QUEZON CITY
ENHANCED LOCAL CLIMATE CHANGE ACTION PLAN
2021-2050

About the Publication

QC ENVIRONMENT POLICY MANAGEMENT COUNCIL (EPMC)

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A ROADMAP TOWARDS A SUSTAINABLE, CARBON-NEUTRAL, CLIMATE-RESILIENT, AND INCLUSIVE QUEZON CITY

Quezon City's Enhanced Local Climate Change Action Plan 2021-2050 affirms the City's commitment to a sustainable urban future that is compatible with the objectives of the Paris Agreement, the United Nations' Sustainable Development Goals, and a green and just recovery in light of the COVID-19 pandemic. It sets out a strategic framework and roadmap to build climate resilience, pursue carbon neutrality, advance green economic development, and provide a livable and quality community for all. By championing climate leadership, Quezon City aspires to become the leading city in advancing inclusive, ambitious, evidence-based, and transformative climate actions in the Philippines.

Message from the Mayor

Supported by science and built on the needs of our citizens, the Enhanced Local Climate Change and Action Plan or LCCAP 2021-2050 is Quezon City's stronger and greener response to the twin threats of global climate change and the COVID-19 pandemic. This strategic document affirms the City's mandate as the frontline agency in protecting its constituents against the threats of a warming planet. But beyond that, it also recognizes its position as a global agent of change. And this is why we commit to pursue carbon neutrality and resilience by 2050, as part of our responsibility to the Paris Agreement and the United Nations Sustainable Development Goals. And in the process of attaining these goals, it is our priority to bring the fruits of our labors to everyone in the City – regardless of their age, gender, ethnicity, and socioeconomic classification.

The Enhanced LCCAP culminates the hard work of our City Departments, local and national stakeholders, and development partners, underpinning a robust, participatory process that steers us towards inclusive and sustainable growth. A piece to a bigger puzzle, this strategic document works in synergy with the City's development plans such as the Comprehensive Land Use Plan, City Development Plan, and Disaster Risk Reduction and Management Plan, among many others. And while it is determined by the local landscape, we also aligned it with the priorities of the national government through the National Climate Change Action Plan 2011-2028, addressing development areas such as food security, water sufficiency, and sustainable energy.

Building on its preceding version (LCCAP 2017-2027) through the UP Planning and Development Research Foundation, Inc., and now with the support of the C40 Cities Climate Leadership Group and ICLEI Local Governments for Sustainability, the Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability), and other City Departments have drawn the steps for us to take until 2050. Our partnership with C40 Cities on the Climate Action Planning (CAP) program, through the support of the UK Government, has helped build our scientific evidence base and facilitate the exchange of best practices with cities and experts around the world to build back better and greener. We are grateful for the expertise and insights that have been dedicated into developing this plan.

Designing a strategic LCCAP is just one part of the equation and implementing it is another story. This is why we will continue to make our people front and center of its delivery, hold the hands of the most vulnerable, and cooperate with local and international partners in bringing about the sustainable development we have set for ourselves to attain. Central to the accelerated delivery of the LCCAP is our commitment to mobilize the City's resources and enhance human resource capacity for our city departments to champion priority climate actions at scale.

As set out in this document, "we aspire to be the leading city in advancing inclusive, ambitious, and evidence-based climate actions in the Philippines, building resilience and advancing green economic development while providing a livable and quality community for all." This is the motivation that drives our City forward and through this Enhanced LCCAP 2021-2050, we are one step closer to this reality.

Ma. Josefina "Joy" G. Belmonte
March 2021

Message from C40 Cities Regional Director for East, Southeast Asia and Oceania

Launched in 2016, C40's *Deadline 2020 program* set out a forward-looking and ambitious framework that outlined the pace, scale and prioritization of action needed for C40 member cities to deliver on the goals of the Paris Agreement. With the support of partners, the program showcased the commitment and leadership of C40 Cities in pursuing high ambition climate action to meet carbon neutrality and climate resilience goals by 2050. Quezon City's firm commitment to Deadline2020 and the Climate Action Planning program from inception is a testament to the importance and urgency of climate action in the city leadership's agenda and that of its residents.

The development of the Enhanced LCCAP in Quezon City has come a long way since its start in October 2018. This initiative was made possible with the support of the UK Government through C40's CAP program, for which we are grateful. Throughout this process, Quezon City has taken on a strong cross-departmental and multi-sectoral approach that did not only solicit active city involvement but also created local climate champions out of a wide range of representatives, from its city departments to local external partners. The soon to be created Climate Change and Environmental Sustainability Department further solidifies the city's commitment to strengthen institutional capacity to accelerate climate action.

In light of the COVID-19 pandemic that has put cities on the frontline of the response, Quezon City demonstrated consistent climate leadership in managing to progress an inclusive climate action plan and implementing ambitious climate actions that also fully align with the need to build back better—with sustainability and equity at the core. Our global community of C40 Cities laud Quezon City's inspirational leadership and congratulate the City on this important milestone.

While this is one crucial and major step forward, there is still much work to be done. Climate impacts in the region and the country continue to intensify even as we collectively respond to the global health crisis that has disproportionately affected marginalized groups and amplified entrenched socioeconomic inequities. It is therefore worthwhile to note that aside from enhancing long-term resilience to extreme weather events and pursuing net zero emissions by 2050, this Enhanced LCCAP can deliver cleaner air, increase food security, improve mobility for all, and strengthen local economic recovery.

Now more than ever, we need cities like Quezon City to inspire leadership and progress transformative climate action that will deliver concrete benefits to its residents. Implementing key initiatives and achieving the ambitious goals set out in the Quezon City's Enhanced LCCAP is a task that will require broad, city-wide efforts, from mainstreaming climate considerations across the decision-making processes within the city to co-creating viable solutions with communities. We, at C40 Cities, remain committed to collaborating with Quezon City, in building a broad coalition of youth climate activists, private sector partners, academic institutions, and communities, among many other stakeholders, towards effective and meaningful implementation of the Enhanced LCCAP and building a healthier and more livable city.

Milag San Jose-Ballesteros
March 2021

Acknowledgments

It is with great enthusiasm that we recognize and relay our sincerest gratitude to all the external partners who, at one point or another, became involved in the delivery of Quezon City's Climate Action Planning (CAP) Program. During CAP delivery, our external partners have provided us with research and data resources, participated in workshops or webinars, provided feedback, engaged in bilateral meetings, or provided technical advice.

National Agencies • Department of Energy (DOE) • Department of Transportation (DOTr) • Department of Trade and Industry (DTI) • Department of Public Works and Highways (DPWH) • Department of Health (DoH) • National Economic and Development Authority (NEDA) • Public-Private Partnership (PPP) Center • National Telecommunications Commission (NTC) • Climate Change Commission (CCC) • Department of Environment and Natural Resources (DENR) • Department of Science and Technology (DOST) • Department of Agriculture • Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) • League of Cities of the Philippines (LCP) • Metropolitan Waterworks and Sewerage System (MWSS) • **Private Sector** • Maynilad Water Services Inc. • Manila Water Company Inc. • Manila Electric Company (MERALCO) • **Academic Institutions** • University of the Philippines Planning and Development Research Foundation (UP-PLANADES) • Ateneo de Manila University (ADMU) • Miriam College • **Local and International Partners and Consultants** • Manila Observatory • ICLEI World Secretariat • ICLEI Southeast Asia Secretariat • Ricardo Energy and Environment • Mott Macdonald • SWECO • Climate Adaptation Services (CAS) • Deltares • World Wildlife Fund for Nature Philippines (WWF) • Habitat for Humanity • Clean Air Asia

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List of Acronyms

AMIA	Adaptation-Mitigation Interaction Analysis
ASAP	Action Selection and Prioritization
BAU	Business-As-Usual
BRT	Bus Rapid Transit
CAD	City Architect Department
CAP	Climate Action Plan
CBD	Central Business District
CC	Climate Change
CCA	Climate Change Adaptation
CCAP	Climate Change Action Plan
CCC	Climate Change Commission
CCMA	Climate Change Mitigation and Adaptation
CCESD	Climate Change and Environmental Sustainability Department
CDP	Comprehensive Development Plan
CED	QC Engineering Department
CLUP	Comprehensive Land Use Plan
CPDD	City Planning and Development Department
CRVA	Climate Risk and Vulnerability Assessment
CSO	Civil Society Organization
CTO	City Treasurer's Office
DA	Department of Agriculture
DBO	Department of Building Official
DENR	Department of Environment and Natural Resources
DENR-EMB	DENR-Environmental Management Bureau
DENR-FMB	DENR-Forest Management Bureau
DepEd	Department of Education
DILG	Department of the Interior and Local Government
DMAF	Disaster Management Assistance Fund
DOST	Department of Science and Technology
DOST-ASTI	DOST-Advanced Science and Technology Institute
DOST-PHIVOLCS	DOST- Philippine Institute of Volcanology and Seismology
DOTC	Department of Transportation and Communication
DPOS-GTO	Department of Public Order and Safety – Green Transport Office
DPWH	Department of Public Works and Highways
DPWH-NSSMP	DPWH - National Sewerage and Septage Management Program
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DSWD	Department of Social Welfare and Development
EBM	Ecosystem-based Management
EO	Executive Order
EOC	Emergency Operations Center
EPMC	Environment Policy Management Council
EPWMD (CCES)	Environmental Protection and Waste Management Department - Climate Change and Environmental Sustainability
EV	Electric Vehicle
EWS	Early Warning System
GAA	General Appropriation Act
GAD	Gender and Development
GDP	Gross Domestic Product
GHG	Green House Gas
GHGMI	Greenhouse Gas Management Institute
GIS	Geographic Information System
GPP	Green Procurement Plan
GSD	General Services Department
HLURB	Housing and Land Use Regulatory Board
HOA	Homeowners Associations
IAC	Institutional Adaptive Capacity
ICA	Inclusive Climate Action
ICT	Information Communication and Technology
ICS	Incident Command System
IEC	Information, Education and Communication
IPCC	Intergovernmental Panel on Climate Change
IRA	Internal Revenue Allotment
JMC	Joint Memorandum Circular
KPI	Key Performance Indicator
LCCAP	Local Climate Change Action Plan
LDFRRMF	Local Disaster Risk Reduction and Management Fund
LDRRMP	Local Disaster Risk Reduction and Management Plan
LGA	Local Government Academy
LGC	Local Government Code (RA 7610 of 1991)
LGU	Local Government Unit
LEECP	Local Energy Efficiency and Conservation Plan
MIS	Monitoring and Information System
MRF	Materials Recovery Facility
MMDA	Metro Manila Development Authority
MER	Monitoring, Evaluation, and Reporting
NBS	Nature-Based Solutions
NCCAP	National Climate Change Action Plan
NCR	National Capital Region
NDRRMC	National Disaster Risk Reduction and Management Council
NEDA	National Economic and Development Authority
NFSCC	National Framework Strategy on Climate Change
NGO	Non-Government Organization
NHA	National Housing Authority
NSWMC	National Solid Waste Management Commission
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PCEPSDI	Philippine Center for Environmental Protection and Sustainable Development
PDAD	Parks Development and Administration Department
PES	Payments for Environmental Services
PGBC	Philippine Green Building Council
PPAs	Programs, Projects and Activities
PPP	Public-Private Partnership
PSF	People's Survival Fund
PWD	People with Disability
QA	Quality Assurance
QRF	Quick Response Funds
RE	Renewable Energy
SCP	Sustainable Consumption and Production
SME	Small and Medium Enterprise
SDG	Sustainable Development Goal
TFTTM	Task Force on Traffic and Transport Management
TOD	Transportation-Oriented Development
TWG	Technical Working Group
UHI	Urban Heat Island
UBSAP	Urban Biodiversity Sustainability Action Plan
UP-PLANADES	University of the Philippines Planning and Development Research Foundation, Inc.
WACS	Waste Analysis and Characterization Study
WHO	World Health Organization

Glossary

Climate Ambition – the exercise of political will to achieve impactful and transformative policies, programs, and projects to drive climate objectives.

Climate Neutrality – commitment to formulate a development pathway that is free from greenhouse gas emissions by 2050, with an interim target prior.

Climate Resilience –capacity to adapt to the risks and threats of climate change and disasters to protect lives and livelihoods.

Green Recovery – set of city interventions to mitigate the immediate public health impacts of the COVID-19 pandemic while reviving the local economy, pivoting to green sustainable measures, and enhancing the resilience of public institutions and policies against future development shocks.

Inclusivity – the extent to which the needs and priorities of community members and stakeholders are addressed through equitable programs and policies, with emphasis on the marginalized sectors.

Institutional Arrangements – a framework of agencies, departments, and institutions outlining their roles in implementing a development plan.

Local Climate Change Action Plan – a strategic document prepared by a local government outlining its roadmap to respond to climate change needs.

National Climate Change Action Plan – national climate thrust of the Philippine government in seven priority areas including sustainable energy, water sufficiency, and climate-smart industries.

Nationally Determined Contributions – a set of national climate change mitigation, adaptation, finance, and support programs and policies set by nations as a contribution to the universal target of the Paris Agreement.

Paris Agreement – signed in 2016, a universal agreement within the United Nations Framework Convention on Climate Change on climate change mitigation, adaptation, and finance; aims to limit global average temperate increase to 2°, with extended efforts to strive for 1.5°.

Sustainable Development Goals – comprehensive international framework set by the United Nations comprised of 17 goals and 169 targets and indicators to attain by 2030 for sustainable development.

Executive Summary

Quezon City's Enhanced Local Climate Change Action Plan (LCCAP) 2021-2050 encapsulates the City's unyielding commitment to ambitious climate actions that deliver mitigation, adaptation, and equitable benefits to all its citizens. It integrates the scientific and evidence-based analyses and methodology followed through the C40 Climate Action Plan (CAP) Program and ensures the City's alignment with climate neutrality and resilience by 2050. This Enhanced LCCAP also builds on its preceding version produced through the consultancy project with the UP Planning and Development Research Foundation, Inc.
An important theme to this document is the City's pledges to a climate strategy that is compatible with the objectives of the Paris Agreement, the United Nations' Sustainable Development Goals, and a green and just recovery in light of the COVID-19 pandemic.

01

02

While this Enhanced LCCAP is informed by local circumstances and priorities, it has also been harmonized with the standards and requirements of the Philippine government and is directly aligned with the National Climate Change Action Plan (NCCAP).

This strategic plan opens with the enhancements made through the C40 CAP Program in the areas of carbon neutrality, climate resilience, and inclusivity, which have been achieved to a significant extent through robust evidence-based tools. These include a city-level emissions inventory and scenario modeling, climate risk assessment, and inclusive climate action and policy analysis.

The plan then captures the broader context of the City: its vision for climate action, the demographic trends that influence local economic development, and the formulation process for the document itself. This is followed by a second section that informs the City's immediate and long-term vulnerability to climate risks, the relevant sectors and their emissions and emissions scenarios, and the existing policy landscape and how it influences the local government's climate actions.

The third part discusses a hierarchy of objectives for the City, from an overarching climate vision and development goal to more specific mitigation and adaptation targets, and down to specific objectives per key priority areas. These development themes are presented in section four and are consistent with the NCCAP's thematic priorities. Readers can learn about the specific priority climate actions by the City – both mitigation and adaptation – across a wide range of challenges such as food security, water sufficiency, and climate-smart industries, among many others. This section features the priority actions in fine detail, tells how they each contribute to the long-term climate change targets, and shows how they bring a plethora of benefits to the citizens of Quezon City.

Monitoring, evaluation, and reporting follow in section five and present both the overarching strategy to measure success and the indicators that can quantify and qualify progress. Capping the Enhanced LCCAP is an implementation plan, developed to capture the necessary institutional arrangements, financing mechanisms, partnerships, and implementation considerations to enable Quezon City's initiatives and the roadmaps that visualize the path to the successful delivery of this document.

01 Quezon City officials at first CAP Programme workshop in 2019; Quezon City, the Philippines.

02 Medical health worker at the frontline of the City's COVID-19 pandemic response

01

CAP Rationale and Framework

Republic Act 9729 or the Climate Change Act of 2009 is the central basis for the development of a local government's Local Climate Change Action Plan or LCCAP. It informs the mandate of the chief executive in leading the formulation and delivery of this action plan and the legal base for the allocation of annual appropriations and resources to enable its execution. Fundamentally, it recognizes the role of local government units (LGUs) as the state entity closest to the citizenry, acting as the primary agency that can design, plan, and implement climate programs, projects, and policies for grassroots implementation. To cite Republic Act 9729:

> The LGUs shall be the frontline agencies in the formulation, planning, and implementation of climate change action plans in their respective areas, consistent with the provisions of the Local Government Code, the National Framework Strategy on Climate Change, and the National Climate Change Action Plan. Barangays shall be directly involved with municipal and city governments in prioritizing climate change issues and in identifying and implementing best practices and other solutions. Municipal and city governments shall consider climate change adaptation as one of their regular functions.
>
> LGUs shall regularly update their respective action plans to reflect changing social, economic, and environmental conditions and emerging issues. The LGUs shall furnish the Commission with copies of their action plans and all subsequent amendments, modifications, and revisions thereof, within one month from their adoption.

Local governments are the obvious frontline agencies for the delivery of arrays of public services, including climate programs and services. Their strategic position allows them to have a careful look into the factors shaping local development while establishing clear links to how their policies and programs are tied to bigger national targets. This is also enshrined in the law by RA 9729, which stipulates the LCCAP's alignment with the National Framework Strategy on Climate Change (NFSCC).

The NFSCC recognizes the need for the country's natural ecosystems and communities to adapt to climate change as it charts its way toward a cleaner development path. The NFSCC emphasizes integrated ecosystem-based management that will enable various sectors of the Philippine society to become more climate-resilient while pursuing sustainable development. The adaptation thrust of the NFSCC prioritizes the enhancement of vulnerability and adaptation assessments, with a focus on integrated ecosystem-based management, climate-responsive agriculture, water governance and management, climate-responsive health sector, disaster risk reduction and management, and climate-proofing of infrastructure. The interdependent elements and processes as captured by the NFSCC are shown in Figure 1.

01 Mayor Joy Belmonte and other city mayors at C40 World Mayors Summit in 2019; Copenhagen, Denmark.

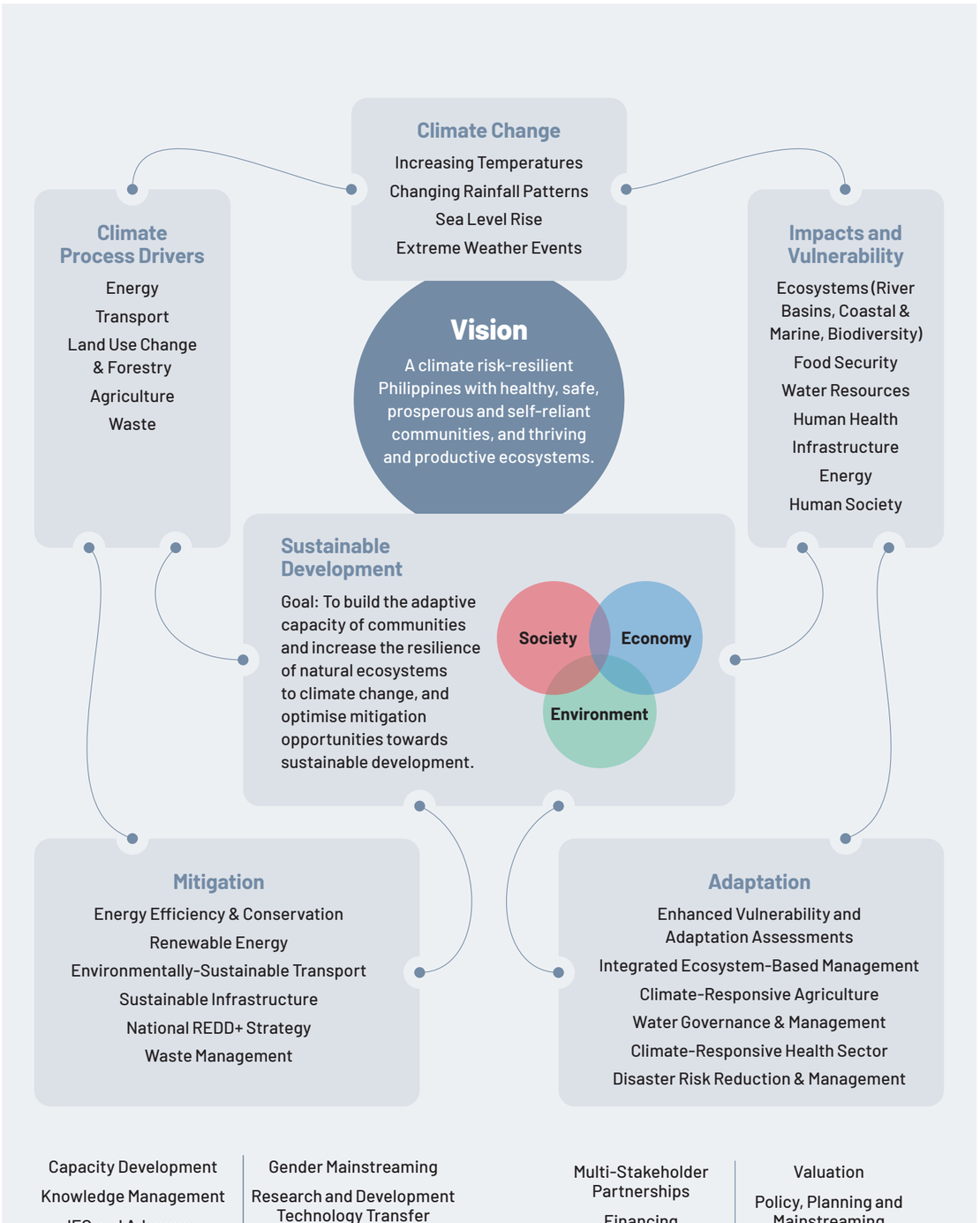


Figure 1
National Framework Strategy on Climate Change

01 Rescue operations after the onslaught of Typhoon Ulysses, one of the most powerful typhoons to hit the Philippines, including Quezon City, in 2020.

Another national framework considered in the development of this enhanced LCCAP is the National Climate Change Action Plan (NCCAP). The NCCAP calls for paying due attention to vulnerable sectors and communities, considering the *"need to enhance the adaptive capacity of communities, resilience of natural ecosystems and the sustainability of built environment to climate change."* It identifies seven key areas — food security, water sufficiency, ecological and environmental stability, human security, sustainable energy, and knowledge and capacity development — for intervention.

According to the plan, climate-smart industries and services, sustainable energy, climate change adaptation (CCA) knowledge, and capacity development will together contribute to climate-smart development and mitigation efforts. The NCCAP outlines key goals for each intermediate outcome with accompanying strategies for implementation. The NCCAP further determines the priority areas for adaptation actions. Out of the seven priority areas, only five are seen to contribute to adaptation goals — food security, water sufficiency, environmental and ecological stability, human security, and knowledge and capacity development.

The following section of the Enhanced LCCAP presents the overarching foundation for the improvements of Quezon City's LCCAP 2017-2027 by strengthening its alignment with the Paris Agreement, Sustainable Development Goals, and National Climate Change Action Plan. This enables the equitable distribution of positive climate action benefits, and responding to development trends and challenges such as the COVID-19 pandemic.

01

Background and Rationale

As one of the most urbanized and populous cities in the Philippines, Quezon City is well-positioned to champion climate action and deliver its socio-economic benefits to its people. The City is committed to several sustainability declarations such as the Deadline 2020 and BreatheLife campaign, among many others, and has a powerful portfolio of policies, programs, and projects that can help it achieve its environmental and climate goals across different time horizons.

While Quezon City's existing LCCAP of 2017-2027 captures these commitments and aspirations, its city government recognizes the need to revisit the plan and build upon its key features in response to new challenges and priorities that require enhanced resilience and stronger political will. Therefore, this Enhanced LCCAP 2021-2050 looks at a further horizon, reconciles contemporary urban and development trends, and envisions a city that is carbon-neutral, climate-resilient, and inclusive in 2050.

Quezon City Government is one of the recipients of the Climate Action Planning Program (CAP) of the C40 Cities Climate Leadership Group, which aims to provide technical assistance to cities worldwide to develop ambitious, evidence-based, and inclusive climate action plans that respond to the sound of the Paris Agreement. Quezon City's action plan focuses on four key areas namely emissions neutrality, resilience to climate hazards, inclusivity and benefits, and governance and collaboration. These critical components are captured by Figure 2.

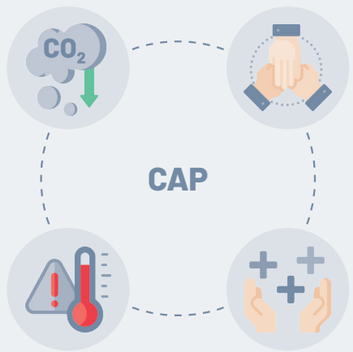
Through a consultative process with city stakeholders and department representatives, the development of this Enhanced LCCAP has placed the City's unique local contexts and needs front and center, crystalizing its ownership of the plan and ambition for transformative climate actions.

