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TRABAJO FIN DE POSGRADO

Bridging the Gap Between Climate Diplomacy and Local Action to Achieve Vitoria-Gasteiz's 2030 Net-Zero Neutrality Mission
Lessons learned from Vitoria-Gasteiz Climate Journey towards SDGs localization

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AU2030VG: Vitoria-Gasteiz Urban Agenda 2030
BB: Building Block
COP21: 21st The Paris Agreement
EU: European Union
EV: Electric Vehicle
GCF: Green Climate Fund
GDP: Gross Domestic Product
GHG: Greenhouse Gas
GIS: Geographic Information System
HLPF: High-Level Political Forum
HUD: Housing and Urban Development
IDB/IADB: Inter-American Development Bank
IMF: International Monetary Fund
IPCC: Intergovernmental Panel on Climate Change
LAC: Latin American and Caribbean
LMCC: Ley Marco Cambio Climático
MDB: Multilateral Development Bank
NDC: Nationally Determined Contribution
NUA: New Urban Agenda
ODA: Official Development Assistance
PAACC: Plan de Acción para la Energía Sostenible y el Clima
PACES/SECAP: Sustainable Energy and Climate Action Plan
PNIEC: Plan Nacional Integrado de Energía y Clima
REDS-SDSN Spain: Spanish Network for Sustainable Development
SDG: Sustainable Development Goal
UNDP: United Nations Development Programme
UNFCCC: United Nations Framework Convention on Climate Change
VLR: Voluntary Local Review
VNR: Voluntary National Review

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Abstract

This thesis investigates the relationship between climate diplomacy and local climate action, focusing on Vitoria-Gasteiz, Spain, and its goal of net-zero emissions by 2030. By examining the 2030 Vitoria Urban Agenda (AU2030VG) and the Climate City Contract, this research explores how local actions align with global climate objectives in the Paris Agreement and the 2030 Agenda for Sustainable Development. Using a mixed-methods approach, including qualitative interviews and comparative analysis, the study assesses the effectiveness of Vitoria-Gasteiz's climate policies. Key areas of analysis include governance structures, stakeholder engagement, and monitoring mechanisms. The results show that of 85 strategic challenges in the AU2030VG, only 35 (41.14%) are aligned with the decarbonization mission, indicating a need for more targeted actions. This thesis emphasizes the localization of Sustainable Development Goals (SDGs) and the vertical integration of Nationally Determined Contributions (NDCs), showing how local initiatives support global sustainability targets. The analysis underscores the need for robust, adaptable, and well-funded monitoring systems to manage complex sectoral targets. Stakeholder participation and multi-level governance are critical for effective local climate action. For instance, real-time monitoring systems in both plans enable continuous data collection and timely strategy adjustments, keeping the city on track to meet its climate goals. The findings provide insights and recommendations for improving climate policy coherence and implementation, contributing to urban sustainability, climate resilience, and the effective localization of SDGs and integration of NDCs.

Keywords: Climate Diplomacy, Local Climate Action, Sustainable Development Goals, Nationally Determined Contributions, Urban Sustainability, Net-Zero Emissions, Vitoria-Gasteiz.

1. Introduction

The Journey from Climate Diplomacy to Local Action

The urban world is at a moment of several transitions. Today, 8 billion people live on the planet, and projections for 2050 indicate that this number will increase to 10 billion. (UN, 2022) This is happening at a time when the planet is, for the first time in human history, facing the real possibility of an environmental and ecological collapse because of climate change. (Vera, Sordi 2021). As the world heats up and urban agglomerations under the form of cities, metropolitan areas, megacities and megapolis (Soja, 2008) are expected to absorb almost two billion people—bioclimatic transformation has become one of the biggest hazards for the socioeconomic sustainability of urban areas. (Vera, Toro, Mashini 2024)

This problem occurs on a global scale, with the complexity that it involves vastly different geographies. On one side, regions like Latin America, Asia, and Africa face multiple development challenges and have less installed capacities and institutionality to address them. (Vera, Uribe 2023) While on the other side, regions like Canada, the United States, and Europe, have more established governance mechanisms and better management of resources available for climate action. (Rojas, Vera, 2018).

Against this backdrop, the multilateral world began, some decades ago, a race to reach agreements to build a more sustainable environment. (Falkner, 2016) One key aspect has been to mitigate the effects of climate change, reduce greenhouse gas (GHG) emissions, and more recently, adapt cities and landscapes to a new bioclimatic reality. Recognizing the urgent need for coordinated global action, the international community has made significant strides in addressing these challenges through landmark agreements (UN 2019)

Supranational coordination is a long journey, resulting in several climate-related agendas. Some are more aligned than others, but all move in the same direction: decelerating climate change, adapting to bioclimatic transformation, and building resilience. In what follows, the thesis will briefly unfold this path.

Unfolding the Climate Quest

The international effort to combat climate change began gaining momentum in the 1970s and 1980s, with scientists increasingly voicing concerns about the impacts of greenhouse gas emissions. This culminated in the 1992 United Nations Framework Convention on Climate Change (UNFCCC), which established a framework for international cooperation and introduced the principle of "common but differentiated responsibilities." This principle recognizes that while all countries must combat climate change, developed countries have greater obligations due to their historical emissions. (Newell, P., & Mulvaney, D. 2013). After that, the international community agreed on the Kyoto Protocol. It was adopted in 1997 and effective from 2005, is an international treaty aimed at reducing greenhouse gas emissions to combat global warming. It commits 37 industrialized countries and the European Community to binding emission reduction targets averaging a 5% decrease from 1990 levels over 2008-2012. The Protocol introduced market-based mechanisms like Emissions Trading, the Clean Development Mechanism, and Joint Implementation to help countries meet their targets cost-effectively. It established rigorous monitoring and verification rules and a Compliance Committee to enforce commitments.

