



MONTERREY

USING DIGITAL PLATFORMS TO BUILD CLIMATE SMART CITIES IN THE MONTERREY METROPOLITAN AREA, MEXICO

The industrialized and ever-growing region of Monterrey Metropolitan Area (MMA) in Mexico is utilizing data-driven platforms to provide more accurate technical support for the development and implementation of future climate action plans for the region. Through a combination of local climate data and Google's Environmental Insights Explorer (EIE) platform, they aim to generate more robust information in order to build climate smart cities.

Facts and figures

Local Government Name

Área Metropolitana de Monterrey

Population

5.3 million (2020) [1]

Total area

7,657 km²

Municipal Budget

€1.09 billion (2020)

GHG inventory available since

2010

GHG emissions indicator

30.34 MtCO₂e

Introduction

The Monterrey Metropolitan Area (MMA) is located in the state of Nuevo León, Mexico. As the capital of Nuevo León and the second largest metropolitan area in the country, it has more than 5 million inhabitants, and is the commercial center of Northern Mexico. It is comprised of multiple municipalities including: Apodaca, Cadereyta Jiménez, El Carmen, García, San Pedro Garza, García, General Escobedo, Guadalupe, Juárez, Monterrey, Salinas Victoria, San Nicolás de los Garza, Santa Catarina, and Santiago.

Due to the high level of industrialization and ever-increasing development present in the region, Monterrey is one of the top three greenhouse gas (GHG) emitting territories in Mexico. From 1990 to 2020 the population more than doubled and the total urban area increased 2.8 times [2]. This unplanned influx of people left local governments scrambling and were not able to provide the necessary infrastructure and social services to these newly developed regions.

Monterrey is situated in the Sierra Madre Oriental Mountain range which is in close proximity to the *Cumbres de Monterrey* National Park. The local ecosystem has experienced direct negative impacts caused by population growth, urbanization, and development. As the city expands further into previously uninhabited, mountainous terrain,

this unplanned development will continue causing environmental and social problems, exacerbated by climate change - a negative development that will impact generations to come.

Faced with these challenges, the municipal governments of the MMA along with the Nuevo León state government established strategies and implemented actions to reduce GHG emissions in the region. However, these often lacked technical-scientific support, as well as the necessary data and information to guide decision-making, to effectively pursue solutions that can simultaneously promote climate actions, for instance those defined in the Climate Action Plan (CAP), while still incorporating public policy instruments. To address this issue, the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) University, along with the Alliance for Climate Action - Monterrey, partnered with ICLEI - Local Governments for Sustainability (Mexico, Central America and the Caribbean Secretariat) and Google.org - with the aim to identify and properly utilize a combination of local climate data and Google's Environmental Insights Explorer (EIE) platform. This approach would generate more robust information, using data-driven platforms to provide more accurate technical support for the development and implementation of future territorial CAPs for the MMA.

Building Climate Smart Cities

The local governments of the MMA have increasingly developed policies and programs designed to mitigate GHG emissions, while adapting and becoming more resilient to climate change. Nevertheless, a recurring issue is their lack of technical capabilities to support informed decision-making, exacerbated by a lack of data. To bolster these deficiencies, the project used Google's EIE platform to compare, monitor, and validate data on various green and solar technologies that can be applied to and on sustainable buildings - a major focus of the project. It included

aspects such as identifying solar potential for energy generation and low-emission transportation strategies. All components of this project helped evaluate the potential contribution to the GHG reduction target and support the decision-making processes by identifying the most suitable climate actions.

To achieve results, sound climate governance should be accompanied by monitoring and evaluating actions, enhanced by collaborative approaches to determine and subsequently achieve data-driven climate targets. For this

project to succeed, with the goal to contribute to MMA climate goals through local GHG emission reductions, it was essential to identify areas of opportunity for different stakeholders. The focus was on working with key stakeholders from the government - both at local and state level - with other public, private, and academic sector representatives.

This enabled the exchange of knowledge, ideas, jointly identifying needs and opportunities with the stakeholder groups. This communication was facilitated by the Monterrey Project Partnership, and led to the creation of inclusive strategies to achieve science-based climate targets that are supported by data-driven decision-making.



Field session with stakeholders. ©ICLEI MECS

The Approach

Without the support of the local community, there is no possibility to achieve long-term success. As such, stakeholder engagement was a cornerstone of this project. To start this community involvement process, key stakeholders were identified. This would help to find key community members across MMA society who could contribute valuable insights. As a result, those people who needed the most help were prioritized with resource allocation. Further, the inclusion of many community voices, especially traditionally marginalized sub-communities, served to highlight issues that are often overlooked by more affluent members of society.



Feedback session related climate actions. ©ICLEI MECS

Once the identification process was completed, a dialogue was established to explain the project's goals and benefits. This helped to build trust between the project organizers and community representatives, but also ensured co-ownership and a growing relationship to enhance the project's impact. Stakeholders from marginalized communities in peri-urban areas tend to distrust such programs, due to negative or even exploitative past experiences. It was essential to frame the project goals as being in the communities' best interest.

With these foundational elements in place, the project organizers formally invited participants to contribute to the project, using two participatory processes to host collaboration spaces. These were in the form of workshops, webinars, and engaging stakeholders in decision-making sessions - helping to foster interaction and dialogue between various levels of government, other sectors and key institutions in the MMA.