Emissions Neutral

Develop a pathway to deliver an emissions neutral city by 2050 at the latest and set an ambitious interim target and/or carbon budget

Resilience to Climate Hazards

Demonstrate how the city will adapt and improve its resilience to the climate hazards that may impact the city now and in future climate change scenarios



Governance & Collaboration

Detail the governance, powers and the partners who need to be engaged in order to accelerate the delivery of the city's mitigation targets and adaptation goals

Inclusivity and Benefits

Outline the social, environmental and economic benefits expected from implementing the plan, and improve the equitable distribution to the city's population

Figure 2
Four critical components of an inclusive climate action plan aligned with the Paris Agreement

Framework and Methodology

Quezon City has completed the first stages of the CAP Program process with a strong focus on building its evidence base for climate action. In March 2020, the City completed its Climate Action Planning Strategic Appraisal, Greenhouse Gas Inventory and its management plan, emissions scenario modeling to 2050 via the C40 Pathways tool, qualitative Climate Risk Assessment (CRA) via the Climate Story Map and its CRA Management Plan.

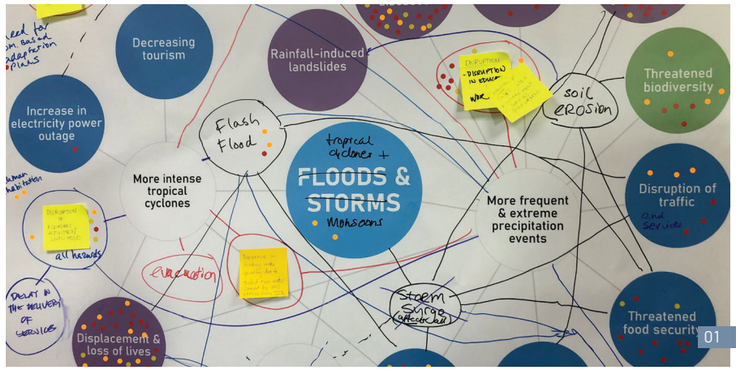
These are evidence-based tools that determine the city's emissions and climate risk baselines in its key sectors and the vulnerability of specific structures and sectors to the impacts of climate change. With these essential data points at hand, the City is in a better position to strategize its mitigation and adaptation actions. These tools and processes are discussed in further detail in Section 2: Towards a Carbon-Neutral, Resilient, and Inclusive Quezon City.

An Inclusive Climate Action (ICA) Analysis was done to capture a snapshot of the inclusivity and equity baseline of Quezon City in seven (7) domains as shown in Figure 3. This analysis has given insights into the special considerations to ensure that the climate actions are implemented in an inclusive manner.

Figure 3
Seven domains of the Inclusive Climate Action Analysis

> The City completed its Climate Action Planning Strategic Appraisal, Greenhouse Gas Inventory and its management plan, emissions scenario modeling to 2050 via the C40 Pathways tool, qualitative Climate Risk Assessment (CRA) via the Climate Story Map and its CRA Management Plan.

01 Snapshot of discussion at the validation workshop of Quezon City's qualitative Climate Risk Assessment (CRA)



With the evidence base completed, the City proceeded to the identification of its long list of climate actions, collated from the LCCAP 2017-2027, new emerging priority programs, and national policies and local project documents such as its City Recovery Plan, Disaster Risk Reduction and Management Plan (DRRMP), Comprehensive Land Use Plan (CLUP), and data inputs to the CDP-ICLEI Unified Reporting System, among many others. More than 200 actions were identified, which were analyzed and reviewed by the City stakeholders and CAP Programme teams to ensure technical and policy soundness and strengthen overall ambitions.

This long list was consolidated to 39 climate actions and categorized into five sectors: (i) waste, (ii) energy, (iii) buildings, (iv) transportation and air quality, and (v) urban planning. The groupings of the 39 actions were the basis of the analysis, prioritization and definition of climate actions. The tools and methodologies used are discussed in greater detail in the QC CAP formulation process under Section 1: Quezon City's Climate Governance Landscape.

The shortlisted actions were ranked using three key criteria: (i) mitigation and adaptation benefits, (ii) co-benefits, (iii) feasibility. Guided by these quantitative metrics, the City was able to narrow down the shortlist further, leading to the final list of 24 priority climate actions, which were then incorporated into the Enhanced LCCAP 2021-2050. Figure 4 illustrates a summary of the processes involved in the production of this document.

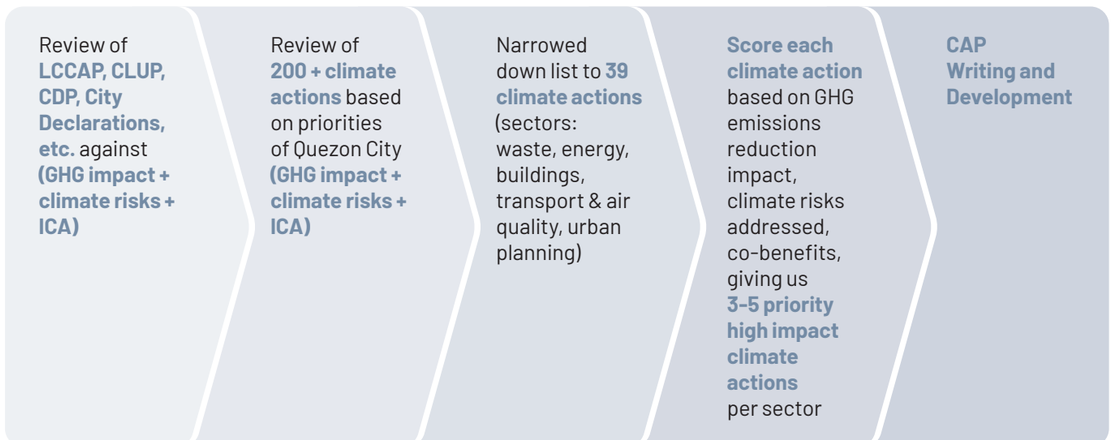


Figure 4
High-level processes to develop the priority climate actions

01 Quezon City officials at Adaptation Academy conducted in 2020; Rotterdam, the Netherlands.

One critical element of the Enhanced LCCAP development is the proactive involvement of the City departments and representatives in shaping the outcomes of these processes. For instance, City representatives participated in a two-part workshop on November 19th and 20th, 2021, and discussed in meticulous detail the outcomes of the C40 tools and analyses (e.g., AMIA, ASAP, and ICA), which have been fundamental to shaping the Enhanced LCCAP's strategic climate actions.

With the majority of the contents for the Enhanced LCCAP produced from the series of the CAP Programme's workshops, Quezon City, C40, and ICLEI were geared to culminate by drafting the Enhanced LCCAP itself. For this purpose, a workshop to validate the contents, structure, and narratives of the Enhanced LCCAP was conducted in January 2021, for the City to shape an Enhanced LCCAP that best reflects their ambitions and priorities.

QUEZON CITY
ENHANCED LOCAL CLIMATE CHANGE ACTION PLAN
2021-2050

1

Quezon City's Climate Governance Landscape

01

Climate Vision, Commitment, and Governance

Demonstrating rapid urban growth, Quezon City endeavors to lead towards a carbon-neutral and climate-resilient development pathway, striving to promote sustainable solutions in addressing development pressures and creating healthier, greener spaces for its citizens. The Quezon City Government (QCG) has reinforced the mainstreaming of its disaster risk reduction and management (DRRM) and climate change act (CCA) in its local government systems and processes, ensuring that the City's Comprehensive Land Use Plan 2011-2030, Comprehensive Development Plan 2016-2020, and all subsequent plans promote robust green economic growth and are positioned to counter the immediate and long-term impacts of global warming.

Quezon City is a trailblazer in leading local environmental and climate initiatives. It fulfils its commitments with strong synergy with the national government's climate strategies and the City's Deadline 2020 commitment to deliver an emission-neutral and climate-resilient city by 2050. Further, it aims to achieve a greenhouse gas (GHG) emission reduction target of 30% by 2030 compared to the projected business-as-usual scenario with 2016 as the base year. This reflects an ambitious and dramatic decline in sectoral emissions through climate actions that anticipate the possible trajectories of emissions as stipulated in the Paris Agreement. The City's climate vision and specific targets are discussed further in Section 3: Vision for Now and the Future.

Moreover, the Enhanced LCCAP allows the identification of gaps that could impede its alignment with the 1.5°C Pathway and presents strategies to pivot towards this Paris Accords-compatible target. Following the C40 CAP Framework, this plan is supported with mitigation and adaptation goals and outlines the achievement of the overall climate vision and goals through priority interventions such as the enactment of key green legislations on building energy use, improving waste management systems, and catalyzing finance, technology transfer, infrastructure, manpower, and climate action advocacy.

Ultimately, the Quezon City Enhanced LCCAP is envisioned to advance local economic growth that is free of carbon and resilient to the threats of the changing climate. With the same merit, this plan places the needs and wishes of Quezon City residents and stakeholders front and center and gives them the leverage they need to be dynamic players towards the implementation of this plan.

01 Mayor Joy Belmonte at C40 World Mayors Summit in 2019; Copenhagen, Denmark.

02 Quezon City Memorial Circle

Existing Governance Structure

To enable the successful implementation of the Enhanced LCCAP, the City builds on and strengthens the existing governance structures to ensure that climate change is mainstreamed across key clusters and external stakeholders.

The main political structure that authorizes climate change function sits in the Environment Policy Management Council (EPMC), which was created through an Executive Order to serve as a technical team and policy-making body of the QCG on environmental matters. The Environmental Protection and Waste Management Department (EPWMD), on the other hand, serves as the secretariat to the council. In 2021, the Quezon City legislative council has been in the process of deliberating for the establishment of a new and bigger Climate Change and Environmental Sustainability Department, which supersedes the EPWMD in overseeing the City's delivery of climate actions.

Quezon City Powers and Opportunities for Strengthened Climate Governance

Implementing Quezon City's Enhanced LCCAP will strengthen the vertical integration and cooperation between local, regional, provincial, and national government agencies. In the same vein, delivering the action plan reinforces the city's linkages with non-government stakeholders, particularly the private sector, which is crucial to the acquisition of the necessary technology transfer and financing. The Enhanced LCCAP further addresses the power gaps especially in the sectors of decarbonizing the electricity grid enabling next-generation mobility, energy efficiency in buildings, and enhancing the resilience of drinking water, waste, and wastewater/sanitation systems were a strategic review of these showed that the City has limited powers and capacity.

QCG's capacity to deliver climate action is dependent on the structure, functions, and power of city government departments and offices to control and influence assets on services. In Quezon City's strategic review, the City's governance and powers assessment further informed the strategies for developing this enhanced LCCAP and delivering ambitious mitigation and adaptation measures.

The process looked at the governance structure and powers of the City, which showed a disparity between the powers and capacity of the city government in the following areas: *enhancing the resilience of natural capital* and *drinking water* and *wastewater/sanitation systems*.

There is a similar level of capacity and power, albeit limited, towards *optimizing energy use in buildings*, enabling next-generation mobility, and *relatively high ratings for managing disasters, risks, and impacts of extreme weather events*, and perfect ratings for *improving solid waste management*. In decarbonizing the electricity grid, the city has almost no capacity to exercise its authority and mandate nor does the city own or manage any infrastructure or system in this sector.

To enable effective governance and to mainstream climate change planning and implementation across the City's departments, a Monitoring, Evaluation, Report (MER) Framework containing a governance theme was established. This will be discussed further in Section 6 on Plan Implementation showing the complex interdependence of the city departments on one another to fully realize the climate actions and its resilience objectives.

> "The Quezon City Enhanced LCCAP is envisioned to advance local economic growth that is free of carbon and resilient to the threats of the changing climate.

02

Geographic Information

Quezon City, created through Commonwealth Act No. 502 on October 12, 1939, is the most populous and largest city in terms of land area in the National Capital Region (NCR) or Metro Manila, which comprises of 16 cities and one municipality. A map of Quezon City with defined political boundaries is shown in Figure 5.

With a tropical climate, the city features a prominent dry season from November to April, and conversely, a prolonged wet season from May to October bringing heavy rains. Land in Quezon City is predominantly used for residential and commercial purposes with a sizeable area for open spaces and parks. The city hosts a notable nature park called La Mesa Ecological Park which is part of the La Mesa Watershed Reservation, a 2,659-hectare nature reserve and the only remaining rainforest of its size in the region. Moreover, the city also has five (5) river systems with 44 tributaries in total, running through 92 of the city's 142 barangays.

Quezon City is a highly urbanized city (HUC) primarily due to its strategic location and potential for diverse urban development. It is also home to top-ranked institutions of higher learning, key national government agencies and offices, national media and entertainment networks, and internationally-renowned specialty hospitals and medical centers.

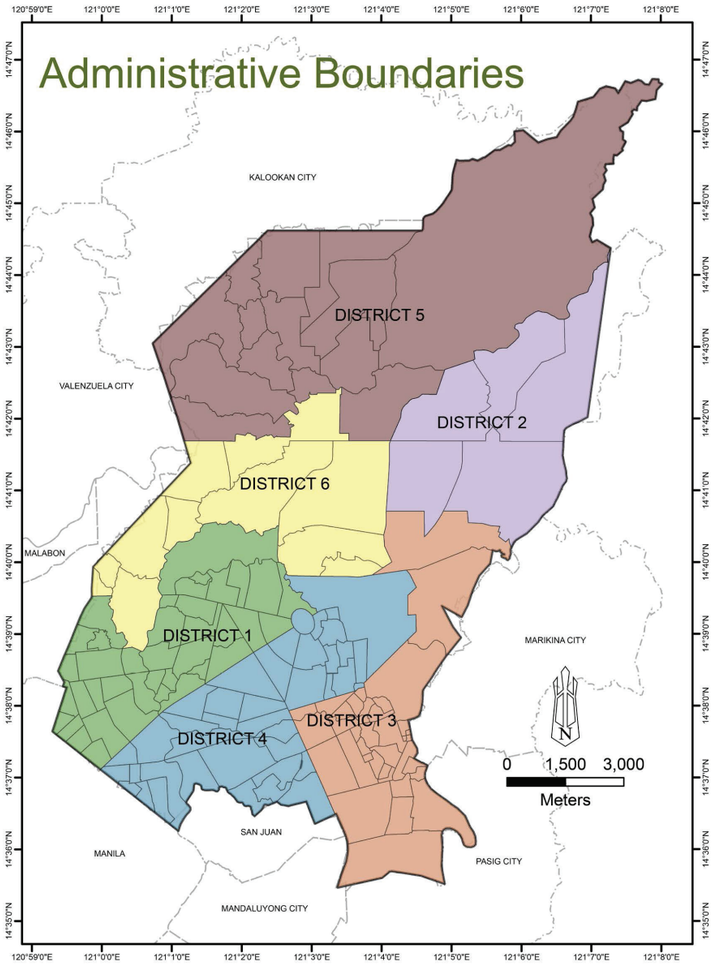


Figure 5

Location map and political boundaries of Quezon City

> "Quezon City's Comprehensive Development Plan envisions it becoming the "green lung" of the Metro Manila level and being renowned as a "clean, green, and resilient environment" at the national level.

01

Demographic Trends

In 2016, the population in Quezon City is estimated at three million[1] with an average annual growth rate of 1.17% from 2010 to 2015. In a data published by World Health Organization, life expectancy in the Philippines is male at 66.2 years old female 72.6 years old with an average life expectancy of 69.3 years old.

The increase in population is attributed to net natural increase and in-migration from neighboring cities that greatly impact labor force projections for the municipality and affect its competitiveness and in terms of providing qualified human resources for the anticipated increase in economic activities. With the current population trajectory, Quezon City's population is expected to reach almost four (4) million between 2025 and 2030[2].

Local Government Unit Classification and Economic Base

Considered as one of the most economically dynamic cities in the Philippines, Quezon City is a thriving city because of its favored location for residential developments and home to national government offices, institutions, and business hubs. Its strategic location between the north and south end of the National Capital Region (NCR) and convergence of various transportation networks such as the Mass Rail Transit 3 (MRT-3), Epifanio de los Santos Avenue (EDSA), the main thoroughfare in NCR, North Luzon Expressway, and the C-5 highway, makes it accessible to neighboring cities.

Based on the Comprehensive Land Use Plan of Quezon City, the City boasts its major role in future developments beyond its borders. It envisions becoming the "green lung" of Metro Manila and being renowned as a "clean, green, and resilient environment" at the national level. This is anchored in the dominance of strategies, programs, and policy interventions in their social, economic, environmental, land use, infrastructure, and institutional development goals.

Quezon City boasts of most of its growth centers linked to the main thoroughfares, such as Balintawak and Triangle Central Business District (CBD) for Quirino Highway; and Libis, Cubao Triangle CBD, and Batangas link for Aurora Boulevard and Commonwealth Avenue. These growth centers were businesses consisting of factories, warehouses, establishments, and commercial facilities that contribute to the city's urbanization and economic growth. With this, the City is also one of the largest providers of human resources in the country, contributing up to 1.67 million employable personnel assets[3]. This is due to the upsurge of economic activities and support services as a result of the rational implementation of the City's comprehensive development plan.

Despite the economic crisis and disaster brought about by climate change and the COVID-19 pandemic, the City remains confident in sustaining the well-being and continued growth of the City and its citizenry. The City's recovery plan highlights its initiatives on economic development which include the ease of doing business; tourism promotion; build a green and sustainable city; provision for livelihood and employment; and forged partnerships with the private sectors.

01 Bird's eye view of Araneta City, a major hub of retail, entertainment, residential, hospitality, and office developments in Quezon City.

[1] Philippine Statistics Authority (2015), Retrieved from QC Ecological Profile 2015, 3.1 Population, pp.35

[2] Quezon City (QC) Actual Population 2015 and Projection 2025 document from QC City Planning and Development Department (CPDD)

[3] Quezon City Annual Report 2019-2020

Formulation Process of the Enhanced Local Climate Change Action Plan

The Philippines is considered as one of the extremely vulnerable countries to climate change with its associated disaster and climate risks. The country steps forward to finalize and submit its Nationally Determined Contributions (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC). It will continue to align its philosophy of addressing the changing of the climate through mitigation as a function of adaptation, to promote low-emission development and sustainable-inclusive growth. Quezon City among other LGUs supports this direction of the national government.

The formulation process for Quezon City's Enhanced LCCAP is consistent with the National Climate Change Action Plan guidelines, the City's cilmate action programs, projects, and activities outlined in the Local Climate Change Action Plan (LCCAP) of 2017-2027, Climate Change Expenditure Tagging Methodology, the National Disaster Risk Reduction and Management Plan (DRRM) and Local DRRM Plan. Furthermore, the Quezon City Climate Action Plan was developed through comprehensive, methodological, and participatory processes following the C40 Climate Action Planning (CAP) Framework, as illustrated in Figure 6.

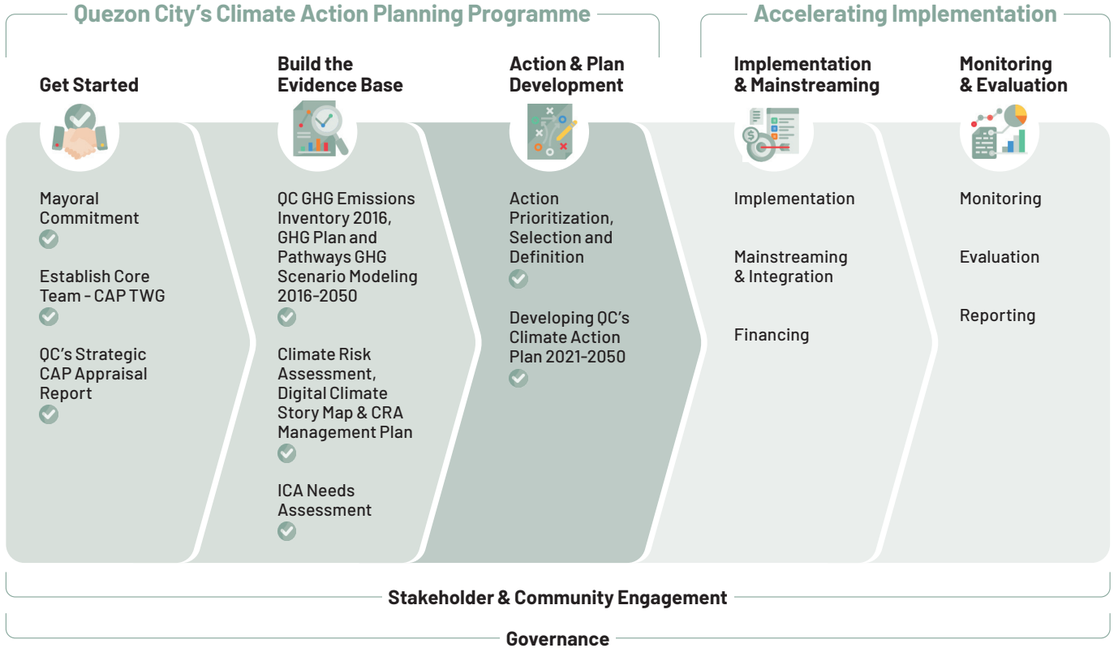


Figure 6
Overview of Quezon City's C40 Climate Action Planning Program Framework

A **COMMITMENT TO DEADLINE 2020 (D2020)**

Quezon City Government is committed to pursuing an emission-neutral and climate-resilient city by 2050. This is through an enhanced climate action plan that aligns its policies and initiatives to support the implementation and ambitions of the Paris Agreement, both addressing GHG emission reduction and adapting to the impacts of climate change. The D2020 commitment also includes the establishment of an ambitious interim target of 2030 towards achieving carbon neutrality.

B **ESTABLISH CLIMATE ACTION PLAN (CAP) TECHNICAL WORKING GROUP (TWG)**

Created through a 2010 Executive Order (EO) and reconstituted through a 2019 EO, the Environment Policy Management Council (EPMC) was established to serve as a technical team and policymaking body of the city government on matters concerning the environment. EPMC serves as the main political structure that authorizes climate actions in the city.

The Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability), on the other hand, serves as the focal office for the CAP Program. It also serves as the secretariat to the council and is responsible for resourcing, and delivering climate actions.

C **STRATEGIC APPRAISAL**

The appraisal was undertaken to inform the updating of QC's local climate change action plan. This informed the design of the city's climate action planning process such that it produces an inclusive, evidence-based, suitably ambitious, implementable climate action plan of the City. Based on the results of the CAP Strategic Appraisal, QC moved to the next phase of the CAP process which is to analyze greenhouse gas (GHG) emissions and climate risks at a local scale and define actions and targets on mitigation and adaptation; conduct an initial prioritization exercise for climate actions; and develop a roadmap for the inclusive and meaningful engagement of stakeholders.

D **GREENHOUSE GAS (GHG) INVENTORY AND EMISSIONS MODELLING TO 2050**

The development of the city's GHG inventory according to the GPC Standard provided the analysis of existing emissions levels in the city's various sectors. Its accompanying GHG Inventory Management Plan strengthened the ownership, sustainability, and accuracy in the city's future and regular inventories iterations.

The inventory formed the emissions baseline in the scenario modeling using the C40 Pathways tool for the identification of key strategies and priority climate actions for reducing emissions in line with the objectives of the Paris Agreement. The inventory report was a basis for setting and tracking performance progress towards an established GHG emissions reduction target in 2030 and 2050.

E **QUALITATIVE CLIMATE RISK ASSESSMENT (CRA)**

The qualitative CRA consolidates Quezon City's climate risk mapping and impacts analysis of intensifying climate hazards, building upon the LCCAP of 2017 to 2027. The CRA Management Plan that accompanies it highlights the roles and responsibilities of the CRA management process particularly in institutionalizing it among key city staff and resources. The QCRA forms the foundation of action prioritization; emphasizing improving Quezon City's resilience to intensifying climate hazards, and the city's capacity for disaster response.

F **INCLUSIVE CLIMATE ACTION ANALYSIS**

Inclusive Climate Action (ICA) Stakeholder, Needs, and Policy Analysis for Quezon City is a comprehensive assessment of how inclusivity and equity are being integrated into the climate action planning and implementation processes of the City. It assesses existing climate strategies and policies, technical capacities, institutional processes, socio-economic context, formal and informal governance structures, political economy, stakeholder engagement strategies, as well as concrete mechanisms in place to monitor and evaluate inclusivity. This baseline provides key insights on the needs of the city and where the city is in terms of inclusive climate action, drawing heavily from the Climate Action Planning framework.

G SELECTION, PRIORITIZATION AND DEFINITION OF CLIMATE ACTIONS

Following the abovementioned activities, these phases were the starting point for Quezon City to determine the extent to which their current and/or planned climate targets, policies, plans, and programs are consistent with the Paris Agreement. The results of the analysis using the C40 methodologies and tools that follow ambitious, evidence-based, inclusive concrete actions that play an important role in the development and delivery of Quezon City's Enhanced Local Climate Action Plan.

This Enhanced LCCAP builds on the action selection process, which was guided by the emission scenario planning and adaptation goal setting. Guided by the city's priorities in mitigation and adaptation goals, co-benefits and inclusion, and feasibility, this current plan lists climate mitigation and adaptation actions (policies, programs, projects, and activities) that have been validated by the City during a series of sectoral validation workshops.

H STAKEHOLDER AND COMMUNITY ENGAGEMENT

In the formulation of the QC CAP, stakeholder engagements were organized and conducted with various city departments, institutions, civil society organizations (CSOs), non-government organizations (NGOs), national government agencies, and relevant business sectors among others across all CAP activities. These stakeholder engagements are in the form of a series of consultation and validation workshops among key stakeholder groups:

- QC Climate Action Planning Technical Working Group
- National government agencies that serve as one of the priority stakeholder groups showcasing the strong vertical integration efforts of the city.
- Private organizations that support and deliver essential public services such as electricity, water supply, and wastewater sanitation infrastructures, and other systems.
- Non-government organizations (NGOs) that are currently in partnership with the City in the delivery of various ongoing initiatives.