Although the Doha Amendment extended targets to 2020, it has not fully entered into force. This paved the way for what was coming next. (UN, 1998)

In 2015, a pivotal moment occurred for sustainable development and climate initiatives with the adoption of the Sustainable Development Goals (SDGs) and the Paris Agreement on climate change. On September 25th of that year, the 193 Member States of the United Nations General Assembly voted to unanimously approve the document entitled "Transforming our world: the 2030 Agenda for Sustainable Development". Similarly, on December 12th, 2015, the Paris Agreement was adopted by consensus at the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC). The agreement brought together 196 parties to address climate change by limiting global warming to well below 2 degrees Celsius, above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius. (UN 2015) This historic agreement marked a significant commitment from nations to reduce GHG emissions and enhance resilience to climate impacts.

Diagram 1*. World average temperature in relation with pre-industrial levels (1850-2022)*
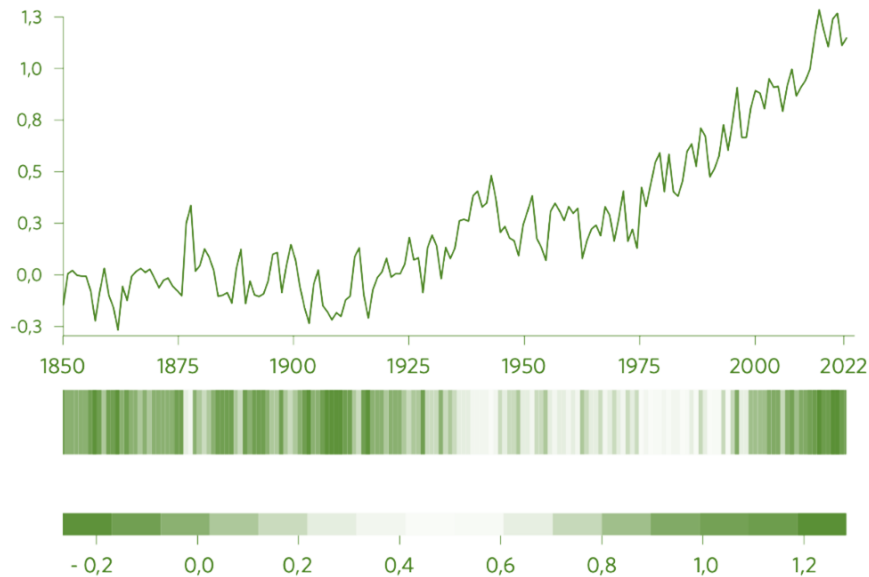
Source: UNStats

In particular, the 2030 Agenda was crafted to address not only environmental concerns but also socio-economic issues, aiming to create a more comprehensive framework for global progress and embrace sustainability in a holistic approach. In an increasingly polarized world, the 2030 Agenda for Sustainable Development, the Paris Agreement, and the Kyoto Protocol marked rare moments of global consensus, integrating socio-economic progress, environmental sustainability, and climate action into a unified global framework.

On the one hand, the SDGs are the result of a long evolution of international development cooperation since the mid-20th century. On the other, the 2030 Agenda is also the result of the broadest and most participative consultative process in the history of the United Nations and represents an emerging multilateral consensus among governments and diverse stakeholders, including civil society, the private sector, and academia. Civil society organizations played a key

role in proposing ideas for the SDGs and building consensus among states. They secured key commitments focusing on people, planet, peace, prosperity, and partnerships (5Ps).

While the 2030 Agenda had an important reach, the parallel agreement more specifically focused on climate mitigation and adaptation was in the making—the Paris Agreement. Central to this landmark in global climate effort are the Nationally Determined Contributions (NDCs), which are climate action plans submitted by each country outlining their efforts to reduce greenhouse gas emissions and adapt to the impacts of climate change. These NDCs are subject to periodic review and must be updated every five years to reflect increased ambition and progress, ensuring that global efforts collectively move towards the targets set by the Paris Agreement. (UN 2015)

Based on their NDCs, some countries develop climate change laws to meet their international commitments, which facilitates vertical integration of climate policies from national to local levels. For example, the United Kingdom enacted the Climate Change Act in 2008[1], setting legally binding carbon budgets to reduce emissions. Similarly, France passed the Energy Transition for Green Growth Act in 2015[2], aiming to reduce greenhouse gas emissions and increase renewable energy use.

Two Frameworks: A Path of Convergence and Divergence

Different agreements have diverse mechanisms to report their progress, which seek multilateral transparency. Under the Paris Agreement Reporting to NDCs which is governed by the Enhanced Transparency Framework (ETF). This framework requires countries to submit Biennial Transparency Reports (BTRs) every two years, detailing GHG inventories, progress towards NDC targets, and support provided or received in finance, technology, and capacity-building. Additionally, National Communications provides comprehensive information on climate policies and measures every four years. The Technical Expert Review (TER) process ensures the accuracy and consistency of these reports. The Global Stocktake (GST), conducted every five years, assesses collective progress towards the Paris Agreement's goals, informing future NDCs to enhance ambition over time. Instead, SDGs are reported through the Voluntary National Reviews (VNRs). Both systems have different international adherence, but if there is existing consensus with both agreements. (UN 2018).