The first participatory process was designed to assess needs, identify successes, challenges, and barriers for upscaling of different climate actions, and to set clear climate targets, while developing a decision-making framework to evaluate and select the most appropriate climate actions. This process was also created to identify existing resources and explore financial support. It helped to look into different technologies and strategies on sustainable buildings, solar potential, as well as smart and sustainable mobility. Workshops were organized to develop and implement a framework for stakeholder participation and track project results - addressing technical assistance, training, and guidelines for the use of Google's EIE platform and two complementary platforms, namely Maitec - to evaluate mobility strategies, and Tec Solar & Buildings (Tecsob) - to evaluate green technologies and solar eco-technologies.



Mobility workshops related strategies. ©ICLEI MECS

Impacts

Working with a wide diversity of stakeholders who share the same concerns about climate helped to generate a broader, more inclusive range of project impacts and benefits that contributed to the climate targets. Using dialogue to enhance understanding helped strengthen contributions, while simultaneously explored various communities' self-identified "best options" for climate action and reducing GHGs - following the goals set by the Nuevo León State government.



Final decision-making session. ©ICLEI MECS

This approach also emphasized transparency and accountability of climate action in the project and increased the amount of data-driven information to inform on GHG mitigation potential of specific actions. Overall,

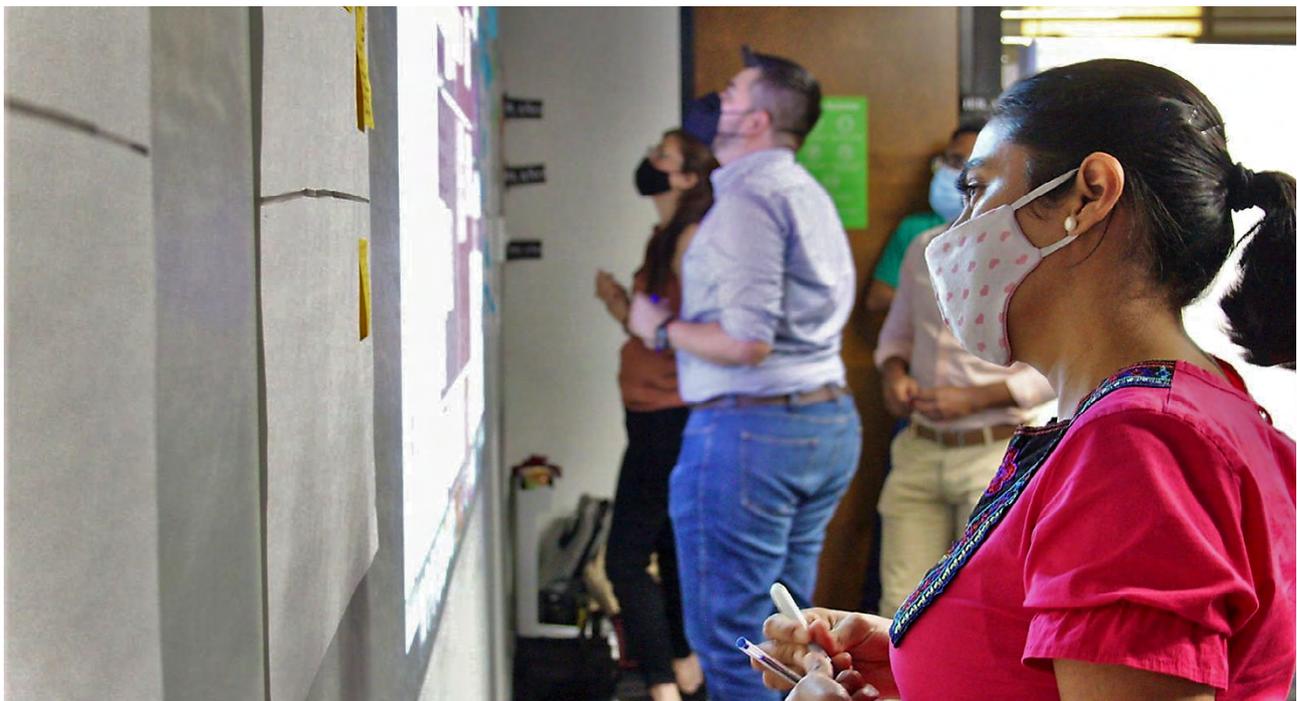
these results contributed to better informed public policies resulting in reduced GHGs, with support for future climate plans at both the municipal and state level.

Lessons Learned

Perhaps the most important lesson from this project was the process in creating an effective stakeholder engagement strategy which led to multiple positive impacts. Identifying individuals based on their influence and/or reputation in the community and encouraging their engagement in the project proved to be a decisive element for effective climate action planning.

Active stakeholder participation directly contributed to the success of the project. It helped achieve the goal of data-driven

processes that drive climate action. It is also important to note that climate governance, which involves stakeholders as an active component in the decision-making process, helps local governments to identify additional opportunities and overcome barriers in planning and implementation. Finally, it was important to close the loop between people, data and information (using Google's EIE, Maitec and Tecsb platforms), decision-making and policy, and exploring financing programs and other mechanisms to scale up climate action.



Workshop related climate action. ©ICLEI MECS

References

[1] Information from the National Institute of Statistics and Geography (in Spanish: Instituto Nacional de Estadística y Geografía). Available at: <https://www.inegi.org.mx/>

[2] Information from the Metropolitan Urban Information System (In Spanish: Sistema de Información Urbano Metropolitano). Available at: <https://expansionurbanamty.mx/>

About the Action Fund

The Action Fund is an initiative led by ICLEI with support from Google.org, to boost environmental projects in selected cities in Europe, Mexico and South America. The grant aims at empowering civil society organisations, academic institutions and nonprofit research institutes, leading data-driven climate action efforts to reduce citywide emissions.

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