LCCAP Time-Frame

The Enhanced LCCAP 2021-2050 follows the time-frame similar to that of the existing LCCAP of 2017-2027. This current plan outlines the essential role of adequate resources to support priority climate actions of different programs, projects, and activities. As a result, the following time-frames are followed for an accurate, consistent, transparent, and complete process of planning and implementation towards achieving the city's mitigation and adaptation goals.

LCCAP Time-Frame	
Immediate	**2021-2022**
Short-Term	**2023-2025**
Medium-Term	**2026-2030**
Long-Term and Progressive	**2031-2050**

QUEZON CITY
ENHANCED LOCAL CLIMATE CHANGE ACTION PLAN
2021-2050

2

Towards a Carbon-Neutral, Resilient, and Inclusive Quezon City

Climate Change and Impact Assessment

LCCAP 2017-2027 categorizes Quezon City as a City with a medium combined risk of climate disasters. The same document also identified the climate hazards and vulnerability of each of the barangays, providing a granular look into how the City experiences climate change.

Building on the outcomes of LCCAP 2017-2027 and as part of the CAP Program methodology, the City has validated in 2019 its recorded climate impacts through an interactive Climate Story Map[4], which visualizes updated information on material climate hazards such as heat, cyclones, floods, and droughts. The interplay between the components of hazard, exposure, and vulnerability was analyzed using the framework illustrated in Figure 7.

Figure 7
Framework for analyzing the relationship between the City's level of hazard, exposure, and vulnerability

01 An estimated 30% of Quezon City's population, equivalent to 190,772 households, are considered informal settler families with 5.2% or 9,920 living in or along danger areas such as waterways.

[4] https://climadapserv.maps.arcgis.com/apps/StorytellingSwipe/index.html?appid=73a5be72c10f49ca8987365aeecbc5f2&embed

The Enhanced LCCAP then performed a qualitative assessment of the climate impacts experienced by the City in the following areas: (i) natural (ecological and environmental stability, water sufficiency), (ii) social (human security, knowledge and capacity development), and (iii) economic (sustainable energy, infrastructure, and transport, food, and industries and services). Figure 8 summarizes the key climate risks identified in Quezon City (i.e., heat, cyclones and floods, and drought) and their impacts on these three overarching sectors.

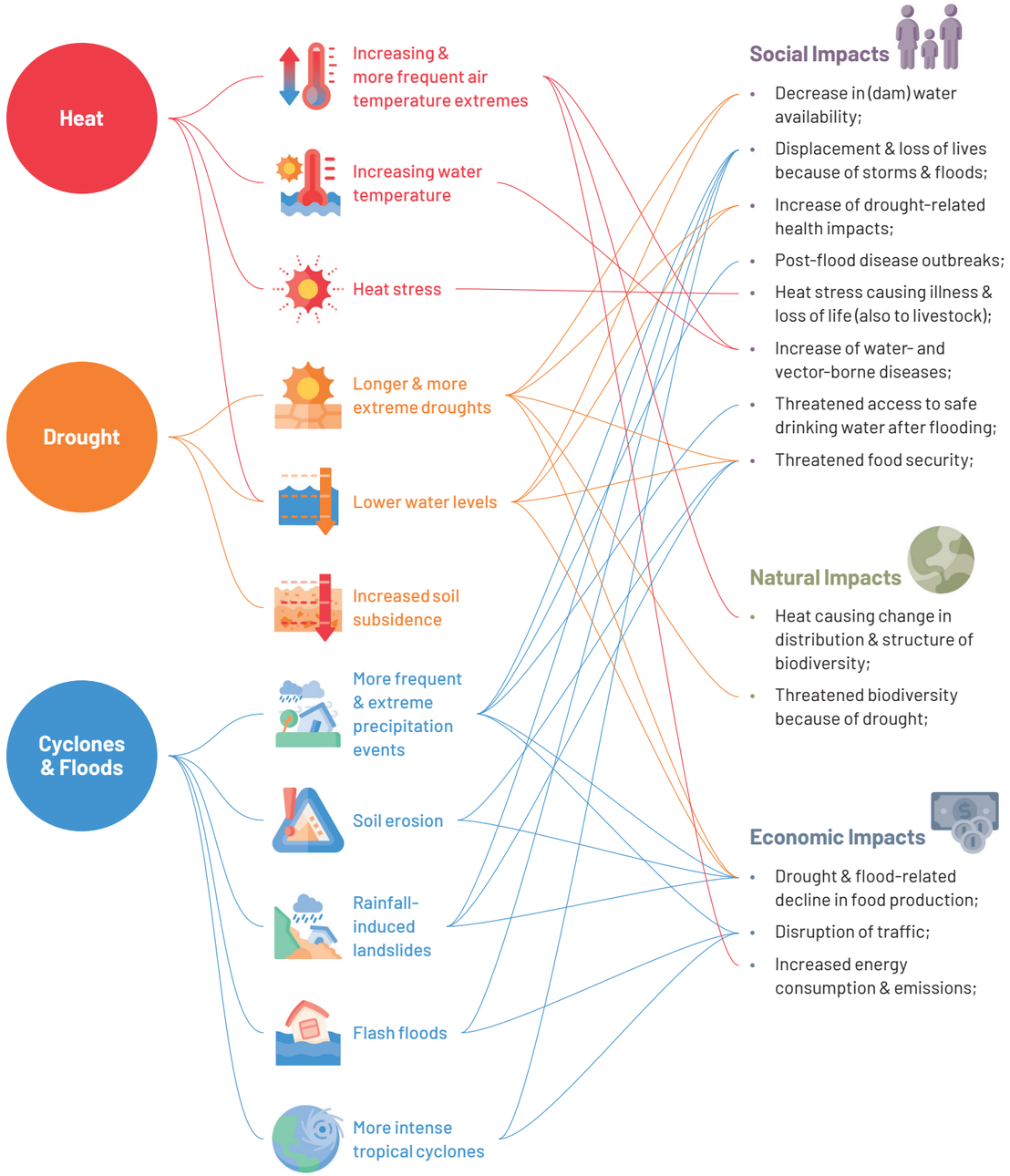


Figure 8
Climate change impacts on the City's social, natural and economic sectors

Heat

Temperatures have risen steadily in the country with an average of 0.1°C per decade[5]. Quezon City is developing rapidly with obvious signs of urban sprawl, including the replacement of natural vegetation with buildings and other infrastructures. This has inadvertently caused dramatic shifts in the City's microclimate, raising summer temperature in the City by up to 7°C. Since 1951, nights and days in Quezon City have become increasingly warm. Climate projections from PAGASA suggest continuous warming in the future, with the largest surge in the summer months of March, April, and May. Under a high emissions scenario, the mean temperature in the Philippines could increase by as much as 1.2 - 2.3°C until 2050[6]. These City heat-related trends in 2019 and 2050 are visualized by several diagrams in Figure 9.

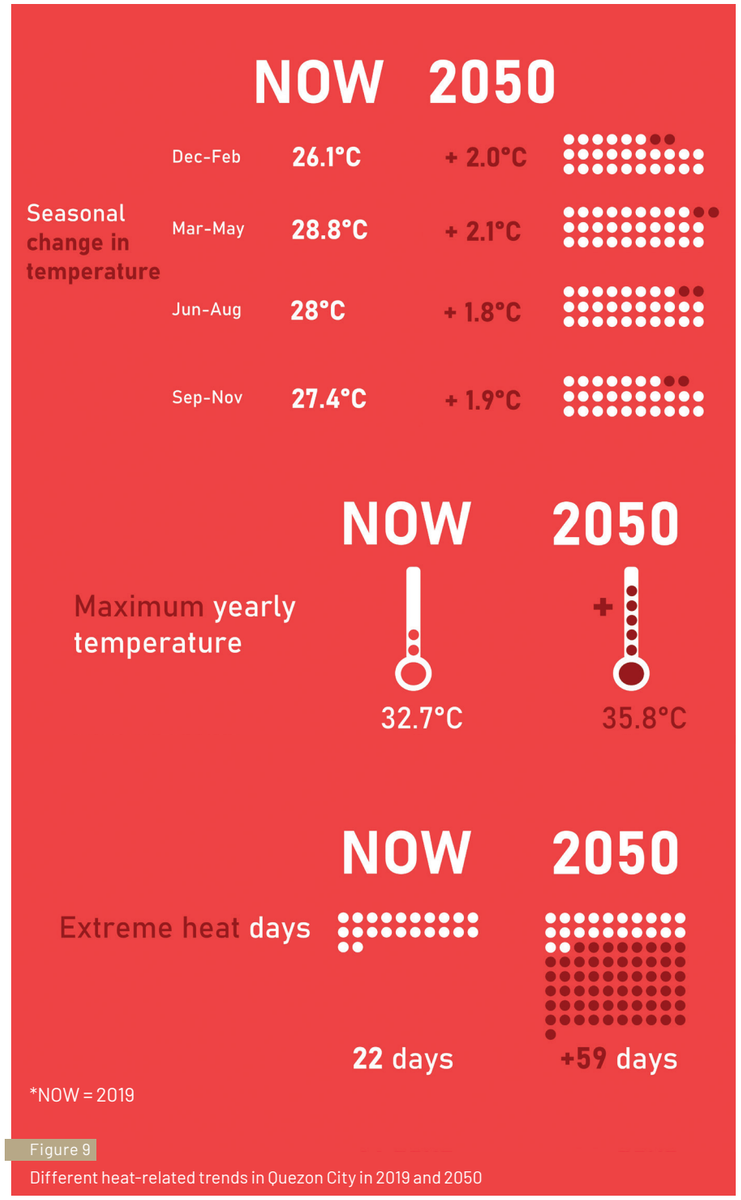


Figure 9
Different heat-related trends in Quezon City in 2019 and 2050

[5] Department of Science and Technology – Philippine Atmospheric, Geophysical, and Astronomical Services (2018). http://bagong.pagasa.dost.gov.ph/

[6] Ibid

The effects of heat are often overlooked but are serious. As shown in Figure 10, heat can have vast implications on the City's activities and sectors. Heat stress causes multiple health issues, ranging from reduced capacity to work and lower labor productivity to heat-stroke events and fatal diseases. Quezon City is not only facing the effects of increasing temperatures through climate change: paved and cemented urban surfaces are ineffective in reflecting solar radiation, which warms up the surroundings causing urban heat island effect (UHI). This results in increased building energy use for cooling, which trigger higher energy consumption and City emissions.

The impacts of heat do not affect everyone equally. Elderly people are known to be more vulnerable than the general population, being more likely to suffer from heat stroke. Those with pre-existing health conditions are even more vulnerable, as short periods of exposure to heat can aggravate their health conditions.

Other key heat-related risks in the City include the increase in the (a) transmission of water- and vector-borne diseases like dengue and polio, (b) water shortages, and (c) uncontrolled upsurge in energy consumption and emissions particularly linked to the usage of equipment for cooling buildings. In addition, excessive heat is also seen to cause changes in local biodiversity distribution and structure. Warming could pose additional stress on vulnerable ecosystems and the species they host and could result in the crossing of climatic thresholds that some species cannot adapt to.

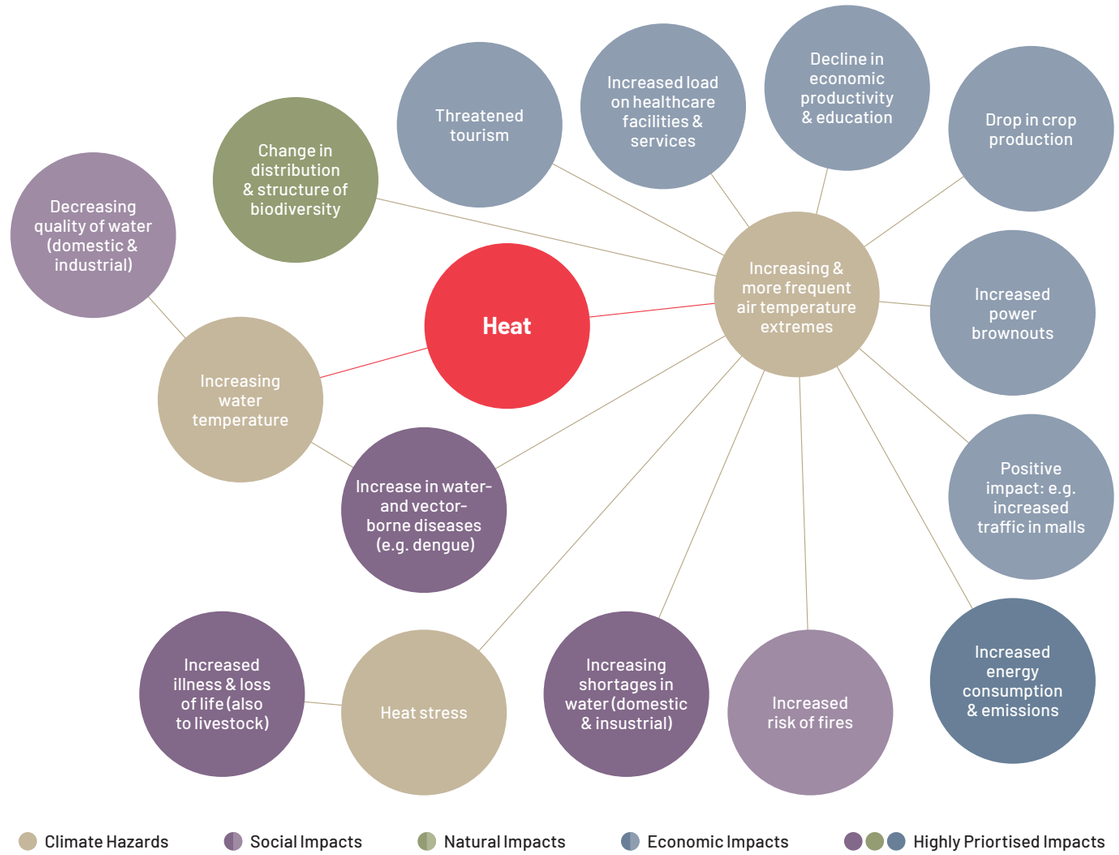


Figure 10
Increase in heat incidence and its associated impacts

Cyclone and Floods

In the BAU climate change scenario, records show that Quezon City is likely to experience an increase in precipitation extremes. Similar with the national trends, these precipitation events can cause more intense and prolonged flooding, disrupting economic activities and posing major threats to human life. As a metropolitan in the tropics, Quezon City suffers from the vicious cycle of increasing microclimate temperatures that trigger higher volume and more intense precipitations.

Future projections by PAGASA show that there is no discernible increase in the frequency of tropical cyclones. However, increases in the intensity of cyclones have been experienced in recent years that are attributed to the rising sea surface temperature. It is expected that the projected continuous warming in the future could worsen the intensity of typhoons and exacerbate their effects[7].

Extreme rainfall often causes floods when rivers and canals exceed their capacity. Poor communities are especially exposed to these floods, often situated in flood zones and with fragile houses. As gathered from multi-stakeholder workshops with city representatives, Figure 11 visualizes the links between cyclones and floods and their impacts on city activities and sectors.

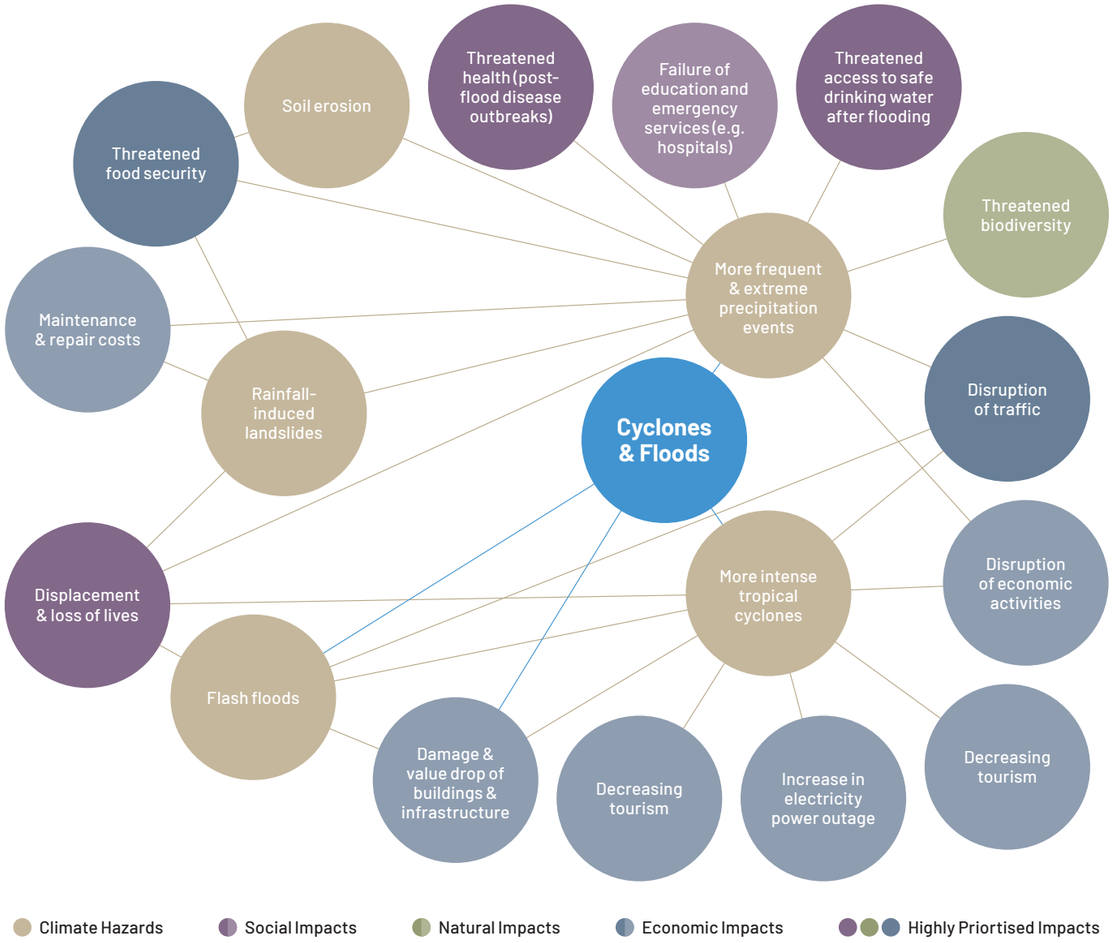


Figure 11
Impacts of cyclones and floods on different city sectors and activities

> As a metropolitan in the tropics, Quezon City suffers from the vicious cycle of increasing microclimate temperatures that trigger higher volume and more intense precipitations.

Extreme rainfall events combined in elevated terrains, such as in the City's northeastern region, can spell landslides with far-reaching societal and economic damages. In 2012, a landslide triggered by heavy rains killed several individuals in the City. As global warming worsens, the intensity of tropical cyclones can be expected to increase, resulting in more landslide hazards events[8]. More specifically, hazards resulting from extreme rainfall events cause the following:

- **Displacement and loss of lives.** It is estimated that a 100-year flood will result in 111 casualties in Quezon City, with floods also leading to accidents and injuries like contusions, fractures, and electrocution. Around 69,000 people are estimated to be displaced while an estimated 700,000 individuals are projected to be significantly affected one way or another.

  For every 1,500 informal settlement structure, an average of one additional casualty is estimated to occur. Barangays Batasan Hills, Tatalon, Sta Lucia, and Bagong Silangan are expected to experience the highest casualties due to their larger populations and higher number of informal settlement buildings than average in Quezon City. Likewise, the majority of these informal settlements are located nearby river systems. Extreme rainfall and the resulting floods may lead to an increased transmission of infectious diseases while systemic limitations of healthcare facilities could worsen fatality rates.
- **Post-flood disease outbreaks.** Extreme rainfall and the resulting floods may lead to an increased transmission of infectious diseases, especially where 30% of Quezon City is under 15 years old. High disease incidence rates after a flood, combined with systemic limitations of healthcare facilities and water and sanitation systems, also constitute a major vulnerability. Post-flood disease outbreaks include Leptospirosis infections, and gastrointestinal illnesses such as cholera via incidental ingestion of floodwater. Approximately 7,000 individuals in the City are at risk of contracting a gastrointestinal disease due to extreme floods.
- **Threatened food security.** Excessive rainfall and strong typhoons could inflict serious damage to crops. After extreme rainfall, access to food can be limited which could also cause malnutrition and low immunity. Commercial value chains are largely disrupted, which can even impede the provision of relief meals.
- **Threatened access to safe drinking water.** Due to disrupted water lines and damaged pumps, many people in Quezon City would have no access to safe drinking water. This is more pronounced in poor and low-income communities where water is limited even without flood events.
- **Traffic disruption**. Uncontrolled traffic congestion is increasingly common in Quezon City and this can be aggravated by flood events. Due to poor drainage systems in some locations, even minor floods can disrupt traffic flow and hamper public transportation facilities.

[7] Manila Bay Sustainable Development Plan (2018). Accessible at: http://mbsdmp.com/about-us

[8] University of Anglia (2019). SCaRP: Simulating Cascading Rainfall-triggered landslide hazards in the Philippines. Accessible at: https://gtr.ukri.org/projects?ref=NE%2FS003371%2F1#/tabOverview

Drought

Metro Manila has experienced dry conditions in past El Niño events. The length of the longest dry spell, which is the maximum number of consecutive dry days with daily precipitation under one (1) mm, is projected to increase by 7.5 days towards 2050[9].

Figure 12
Different drought-related trends in Quezon City in 2040 and 2050

Long dry periods can have a serious impact on water availability. In 2019, data from PAGASA showed La Mesa dam at a critical level of lower than 70 meters, the lowest in 12 years. Low water levels may result in water interruption schedules, leading to barangays experiencing low water pressure or no water throughout the summer. Currently, Quezon City is experiencing a low to medium level of water stress, which is expected to worsen to an extremely high level in 2040[10]. Worsening water stress indicates more competition among users, hitting the urban poor the hardest.

There is a high probability that droughts would also increase related illnesses such as chronic respiratory diseases. Similarly, it is linked to the worsening condition of the natural ecosystems in the City which may lead to failures in biodiversity, both in variety and number of species. It is also expected to affect food security in the City as it directly impacts the areas where supply is imported, locally and internationally. Decreased food production, in turn, may have economic implications particularly affecting the poor and marginalized communities. As visualized in Figure 13, the impacts of droughts can cascade to food insecurity, water insufficiency, and prevalence of some illnesses.

[9] Copernicus Climate Change Service. *Global users in the Copernicus Climate Change Service*. Report Note C3S_422_Lot1_SMHI. http://climateservice-global.eu/climate-impacts

[10] World Resource Institute (2015). AQUEDUCT: Water Risk Atlas. https://wri.org/applications/aqueduct/water-risk-atlas/#/?advanced=false&basemap=hydro&indicator=w_awr_def_tot_cat&lat=30&lng=-80&mapMode=view&month=1&opacity=0.5&ponderation=DEF&predefined=false&projection=absolute&scenario=optimistic&scope=baseline&timeScale=annual&year=baseline&zoom=3

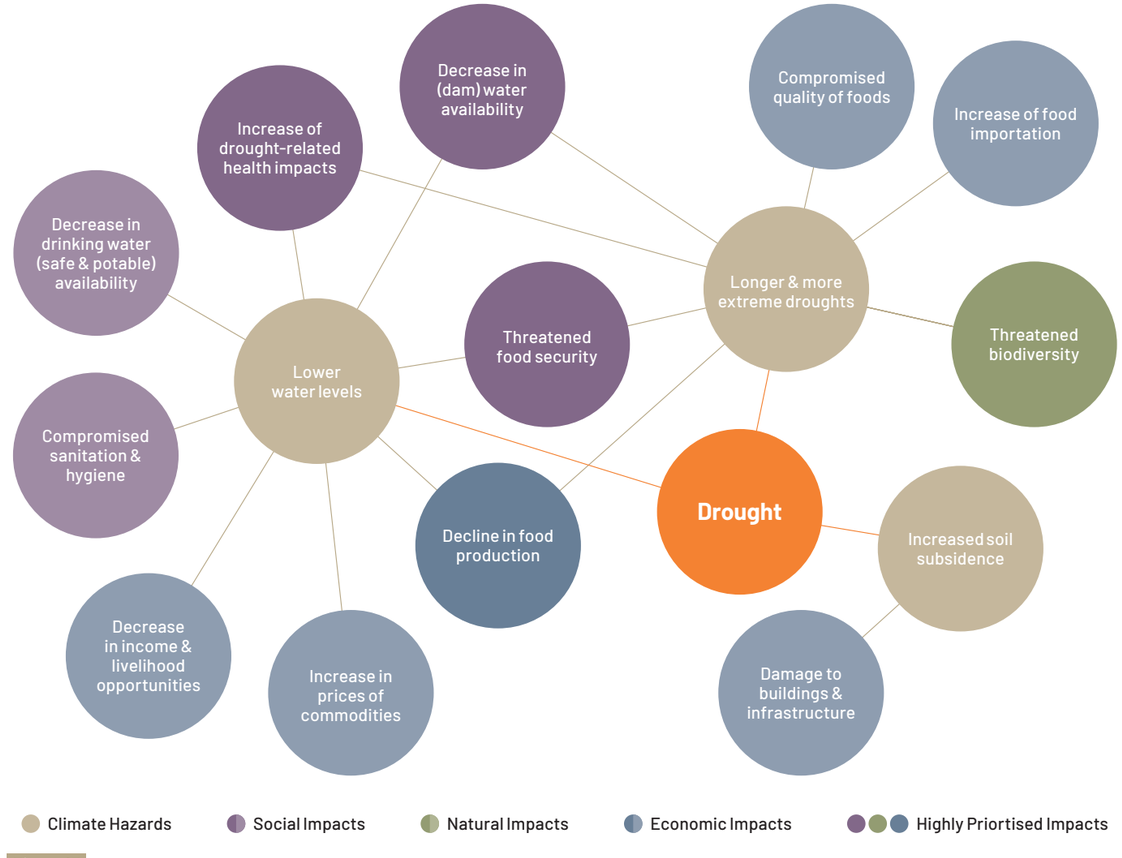


Figure 13
Impacts of Drought on the City

GHG Emissions Profile and Scenario Modeling

As defined in its Climate Risk Assessment (CRA) Management Plan which was completed in 2020, Quezon City will update its CRA every four years. A full risk assessment should be undertaken to map the exposure, vulnerability and adaptation capacity of priority hazards.