Under the Paris Agreement, the submission of NDCs is legally binding for all parties, but the specific targets and measures are determined at the national level and are not enforced internationally. The Paris Agreement includes mechanisms for transparency and accountability, but there are no penalties for failing to meet NDC targets. In contrast, VNRs and VLRs are voluntary reports to the United Nations that track progress towards the SDGs, encouraging peer learning and sharing best practices without any legal obligation or enforcement. Reviews are 'voluntary and country-led', but each UN member state is expected to submit at least two VNRs before 2030.

These Voluntary National Reviews are presented at the yearly High-Level Political Forum (HLPF) meeting. Voluntary Local Reviews (VLRs) track and report on their progress and help cities

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[1] Committee on Climate Change. (2008). Climate Change Act 2008. Retrieved from https://www.legislation.gov.uk/ukpga/2008/27/contents.
[2] Ministry for the Ecological and Inclusive Transition. (2015). Energy Transition for Green Growth Act. Retrieved from https://www.ecologique-solidaire.gouv.fr/energy-transition.

to understand their current position, identify gaps, and plan strategic actions for sustainable development. Chart 1 shows broad participation in the NDC process due to its legally binding nature for submission, whereas the VNR process, driven by voluntary participation, aims to foster international cooperation and learning.

The overlap of countries reporting both NDCs and VNRs has improved over time. In 2022, 40 countries reported both, representing greater integration of climate and sustainable development policies. However, the proportion of countries reporting both has remained around 20-25% in most years, indicating the need for greater alignment. Regarding VLR, it is important to note that these early adopters set the stage for other cities to follow, and the increased number of VLRs in subsequent years reflects growing awareness and commitment to localizing the SDGs.

Table 1. *Share of global counties commitment to SDGs and NDCs*

Year	Countries Reporting NDCs	Countries Reporting VNRs	% of World Population (VNRs)	Countries coincidence	Sub-National Regions/ Cities Reporting VLRs
2015	160	22	30.2%	18	0
2016	161	22	30.2%	18	1 (Valencia[3])
2017	161	43	65.3%	36	2 (Wallonia, Basque Country[4])
2018	165	46	67.1%	38	4 (New York City[5], Toyama, Kitakyushu, Shimokawa[6])
2019	165	47	68.4%	40	8 (Bristol, Buenos Aires,La Paz, Taipei, Los Angeles…)
2020	165	47	68.4%	40	15+ (Manheim, Oaxaca…)
2021	165	42	61.9%	30	26
2022	194	44	63.4%	40	42
2023	194	42	61.9%	38	42
2024	194	40	59.1%	36	44

Source: Compilation based on SDG Knowledge HUB (https://sdg.iisd.org/), UNFCCC NDC Registry and The Shimokawa Report.

In cases where there is an overlap in adherence to both agreements, marked a significant juncture where national governments embraced the challenge of implementing these intertwined agendas (2030 Agenda and Paris Agreement), both aiming for consistency, mutual reinforcement, efficient resource utilization, knowledge exchange, technological advancement, and capacity building. This alignment underscores the potential for climate actions outlined in the NDCs to synergize with SDG targets, demonstrating tangible mutual benefits, depicting the

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[3] The regional government of Valencia reported on its progress in localizing the SDGs.
[4] The regional governments of Wallonia in Belgium and of the Basque Country published subnational progress reports.
[5] The first city to present a VLR, showcasing its progress towards the Sustainable Development Goals (SDGs) at the High-Level Political Forum (HLPF) in July 2018.
[6] Inspired by the successful case of Shimokawa, a small town in northern Japan, a developed blueprint handbook was developed that provided later hands-on, step-by-step unified methods to conduct VLRs.

interlinkages among targets in the context of green transition.   However, having an agreement on principles, indicators, and targets is as important as having the right mechanisms to implement transformations on the ground. Urbanization is highlighted in approximately 70% of Nationally Determined Contributions (NDCs), with 113 out of 164 contributions, demonstrating the critical linkages between urbanization and climate change actions (United Nations, 2018, p. 12).

In this context, green diplomacy, which involves negotiations between climate action and finance ministers of different countries, has advanced.

The next challenge is, again, achieving the integration of these ambitions at the subnational level, where the real muscle for transformations lies. Vertical Integration and Localization, two terms that are used to refer to work at the subnational level but under different frameworks, is then at the core of climate effectiveness.

Hitting Five Key Targets: The EU Missions
Local climate action has a crucial role and should make a significant contribution to accelerating efforts to achieve carbon neutrality by 2050, as set out in the European Green Deal (OECD, 2021). Cities and local authorities are at the forefront of this race, as they are home to 75% of EU citizens and responsible for 60% of global CO_2 emissions in Europe (OECD 2021). The EU Missions have been instrumental for achieving localization as they have fostered and inspire cities to reach higher levels of commitment.

The EU Missions are part of Horizon Europe, aimed at tackling major societal challenges through research and innovation, combined with new forms of governance and collaboration, as well as by engaging citizens. (EU 2021)

The five missions are: Adaptation to Climate Change, which focuses on increasing Europe's resilience to climate disruptions; Cancer, aiming to improve the lives of more than 3 million people by 2030 through prevention and treatment; Restore our Ocean and Waters by 2030, dedicated to protecting and restoring aquatic ecosystems; 100 Climate-Neutral and Smart Cities by 2030, supporting cities in their transition to climate neutrality; and A Soil Deal for Europe, ensuring that 75% of soils are healthy for food, people, nature, and climate.

