among the others.

viii Resources and publications

For a full list of publications and resources generation in the Urban-LEDS project please visit <https://urban-leds.org/resource-library/>

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in an urbanizing world**

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