Completed in 2019, the 2016 city-wide GHG inventory covers the stationary energy, transportation, and waste sectors, following the Global Protocol for Community-scale Greenhouse Gas Emission Inventories (GPC). As set out in its GHG Inventory Management Plan which was completed in 2020, Quezon City will undertake the updating of its city-wide GHG inventory every two years, allowing the city to track progress on emissions reductions. It is the first Philippine city to complete its GHG Inventory Management Plan, which details the processes, best practices, and workplan to complete the GHG Inventory.

Leveraging the City's GHG inventory and guiding the identification of priority mitigation actions, emission scenarios were modeled using the C40 Pathways tool. The process involved multi-stakeholder consultations to develop and validate future emission scenarios of the City. Two scenarios were developed for the City namely (i) a Business-as-Usual (BAU) scenario, and an (ii) Ambitious Action Scenario. As a result of the GHG modelling, this Enhanced LCCAP sets a 30% emissions reduction target from the business-as-usual scenario in 2030, in line with its commitment to pursue carbon neutrality by 2050.

GHG Emission Profile

In the GHG inventory (GPC BASIC standard) conducted in 2016, the total base year emission in Quezon City was 8.01 $MtCO_2e$. The stationary energy use in buildings (i.e., residential, commercial, and industrial), manufacturing, and construction contributed the largest with a total of 4.80 $MtCO_2e$ or 60% of the total GHG emission. This is followed by on-road transportation comprising 21% of total emissions, followed by waste (i.e., landfill disposal and open dumpsite, biological treatment, and wastewater) with a 19% contribution. As shown in the emissions breakdown in Figure 14, Quezon City's key sectoral emitters are stationary energy, on-road transportation, and waste.

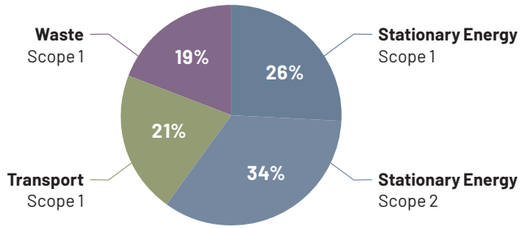


Figure 14
Breakdown of Quezon City's GHG emissions per sector

Stationary Energy

The stationary energy sector emitted the largest amount of GHG among the sectors. Table 1 shows the stationary energy emission by sub-sector, of which, electricity consumption had the greatest contribution mainly in the areas of lighting, household appliances, and cooling. The city has high Scope 2 emissions due to electricity consumption, contributing to 34% of total emissions. This is due to its dependence on the national grid that is currently coal-intensive. Other dominant fuels in the energy and building sector include gas oil, residual fuel oil, liquified petroleum gas (LPG), kerosene, wood or wood waste, and charcoal.

Emission Source	% Share	$MtCO_2e$
Stationary Energy		
Residential Building	14.2%	1.14
Commercial and Industrial Building	30.7%	2.46
Manufacturing Industries and Construction	15.0%	1.20

TABLE 1
Emissions profile and breakdown for the stationary energy sector

Transportation

The transportation sector is responsible for approximately 21% of the total GHG emissions accounting for a total of 1.72 $MtCO_2e$. It only covers on-road transportation within the City's boundaries. The emission mainly came from diesel and petrol consumption of jeepneys, tricycles, and private vehicles. This signifies a high preference in the community for the use of motor vehicles in the City. Table 2 presents Quezon City's emissions profile for its transportation sector.

The use of diesel accounts for 56% of on-road transport emissions followed by petrol (39%), LPG (4%), and kerosene (1%). One limitation to fully account for the emissions from the sector concerns data confidentiality related to emissions coming from electricity consumption from the MRT and LRT railways, hence, they have not been determined.

The CAP emissions scenario modeling recommends that modal shift shows the highest GHG reduction potential. Hence, the city should continue providing enabling mechanisms including policies and infrastructure to better influence the behavior of people. The city should also continue exploring partnerships with the national government and private sector in pushing for reforms on the movement of goods and services within the city.

Emission Source	% Share	$MtCO_2e$
On-Road Transportation	21.5%	1.72

TABLE 2
Emissions profile of the City's transportation sector

Waste

The waste sector contributes the least to Quezon City's total emissions. The solid waste emissions, primarily from disposal to landfill, account for 69% of the waste sector, while the remaining 31% is attributed to wastewater treatment and discharge. Meanwhile, emissions coming from biological treatment are almost negligible. Results of the inventory provide an opportunity to consider possible mitigation options that can be implemented to reduce emissions from the waste sector, particularly in terms of solid waste disposal of Quezon City because solid waste management is within the city's mandate.

Waste from landfills comprised mainly of organic materials, such as food waste, paper/cardboard, and yard waste. These organic materials when decomposed in the anaerobic environment of a landfill produce methane which is 21 times more potent than carbon dioxide. On the other hand, the inventory shows that a large volume of wastewater in the City is being treated through a septic system. However, a septic system involves processes that directly release emissions to the environment.

Emission Source	% Share	$MtCO_2e$
Landfill Disposal and Open Dumping	12.9%	1.03
Biological Treatment	0.0%	0.00
Wastewater	5.8%	0.46

TABLE 3
Emissions profile of the City's waste sector

> Under the business-as-usual scenario with 2016 as the baseline year, Quezon City's emissions are expected to grow by 19% in 2020, 85% by 2030, over 200% by 2040, and over 350% by 2050.

GHG Emission Scenario Modeling

BUSINESS-AS-USUAL (BAU) SCENARIO

The BAU scenario was developed based on the economic and population growth of QC for each subsector of emissions, including a range of other growth assumptions across key areas of development. The scenario assumes that there is no new policy or technology intervention will be implemented to reduce carbon emissions over time. Landmark local and national legislation, policy, programs, and project implemented after 2016 are considered beyond the BAU.

Under the business-as-usual scenario with 2016 as the baseline year, Quezon City's emissions are expected to grow by 19% in 2020, 85% by 2030, over 200% by 2040, and over 350% by 2050. These projected emissions scenarios by key sectors namely stationary energy, transportation, and waste are summarized in Figure 15: Quezon City's BAU emissions scenario until 2050 for its three key sectors.

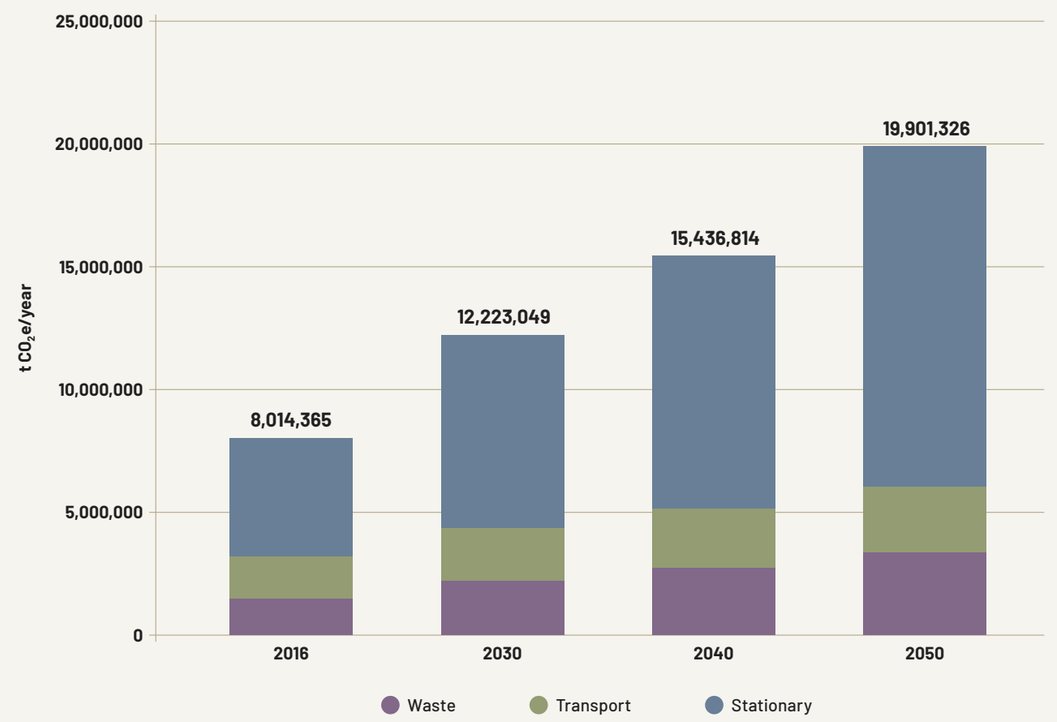


Figure 15
Quezon City's BAU emissions scenario until 2050 for its three key sectors

AMBITIOUS ACTION SCENARIO

To outline a pathway that will guide Quezon City towards carbon neutrality, an Ambitious Action Scenario was developed. Under this scenario, an interim CO_2 emission reduction of 30% compared with the BAU scenario should be achieved by 2030, and 80% reduction by 2050. In terms of emission intensity, this translates to an approximate per capita reduction of 2.0 tonnes by 2030 and 1.0 ton/capita by 2040. This represents the peaking of emissions in 2030, which ultimately leads to net-zero emissions in 2050. Under this scenario, the QC government is committed to undertaking transformative actions in the sectors of energy, building, transport, and waste.

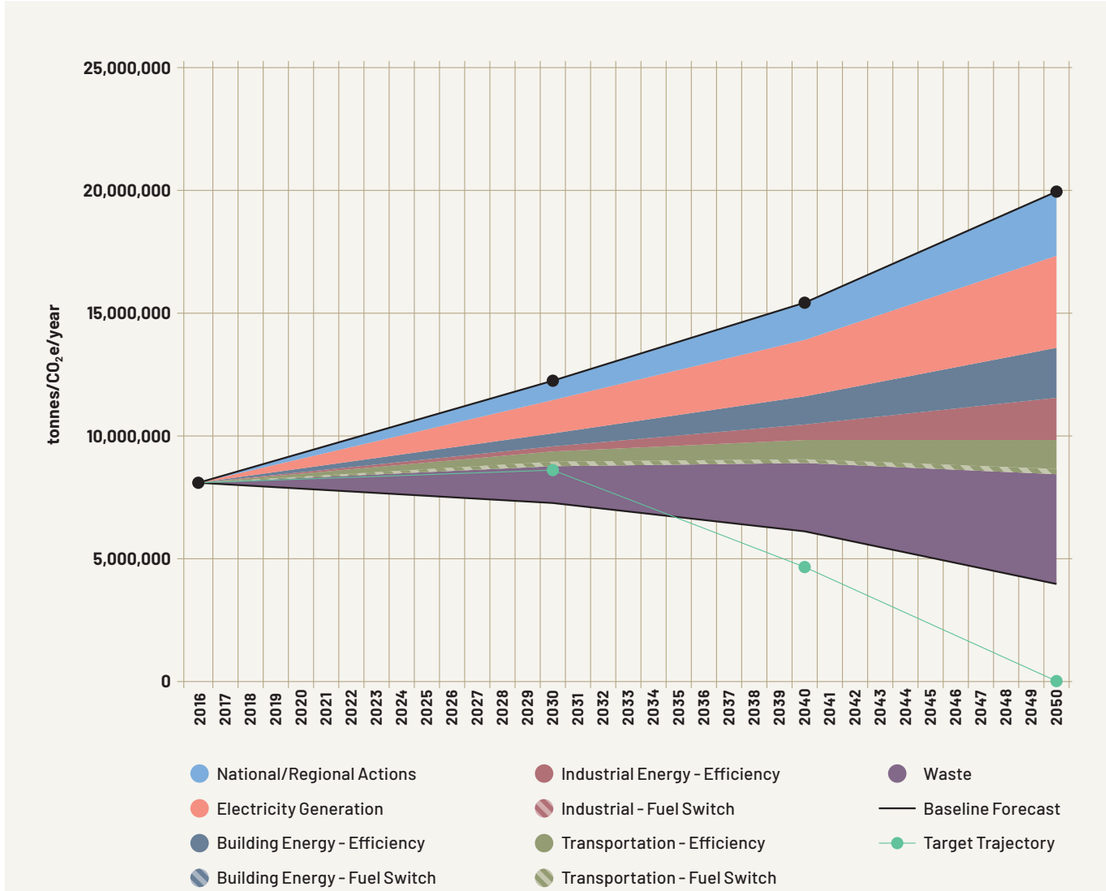


Figure 16
Quezon City's emission trajectories towards 2030 and 2050

> "To outline a pathway that will guide Quezon City towards carbon neutrality, an Ambitious Action Scenario was developed. Under this scenario, an interim CO_2 emission reduction of 30% compared with the BAU scenario should be achieved by 2030, and 80% reduction by 2050.

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01 Electric-powered jeepneys procured by the QC Government

In this scenario, the Quezon City government identified the following transformative actions in the energy and building, transport, and waste sectors to facilitate the transition to low-emission development:

Sector	Transformative Actions
Energy and Building	• Meet national Renewable Energy targets (contingent on the achievement of national targets) • Scale-up solarization in government-owned, commercial, and residential buildings (national and local) • Develop and implement the enhanced Local Green Building Code
Transportation	• Mode shift to walking and biking • Mode shift to mass public transport • Modernization of public utility vehicles (PUVs) and private cars
Waste	• Enhanced comprehensive solid waste management program • Managing and processing of organic waste • Enhanced wastewater management

TABLE 4
Quezon City transformative actions in key sectors to achieve climate neutrality

The emission reduction potentials of these actions are shown Figure 15. The energy and building sector will consistently contribute the largest emissions reduction of up to 63% by 2050. However, this achievement will also be contingent on renewable energy distribution and grid decarbonization at the national level.

This is followed by the waste sector, which is projected to contribute a 31.8% reduction by 2030, and 27.9% by 2050. The transport sector is expected to start with an emission reduction contribution of 11% by 2030 and a 9% reduction by 2050.

MANAGING RESIDUAL EMISSIONS

Assuming that the transformative actions have been implemented, it is expected that the Quezon City's Ambitious Reduction Scenario would only achieve an 80% reduction by 2050 from the 2016 base year. It leaves the City with residual emissions totaling 5.23 MtCO_2e in 2050, in the energy (75%), transportation (22%), and waste (3%) sectors. Residual emissions mostly occur in the energy sector particularly from the use of commercial and institutional buildings. It is followed by the transportation emissions from increased trips of buses and BRTs. Residual emissions from these sectors will be closely monitored by regular GHG emissions inventories to inform the design of future policies and measure progress towards carbon neutrality.

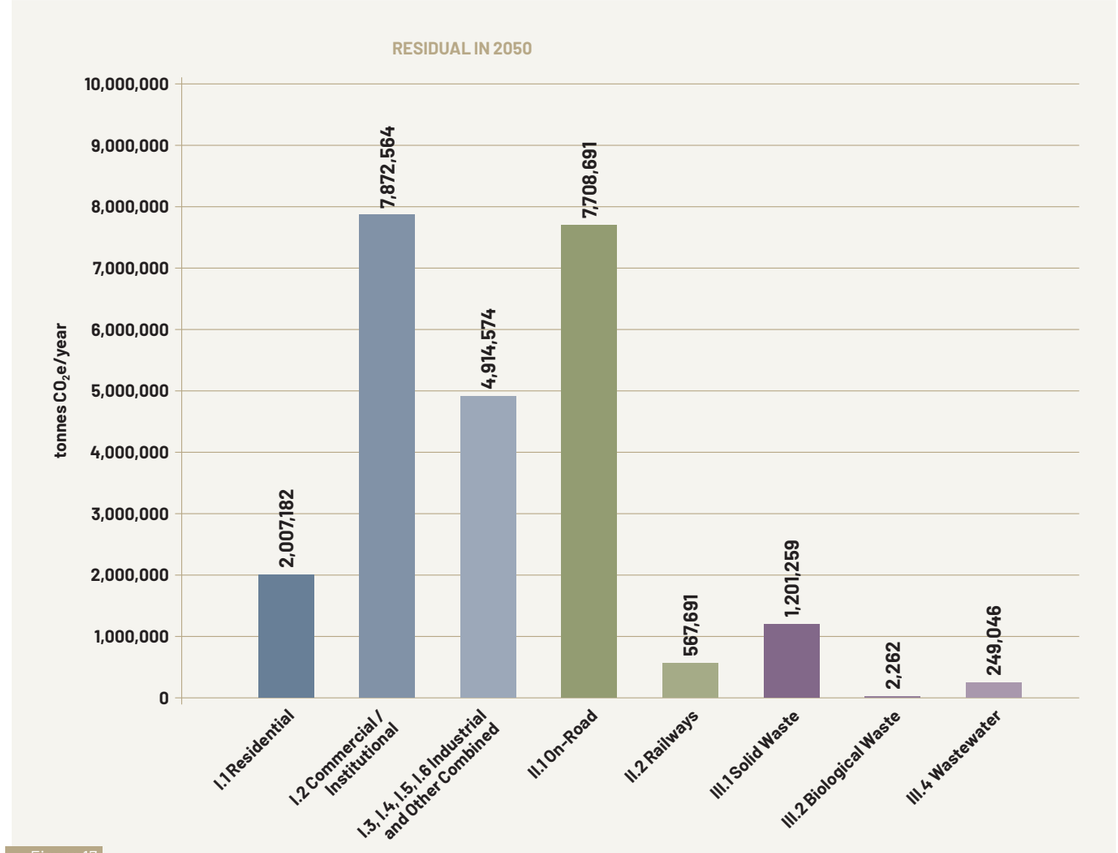

Figure 17
Residual emissions by sector in 2050

Inclusive Climate Action Consideration

While climate change is a universal and far-reaching global issue that affects all nations, some sectors and communities are more gravely impacted due to their economic standing, gender, income, and age, among other various socioeconomic factors. As climate change is tied up to all facets of development, it can also widen the gap of existing social inequalities.

This is why as part of its commitment to leave no one behind, even when it comes to responding to climate change, Quezon City adopted a framework in updating its Enhanced LCCAP that promotes inclusivity and equity by integrating social, economic, and spatial elements into it. It emphasizes the potential to deliver transformative outcomes that will not only promote meaningful benefits throughout the population but also change, improve, or even disrupt unequal and unfair socioeconomic conditions, especially for the most vulnerable sectors and communities.

The following sub-section provides a comprehensive assessment of the social, economic, and spatial elements to ensure that inclusivity and equity are being integrated into the climate action planning and implementation processes of Quezon City. It assesses existing climate strategies and policies, individual technical capacities, institutional processes, socioeconomic context, formal and informal governance structures, political economy, stakeholder engagement strategies, as well as concrete mechanisms in place to monitor and evaluate inclusivity.

This section also provides key recommendations to further improve inclusivity in Quezon City's planning and decision-making processes.

Social Inclusion

Quezon City Government has a strong governance framework for the representation of vulnerable sectors and communities where climate action planning and implementation processes must be closely linked with. In its existing governance framework, the QC government made sure that the following marginalized sectors are well represented to actively participate in the process of effective governance and development such as in the formulation of development plans and investment programs:

- Urban Poor
- Cooperative Charitable/Civic
- Education, Academic Livelihood/Vendors
- Labor/Workers
- Social Justice/Peace & Order
- Women
- Senior Citizens
- Youth and Children
- Business Environment
- HOA/Neighbourhood
- Health/Sanitation
- Social/Cultural Development
- Transportation
- Professional
- Religious
- Persons with Disability

In terms of database, Quezon City Government compiles comprehensive data and information on women, children, the elderly, and people with disability (PWD), but there is no clear reference to migrants (peri-urban and provincial workers and climate migrants), religious minority groups, persons with special needs, and spectrum of the LGBTQIA+.

Economic Inclusion

- There is an increase of highly vulnerable informal settler families who do not have access to safe, affordable, and sustainable housing
- Providing informal settler families with a safe, inclusive, affordable, and sustainable community is a massive task, requiring significant resources and political will
- It is imperative to start considering how climate-related diseases and disaster response infrastructure will affect the most vulnerable sectors and communities

Spatial Inclusion

- There is a disproportionately high impact of flooding risks on vulnerable sectors and communities in Quezon City, particularly in barangays with high population density and a large number of informal settler communities
- The recently completed 2020 Qualitative Climate Risk Assessment for Quezon City has identified key climate risks from (a) drought, (b) heat, and (c) cyclones and flooding that will specifically impact low-income and vulnerable communities such as children, youth, informal settler communities, and the elderly population.

> The Enhanced LCCAP emphasizes the potential to deliver transformative outcomes that will not only promote meaningful benefits throughout the population but also change, improve, or even disrupt unequal and unfair socioeconomic conditions, especially for the most vulnerable sectors and communities.

Key ICA Recommendations

Assessment of the City's current processes showed that inclusivity and equality are being considered in designing pertinent City-level development plans and its investment programming processes. As such, several strategies, policies, and programs based on existing development plans would address the above considerations. To improve and ensure sustained delivery of inclusive and transformative climate actions which consider stakeholders, local political economy, and existing institutional mechanisms, the following are key recommendations:

- Adopt a robust external stakeholder engagement strategy with a strong inclusivity focus via four specific institutional governance recommendations, such as (a) strengthen the capacity of the "Community and Stakeholder Engagement Section" under the soon to be created Climate Change and Environmental Sustainability Department, (b) embed ICA analyses across different departments by strengthening individual and institutional capacity, (c) ensure that the QC EPWMD-CCES and key implementation departments have clear coordination links with the elected sectoral representatives under the existing City Development Council (CDC), and (d) institutionalize the Environment Policy Management Council (or EPMC) as a permanent body;
- Strengthen the city's knowledge-exchange strategy as part of community-building among experts and key representatives from academic institutions, international development partners, non-governmental organizations, and the private sector;
- Strengthen the City's technical capacity to implement the Monitoring and Evaluation (M&E) system defined in this document;
- Enhance partnership with key academic institutions in Quezon City, including major private and public state universities such as Ateneo de Manila University, University of the Philippines-Diliman, Miriam College, and Quezon City University, to promote research collaboration, and induce bottom-up social and technological innovation; and
- Enhance partnerships and national-local dialogues with strategic national agencies such as the DENR, Climate Change Commission, Department of Energy, and PAGASA.

QUEZON CITY
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2021-2050

3

Vision for Now and the Future

Operating with a longer vision, Quezon City's Enhanced LCCAP 2021-2050 is grounded by a far-reaching aspiration for carbon neutrality, climate resilience, and inclusivity, aligning with the City's vision of a *"Quality Community – a progressive and peaceful, clean and orderly place, conducive and hospitable to living, employment, and business."* Achieving the City's vision entails strong collaboration with youth and women's groups, private sector, national government, local and international development partners, academic institutions, front-line communities, and other external stakeholders.

To deliver a climate action plan that enables this aspiration, a hierarchy of goals has been formulated: one that shares the views of the City departments and stakeholders and aligns with the targets of the national government's climate strategy. From the City's overarching climate and development mission down to the sectoral pillars of the NCCAP, Figure 18 shows the relationship between and among the objectives set for the Enhanced LCCAP. This section will zoom in on each component of this hierarchy of vision and targets.

01 QC Memorial Circle at night.

Vision for Climate Action and Sustainable Development

We aspire to be the leading city in advancing inclusive, ambitious, and evidence-based climate actions in the Philippines, building resilience and advancing green economic development while providing a livable and quality community for all.

Overarching Mitigation Target

Reduce GHG emissions by 30% by 2030 compared to the projected BAU scenario, which is equivalent to 3.6 $MtCO_2e$ reduction in 2030, and commit to pursue net-zero emissions by 2050.

Overarching Adaptation Target

Increase the adaptive capacity of communities and the resilience of natural ecosystems against the impacts of cyclones and floods, drought and heat.