These missions seek to deliver tangible results by 2030, addressing complex issues through collaborative and innovative solutions across Europe—two of these missions are related to the climate agenda which are 100 Climate-Neutral and Smart Cities and Adaptation to Climate Change.

Each of these two operational focus areas of the EU Mission have selected several cities to enhance climate action. On the one hand, 100 Climate-Neutral and Smart Cities awarded 23 cities with the Label[7], which recognizes the pioneering cities that are leading the way towards a zero-carbon world by achieving net-zero climate neutrality, 20 years before, by 2030. (European Commission, 2022). It includes different kinds of urban agglomerations. Among them there are small cities like Leuven (Belgium), medium like Manheim (Germany), metropolitan areas like Barcelona or Hamburg and capital cities like Berlin or Lisbon. On the other hand, the Mission on Adaptation to Climate Change focuses on supporting EU regions, cities and local authorities in their efforts to build resilience against the impacts of climate change. Different regions such as

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[7] https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1645

Bavaria in Germany, Lapland in Finland, Tuscany in Italy, West Midlands in UK or Catalonia and Basque Country in Spain were among the selected ones.

Euskadi: At The Cutting-Edge for Climate & Social Leadership

The Basque Country, a historic nation in Europe, possesses a rich cultural and linguistic identity that dates back thousands of years. The Basque language, Euskera, is one of the oldest in Europe and unique in its non-Indo-European origin, preserved through centuries. A strong identity is expressed through the protection and promotion of Basque culture and active participation in its self-ruled institutions, fostering a resilient and prosperous community united in collaboration and a commitment to a peaceful future.

This identity translates into a robust sense of community and solidarity, exemplified by "Auzolana," a tradition of communal work for community-beneficial projects. The Basque society is considered matriarchal due to the leadership roles women hold in decision-making and managing social and family life, promoting community welfare and cohesion. The autonomous governance of Euskadi, established by the Statute of Gernika in 1979, grants competencies in education, health, environment, economic development, a security, allowing Euskadi to tailor policies to its needs and manage resources autonomously.[8]

Euskadi's economic competitiveness is driven by the cluster system developed by Michael Porter and Basque Competitive Institute in the 1990s, enabling success in sectors like renewable energy, automotive industry, technology, cooperativism, or gastronomy. Collaboration among companies, institutions, and research centers, along with substantial investment in innovation and development, positions Euskadi as a global leader in sustainable economic and social development.[9]

Image 1: *2030 Agenda Euskadi Basque Country*

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[8] For instance, the Basque Country invests 2% of its GDP in research and development, surpassing the Spanish average and aligning with European standards (Eustat, 2022).

[9] Orkestra: https://www.orkestra.deusto.es/en/about-orkestra/the-basque-case

In 2018, Euskadi launched the pioneering Agenda Euskadi Basque Country 2030, managed by the Basque Government Presidency and coordinated by the Secretariats-General of the Presidency and External Action. As a trailblazer at the sub-state level, this agenda is binding thanks to its integration with the Government Program and sectoral policies, with an annual report evaluating Euskadi's contribution to global SDG efforts. The Government Program of the XI Legislature (2017-2020) aligned with the Basque Government's Sustainable Human Development Strategy, incorporating 15 Country Objectives, 15 Strategic Plans, 54 Sectoral Plans, 28 Legislative Initiatives, 175 Commitments, and 650 Initiatives, measured by 100 Indicators (Agenda Euskadi 2030)

Collaboration among academic institutions, international organizations, and civil society[10] to preserve and promote linguistic and cultural diversity reinforces Basque cultural identity and positions Euskadi as a model for integrating cultural diversity into the global sustainable development agenda. Their joint work in promoting Euskera and Basque culture significantly contributed to the inception of 17+1 SDG, demonstrating that cultural diversity is essential for building inclusive, equitable, and sustainable societies. [11]

The strong sense of cultural identity and advanced self-governance system have enabled Euskadi to effectively implement the Agenda 2030.[12] The combination of a robust legislative framework, active community participation, and an integrated approach in public policies positions Euskadi as a reference in SDG localization, demonstrating how a region with self-governance and strong cultural identity can lead sustainable and equitable development.[13]

Euskadi's vision for 2030-2040[14] is grounded in a strong commitment to the well-being of all people, intergenerational responsibility, and global solidarity. It stands out as a region with a diversified and sustainable economy, an inclusive and equitable society, and a deep dedication to innovation and sustainability.

Vitoria-Gasteiz: The City Running the Climate Marathon Twice

The capital of the Basque Country in northern Spain, is renowned for its rich cultural heritage, extensive green spaces, and commitment to sustainability. It stands as a beacon of innovation and leadership, inspiring cities across Spain and Europe with its visionary commitment to climate action and sustainability for the past decades. The city's dedication to environmental quality is evident in its comprehensive urban planning, which prioritizes pedestrian and cycling infrastructure, as well as the preservation of natural areas such as the Green Belt, a network of

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[10]Euskadi's role on the international stage is burgeoning, highlighted by the establishment of the Local2030 Coalition Secretariat in Bilbao, recognizing the region's leadership in implementing the 2030 Agenda and localizing the SDGs. The Secretariat will energize the work of the Local2030 Coalition, advancing SDG localization within the UN and across communities. The Coalition, comprising fourteen UN Agencies, Funds, Programs, and Offices, acts as a collaborative platform, mobilizing local actors to strengthen SDG localization, innovate local action solutions, accelerate progress, and report on achievements For instance UN Etxea or The UNESCO Chair of World Linguistic Heritage of the University of the Basque Country (UPV/EHU).