Pillar 1 Food Security

Pillar 2 Water Sufficiency

Pillar 3 Ecosystem and Environmental Stability

Pillar 4 Human Security

Pillar 5 Climate-Smart Industries and Services

Pillar 6 Sustainable Energy

Pillar 7 Knowledge and Capacity Development

Figure 18
Hierarchy of the LCCAP vision, targets, and actions

Development Goal

Alongside the City's Local Disaster Risk Reduction and Management Plan (2021-2027), and Comprehensive Land Use Plan (2011-2030), Comprehensive Development Plan, among other instituted policies and strategies, the Enhanced LCCAP shall help Quezon City to achieve its broad, overarching climate vision which is:

> We aspire to be the leading city in advancing inclusive, ambitious, and evidence-based climate actions in the Philippines, building resilience and advancing green economic development while providing a livable and quality community for all.

Objectives of the LCCAP

To support the attainment of Quezon City's high-level climate vision, overarching targets for both climate mitigation and climate adaptation have been proposed, validated, and refined as part of this Enhanced LCCAP as well. These two targets are as follows:

Mitigation Goal	Adaptation Goal
Reduce GHG emissions by 30% by 2030 compared to the projected BAU scenario, which is equivalent to 3.6 $MtCO_2e$ reduction in 2030, and commit to pursue net-zero emissions by 2050	Increase the adaptive capacity of communities and the resilience of natural ecosystems against the impacts of cyclones and floods, drought and heat

Mitigation Goals and Targets

The mitigation target highlights the City's ambitious interim target to reduce emissions by 2030 compared to the business-as-usual scenario, putting it on track to pursuing carbon neutrality by 2050. Meeting the 30% emission reduction target by 2030 will be championed by the Quezon City Government, mobilizing the necessary financial resources, capacity building, and legislative mechanisms to implement the City's priority climate change mitigation actions at scale. The City's success will involve an expansive collaboration with a broad range of stakeholders, including the national government, private stakeholders, youth, and international partners.

First, it is assumed that the national government will be able to meet its 35% national renewable energy target as set out in the Philippine Energy Plan (PEP) 2016-2030. Second, mass public infrastructure projects, such as new railways, are currently in the pipeline of national government and these projects are expected for completion between 2020 and 2030. Third, there are urban systems that are under the direct control of private corporations, including water provision and power distribution, that could make significant contributions to the low carbon shift. Finally, the support of international partners in accessing finance, utilizing the right technologies, and strengthening technical capacities will put the city on track to meeting its ambitious goals.

Adaptation Goals and Targets

Its adaptation goal, on the other hand, underlines the need for progressive action to build on and strengthen the resilience of its ecosystems and communities against risks and threats from the changing climate. Consistent with the Philippine government strategy, this adaptation goal acknowledges that adaptation may contribute to climate mitigation while safeguarding the city from the threats of global warming.

It is worth noting that the adaptation target does not include specific quantitiative parameters for 2030 and 2050, unlike its mitigation counterpart. This is mostly due to limitations in setting a numerical figure that can capture the intricacies of climate adaptation impacts and progress, which are not directly quantifiable. Uncertainties and the future nature of climate impacts also make the identification of specific parameters even more difficult.

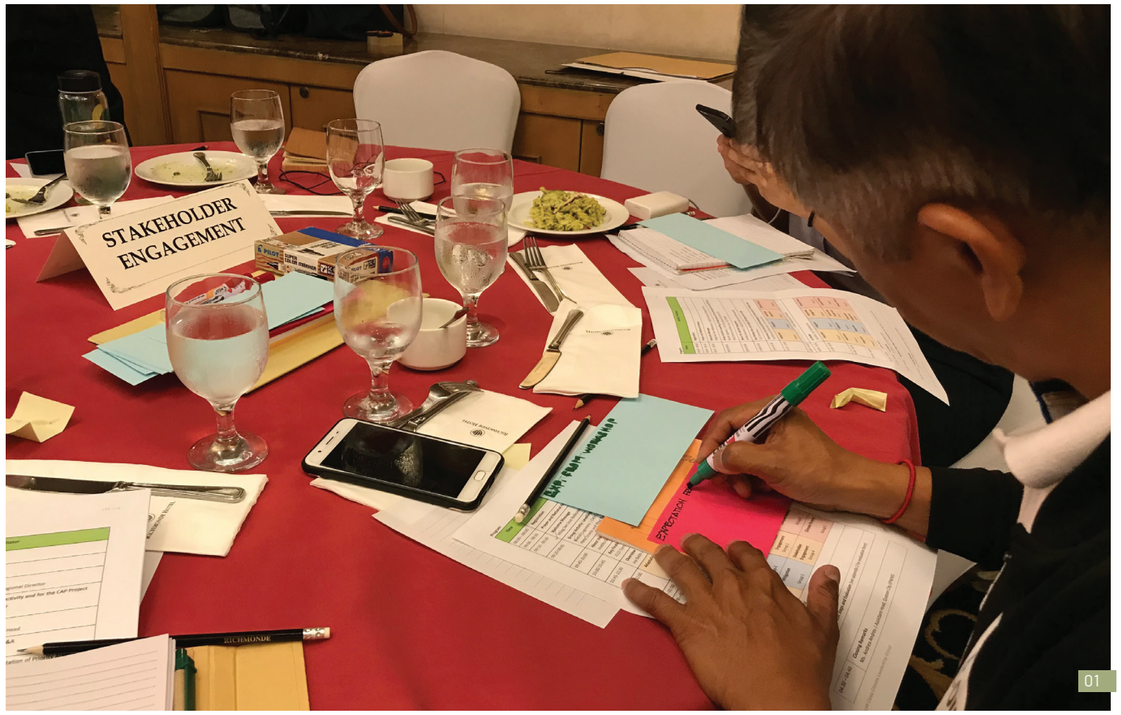
LCCAP Thematic Priorities

To support Quezon City's high-level vision and climate mitigation and adaptation targets, the Enhanced LCCAP includes seven priority pillars, which mirror the strategic areas of the Philippines' National Climate Change Action Plan (NCCAP). As summarized in Table 5, these pillars are geared to address development areas such as water sufficiency, human security, and sustainable energy. In the context of the City's hierarchy of vision and targets, these LCCAP pillars contribute to either or both mitigation and adaptation needs considering their integrated and holistic design.

Table 5 also shows the specific objective and outcomes for each of the seven pillars. These objectives and outcomes build on the preceding LCCAP's targets and have therefore been reviewed and updated for relevance.

NCCAP THEMATIC PILLAR	LCCAP OBJECTIVES	LCCAP OUTCOMES
Pillar 1 Food Security	**Objective 1:** To ensure the availability, stability, and accessibility of safe and healthy food amidst increasing climate-induced food insecurity	**Outcome 1:** Increased availability, stability, and accessibility of safe and healthy food
Pillar 2 Water Sufficiency	**Objective 1:** To ensure sustainable, stable, and equitable access to safe water for all Quezon City barangays amidst increasing water resource pressures	**Outcome 1:** Increased availability, stability, and equitability of access to water resources
	Outcome 2: To optimize urban water systems management by employing nature-based solutions to mitigate flooding	**Outcome 2:** Optimized urban water systems management contributing to flooding mitigation
Pillar 3 Ecosystem and Environmental Stability	**Objective 1:** To reduce Quezon City's urban waste impact on the environment and ecosystems	**Outcome 1:** Reduced waste impact or pressure on the environment and ecosystems, aiming for 50% diversion rate by 2030
	Objective 2: To reduce the effect of urban heat and drought on Quezon City through ecological or nature-based solutions	**Outcome 2:** Reduced effect of urban heat and drought on Quezon City
Pillar 4 Human Security	**Objective 1:** To reduce the vulnerability of men and women and other vulnerable groups (children, elderly and persons with a disability, etc.) from climate risks and disasters	**Outcome 1:** Reduced vulnerability of men and women and other vulnerable groups (children, elderly, and persons with disability, etc.)
	Objective 2: Increase accessibility of key public services to men and women and other vulnerable groups	**Outcome 2:** Increased accessibility of key public services to men and women and other vulnerable groups
Pillar 5 Climate-Smart Industries and Services	**Objective 1:** To promote green, energy-efficient, and resilient buildings and establishments in Quezon City	**Outcome 1:** Increase in green, energy-efficient, and resilient buildings and establishments in Quezon City, targeting 80-100% of building permits granted being compliant to the updated Green Building Code by 2025
Pillar 6 Sustainable Energy	**Objective 1:** To adopt sustainable and renewable energy as major components of sustainable development	**Outcome 1:** Availability of accessible, clean, and affordable renewable energy, targeting 100% solarization coverage for all city-owned buildings and facilities by 2030
	Objective 2: To mainstream climate-proofed, rehabilitated, and improved ecologically-efficient technologies for energy efficiency and conservation	**Outcome 2:** Increased climate-proofed, rehabilitated, and improved ecologically-efficient technologies
	Objective 3: To increase environmentally sustainable transport through active mobility	**Outcome 3:** Increased uptake of active mobility, tripling cycling rate from 2.2% in 2016 to 6.6% of total modal share in 2030 and expanding bike lanes from 55 km in 2016 to 350 km by 2030
	Objective 4: To promote environmentally sustainable transport through clean mass transport systems	**Outcome 4:** Increased uptake of mass public transport, with bus modal share increasing from 6.6% in 2016 to 8.5% in 2030 and railway modal share increasing from 4.2% in 2016 to 6.0% in 2030
Pillar 7 Knowledge and Capacity Development	**Objective 1:** To strengthen the institutional and individual technical capacities of city departments, external stakeholders and community members in QC's climate programs and activities	**Outcome 1:** Strengthened institutional and individual technical capacities of city departments, external stakeholders and community members to deliver the Enhanced LCCAP

TABLE 5
QC Enhanced LCCAP Objectives and Outcomes for the NCCAP Thematic Priorities



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01 A member of QC's CAP technical working group writing about stakeholder engagement

Furthermore, the specific climate actions of this Enhanced LCCAP have also been categorized into these seven thematic pillars, which are discussed in greater detail in Section 4: Seven Action pillars, One Ambition.

Firstly, and more noticeably, inclusivity as a central theme of this CAP has been innately embedded in the climate actions themselves. This means that even without an overarching inclusivity target, attaining the climate actions would yield equitable results in both climate mitigation and adaptation.

The second point about the holistic design of the climate actions is the opportunity for synergies. The methodology and analyses under the CAP Program have allowed for the specific climate actions to produce both mitigation and adaptation benefits to their respective degrees. This shows that an action that is traditionally considered to only have mitigation functions has been equipped with adaptation purposes as well, and vice versa, given the right planning and policy requirements. Therefore, the climate actions of this CAP contribute to both overarching targets.

Lastly, the climate actions also bring about co-benefits or positive externalities and socioeconomic advantages, regardless if they are primarily mitigation- or adaptation-focused. What is critical is that these co-benefits collectively steer Quezon City toward the long-term vision they have placed.

QUEZON CITY
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4

Seven Pillars, One Ambition

Consistent with the NCCAP priority areas, Quezon City's Enhanced LCCAP 2021-2050 is equipped with a portfolio of strategic priority climate programs, projects, and activities that contribute to local development needs. Each LCCAP pillar is discussed in terms of its contribution to the City's carbon-neutral growth, resilience against natural and manmade disasters, and social and development equity. As shown in Figure 19, the Enhanced LCCAP advances seven pillars, each of which have a corresponding number of strategies to implement them. The specific climate actions developed and refined under the C40 CAP Program are categorized into their respective pillars and strategies.

01 Mayor Belmonte during her State of the City Address (SOCA) in 2019

Figure 19

Quezon City Enhanced LCCAP 2021-2050 pillars, strategies, and priority climate actions

01

PILLAR 1

Food Security

Enhancing the resilience of agricultural production, distribution systems, and the communities that manage them is Quezon City's approach to attain food security. Pillar 1 represents the City's enduring flagship programs that address food insufficiency, which hurt low-income households and indigents the most through disrupted food supply chains, poor nutrition, and food inability. As a basic physiological need, the provision of nutritious and locally sourced food can help break the vicious cycle of poverty, empower communities, and provide them the opportunities to be more engaged stakeholders of the City. Similar with the NCCAP strategy, the Enhanced LCCAP looks at training individuals to scale up urban farming initiatives, increasing its uptake in every barangay, and localizing food production. As a signatory to the C40 Good Food Declaration, Quezon City aims to increase the consumption of healthy, plant-based food, cutting emissions from inefficient supply chains while ensuring secure food supply for the city's population.

> As a signatory to the C40 Good Food Declaration, Quezon City aims to increase the consumption of healthy, plant-based food, cutting emissions from inefficient supply chains while ensuring secure food supply for the city's population.

Key Strategy

STRATEGY 1
Promotion of Urban Farming and Localized Food Systems

Strategy 1: **Promotion of Urban Farming and Localized Food Production**

Quezon City has established its Food Security Task force to strengthen its urban agriculture initiatives. One of its flagship programs is the *"Joy of Urban Farming"*, which is designed to support communities in enabling a sustainable and reliable urban farming to provide food to households in every barangay. Campaigns around the benefits of urban farming help create further awareness about this, supported by the distribution of starter kits to households. Urban farming and localizing food systems deliver arrays of benefits such as reduced GHG emissions from shortened distance of transporting agricultural produce, conserved energy for cooling though rooftop and vertical gardens, and diverted kitchen wastes from landfills through composting.

OBJECTIVE

To ensure the availability, stability and accessibility of safe and healthy food amidst increasing climate-induced food insecurity

OUTCOME

Increased availability, stability and accessibility of safe and healthy food

LEAD
- Sustainable Development Affairs Unit of the Mayor's Office

CO-LEADS
- Food Security Task Force
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

PRIORITY ACTION 1
Scale-up urban farming and food production in the city through the transformation of idle public and private lands into urban farms and the crafting of legislative measures to promote localized food systems. This will involve strong partnerships with various stakeholders including civic organizations, faith-based groups, national government agencies, and local community groups.

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
Develop nurseries for the supply of seedlings, and seedlings distributed to vulnerable communities	Local communities have sufficient supply of fresh produce	Transformation of household level urban farmers into consolidated community providers	Long-term milestones and initiatives to be defined in the next review cycle of the Enhanced LCCAP
Implement advocacy campaign and social awareness program on urban agriculture	Develop local ordinance to support and institutionalize a collaboration mechanism for urban agriculture as part of the livelihood, employment and educational programs of the city		
Piggyback urban agriculture as part of the livelihood and employment program of the city	QC urban farms are organized into small entrepreneurs or cooperatives that regularly supply fresh produce demands		
Identify and link urban farmers to possible market for their goods (i.e., community kitchen, local child development centers, weekend markets)			
Revise and approve legislative agenda on idle land tax ordinances			

STRATEGY 1
Promotion of urban farming and localized food systems

01 Local residents reaping the benefits of urban vegetable farming.

01

PILLAR 2

Water Sufficiency

Improving water management is a precursor to ensuring water security – an increasingly urgent concern faced by Metro Manila cities and municipalities considering population-driven demand and the onslaught of the El Niño season. Quezon City is not immune to the threats of water insufficiency and recognizes the reality of these impacts, most of which are felt today and are anticipated to worsen. With Pillar 2, Quezon City delivers actions such as the implementation of water conservation measures, improving the efficiency of water distribution, water treatment and reuse, and pursuing alternative water sources like rainwater harvesting. With strengthened partnerships with private water concessionaires, the City enhances it capacity to accelerate the construction and implementation of water management infrastructures.

> Water insecurity affects low-income communities disproportionately. Conducting a spatial water risk analysis can help identify where water consumption is the highest, where it is deficient, and where the most vulnerable neighborhoods are.

Key Strategies

STRATEGY 2
Increase Water Security Through Robust Demand Side Management

STRATEGY 3
Promotion of Green and Gray Infrastructure to Mitigate Flooding and to Support Water Circularity

Strategy 2: Increase Water Security Through Robust Demand Side Management

Despite Quezon City's limited power and capacity in enhancing the resilience of water and wastewater and sanitation systems, the City exercises its influence by prioritizing the implementation of water-conserving sanitation systems to reduce health and ecological risks and improving water connections to drought-stricken and vulnerable communities. Leading by example, the City champions water efficiency in its city-owned facilities and cascading efficient water demand-side management to the residential, commercial, and private buildings through the enforcement of policies. Furthermore, scaling the use of rainwater harvesting facilities, high-efficiency water fixtures and transforming wastewater treatment plants into resource recovery in city-owned buildings and facilities show promising solutions to decarbonize the sector in the City.

OBJECTIVE

To ensure sustainable, stable and equitable access to safe water for all Quezon City barangays amidst increasing water resource pressures

OUTCOME

Increased availability, stability and equitability of access to water resources

LEAD
- City Architect Department

CO-LEADS
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- Department of Building Official
- City Engineering Department

6 CLEAN WATER AND SANITATION · 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE · 11 SUSTAINABLE CITIES AND COMMUNITIES · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

PRIORITY ACTION 2
Ensure efficient water demand-side management by deploying efficient technologies, rainwater harvesting facilities and public outreach for water conservation, prioritizing city-owned facilities (e.g., government hall buildings, public schools, hospitals) and then mainstreaming this to the residential sector/household units, and commercial and private buildings.

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
City-wide baseline study of existing rainwater harvesting facilities with 2021 as the baseline, which will determine annual targets from 2022-2030 in terms of city facilities equipped with rainwater harvesting facilities	At least 15% of barangays have rainwater harvesting facilities, including residential and commercial establishments	At least 30% of barangays have rainwater harvesting facilities, including residential and commercial establishments	Almost 90% of households have rainwater harvesting facilities
Construction of rainwater harvesting as drainage management and water security program in every barangay, covering 5% of total barangay	Officials in all barangays have been capacitated to promote localized public water conservation information, education and communication (IEC) campaigns through training-workshops and similar capacity building activities		At least 50% of barangays have rainwater harvesting facilities, including residential and commercial establishments
Developed comprehensive information, education, and communication (IEC) campaign strategy on public water conservation			

STRATEGY 2
Increase water security through robust demand side management

01 La Mesa Watershed, a protected area that is home to a vast forest cover, water reservoir, and an important ecosystem located in Novaliches, Quezon City.

Strategy 3: **Promotion of Green and Gray Infrastructure to Mitigate Flooding and to Support Water Circularity**

Flooding due to typhoons and heavy rainfalls is common in Quezon City where poor and clogged drainage systems persist. With Strategy 3, the City leverages its promotion of improved infrastructure and stronger disaster response to dramatically reduce flooding incidents in all barangays. The Enhanced LCCAP captures how the City fortifies its DRRM plans and programs and how it seeks to develop and deliver its Drainage Master Plan, which packages small- and large-scale flood mitigation measures. Critical to rolling out flood mitigation measures is the upgrading or relocation of informal settlement families residing in danger zones or precarious, flood-prone areas. While ensuring social safeguards are attained, upgrading or relocation efforts do not only reduce the vulnerability of residing households but also but also gives the City the opportunity to mitigate urban flooding through the rehabilitation of riverbanks and waterways.

OBJECTIVE

To optimize urban water systems management by employing nature-based solutions to mitigate flooding

OUTCOME

Optimized urban water systems management contributing to flood mitigation

LEAD

- Disaster Risk Reduction and Management Office

CO-LEADS

- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- Parks Development and Administration Department
- City Planning and Development Department
- City Engineering Department

PRIORITY ACTION 3

Deploy small and large-scale flood mitigation measures, in line with the Drainage Master Plan, by developing green/gray infrastructure such as drainage basins (retention ponds).

MILESTONES AND INITIATIVES			
2021-2022	**2023-2025**	**2026-2030**	**2031-2050**
Develop the City Draining Master Plan, incorporating nature-based solutions to flooding such as drainage basins (retention ponds) and flood water storage tanks Strengthen flood mitigation measures along with forecasting and pre-disaster risk assessments	Implement infrastructure needs for flood mitigation measures Design early warning protocols informed by flood forecasting and pre-disaster risk assessments Adopt policy making flood mitigation study and climate risk assessment as mandatory requirements for new buildings	Regulation of floodplain areas	Long-term milestones and initiatives to be defined upon completion of the City Drainage Master Plan

STRATEGY 3
Promotion of nature-based solutions to flood mitigation measures

01

PILLAR 3

Ecosystem and Environmental Stability

The environment provides ecosystem services such as clean air, water purification, and temperature and microclimate regulation, all of which are vital to the health and wellness of the community. However, these benefits have been compromised by urban sprawl and unregulated land use, among other damaging human activities. In alignment with the national government's strategy, the City guarantees that its economic gains should not come at the expense of the environment. Conscious that the impacts of climate change will aggravate in the foreseeable future, the City understands that the only way to move forward is to protect its environmental assets and take the sustainable approach. By tackling such multifaceted urbanization challenges through waste management efforts and greening urban spaces, the City renders nature and the environment as solutions to the climate agenda and not its victims.

> By tackling such multifaceted urbanization challenges through waste management efforts and greening urban spaces, the City renders nature and the environment as solutions to the climate agenda and not its victims.

01 Bring Your Own Bottle (BYOB) Store, a zero-waste refilling station initiated by the Quezon City Government.

Key Strategies

STRATEGY 4
Striving Towards a Circular Economy, prioritizing Organic, Paper and Plastic Waste Management

STRATEGY 5
Promotion of Nature-Based Solutions to Reduce Heat and Drought Pressures

Strategy 4: **Striving Towards a Circular Economy, prioritizing Organic, Paper and Plastic Waste Management**

With a steadily growing population and material consumption trends, the volume of waste is expected to grow and potentially overwhelm the fragile and inadequate local waste management facilities. While invisible to the naked eye and beyond the awareness of the general public, methane – the most potent greenhouse gas – is emitted in landfills and dumpsites and accelerates climate change. In response to growing waste pressures, the City will prioritize actions towards the promotion of a circular economy, targeting organic, paper and plastic waste which account for majority of its waste production. The City's circular economy will put emphasis on the avoidance, reuse, recycling and upcycling of materials through innovative strategies and programs, such as the promotion of social enterprises working on upcycling.

OBJECTIVE

To reduce Quezon City's urban waste impact on the environment and ecosystems

OUTCOME

Reduced waste impact or pressure on the environment and ecosystems towards a waste diversion rate target of 50% by 2030

LEAD

- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

PRIORITY ACTION 4
Improve resource circulation of organic waste (i.e., anaerobic digester plants, MRFs, local partnerships).

PRIORITY ACTION 5
Waste avoidance through the Green Procurement Plan and Single Use Plastic Ban

PRIORITY ACTION 6
Upgrade wastewater treatment system and facilities to improve water quality and reduce the volume of wastewater discharged for city-owned buildings and facilities.

PRIORITY ACTION 7
Strengthened recycling targeting plastic and paper waste through proactive awareness-raising programs and incentive schemes

PRIORITY ACTION 8
Circular business models through the development of innovative programs and creation of marketspace for social enterprises leading to upcycling of materials such as textile wastes, preloved clothing, and other discarded products.

01

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
» Undertake waste baseline survey and database updating, including the waste analysis and characterization for organic, paper and plastic waste » Adopt city-wide composting program and construct pilot anaerobic biodigester plants in strategic locations: up to six biodigester facilities for markets and urban farming communities » Develop communications plan to educate on recycling of organic, paper and plastic waste » Construction of Sewerage Treatment Plant (STP) within the Quezon City Hall Compound in compliance with the requirements of national agencies such as the Laguna Lake Development Authority (LLDA) and the Department of Environment and Natural Resources (DENR) » Ensure socialized housing plans meet proper drainage, sewage and water collection facilities	» Scale up the construction and operation of materials recovery facilities with 100% coverage and compliance among barangays » Implement the action plan for the Green Procurement Plan » Revisit plastic waste reduction ordinance » Expand the construction of anaerobic biodigester plants to more markets and areas with high household segregation » Forge partnership between the barangay, food establishments, and public markets to ensure supply of quality organic waste and other feedstock » Undertake assessment of level of wastewater treatment systems in city-owned buildings » Institutionalize monitoring on compliance of wastewater effluent and water quality in rivers and waterways » Develop strategies to retrofit, upgrade and construct wastewater management facilities that are climate change and disaster resilient » Work with youth groups in studying and incubating initiatives around upcycling, organic waste management, and wastewater recovery, such as eco-friendly poop bricks, duckweed phytoremediation, household wastewater recovery, water filtration, and biofertilizers, which are youth solutions developed from WWF's Our City 2030 project	» Develop financing scheme to construct upgraded design of wastewater management and facilities » Construct upgraded design of wastewater management and facilities for at least 50% of city-owned buildings	» Construct upgraded design of wastewater management and facilities for all city-owned buildings » All socialized housing have proper drainage, sewage and water collection facilities

STRATEGY 4
Striving Towards a Circular Economy, prioritizing Organic, Paper and Plastic Waste Management

01 City personnel deploy biodigesters to community farms in Quezon City to process organic wastes from nearby households and turn them into liquid fertilizers.

Strategy 5: **Promotion of Nature-Based Solutions to Reduce Heat and Drought Pressures**

The scalding effects of urban heat islands (UHI) and drought are intensifying in urban areas such as Quezon City, endangering vulnerable groups such as the elderly, informal settlement families, and outdoor workers. Strategy 5 puts nature in the City's arsenal of response to climate change and its crippling impacts. Quezon City's Green Corridor Network program and City-wide Urban Biodiversity Sustainability Action Plan (UBSAP) promote activities that use natural assets as levers, linking biodiversity strategies to reduce heat and address water supply management. As part of this strategy, Quezon City upgrades its existing parks and increases its green spaces by identifying expansion areas for tree planting, supporting local flora and fauna along the way. Meanwhile, enhancing the adaptive capacity of communities and resilience of natural ecosystems provide relief from UHI by providing natural ventilation with increased urban green and wind corridors.