[11]Euskadi's symbolic contribution to the 17+1 SDG, focusing on linguistic and cultural diversity, reflects its commitment to preserving and promoting its unique identity. Recognizing Euskera and Basque traditions as vital elements, Euskadi demonstrates that cultural diversity is essential for sustainable development. This approach promotes social cohesion and solidarity, offering a model for other regions in the global sustainable development agenda.

https://www.ehu.eus/documents/3120344/3356414/18+helb+argumentuak_gaz.pdf

[12] https://sdglocalization.org/

[13] United Nations. (2022). Voluntary Local Review Vitoria-Gasteiz 2030. Retrieved from https://unhabitat.org/sites/default/files/2023/06/vitoria-gasteiz_2022_en.pdf.

[14]https://www.orkestra.deusto.es/en/research/euskadi-2040

parks and green spaces surrounding the city. Leading the charge in Europe's decarbonization efforts, Vitoria-Gasteiz was awarded the European Green Capital Award in 2012, recognizing its ambitious environmental policies and practices. (European Commission, 2012). The city has set a bold target to achieve carbon neutrality, making it a model for climate action across the continent. This commitment, encapsulated in the 2030 Agenda, has guided the city's path to sustainability. Vitoria-Gasteiz's efforts extend beyond climate action to encompass all aspects of sustainable development.

The pioneering document that initiated this effort is the PACES (*Plan de Acción para la Energía Sostenible y el Clima*) or SECAP: Sustainable Energy and Climate Action Plan, established in 2020. Today, these efforts are encompassed by the AU2030VG (2021). In this journey, both EU Missions to which Vitoria-Gasteiz has joined have emerged as crucial milestones, and on June 5th, 2024, World Environment Day, the Vitoria City Contract was launched, guiding all efforts toward carbon neutrality by 2030.
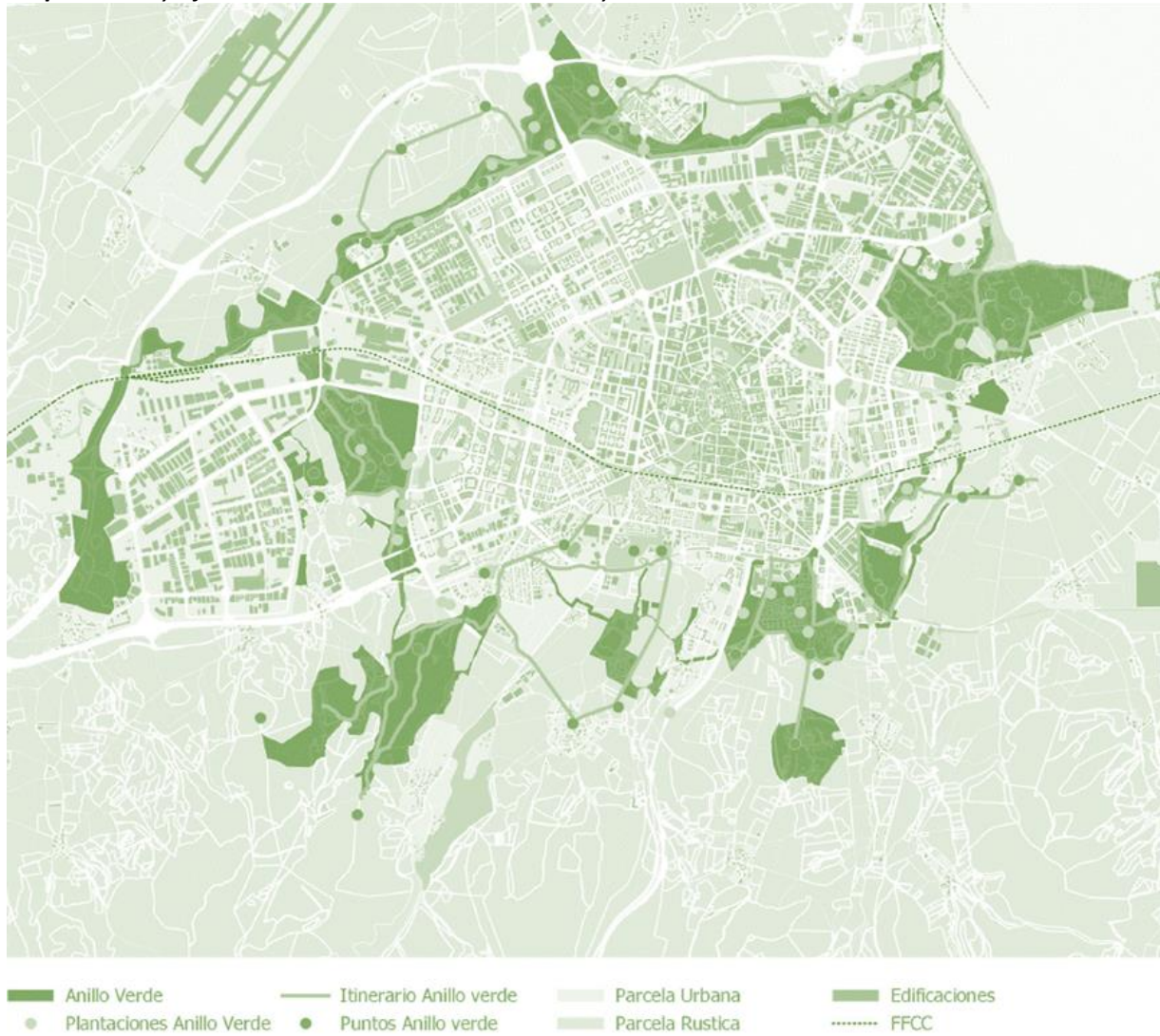
Image 2: *Plan de Acción de Clima y Energía Sostenible de Vitoria-Gasteiz (PACES/SECAP)*
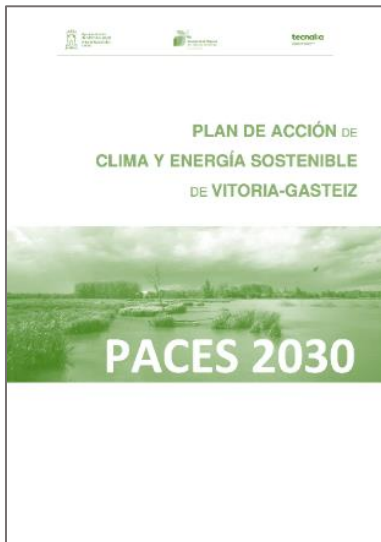
Although AU2030VG and the EU Missions operate within different frameworks and involve different municipal teams, their efforts are complementary. They share a unified approach in communication to stakeholders and citizens, ensuring a cohesive and comprehensive strategy for a sustainable future. The EU Mission Label provides additional security and attractiveness for investments.