OBJECTIVE

To reduce the effect of urban heat and drought on Quezon City based on nature-based solutions

OUTCOME

Reduced effect of urban heat and drought on Quezon City

LEAD

- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

CO-LEAD

- Parks Development and Administration Department

PRIORITY ACTION 9
Comprehensive green corridor network to mitigate urban heat island effect and improve air quality.

PRIORITY ACTION 10
Develop and implement the city-wide Urban Biodiversity Sustainability Action Plan and update it every three years, linking biodiversity strategies and watershed management with broader adaptation goals to address water supply management in the city.

01

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
» Conduct baseline study and update inventory for city green spaces, including open spaces, patches of land (e.g. center islands) and areas suitable for urban community parks and vertical gardens » Identify opportunities for involving private sector - for example, greening of commercial and business districts » Identify opportunities to incorporate green corridor standards » Pursue "Edible/Fruit-bearing Tree Planting Program" or the establishment of urban farming facilities on city parks » Establish rooftop and vertical urban farms (ongoing construction of pilot site at City Hall Building. F) and vertical urban farms on various barangays in the City » Develop Masterplan on Green Corridor networks which are integrated with public parks and open spaces, and pedestrian lanes/corridors » Develop QC Urban Biodiversity Plan (in coordination with the University of the Philippines) by end of 2022 » Revisit City Ordinance 2350 (Series 2014) and update to include protection of local flora and fauna » Design and implement an information campaign to raise awareness on urban biodiversity	» Develop Quezon City's Urban Greening Master Plan » Develop streets and sidewalk manual for greening » Ensure community parks are following standards set by the Parks Development and Administration Department, particularly on 30-40% planted with trees, grass and ornamental plants » Implement where possible, nature-based solutions including green roofing and green walls into communities and city owned infrastructures » Partner with private sector to include construction of green walls and green roofing in their buildings, areas, properties. » Adopt policies to promote inclusion of green corridor design standards in private commercial and residential establishments » Design standards that meet recreation, transportation, and environmental sustainability goals of the city » Link with environmental sustainability and broader water supply management in Metro Manila (for example, La Mesa Dam) » Implement initial activities of the QC Urban Biodiversity Plan » Update the QC Environment Code and include provisions on the maintenance and monitoring of urban biodiversity in parks and open spaces	» Transform partially developed community parks and neighborhood parks into developed green spaces » Develop incentive mechanisms or action plans to encourage private sector as possible partners to fund/sponsor development of parks. » Develop financing mechanism to allow communities and private sector to include green corridor design standards » Update biodiversity profiling for the city » Continuous implementation of the Biodiversity Enhancement Plan (i.e. key activities and monitoring program)	» City-wide green network is established and maintained » All 285 parks are fully developed and maintained » Private sector are active partners in the development and maintenance of parks » Green corridor standards are part of the City's building code » Full implementation of the QC Urban Biodiversity Plan

STRATEGY 5
Promotion of nature-based solutions to reduce heat and drought pressures

01 Green Open Reclaimed Access (GORA) Lane project, a 5.39-kilometer pedestrian corridor which will enhance residents' walking experience and boost the local economy.

PILLAR 4

Human Security

A city is fully adapted to climate change when its population, including the poor and vulnerable, enjoy access to basic social services such as health, education, housing and social protection. For this aspiration to materialize, Quezon City pursues strategic actions that improve the socioeconomic conditions of climate-vulnerable neighborhoods and improve accessibility to public services. In synergy with disaster risk management actions, this pillar aims to safeguard citizens from the direct, physical risks and impacts of climate change. This echoes the call of the national government to create safe public and urban spaces where individuals are free from physical hazards, allowing them to lead safe and meaningful lives.

> Ensure that informal settlements are viewed as spaces for solutions, not as part of the problem. With the right opportunities, informal settlement families and low-income communities can be active contributors to city programs and activities.

Key Strategies

STRATEGY 6
Build Safe and Resilient Housing and Public Infrastructure for the Most Vulnerable

STRATEGY 7
Mixed Use Zones for Improved Accessibility of Services to Communities

Strategy 6: Build Safe and Resilient Housing and Public Infrastructure for the Most Vulnerable

The Enhanced LCCAP's sixth strategy calls for a place that everyone can call their home. Having a shelter is a fundamental human right and the City has a central role in granting this to the most vulnerable citizens. By providing safe, dignified, and accessible public housing – one that is connected into the City's economic grid – citizens are empowered to contribute to the local workforce and live more meaningfully and productively. As part of the City's climate strategy, the promotion and implementation of transit-oriented and human-centered urban development also opens opportunities to design resilience and adaptation features in new neighborhoods or upgrades to existing ones to protect residents from flooding, extreme heat, and other climate impacts.

OBJECTIVE

To reduce vulnerability of men and women and other vulnerable groups (children, elderly and persons with disability, etc.) from climate risks and disasters

OUTCOME

Reduced vulnerability of men and women and other vulnerable groups (children, elderly and persons with disability, etc.)

LEAD
- Housing, Community Development and Resettlement Department

CO-LEADS
- City Planning and Development Department
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- City Architect Department
- Disaster Risk Reduction and Management Office

PRIORITY ACTION 11
Upgrade the quality of life of citizens residing in informal and climate-vulnerable communities by providing them housing relocation alternatives, and establishing sustainable public infrastructure and services around these housing alternatives.

01 Residents of Quezon City transfer to a newly completed socialized housing complex

02 Mayor Belmonte handing over a newly completed home to recipients of Quezon City's socialized housing

MILESTONES AND INITIATIVES			
2021-2022	**2023-2025**	**2026-2030**	**2031-2050**
» Ensure climate change and disaster risk considerations are embedded to protect the vulnerable members of the communities » Identify mobility and accessibility needs of communities in city-wide transport plans and intermodal connectivity programs » Updated socialized housing programs and pursue innovative financing mechanisms to support housing/resettlement projects » Identify opportunities to solarize and adopt energy efficiency and conservation in socialized housing programs » Conduct consultation and technical studies on the design and implementation system for the scaling up of the upgrading or relocation programs especially informal settlements located in hazard or danger zones	» Involve communities in danger zones in resettlement/socialized housing » Integrate mobility and accessibility needs of vulnerable communities in city-wide transport plans and intermodal connectivity programs » Create options for socialized housing (i.e., rental model) » Solarize and adopt energy efficiency and conservation in socialized housing programs	» Medium-term milestones and initiatives to be defined during the updating of the Enhanced LCCAP by 2025	» Long-term milestones and initiatives to be defined during the updating of the Enhanced LCCAP by 2025

STRATEGY 6
Build safe and resilient housing and public infrastructure for the most vulnerable

01

Strategy 7: **Mixed Use Zones for Improved Accessibility of Services to Communities**

Improving economic and social connectivity can be achieved through smarter planning in terms of how the City should use its physical and land space. Mixed-use zones can bring jobs and essential services closer to the people and encourage active mobility or public transit, curbing local emissions and improving air quality. The development of new economic nodes would directly and indirectly create employment that would benefit workers, inside and outside of Quezon City, combatting poverty and alleviating citizens' quality of life. Improving public access to safe, affordable, and efficient transport systems would help low-income families, vulnerable individuals, and businesses to access opportunities and resources. While introducing new developments could affect some sectors negatively, the City mitigates this by engaging the active participation of crucial stakeholders in the development and designing stages.

OBJECTIVE

Increase accessibility of key public services to men and women and other vulnerable groups

OUTCOME

Increased accessibility of key public services to men and women and other vulnerable groups

LEAD
- City Planning and Development Department

CO-LEAD
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

PRIORITY ACTION 12
Introduce policy mechanisms for new developments near mass transit stations, assuring interconnectivity of different modes of transportation.

PRIORITY ACTION 13
Revisit the City's Comprehensive Land Use Plan (CLUP) to identify and establish mixed-use zones along all major corridors and provide public amenities (e.g., primary and secondary schools, public hospitals, and employment opportunities) at the barangay-level, improving interconnectivity and decentralizing economic opportunities.

MILESTONES AND INITIATIVES			
2021-2022	**2023-2025**	**2026-2030**	**2031-2050**
» Updated intermodal transport plan integrating all modes of transportation into city circulation networks that promote links between and within growth centers, between growth centers and nongrowth areas, with the city-wide circulation network or primary roads, and access points to and from Quezon City to the rest of Metro Manila	» Updated Comprehensive Land Use Plan: 2026-2040	» Medium-term milestones and initiatives to be defined upon completion of the updating of the CLUP	» Long-term milestones and initiatives to be defined upon completion of the updating of the CLUP

STRATEGY 7
Mixed use zones for improved accessibility of services to communities

01 Launch of a city-led socialized housing program

01

PILLAR 5

Climate-Smart Industries and Services

This pillar aims to decarbonize Quezon City's built environment and energy-intensive buildings and industries. Under the Enhanced LCCAP's Strategy 8, Quezon City can help attain the pillar's objective of *developing sustainable cities and municipalities*[1] by promoting energy efficiency, increasing the uptake of renewable energy, and enhancing the resilience of the City's buildings and major industrial and commercial emitters. Working with the private sector to establish green, energy-efficient and resilient buildings will not only bring down significantly the City's greenhouse gas emissions, but also result in higher energy savings, better air quality, quality green jobs, and healthier communities.

> Working with the private sector to establish green, energy-efficient and resilient buildings will not only bring down significantly the City's greenhouse gas emissions, but also result in higher energy savings, better air quality, quality green jobs, and healthier communities.

Key Strategy

STRATEGY 8
Green, Energy-Efficient, and Resilient Buildings

Strategy 8: **Green, Energy-Efficient, and Resilient Buildings**

60% of Quezon City's emissions in 2016 came from its stationary energy, with contributions coming from the commercial and institutional sectors (51%), manufacturing and industries (25%), and residential (24%). This goes to show that the City's built environment – private buildings, facilities, and establishments – gets the lion's share of emissions, both from daily energy use and their construction and development. Such impressive figures suggest the need to work with the private sector for the City to be directed to a low and eventually zero-emission economic pathway. Via smart and inclusive planning, green and resilient buildings and industries can bring a plethora of co-benefits such as reduced pollution, green jobs, and healthier communities across all socioeconomic classes.

OBJECTIVE

To promote green, energy-efficient, and resilient buildings and establishments in Quezon City

OUTCOME

Increase in green, energy-efficient, and resilient buildings and establishments in Quezon City, targeting 80-100% of building permits granted being compliant to the updated Green Building Code by 2025

LEAD

- Department of Building Official

CO-LEADS

- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- General Services Department
- City Engineering Department
- City Architect Department

PRIORITY ACTION 14
Amend the City's Green Building code by increasing energy efficiency performance requirements for new and existing buildings, introducing strong incentives and appropriate penal provisions, and leveraging existing national frameworks.

PRIORITY ACTION 15
Incentivize medium to large scale renewable installation in high-energy consuming sectors and establishments through incentive schemes under the Green Building Code

PRIORITY ACTION 16
Enhance energy efficiency in the residential, commercial and industrial sectors by mainstreaming flagship programs set out in the National Energy Efficiency and Conservation Program (NEECP)

02

01 Eastwood City, a major mixed-use development complex in Quezon City.

02 Solarized roofs of Ateneo de Manila University, a leading private university located in Quezon City, Philippines

[1] Climate Change Commission, 2019. Executive Brief: The Philippine National Climate Change Action Plan, Monitoring and Evaluation Report 2011-2016. Manila, Philippines

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
» Updated QC Green Building Code with (i) expanded coverage to include residential buildings, and other projects even less than 1000 sq. m., (ii) stratification of building design and features required for Green Building Certifications suitable to the project size, typology and cost; (iii) simplification of procedures; and (iv) improved incentives/reward-award feature whether expressed or implied » Established monitoring and evaluation system to review the effectiveness of EE&C interventions; including Green Building Compliance, with the implementation of the Energy Efficiency Act	» 80-100% building permits granted are compliant to updated Green Building Code, with incentives/tax rebates granted for green building compliant residential and commercial buildings » All households in 35 city housing projects utilize energy efficient appliances » Designation of Energy Conservation Officers in building construction and administration » In collaboration with Meralco, pursue the replacement and installation of LED streetlights that still make use of incandescent light bulb or inefficient lighting » Increased uptake of energy-efficient appliances and fixtures » Strengthened public awareness on the advantages of household-level energy efficiency measures » Mainstreaming energy-efficient building envelope designs, retrofits, and upgrades in residential and commercial buildings » Develop financing options for homeowners (new or existing homeowners) to acquire lower cost of energy efficiency improvements (i.e. purchase of energy- and cost-efficient appliances).	» Incentives/tax rebates granted for green building compliant residential and commercial buildings » Establish an evidence base covering most existing buildings through a building energy benchmarking program » Select an appropriate building energy labelling program for existing buildings and roll out citywide	» Review or revisit the amended QC Green Building Code by 2031, expanding the green building code to contain minimum energy efficiency requirements for existing buildings and robust incentives to install solar PV, among other features

STRATEGY 8
Green, energy-efficient, and resilient buildings

PILLAR 6

Sustainable Energy

Aligned with the national government's sustainable energy objective, Pillar 6 is one of the big-ticket opportunities for Quezon City to decarbonize its local economy and accelerate its just and green transition. The City's portfolio of strategies under this pillar spans areas such as energy efficiency and conservation, sustainable transport, renewable energy, and climate-proofed energy system infrastructures – all well within the NCCAP targets. While Quezon City may have limited influence with the centralized governance of Philippine grid systems and national transportation routes, it aims to maximize ambition within its borders by rolling out distributed renewable energy sources and sustainable transportation infrastructure. Nonetheless, these interventions bring benefits that can ripple beyond the city's perimeters and encourage action within the greater Metro area and the country.

> Conducting socio-economic studies on the City's solarization reach and impact on lower-income communities and other marginalized sectors can help increase the City's understanding of how the initiative can benefit and involve them better through training, skills-development, and awareness-raising.

Key Strategies

STRATEGY 9
Secure Clean and Affordable Renewable Energy Access

STRATEGY 10
Mainstreaming Energy Efficiency and Conservation

STRATEGY 11
Active Transport

STRATEGY 12
Clean and Efficient Local Bus Rapid Transit System and Government-Owned Vehicles Towards Improved Air Quality

01 Solar panels installed on Commonwealth High School, Quezon City.

Strategy 9: **Secure Clean and Affordable Renewable Energy Access**

Quezon City emitted approximately five million metric tonnes of CO_2e in 2016 from its energy sector or 60% of its total emissions. Stationary energy is the largest sector, with the greatest contribution from the commercial and institutional sectors (51%), followed by manufacturing and industries (25%) and residential (24%). Such huge emissions present a low-hanging fruit for Quezon City to use Strategy 9 as leverage to achieve its climate neutrality target while providing a clean source of energy to power its commercial and economic activities. With smart and inclusive planning, accelerating the expansion of distributed renewable energy can bring a plethora of co-benefits such as reduced pollution, sustainable jobs, and healthier communities across the City's population.

OBJECTIVE

To adopt sustainable and renewable energy as a major driver of sustainable development

OUTCOME

Availability of accessible, clean, and affordable renewable energy, targeting 100% solarization coverage for all city-owned buildings and facilities by 2030

LEAD
- City Architect Department

CO-LEADS
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- General Services Department
- City Engineering Department

PRIORITY ACTION 17
Lead by example with a three-staged solar energy installation on all city-owned buildings and facilities that can meet technical and design requirements, targeting 100% coverage by 2030.

PRIORITY ACTION 18
Leverage renewable energy policy mechanisms, including incentive schemes, provided for by the Renewable Energy Act of 2008. These mechanisms include the Renewable Portfolio Standard, Feed-in Tariff System, Green Energy Program, and Net Metering for RE.

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
Solarization of 50 schools and 3 public hospitals Identify city-owned buildings for retrofitting	Solarization of publicly-owned sports facilities (29 covered basketball courts) Deliver Solar Energy Mentorship Program among city officials and private stakeholders Promote City Investment Priorities Plan including public-private partnership schemes	Solarization of all public schools (total of 154) Solarization of key government buildings: Quezon City Museum Hall of Justice Quezon City Convention Center	All new city-owned buildings will be designed and constructed to have renewable energy sources (i.e. solar PV)

STRATEGY 9
Secure clean and affordable renewable energy access

Strategy 10: **Mainstreaming Energy Efficiency and Conservation in Government-owned Buildings and Facilities**

With the passing of the Energy Efficiency and Conservation Law in 2019 (Republic Act 11285), LGUs are more than ever empowered to deliver programs that reduce energy demands, promote utility savings, and cut emissions. Energy efficiency used to be a largely untapped opportunity; but with reforms in the policy landscape, it is now considered as one of the most pragmatic measures for Quezon City to meet its interim and long-term neutrality targets. Among others, RA 11285 and the Government Energy Management Program (GEMP) promote the uptake of energy efficiency in government and commercial facilities. Bringing the residential sector into this arena may be a challenge due to the relatively high cost of efficiency retrofits and the limited awareness among households, which collectively equate to 24% of the city's stationary energy emissions. Information campaigns and fiscal incentives such as retrofit discounts and rebates are just some of the solutions to promote energy efficiency to the residential sector.

OBJECTIVE

To mainstream climate-proofed, rehabilitated, and improved ecologically-efficient technologies for energy efficiency and conservation

OUTCOME

Increased climate-proofed, rehabilitated, and improved ecologically-efficient technologies

LEAD
- City Planning and Development Department

CO-LEADS
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)
- General Services Department
- City Engineering Department
- City Architect Department
- Department of Building Official

PRIORITY ACTION 19
Develop and deliver the City's Local Energy Efficiency and Conservation Plan to streamline energy efficiency and conservation measures for government-owned buildings and facilities

01

01 Quezon City Experience Museum or QCX, a green-building compliant city museum housed within the Quezon Memorial Circle.

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
Updated Local Energy and Efficiency and Conservation Plan for Quezon City Financing scheme developed to encourage household use of energy efficient appliances and fixtures Replacement of CFL Lighting Fixtures to LED lights in city-owned buildings Replacement and installation of LED streetlights Integration of Sewage Treatment Facility in the design of public markets and hospitals Conversion of R-22 air-conditioning units to R-410A Refrigerants (500 units) for Office Buildings Strengthen the local implementation of the energy efficiency programs of the Philippine Energy Efficiency Project (PEEP) such as the installation of heat-insulating upgrades (e.g., roofing materials, reflective coating, 'cool roofs'), promotion of energy-efficient building envelope designs for planned residential infrastructures, and increasing awareness on the economic advantages of energy efficiency and conservation at the household-level	Households in 35 city housing projects utilize energy efficient appliances Integration of LED lighting fixtures in retrofitting and new construction of city-owned buildings 100% replacement and installation of LED streetlights in municipal buildings by 2023 100% of municipal buildings surveyed for retrofit opportunities by 2023	Medium-term milestones and initiatives to be defined during the updating of the Enhanced LCCAP by 2025	Long-term milestones and initiatives to be defined during the updating of the Enhanced LCCAP by 2025

STRATEGY 10
Mainstreaming energy efficiency and conservation

01 In light of the COVID-19 pandemic, Quezon City is fast-tracking the expansion of its bicycle lane network from 55 to 161 kilometers.

Strategy 11: **Active Transport**

The transportation sector account for 21% of the City's baseline emissions in 2016, which gives this pillar a significant role in Quezon City's decarbonization strategy. Comprised of diverse solutions ranging from active mobility to transportation connectivity facilities, Strategy 11 targets different dimensions of urban mobility to provide options for citizens, reducing dependence on private vehicles. Designing them with adaptive features such as urban gardens, green canopies, and roofs not only allow these transport infrastructures to be accessible but also effective in safeguarding citizens from environmental elements including extreme heat, flooding, precipitation, and air pollution.

OBJECTIVE

To increase environmentally sustainable transport through active mobility

OUTCOME

Increased uptake of active mobility, tripling cycling rate from 2.2% in 2016 to 6.6% of total modal share in 2030 and expanding bike lanes from 55 km in 2016 to 350 km by 2030

LEAD
- Department of Public Order and Safety

CO-LEADS
- Task Force on Traffic and Transport Management
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

PRIORITY ACTION 20
Construct a comprehensive, climate-smart, equitable, convenient, and accessible bicycle network and improved pathways for non-motorized transport means integrated with planned bus and jeepney system routes throughout the city.

PRIORITY ACTION 21
Complement the expansion of national government-led mass railway transit systems with an integrated, inter-modal, and connectivity facilities with buses, jeepneys, cycling lanes, and walking pathways through (a) comprehensive transport planning and (b) by developing terminals or facilities in transit zones.

01

01 On-going construction of the Green Open Reclaimed Access (GORA) lane project which aims to promote walkability

02 Mayor Belmonte at the launch of the City's Bus Augmentation Program

MILESTONES AND INITIATIVES			
2021-2022	**2023-2025**	**2026-2030**	**2031-2050**
Bicycle Network Plan and Pedestrian Network Plan Expanded bicycle lane infrastructure from current 55 km to 93 km. separated from motorized vehicles with safety features that ensure visibility of cyclists any time of the day, including public bike parking spaces Construction of 5.39 kilometers of Green Open Reclaimed Access pedestrian-oriented promenade that will connect the city's major transportation hubs - MRT Quezon Avenue, MRT-GMA Kamuning and LRT-Gilmore - encouraging foot traffic from nearby neighborhood Strengthened institutional capacity to promote safe cycling and active transport through the strengthening of the Department of Public Order and Safety - Green Transport Office	Additional 81.7 km of bicycle lane separated from motorized vehicles with safety features that ensure visibility of cyclists any time of the day, pursuing a cumulative total of 174 km Construct major infrastructure components: pedestrian and bikers bridge across Katipunan Road linking the Ateneo and Miriam Campuses with UP Campus, pedestrian underpass linking the Quezon Circle with Ninoy Aquino Parks and Wildlife Center Reporting system for characteristics of cyclists (from bike registration) and pedestrians, and health, economic and environmental benefits of active mobility, safety statistics, transportation modes to include bicycles and walking, reporting on shift in modal shares	Additional 176 km of bicycle lane separated from motorized vehicles with safety features that ensure visibility of cyclists any time of the day, pursuing a cumulative total of 350km Pedestrianization of Growth Centers: Balintawak, Batasan-National Government Center, Novaliches-Lagro and communities they serve Reporting system for characteristics of cyclists (from bike registration) and pedestrians, and health, economic and environmental benefits of active mobility, safety statistis, transportation modes to include bicylces and walking, reporting on shift in modal shares	All 945 kms of city-owned roads will have bicycle lanes. All planned primary roads in areas (Districts II and III) with low road density for direct access to communities

STRATEGY 11
Active transport

Strategy 12: **Clean and Efficient Local Bus Rapid Transit System and Government-Owned Vehicles Towards Improved Air Quality**

Strategy 12 scales the development of reliable and accessible bus rapid transits as a new mode of transportation and provides an additional option to commute around the City, which is particularly beneficial to low-wage individuals who travel long hours for work and largely depend on public commuting. On the other hand, pioneering the procurement of zero-emission government vehicles stimulates the local EV market, initiates the development of RE-powered charging infrastructure, and sends a powerful message that sustainable transportation is possible with the right planning and ambition. These projects are fortified by the establishment of a city-wide Air Quality Monitoring and Information System, which can provide necessary data points to help the City plan where to design smart interventions such as traffic management, low-emission zones, and green corridors that can help mitigate air pollution and overall could result in decreased emissions.

OBJECTIVE

To promote environmentally sustainable transport through clean mass transport systems

OUTCOME

Increased uptake of mass public transport, with bus modal share increasing from 6.6% in 2016 to 8.5% in 2030 and railway modal share increasing from 4.2% in 2016 to 6.0% in 2030

LEAD

- Task Force on Traffic and Transport Management

CO-LEADS

- Department of Public Order and Safety
- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

02

PRIORITY ACTION 22
Develop an accessible, reliable, affordable, and well-integrated local bus rapid transit system with a wide coverage of populated areas of the city.

PRIORITY ACTION 23
Champion the procurement of zero-emission government-owned buses and vehicles (i.e., e-trikes and e-jeepneys) starting 2025, and developing necessary infrastructure in strategic areas to encourage higher uptake of electric vehicles.

PRIORITY ACTION 24
Establish city-wide Air Quality Monitoring and Information System to produce necessary data/information to evaluate the area according to the National, and World Health Organization's Air Quality Guidelines by 2030.