All stakeholders must adhere to the climate contract, as the city council cannot achieve these goals alone. The Basque Country and Vitoria-Gasteiz have seen the 2030 Agenda as an opportunity to strengthen their social welfare model and therefore reinforce their international positioning.

Map 1 *The city of Vitoria-Gasteiz and its Green Belt system*

Anillo Verde Itinerario Anillo verde Parcela Urbana Edificaciones
Plantaciones Anillo Verde Puntos Anillo verde Parcela Rustica FFCC

Source: AU2030VG

Local Climate Action Across Geographies

At their core, most cities around the world face similar challenges, such as the need for resilient infrastructure, water management, green mobility or emission reductions. However, in some regions need to address socio-economic crises, social instability, and other urgent issues demand immediate attention before addressing climate change (ECLAC, 2019). This urgency in solving immediate problems hinders the ability to tackle other issues swiftly. Therefore, it is doubly commendable to make significant efforts in the fight against climate change. (ICLEI, 2021). Some cities are leading with an innovative approach, viewing climate change not as an expense but as an investment and a real business opportunity. This shift in perspective can illuminate solutions to many challenges, demonstrating that climate action can coexist with economic and social development, creating long-term benefits for their communities (World Bank, 2020). Embracing these challenges, cities are engines of economic growth and prosperity, contributing over 80% of the global gross domestic product (WCR, 2022).

To address climate change, we must recognize the unique development specifics of each geography. This thesis, within the framework of just transition, will explore two regions: Latin America and Europe. Latin America faces the challenge of addressing climate change amidst fiscal constraints and resources availability, while Europe can pursue ambitious climate action due to greater resource availability. In Latin America, the key issue is balancing climate initiatives without hindering development, whereas in Europe, the goal is to maximize climate action efforts in line with available resources. LAC is the world's second most vulnerable region to natural disasters. Climate change is anticipated to amplify both the magnitude and frequency of these extreme events. Therefore, it is essential to strengthen subnational institutional frameworks that promote innovations addressing urban challenges such as economic revival, inequity, climate change mitigation or adaptation, resilience building, and biodiversity promotion.

The effectiveness of the process initiated by the Paris Agreement relies on translating international commitments made by nations—climate diplomacy—into subnational climate action in cities and metropolitan areas—localization. This process of vertical integration captures climate agency at the local level. Vertical integration ensures that national climate goals, as outlined in the NDCs, are effectively translated into local actions through cohesive legislation and coordinated efforts across different levels of governance. This approach allows urban areas to implement practical, targeted measures to address climate challenges, reinforcing the alignment between national policies and local initiatives.