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
Develop BRT Master Plan: Links Between Growth Centers	Expand local bus rapid transit system to link growth centers	Bus modal share increased from 6.6% in 2016 to 8.5% in 2030, and railway modal share increased from 4.2% in 2016 to 6.0% in 2030	All barangays (142) declared as Green Zone Areas where only e-trikes ply
Develop Clean Vehicle Fleet Transition Plan	Implement air quality management plan (with focus on PM10 and PM2.5 as target indicators for air pollution exposure and health risks)	Additional 8 Green Zone Areas (40 barangays), 400 e-trikes, 4 solarized charging stations, covering a total of 75 barangays	All monitoring stations are capable of monitoring criteria pollutants and equipped with up-to-date technology for comprehensive monitoring
Decommissioning of unserviceable and non-compliant vehicle fleets	Skills training and knowledge transfer of QC department staff	Expansion of air quality management plan to include industrial monitoring locations	
Purchase of Euro 6 compliant vehicles: 4 buses, 10 SUVs	Additional 4 Green Zone Areas (20 barangays), 200 e-trikes, 2 solarized charging stations, covering a total of 35 barangays	Updated emissions inventories to include all air pollution sources (point, mobile, area) from all sectors	
Create Green Zone Area for E-Trikes from current one area (comprising of 5 barangays in District IV with 50 e-trikes) to three areas; solarized charging stations from three to four ; purchase of 100 e-trikes (total barangays covered 15)		Use of continuous emissions monitoring systems and/ or autonomous monitoring stations to monitor key pollutants: NO_2, SO_2, CO, PM10 and PM2.5)	
City-level baseline studies and emissions inventories			
Air Quality Monitoring Plan (combination of ambient and road side monitoring locations to target transport/mobile pollution sources)			

STRATEGY 12
Clean and efficient local bus rapid transit system and government-owned vehicles towards improved air quality

01 Using a mobile backpack Aethalometer, Quezon City team roams the streets to determine levels of Black Carbon in the air

02 City officers inspecting charging stations for electric tricycles

02

PILLAR 7

Knowledge and Capacity Development

In the global south where knowledge and capacity gaps are major roadblocks to catalytic climate action, Pillar 7 brings enormous value in strengthening the six other pillars and their respective priority interventions. Lack of technical capacity and awareness could constrain the effective implementation of the Enhanced LCCAP and therefore have to be addressed through rigorous, needs-driven, and sophisticated development programs. On the most fundamental level, the City's technical and managerial officers need to have a solid understanding of the Enhanced LCCAP itself and how it relates with the its GHG inventory, CRVA, and inclusive policy assessment. The City is aware of these needs and has introduced corresponding skills and capacity development dimensions into the priority actions themselves.

Consistent with the NCCAP's strategy, the City commits to a list of initiatives that directly target its Enhanced LCCAP's knowledge and capacity development needs. Following the mandate of the EPWMD-CCES, the following actions may support the knowledge and capacity development of either (i) the City departments, (ii) external stakeholders, and (iii) the community and the QC public in general.

> "Early warning systems may be less effective for informal communities, women, and persons with disabilities if they have insufficient knowledge of these systems or if there are language or technological barriers to accessing this information. Targeted capacity development programs for these groups are critical to making sure they are not displaced or miss out on the benefits."

OBJECTIVE

To strengthen the institutional and individual technical capacities of city departments, external stakeholders and community members in QC's climate programs and activities

OUTCOME

Strengthened institutional and individual technical capacities of city departments, external stakeholders and community members to deliver the Enhanced LCCAP

LEAD

- Environmental Protection and Waste Management Department (Climate Change and Environmental Sustainability)

CO-LEADS

- City Planning and Development Department
- Disaster Risk Reduction and Management Office

MILESTONES AND INITIATIVES

2021-2022	2023-2025	2026-2030	2031-2050
Deliver capacity building trainings on monitoring, evaluation and reporting for the implementation of climate actions, targeting lead and supporting departments Expand the delivery of information, education and communication (IEC) campaigns on climate initiatives, focusing on coalition-building among the youth, private sector and key stakeholder groups Deliver capacity building to support the conduct of city-wide GHG Inventories to be delivered every two years, including 2018, 2020 and so on Develop and launch a public facing version of Quezon City's Climate Story Map	Conduct analyses of project-level GHG impacts of priority climate projects Set up and launch an online repository of knowledge products as part of community-building among experts and key representatives from academic institutions, international development partners, non-governmental organizations, and other key partners Work with youth groups to develop creative materials (e.g. video blogging) on environmental topics to spread awareness on the climate crisis through social media platforms Conduct capacity building trainings on climate change adaptation and mitigation for private business establishments and service providers to incorporate climate initiatives into their business plans Mainstream education for sustainable development into the curriculum of secondary education schools Conduct gender impact analyses to identify gender-specific options to climate change adaptation strategies Deliver the updated Climate Risk Assessment by 2025	Initiate the updating of the Enhanced LCCAP 2021-2050 by 2026, defining quantitative strategy- or action-level targets Designate a "sustainable development and inclusive climate action" focal technical representative for each department	Undertake an extensive analysis of the progress made on the goals and outcomes stated in the Enhanced LCCAP between 2021 and 2030

STRATEGY 13
Knowledge and Capacity Development

5

Tracking Progress, Pivoting Strategies

A clear and robust monitoring, evaluation, and reporting (MER) framework enables Quezon City to track and review its progress and intended results in a systematic manner. Fundamental to the successful delivery of the priority climate actions, it allows for interim assessment of what works and what needs adjustment. An effective MER will help the City in establishing an evidence base to revisit and update the Enhanced LCCAP every five years. In terms of risk management, it helps the City to assess if the climate actions have resulted in any unintended negative consequences such as a stakeholder group that has been displaced or any unwanted increase in emissions, which should be addressed accordingly. In view of the Enhanced LCCAP's ambitious climate objectives, the MER plan can spell the difference between attaining carbon neutrality and climate resilience, and falling short of its targets.

MER Governance Framework

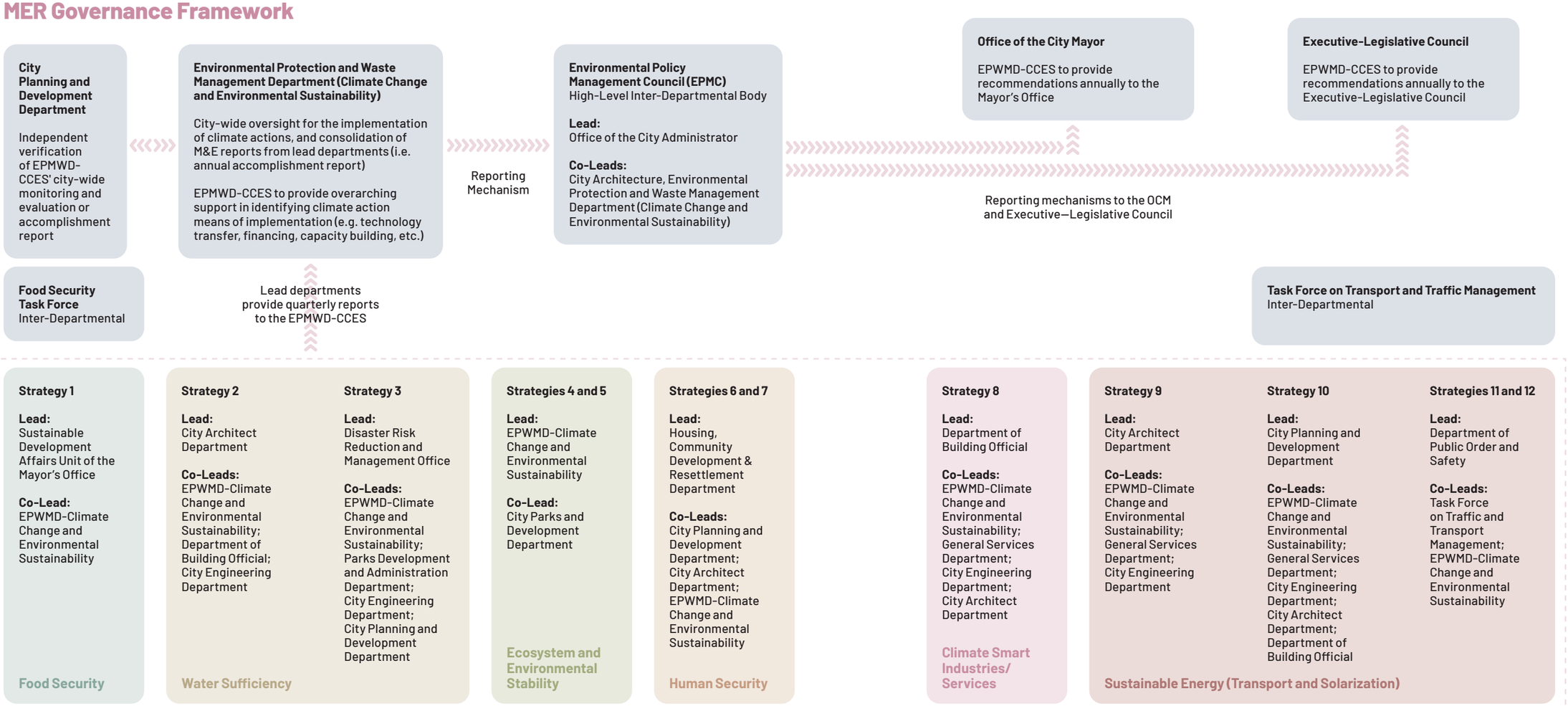


Figure 20
Monitoring, Evaluation, and Reporting governance structure for Quezon City's Enhanced LCCAP 2021-2050

Quezon City's Enhanced LCCAP is equipped with a robust MER Plan, which shall be used to monitor the efficiency and effectiveness of the identified and prioritized strategies, actions, and programs. And while it primarily serves as a guide for the planning, budgeting, and programming interventions at the city level, it also generates insights into the City's direct contribution to national-level targets and goals.

Similar with the plan implementation, delivering an MER is only as effective as its institutional arrangements. Figure 20 visualizes the City's governance framework, showing the involvement of the departments in specific outcomes and how they should operationalize their tasks in the context of MER. The arrows within the framework illustrate the direction of MER processes, i.e., from the MER coordinating teams to the EPWMD-CCES and to the respective decision-making authorities.

MER Team Structure

Following its mandate, the EPMWD-CCES holds the MER lead position, with responsibilities including attaining the MER framework, setting the guidelines and governance, and providing training and capacity development to all MER Strategy-Level Coordinators. EPWMD-CCES is responsible for the summarized progress reporting, and the provision of evaluation results and recommendations to decision-making bodies namely the EPMC, OCM, and Executive Legislative Council. A list below shows the complete roles and responsibilities of EPMWD-CCES as the MER lead:

- Overall responsibility for monitoring roadmap progress, including the consolidation of quarterly progress reports from MER Strategy-Level Coordinators;
- Periodic reporting of roadmap progress to City stakeholders, and the public as required;
- Management of MER team and MER governance processes;
- Refinement of the program intervention logic, indicators, and underlying assumptions;
- Development of key MER templates, including MER timelines, workplan, and reporting template;
- Leading on data modeling and/or analysis as required;
- Conducting of MER capacity-building and training workshops as required;
- Alignment of MER frameworks with local and national policies and guidance, and international commitments and declarations;
- Development and implementation of a MER quality assurance system; including maintaining repository of evidence, and
- Overall responsibility and management of periodic evaluations of the roadmap and actions, in accordance with the Evaluation Framework.

MER Strategy-level Coordinators, on the other hand, are the lead departments in charge of the MER functions for the corresponding Strategy that they also lead in terms of implementation. As shown in the grouped boxes in Figure 19, each Strategy has a centralized MER team to facilitate & coordinate data gathering and reporting on a quarterly basis. Below is a list of the roles and responsibilities of the MER coordinator Strategy-level Coordinators:

- Coordinate data / results collection from the City delivery teams and inputting these results on the reporting template;
- Ensure timely data collection, in accordance with agreed timelines / MER workplan;
- Conduct data analysis/modelling, under instruction of and as required by the team leader;
- Support the MER Team Leader in refinement of the programme intervention logic, indicators, and underlying assumptions;
- Work with City delivery teams to establish an overview of data sources (internal, external, primary and secondary) to support refinement of the intervention logic indicators;
- Provide first level quality assurance and verification for data/results reported by the City delivery teams;
- Ensure appropriate standards, best practices and lessons learned under advice from MER Team Lead are sought and applied; and
- Support compilation of quarterly and annual evaluations (including evidence gathering, conducting interviews), under the instructions of the MER Team Lead.

Monitoring and Reporting

Monitoring and reporting are significant dimensions of the Enhanced LCCAP's MER framework and are precursors to the evaluation phase. Monitoring refers to the tracking of key data points on the priority climate actions such as their KPIs, implementation milestones/progress, implementation roadblocks, and resources required to complete action delivery, among others. Meanwhile, reporting is the process of communicating these data points in a complete, succinct, and standard manner.

Regardless of the implementation status of specific initiatives and milestones for each strategy, the MER Strategy-Level Coordinators have to report on a quarterly basis the status of the actions, including key performance indicators which can be found in the next table.

Annual data records from the start of the priority action implementation have to be kept, even if there are little to no changes in the status of action implementation. This helps surface data trends that may indicate improvements, stagnation or even degradation of the milestones. This will be a key factor for the evaluation process later on.

Public reporting is a vital component of the Enhanced LCCAP, providing transparency and accountability on the progress made. There are four key mechanisms by which the City can publicly report the status of the Enhanced LCCAP:

- Outline progress and milestones on priority climate actions through the city's Annual Report and Ecological Profile, city documents which are being published in the City's official website;
- Report annually to the CDP-ICLEI's unified reporting system, an international carbon disclosure platform for cities to share climate data;
- Utilize social media channels for announcements on the implementation of climate projects and milestones; and
- Present high level milestones and plans through the City Mayor's State of the City Address (or SOCA), a public address delivered annually by the local chief executive.

Monitoring of Key Performance Indicators

Equipped with a robust MER governance framework, Quezon City will have the backbone to be able to track and review progress on key data points in a systematic manner. The matrix below outlines the key performance indicators (KPIs) for each of the priority climate actions of the City.

Priority Climate Action	Key Performance Indicators (KPIs)
Priority Action 1: Urban farming and food production	• Number of community groups/HOAs that established their urban gardens in available spaces • % utilization of private and public idle spaces • Volume of agricultural produce and revenue generated from sold agricultural produce • Number/value of jobs generated from urban farming projects
Priority Action 2: Promotion of water conservation and rainwater harvesting	• Water consumption per capita or household • % of households applying rainwater harvesting facilities • % and spatial distribution of city population connected to the utility provider's piped water network • % of households served by wastewater collection, such as piped network & septage collection vehicles • % of commercial establishments with sewerage treatment plants (STPs)

Priority Climate Action	Key Performance Indicators (KPIs)
Priority Action 3: Nature-based solutions such as drainage basins and flood water storage tank	• Reduced exposure to flooding (displaced, injured or deaths, number of A&E admissions from injuries) • Reduced vulnerability to flooding (injured or deaths; the number of assets affected/damaged; the cost of repairs; cost to services; cost to economic productivity • % of assets protected from floods • Number of flood shelters for informal settlements
Priority Action 4: Organic waste resource circulation	• % of the city's solid waste that is biologically treated and used as compost or biogas • % of the city's solid waste that is diverted from disposal • % of organics treated/diverted • Tonnes of organic waste collected and converted into other uses (e.g., compost, biogas fuel)
Priority Action 5: Waste avoidance through the Green Procurement Plan and Single Use Plastic Ban	• Tonnes of plastic waste avoided per capita and diverted from the landfill • Socio-economic benefits of recycling plastic waste: employment (# jobs)
Priority Action 6: Upgrade wastewater treatment system and facilities	• Additional capacity of reclaimed water created (m^3) • Volume of reclaimed wastewater available (m^3) • GHG emissions reduced (as a result of more efficient and advanced wastewater treatment facilities/systems) • % of households served by wastewater collection, such as pipe network and septage collection
Priority Action 7: Waste recycling targeting plastic and paper waste	• Tonnes of reduced consumption or generation of single-use plastic • Tonnes of plastic and paper waste recycled • % of waste generated per person/household • Number of accredited junk shops, waste collectors in the waste sector • % of citizens who changed behavior based on communication/engagement efforts (by income level, race/ethnicity, age, gender, migrant status) • Number of IEC campaigns and capacity building activities facilitated
Priority Action 8: Circular business models	• % of the city's solid waste that is recycled • % of the city's solid waste that is diverted from disposal (diversion rate) • % recycled materials used in production • Number of local businesses supported
Priority Action 9: Green corridor network	• Area of the vegetated area created (m2) • % change of vegetated area • Number of trees planted • Number of public engagement workshops and training facilitated
Priority Action 10: Urban biodiversity sustainability action plan	• % of resources under the management policy • % increase in financing allocated to biodiversity activities • % change in biodiversity population or key species (or all if preferred and possible) • % change in water volume in the watershed • Frequency and intensity of water scarcity
Priority Action 11: Upgrades for informal climate-vulnerable neighborhoods by providing public services	• Number of investments provided to improve public infrastructure and housing • Number of safe, resilient housing units for ISFs established • Number of public consultations with stakeholder groups (e.g., community leaders, informal settlement citizens) • Proportion of informal communities that can access public infrastructure and transit services (e.g., by age, gender, ethnicity, etc.) • Proportion of communities afforded with housing services (e.g., by age, gender, ethnicity, etc.) • Proportion of communities with reported improved standards/quality of living (e.g., by age, gender, ethnicity, etc.)

Priority Climate Action	Key Performance Indicators (KPIs)
Priority Action 12: Policy mechanisms for new developments near mass transit stations	• Number of policies developed and implemented to establish new development on identified mixed-use areas • % of businesses/commerce in the TOD zone (e.g., by scale small/medium/large, formal/informal, etc.) • % of population with access to jobs, education, and health services within 20 minutes in TOD zone
Priority Action 13: Review of the Comprehensive Land Use Plan (CLUP)	• Revised CLUP of the QC with identified mixed-use zone to encourage development and interconnectivity • Number of representatives during consultation processes (prior to the actual revisiting of the CLUP) • Number of barangays with increased access to public amenities such as primary and secondary schools, public hospitals, and employment opportunities
Priority Action 14: Amend the City's Green Building code	• Number and proportion of green building construction permits issued • Number and proportion of old buildings retrofitted to meet new GBC standards • Number and proportion of City building owners/managers trained in the GBC's energy efficiency standards • Power/electricity generated in buildings with RE installation (in megawatts) • GHG emission reduction (tCO_2e) • % of population with access to credit that can be used for building efficiency improvements (by income status, gender, race/ethnicity)
Priority Action 15: Incentivize medium to large scale renewable installation in high-energy consuming sectors	• Number of technical assessment/feasibility studies completed • Power/electricity generated from solar PV installations (MWh) • GHG emission avoided (tCO_2e) • Number and % of commercial establishments, household units, and other entities afforded with a specified amount of fiscal incentive • Number and % of household units/commercial establishments taking part in net-metering schemes
Priority Action 16: Mainstreaming energy efficiency at the residential, commercial and industrial sectors	• Number and proportion of residential, commercial and industrial establishments retrofitted • GHG emission reduction (tCO_2e emissions) • % of population with access to credit that can be used for efficiency improvements (e.g., purchase of energy-efficient appliances, by income status, gender); aggregated at the barangay level
Priority Action 17: Three-staged solarization of all City government-owned facilities	• Number of technical assessment/feasibility studies completed • Number and proportion of city-owned infrastructure with solar PV installation • Power/electricity generated from solar PV installations (MWh) • GHG emission avoided (tCO_2e) • City government energy savings from local source power generation
Priority Action 18: Leverage renewable energy policy mechanisms, including incentive schemes, provided for by the Renewable Energy Act of 2008	• % of households and businesses with electrical service supported by distributed solar PV (e.g., by income level, informality status, gender) • Number of household units/commercial establishments taking part in net-metering schemes • Number of commercial establishments, household units, and other entities afforded with a specified amount of fiscal incentive • % of the population participating in solarization project training programs and jobs (e.g., by income level, gender, age)
Priority Action 19: Mainstreaming of the local energy efficiency and conservation plan	• Number of PPAs (or corresponding outcome indicators e.g., feasibility studies) in the LEECP that have been delivered/completed • Number and proportion of technical staff trained in RA 11285's energy efficiency standards (e.g., building managers, EE&C Officers) (by gender) • GHG emission reduction (tCO_2e) as a result of energy efficiency upgrades within City facilities • Energy efficiency savings that can be attributed to the GEMP
Priority Action 20: Comprehensive cycling and walking pathways	• Km of bicycle lanes constructed • Km of improved walking pathways • Reduction in traffic congestion from increased walking/cycling • Modal share: % of the total population who are using non-motorized means • Increase in the number of daily trips using walking and cycling

Priority Climate Action	Key Performance Indicators (KPIs)
Priority Action 21: Complement national mass transits with connectivity facilities	• Modal share: % of QC residents using MRT/LRT and its connected facilities • Reduction in traffic congestion • Transport plan developed and implemented to promote interconnection • Number of improved and newly built terminals in transit zones
Priority Action 22: Local bus rapid transit system	• Number of bus stops/stations • Number of bus units • Comfort and quality of BRT service (safety, reliability, frequency, crowding, availability of seats) on services/ routes used (e.g., by income groups, race/ethnicity, etc.) • Modal share: % of total population traveling within and beyond the City using bus fleets
Priority Action 23: Zero-emission government-owned buses & vehicles	• Number of EV purchases within QC vis projected vehicle purchase (annual) • Number of EV owned by the city government • Number of EV charging stations and their users
Priority Action 24: Air quality monitoring and information system	• Number of AQ sensors installed • % of relevant technical staff/personnel trained on the operation and maintenance of the AQ MIS • Number of programs/projects/policies/roadmaps supported by AQ MIS data • Number of reports produced using AQ MIS

Evaluation

The concluding process in the MER cycle is the evaluation of the priority climate actions. EPMWD-CCES, as the MER Lead, shall hold annual program-level evaluation exercise to assess and discern whether the actions are contributing to the City's hierarchy of climate vision and targets, and to what extent they do so. It is in this stage where the City gains clarity which actions to advance and which to pivot. For this exercise to be successful, MER Coordinator Teams need to have all hands on board in support for the EPMWD-CCES evaluation process.

This evaluation exercise may be supported and delivered by analyzing monitored and reported data, identifying trends, reviewing evidence, and conducting interviews with the City Departments leading action implementation. For the purpose of this exercise, evaluation questions have been provided for guidance. EPMWD-CCES may exercise flexibility in choosing the most appropriate and relevant questions to match against each respective priority climate action.

Lastly, the evaluation phase also provides opportunity to assess the MER framework itself and see if its structure and processes remain relevant and effective in capturing valuable data for decision-making and strategy purposes.

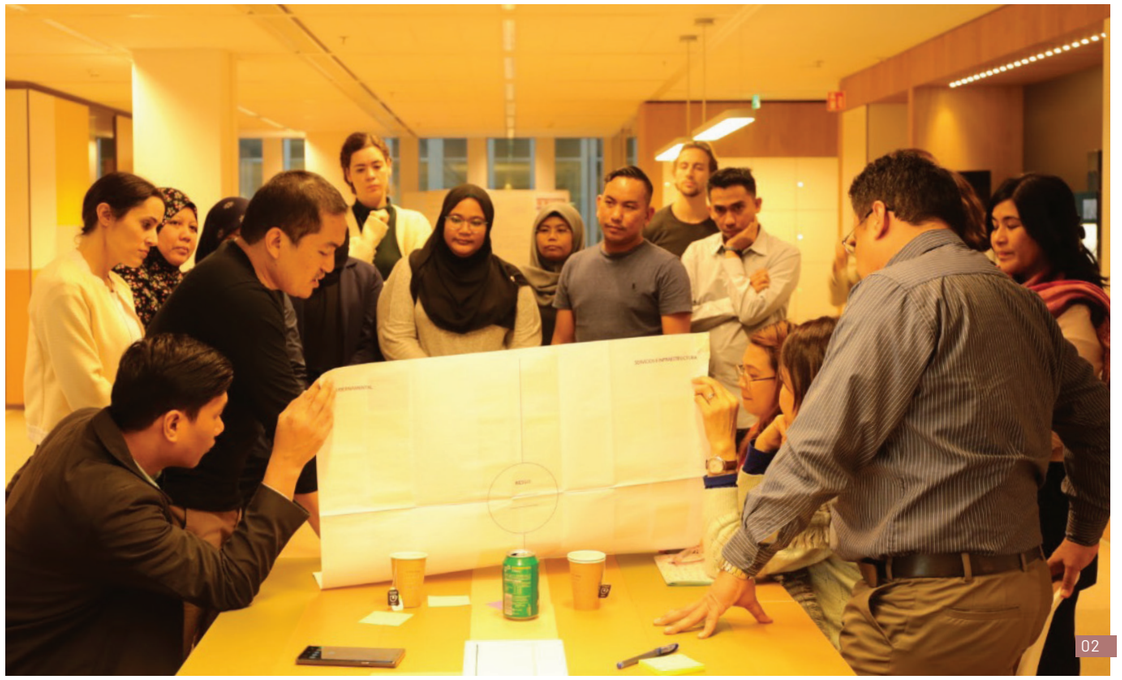
QUEZON CITY
ENHANCED LOCAL CLIMATE CHANGE ACTION PLAN
2021-2050

6

Delivering Impact for All

This section sets out the overall climate governance framework that shall enable the successful implementation of the priority climate actions. Section 6 has been organized into three subsections namely (i) Internal Implementation Structure, (ii) External Partnerships and Stakeholders, and (iii) Financing Sources, each presenting high-level and operational provisions for the delivery of the actions.

01



02

01 Rescue operations during Typhoon Ulysses

02 Quezon City and Kuala Lumpur city officials at Adaptation Academy conducted in 2020; Rotterdam, the Netherlands.

The climate governance framework recognizes the crucial role of city government leadership in the delivery of climate actions. The city government has the imperative to champion ambitious climate actions through a collaborative and multi-stakeholder approach. The framework defines a clear and coherent internal implementation structure, which sets out the interactions among various city departments and units from the executive and legislative branches.