Diagram 2. Interlinkage between SDG11 and other SDGs.
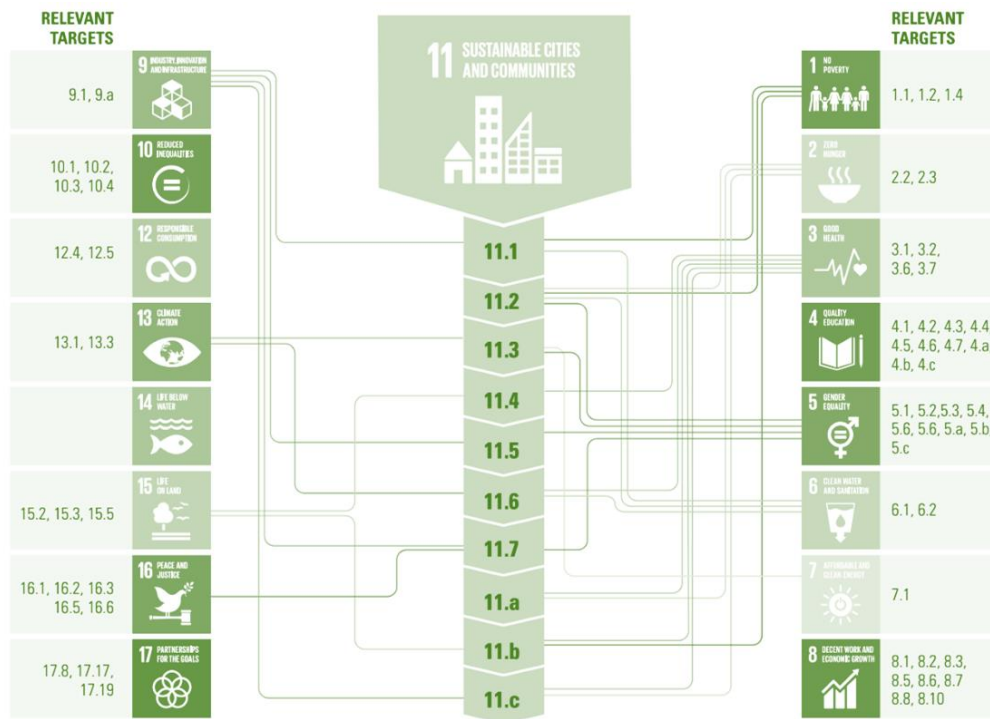
Source: United Nations. (2018). SDG 11 Synthesis Report: High-Level Political Forum

SDG 11 (Sustainable Cities and Communities) plays a critical role in this context, as it emphasizes the importance of making cities inclusive, safe, resilient, and sustainable. The interlinkage between SDG 11 and other SDGs, such as SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), and SDG 9 (Industry, Innovation, and Infrastructure), highlights how integrated efforts across multiple goals can drive comprehensive urban and climate solutions.

Some of the mentioned national laws linked to the NDCs support the development of subnational climate action plans at the city level, ensuring a cohesive approach to climate mitigation and adaptation. In Germany, the Federal Climate Protection Act guides cities like Berlin and Hamburg in creating comprehensive climate action plans to achieve carbon neutrality. In Latin America, Mexico's General Law on Climate Change, enacted in 2012,[15] sets a framework for reducing emissions and adapting to climate impacts. This law supports cities like Mexico City and Guadalajara in developing local climate strategies. Brazil's National Policy on Climate Change, established in 2009, enables cities like São Paulo and Rio de Janeiro to implement targeted climate actions.

One staggering example among Latin American cases, has been that of Chile. The country has been addressing climate change as a State Policy. In 2015, the Government of Chile approved its NDC, committing to achieving GHG neutrality by 2050. In Chile, the net benefits of transitioning to carbon neutrality were evaluated to be 5.2% of GDP. In 2018, it was estimated that there were over 10,000 green jobs in Chile. The 2040 Circular Economy Roadmap aims to create 180,000 new green jobs by 2040. In 2022, Chile enacted its LMCC (Law 21.455) to legally enshrine the commitment established in the NDC to achieve a resilient, net-zero emissions economy by 2050 and to establish the institutional framework to address climate change. The LMCC aligned the responsibilities of governmental institutions with climate action. The law assigned the role of coordinating climate policy implementation, delegating the competencies and responsibilities for implementation to sectoral ministries and regional and municipal governments. One of its provisions mandates that sectoral ministries, regional governments, and municipalities develop climate action plans to accelerate emissions reductions and improve resilience within their jurisdictions.[16]

2. Theoretical Framework

Bases For Effective Climate Diplomacy
Integrating climate action with other development goals is vital and therefore climate diplomacy is essential for international cooperation to address climate change by reducing GHG emissions and adapting to environmental impacts.

For instance, Sachs emphasizes the interconnectedness of SDGs, particularly how climate action (SDG 13) benefits goals like poverty eradication and health. He argues that addressing climate change is crucial for achieving all other SDGs, as it impacts human and environmental

[15] Government of Mexico. (2012). General Law on Climate Change. Retrieved from https://www.diputados.gob.mx/LeyesBiblio/pdf/LGCC_130518.pdf.
[16] The other key climate instrument of the Government of Chile is the Long-Term Climate Strategy of Chile (ECLP), which represents the roadmap for Chilean climate policy. It includes the targets that will enable the main objective of the LMCC to be achieved, which is to reach a resilient economy with net-zero emissions by 2050. The ECLP defines a national GHG emissions budget for the years 2030 and 2050, as well as sectoral mitigation targets.

well-being (Sachs, 2015). Sen's Capabilities Approach stresses enhancing individuals' capabilities and addressing inequalities. Climate change disproportionately affects vulnerable communities, necessitating inclusive governance and equitable policies. Empowering marginalized groups in decision-making is essential for sustainable outcomes (Sen, 1999).

Renewable energy projects reduce GHG emissions and support economic development. International agreements like the Green Climate Fund align climate finance with broader objectives, creating synergies that accelerate progress (Sachs, 2015). Challenges include gaps between national commitments and necessary actions, geopolitical tensions, and competing local interests. However, initiatives like the European Green Deal align climate action with SDGs. Collaborative efforts and innovative policies can bridge these gaps (Sen, 1999).

Climate diplomacy, grounded in the principles of sustainable and human development by Sachs and Sen, requires a holistic approach, prioritizing vulnerable populations and promoting inclusive governance. Aligning international agreements with development goals can lead to a sustainable and equitable future (Sachs, 2015) (Sen, 1999).