Cutting across the internal implementation structure is a robust and strong integration of key stakeholders in the climate action planning and implementation process. Stakeholder engagement is indispensable in the effective design and delivery of inclusive climate actions. Quezon City will engage external stakeholders, particularly those hard-to-reach groups to understand and address the root causes and drivers of disproportionate climate risks and make informed policies.

Acknowledging the multi-sectoral and integrated approach to climate action, the governance framework maps out linkages among internal key city departments with the following external stakeholders. They include national government agencies and bureaus, civil society organizations, academe, media, private sector, and other volunteer and church organizations.

Figure 21 shows the complex interdependence of the city departments on one another and with external stakeholders and partners to fully realize the climate actions and resilience objectives. Summary implementation matrices have been developed to provide the City with an overview of the key implementation components of each action. All three subsections also form part of the climate actions' implementation matrices and have dedicated columns for them.

The following sections elaborates on the internal and external implementation structure of Quezon City's Enhanced LCCAP.

DELIVERING IMPACT FOR ALL 6

Quezon City's Climate Governance Framework

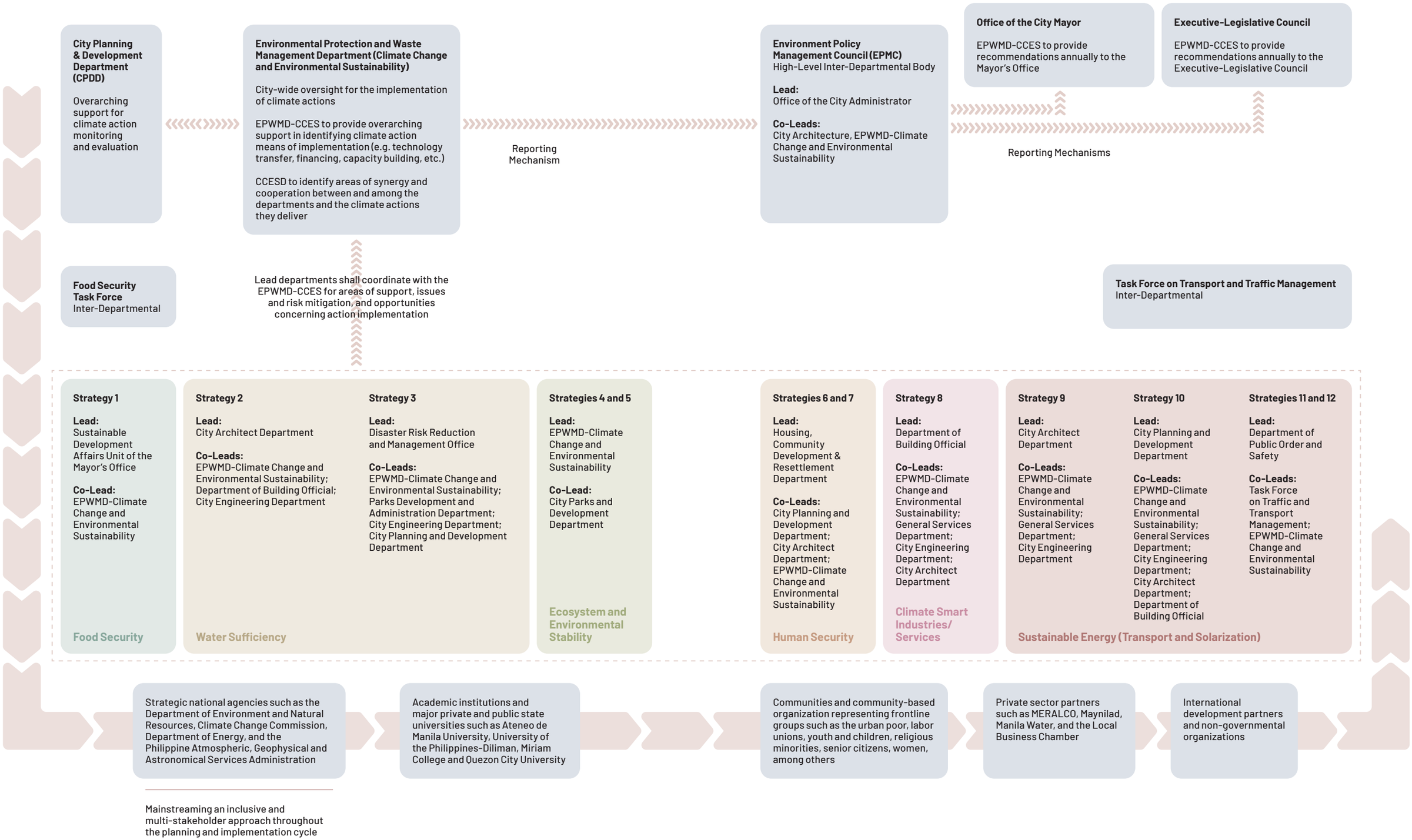


Figure 21

Quezon City's Climate Governance Framework for the Delivery of the Enhanced LCCAP's Priority Climate Actions

Internal Implementation Structure

Strong institutions are essential to managing risks and following low-emission and resilient development pathways. This means building institutional capacity and facilitating the information dissemination and pooling across the local offices at the highest level while aligning with the national government climate change framework. Addressing the complexity of climate change and disaster risk challenges requires a multi-departmental approach where each unit has a clear understanding of its role in the overall framework.

Workshops and consultations with the city representatives have helped identify the necessary institutional arrangements within the city government. These internal implementation structures refer to the organizational setups within the local government and show which department is responsible for which specific function in implementing the climate actions.

These internal implementation structures are composed of two types of city departments – a lead department and support department(s). A lead department has the mandate and authority to initiate the climate action, mobilize resources toward it, monitor its progress, update the action in light of new circumstances, and ensure its end-to-end implementation. Meanwhile, a support department is responsible for providing the necessary assistance to the lead department to help the latter in completing the action. Given the cross-departmental nature of the majority of the actions, the lead department must be able to mobilize the support departments strategically, ensuring a clear delineation of roles and allowing for effective cooperation.

Well-defined internal structures are critical to any action plans as they institutionalize the implementation process, reduce bureaucracy, and support the effective flow of resources. At the operational level, institutional arrangements provide clarity on the specific tasks that technical, policy and managerial staff have to perform to fulfill the targets of the action plan. They also provide a governance map for external stakeholders to navigate opportunities to collaborate with the City.

01

Building on the preceding version of the LCCAP, this Enhanced LCCAP reiterates the importance of the interwoven dynamics of departments and how these relationships have to be maximized for effective implementation. The Local Government Code (LGC) allows for sufficient flexibility for highly urbanized cities like Quezon City to design, modify and implement its organizational structure and staffing pattern taking into consideration its goals and objectives contained in the LCCAP and accountability to the community. Since implementation includes the establishment of detailed work systems and institutional mechanisms that respond to the objectives of the LCCAP, Quezon City has a direct prerogative to shape its structure in light of new circumstances and priorities.

In the process of validating the internal arrangements for each climate action, the teams have noted the overarching function of the EPWMD-CCES. The department has the role to: "*to develop, update and implement policies, programs, projects, systems and strategies on climate change mitigation and adaptation as well as environmental sustainability while ensuring efficient and sustainable resource allocation through advocacy driven campaigns, environment-friendly technological advances, environmental education, and community engagement.*[1]"

With this in mind, the EPWMD-CCES supports and leads several climate actions, ensuring that the City's climate vision and strategies are well accounted for in each policy, project, and program; and that necessary external resources such as climate financing, technology transfer, or policy requirements are captured and acted on. On another level, the EPWMD-CCES is also expected to identify synergies and areas of cooperation between and among the departments and their designated climate actions. The specific departments in charge of each action are presented in the summary implementation matrices.

01 QC representatives deliberating at a CAP validation workshop conducted in 2019.

[1] https://quezoncity.gov.ph/departments/environmental-protection-and-waste-management-department/

External Partnerships and Stakeholders

Inclusive climate action forms an integral part of climate action planning and implementation, putting emphasis on the potential to deliver transformative outcomes that will not only promote meaningful benefits throughout the population but also change, improve or even overcome unequal and unfair socioeconomic conditions, especially for the most vulnerable sectors and communities.

Owing to the cross-cutting nature of climate actions, there are several departments and sectors within and external to the Quezon City government that historically or currently have a role in preparing climate policy or delivering the city's climate actions. Cities cannot deliver climate action at scale without engaging and building partnerships with external stakeholders, such as national government agencies, the private sector, non-profit organizations, universities, sectoral organizations, frontline groups, and citizens.

This subsection refers to the external stakeholders and partnerships that the City government may establish to implement the actions. It is understood that the City government requires specific assistance from external parties such as local groups, the national government, financing institutions, the academe, civil society organizations, and the private sector. International and multilateral organizations could also support the City through technical assistance projects, grants, or partnerships. Quezon City's external stakeholders and partners are summarized in Figure 22.

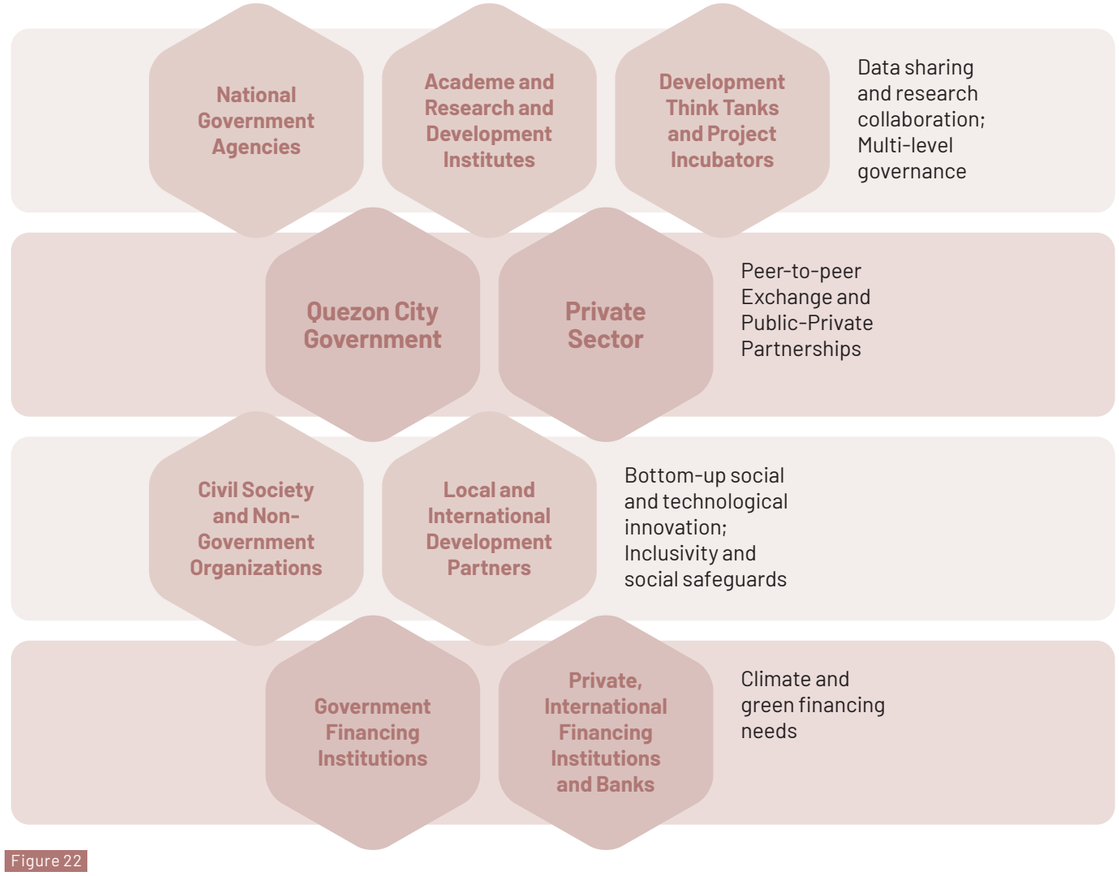


Figure 22
Quezon City's external partners and stakeholders and their areas of support for the climate action implementation

01 QC senior citizen receiving aid during the COVID-19 lockdown

The City's implementation planning has outlined key external partners for each priority climate action. These entities have specialized expertise and resources that can help enrich the technical and policy soundness of the climate actions, ensure their equitable impacts, and maximize action continuity. In most cases, particularly for government-related institutions, it is within their mandate to fulfill the area of support being sought and therefore have the organic resources to mobilize them.

For instance, *Priority Action 1: Urban Farming* enlists the Department of Agriculture, which can supply technical guidance in terms of the most effective seedlings to plant, considering the city's climate and available land spaces.

Equally, the Department of Trade and Industry can assist the city in determining possible entrepreneurial opportunities for the action's produce.

Technology transfer, policy and implementation support, capacity building, and technical expertise are just some of the support areas needed by the City. A list of existing and prospective partners – city, national, and international – have been identified and validated by City departments as part of the development of this Enhanced LCCAP.

01

Financing Climate Action

Identifying clear sources of financing is an essential element of the Enhanced LCCAP implementation. While transitioning to a net-zero and resilient city will require significant financial investments, they will return immediate and long-term benefits and can avoid greater financial risks in the future. Given the varying complexities of the climate actions, it is also imperative to find a range of financial streams that can activate, operationalize, and sustain them.

As the actions are designed for implementation by Quezon City itself, it is rightfully so that the majority of the climate actions are funded by the local government's budget. Still, it remains critical that the Enhanced LCCAP explores other instruments and platforms to outsource funding. These financial flows may come from local, international, public, and private sources. Some of the traditional financing sources included in the preceding version of the LCCAP are summarized in the following table.

Source of Funding	Description
National Government Funding	National government funding is channeled through the government agencies that implement programs, projects, and activities in the City. Much of such funding is for large infrastructure and technical assistance projects, including the construction of schools, hospitals, roads, bridges, public buildings, and other critical structures in the City. These projects have fueled Quezon City's fast growth, led by national agencies such as the Department of Interior and Local Government, National Housing Authority, Department of Health, National Irrigation Authority, Department of Public Works and Highways, Housing and Land Use Regulatory Board, DENR, DOTC, DA, DepEd, and BFAR, among others. Under the General Appropriations Act, national government funding also comes from the Office of the President, the Offices of Senators, and the Offices of six Congressmen from six congressional districts of the Quezon City.
National Disaster Risk Reduction and Management Fund	The National Disaster Risk Reduction and Management Fund is appropriate under the annual General Appropriation Act, to be used for disaster risk and reduction or mitigation, prevention and preparedness activities such as, but not limited to, training of personnel, procurement of equipment, and capital expenditure. It can be utilized for relief, recovery, reconstruction, and other works or services in connection to natural and human-induced calamities that may occur during the budget year or those that occurred in the past two years from the budget year.
People's Survival Funds (Republic Act 10174)	The People's Survival Fund has been created to provide long-term finance streams to enable the government to effectively address the problems of climate change. The fund shall be used to support adaptation activities of local governments and communities such as, but not limited to, the following: (a) Adaptation activities, where sufficient information is available to warrant such activities, in the areas of water resources management, land management, agriculture and fisheries, health, infrastructure development, natural ecosystems including mountainous and coastal ecosystems; (b) Improvement of the monitoring of vector-borne diseases triggered by climate change and in this context improving disease control and prevention;
Quezon City Government Funding	Most of the funds of the city government come from business and real property taxes (RPT). These funds have been growing with the influx of new business and the fast pace of development in the City. The latest growth rate of 7.6% is considered higher than that of the previous year (Quezon City, 2015). Each Barangay manages its share of the RPT, based on their respective development plans, and with corresponding financial accounting responsibilities. The funds shall be distributed as follow: • 20% Internal Revenue Allotment (IRA) Development Fund which is an annual appropriation that is earmarked for development projects, as defined by the Joint Memorandum Circular (JMC) No. 1 series of 2001. • Local Disaster Risk Reduction and Management Fund (formerly the Calamity Fund) can also be from 5% of the city's Calamity Fund being used for Disaster Risk Reduction and Management initiatives.

TABLE 6
Government sources of funding

Aside from these conventional streams, it is recommended that the City utilises new and innovative financial models such as Public-Private-Partnership transactions, Joint Venture Agreements, and other instruments. For instance, the City's energy efficiency projects may apply energy savings contracts, wherein utility savings from reduced energy demand from retrofits and upgrades can be used to pay for the project itself. Non-traditional funding streams from the preceding LCCAP are summarized in Table 7.

Source of Funding	Description
Public-Private Partnerships	The Public-Private Center of the Philippines defines public partnerships as "a contractual agreement between the Government and a private firm targeted towards financing, designing, implementing and operating infrastructure facilities and services that were traditionally provided by the public sector. It embodies optimal risk allocation between the parties – minimizing cost while realizing project developmental objectives. Thus, the project is to be structured in such a way that the private sector gets a reasonable rate of return on its investment."[2] • In the revised IRR of the Build-Operate-Transfer Law or R.A. No. 6957, climate change mitigation and adaptation infrastructure projects and related facilities are eligible for PPP modalities.
Implementing the NCCAP at the Local Level (Eco-Towns) Approach	The Climate Change Commission is currently pursuing development interventions using ecosystem-based management or an eco-town framework. The initiative is essentially bundled assistance designed to improve climate resilience with the following major components: • Financing through climate change technical and CCA support services; • Social protection and risk-sharing implemented through public-private partnerships and national government and local government cost-sharing; and Technical assistance for adaptation measures, technologies, and ecosystems management[3].
Settlement of Climate Debts	At the international level, the country can negotiate for debt-for-nature swaps with monies raised to be used for integrated ecosystem-based management within the ecotowns. This augments funding of technical assistance package to eco-town beneficiaries[4].
Disaster Management Assistance Fund (DMAF)	The DMAF is a lending facility to LGUs offered at very low rates (3% to 5%) whose objectives are to provide timely financial support to disaster risk and damage management Initiatives. It includes disaster prevention and mitigation projects, response and relief-related projects, and recovery and rehabilitation projects[5].
Public Finance Mechanisms	The Philippine government may legislate public finance measures to generate funds for climate change adaptation, such as committing 0.5% to 1.0% of GDP, setting levies on GHG emitters, road, and port users, airline and shipping services, designing BOI tax, and other fiscal incentives. Aside from the budget of the national government that is passed annually, other financial mechanisms for adaptation strategies and plans of the communities can be created to support multi-year activities[6]. A clear and stable local government policy can also enable financing from the private sector and foreign donors. Another low-hanging fruit is the 25% quota of the total loan portfolio of banks to be allocated to the agriculture and agrarian sector. The AGRIAGRA law, as it is commonly called mandates all banks to set aside 25% of their loans to the sector, subjecting the banks to a stiff penalty for non-compliance. For 2009 alone, this 25% quota was estimated to be around 500 Billion pesos, heretofore remaining an untapped domestic financing potential[7].
Payments for Environmental Services	The basic idea behind Payments for Ecosystem Services (PES) is that those who provide ecosystem services should be compensated for the cost of doing so. PES was developed to incentivize land users to properly manage and conserve their natural environment. Appropriate mitigation actions that have carbon credit potential can also be applied in the protected area, provided that international climate financing supports this. The Climate Change Act of 2009 also requires government financial institutions to provide preferential financial loan packages for local government units. These loans are not tied to the IRA and can be over and above the 5% allotted for the local Disaster Risk Reduction and Management Fund. These can be coupled with a performance-based rating system of LGUs as a form of improving good governance. Addressing climate change, however, requires a cross-sectoral response. It needs a coordinative effort amongst the national government agencies, local governments, civil society, and the local communities.

TABLE 7
Non-conventional funding streams for consideration

01 Biking commuters hold a signage thanking the QC Government for making roads safer for them

[2] https://ppp.gov.ph/

[3] CCC-a, 2011

[4] ICCATWG, 2014

[5] Ibid.

[6] Ibid.

[7] Ibid.

Furthermore, from the perspective of inclusivity, financing can also be leveraged as a mechanism to distribute the value of the climate actions. For example, capturing the increase in land value as a result of urban planning measures can be used to support direct development investments in low-income communities. In the same manner, the city can offer concessional loans and terms to small businesses to avail solar PV installation projects, empowering them to be active players in the local government's climate strategy.

To gain a broader picture of the financing requirements, the city representatives, C40, and ICLEI SEAS have identified indicative sources of funding for each priority climate action through the development and validation of this Enhanced LCCAP. Teams have strived to list out all possible sources of funding, which were then presented to and vetted by the city during consultation workshops. These possible sources of funding have also been included in the implementation planning of priority actions.

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Moving Forward

The Enhanced LCCAP 2021-2050 is a clear testament to the City's commitment to pursue climate neutrality, resilience, and inclusivity. The strategic climate priority actions and policies as the building blocks of this document have been designed with the proactive involvement of the City representatives and key stakeholder groups, and are thus targeted to the local government's distinct development landscape and climate objectives. These priority programs address emission reduction targets, strengthen the adaptability of institutions and communities, and bring all these benefits to everyone in the society, regardless of gender, age, and income.

Further, this Enhanced LCCAP does not operate in a local vacuum and is aligned with the priorities and agenda of the national government's climate policy. This ensures that their impacts, while responsive to the direct needs of the community, ripple beyond the city borders and amplify the city's position as one of the leading local governments for climate action. The ambitions echoed in this document signifies that the city understands its responsibility as a frontline agency to help address the climate crisis.

This document is not an end on its own and should be treated as a breathing strategy that adapts to immediate and long-term trends. Its iterative nature could not be further underscored. Respective city departments and authorities have full ownership of the plan and shall support changes that can help the local government position itself better to respond to local and national changes. An effective implementation could only take place if it pivots effectively and targets challenges head-on.

Furthermore, given the complexities of the Enhanced LCCAP and its overlapping actions, it is critical to identify the immediate steps for the City to take to bring the plan into realization. The following are the next course of action that will allow the Enhanced LCCAP to take flight:

1 ENACT THE PROPOSED POLICY INSTRUMENTS

The Quezon City Government formulated its Enhanced LCCAP as a blueprint for its sustainable, carbon-neutral, climate-resilient, and inclusive future. To effectively execute the identified priorities and strategies and monitor the city's progress towards achieving its goal, a *local resolution* has been prepared by the Environment Policy Management Council (EPMC), which formally recommends adopting the Enhanced LCCAP 2021-2050. Further, with this policy tool in hand, the Enhanced LCCAP and its technical and policy points shall be considered for integration into the City's other development plans and strategies such as the CLUP, CDP, and DRRMP, among others.

Additionally, a *local ordinance* has been proposed to be used by the Quezon City Council for the city-wide adoption of the Enhanced LCCAP 2021-2050. Supporting the presentation and implementation of the Enhanced LCCAP, the abovementioned

local ordinance will also formalize the city's climate objectives e.g., GHG emissions reduction targets, and the identified climate strategies and actions that are aligned with the city's local development plans and priorities and that of the national government. Enacting the local ordinance shall provide legitimacy, a crucial prerequisite for the plan to be delivered within the City's jurisdictions.

2 UPDATE DEPARTMENT BUDGET AND PROGRAMMING

Measuring the progress of the strategic climate actions can be done against performance indicators. To this end, project milestones have been meticulously identified for the climate actions which shall provide broad and specific parameters for the departments to determine whether or not the plan implementation is on track. In relation to this, the respective City departments are to update their budgets and programming plans, and reassess staff capacity, and reflect the proposed milestones as discussed in the Enhanced LCCAP's Section 4. The priority climate actions identified in the Enhanced LCCAP should also be reflected in the Annual Investment Plan and synchronized further with the updating of the City's Comprehensive Development Plan (CDP). This is one measure for the City to accelerate plan implementation and cascade the salient points of the Enhanced LCCAP into the departments for their corresponding action.

3 RECONSTITUTE THE GREEN BUILDING UNIT UNDER THE DEPARTMENT OF BUILDING OFFICIAL

Formal institutions are key to effective climate action planning and wider citizen participation. This is why reconstituting the green building unit under the Department of Building Office is one of the prerequisites for the implementation of the Enhanced LCCAP. Guided by the Technical Assistance of C40 on the Amendment of the Green Building Code, Quezon City's green building policies, programs, projects, and activities help attain the city's objective of promoting energy efficiency, increasing uptake in renewable energy, and enhancing the resilience of the City's buildings and major industrial and commercial emitters.

To effectively execute the identified green buildings actions and monitor their progress, the established Green Building Office shall directly work and attend to the activities and pursuits relative to the policies, programs, policies, and provisions on climate change and GHG reduction through buildings energy management and monitoring.

4 LAUNCH THE ENHANCED LCCAP 2021-2050

Organizing an official launching event is an excellent measure to publicize the completion of the Enhanced LCCAP and create awareness among the general public on the climate strategies and initiatives of the city government. This promotes buy-in among the city constituents, creates strong accountability for the departments to deliver their objectives, and informs the public about its roles and responsibilities when it comes to implementation.

Considering restrictions in physical gatherings, the city can opt for a hybrid event, composed of a small group of key stakeholders and leaders meeting in person, complemented by a virtual activity. Invitees for the in-person gathering can include the national government (e.g., CCC, DOTr, DOF, DENR, etc.), development partners (e.g., C40, ICLEI, etc.), and partner LGUs within Metro Manila. The virtual activity can be organized in the second half of 2021 and can consist of a series of webinars featuring the City's best climate action practices and an open forum to give chance for stakeholder groups such as the youth, women, the private sector, and the likes, to raise questions about the plan.