The effectiveness of climate agreements is closely linked to their economic implications. Michael Grubb emphasizes that well-designed climate policies can drive innovation and economic growth, especially in the renewable energy sector. However, achieving the necessary level of investment and policy coherence remains a challenge. International finance mechanisms, such as the Green Funds, play a critical role in supporting developing countries' efforts to mitigate and adapt to climate change (Grubb, 2014).

Despite the progress made, several challenges persist. These include the withdrawal of key players, varying levels of ambition among countries, and the need for more robust enforcement mechanisms. Sustained diplomatic efforts and adaptive governance structures are essential to address these issues. Additionally, aligning climate action with broader sustainable development goals can enhance policy effectiveness and public support. This holistic approach is crucial for addressing the complex and interconnected nature of climate change.[17]

Localization: Climate Effectiveness Capstone

The United Cities and Local Governments (UCLG, 2019)[18] network defines localization as the process of defining, implementing, and monitoring strategies at the local level to achieve global, national, and sub-national goals and targets. This process presents various co-benefits and trade-offs for practitioners and policymakers. Although there are significant overlaps between the 2030 Agenda and the Paris Agreement—such as SDG 13 (climate action), SDG 7 (affordable and clean energy), and SDG 12 (responsible consumption and production)—inconsistencies exist between individual SDGs and the Paris Agreement goals. For instance, promoting renewable energy can conflict with efforts to enhance biodiversity and food security, as large-scale biofuel crop cultivation can be more profitable than food crops, potentially undermining both biodiversity and food availability (Brand, Furness, and Keijzer, 2021).

The field of localization and vertical integration of climate strategies from nations to cities has been profoundly influenced by several key academics. Elinor Ostrom's work on polycentric

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[18] United Cities and Local Governments (UCLG). "The process of defining, implementing, and monitoring strategies at the local level for achieving global, national, and sub-national [sustainable development] goals and targets." (2019).

governance underscores the importance of local governance in managing climate strategies effectively (Ostrom, 1990). Vanesa Castán Broto and Martha Campbell focus on urban development and climate adaptation, examining multi-level governance and local government roles (Castán Broto, 2019; Campbell, 2018). Despite their significant knowledge contributions, challenges remain, including coordinating efforts across different levels of governance, securing adequate funding, and ensuring equitable implementation of climate strategies to address the diverse needs of urban and rural communities. These academics collectively advocate for innovative, localized solutions to accelerate SDG progress and enhance global sustainability efforts.

Localization implies devolution: one of the most difficult processes in public policy. In this case, it involves delegating power and competences to subnational levels, a process on which the Basque Country is an international reference. According to Stavins (2018), devolving climate decision-making to the local level is vital due to five four factors. First, climate impacts are felt locally, affecting livelihoods and health. Second, adaptation capacity is context-specific, influenced by local socio-ecological factors. Third, local adaptation efforts, such as household practices and investments, are most effective. Lastly, local knowledge, developed over time, is crucial for understanding and addressing climate impacts, aiding national policy formulation. (Stavins 2018)

Local knowledge is crucial for effective climate adaptation, particularly in social-ecological systems. Manuel Navarrete (Navarrete, 2010) highlights the benefits of integrating indigenous and local knowledge with scientific approaches to enhance community resilience and ownership. Traditional practices in agriculture and water management, developed over centuries, can be combined with modern science to create innovative and locally relevant adaptation strategies.

Cities are key players in climate action due to their significant contributions to GHG emissions and dense populations. Harriet Bulkeley argues that urban areas are central to climate governance, where local governments, private sectors, and civil society collaborate on climate policies. European cities have led the way with initiatives like the Covenant of Mayors for Climate and Energy, demonstrating how local actions and international cooperation can drive climate progress.

Eduardo Viola underscores the importance of regional cooperation and subnational actors (Viola 2012). Subnational entities, such as states and municipalities, play crucial roles in climate action, complementing national policies and fostering local innovation. Regional networks and cooperation initiatives support knowledge exchange and capacity building, addressing transboundary climate impacts. Integrating local knowledge, effective urban governance, and regional cooperation are essential for successful climate adaptation.

Fernando Ortiz-Moya and his colleagues have made significant contributions to the field of Voluntary Local Reviews (VLRs) through their research and development of methodologies aimed at enhancing the VLR process. One of their notable contributions is the development of the "Shimokawa Method," a blueprint to localize SDGs emphasizing community-led initiatives and stakeholder engagement through a "backcasting" approach (Ortiz-Moya et al., 2020).

Image 3: Agenda 2030 Local

This comprehensive assessment of existing VLRs, highlights the importance of integrating VLRs with national Voluntary National Reviews (VNRs) to address territorial challenges and scale successful local solutions. This integration aims to maximize the global and national impact of local sustainability efforts, ensuring that local actions contribute effectively to broader SDG goals. These contributions by Ortiz-Moya et al. have been instrumental in advancing the practice of localizing the SDGs, providing practical tools and frameworks for cities worldwide to adopt and adapt in their sustainability efforts.

The United Nations has developed the "Global Guiding Elements for Voluntary Local Reviews," which provides a flexible framework to enhance consistency and comparability between VLRs, aiming to facilitate peer learning and provide a checklist of issues to address. But also organizations as Ihobe in collaboration with Udalsarea (Basque network of sustainable municipalities), have developed a toolkit on how to generate these transitions of SDG from global to local action (2023). These guidelines are not prescriptive, allowing for various methodologies tailored to different contexts[19]. Organizations like UN-Habitat and UCLG have also published multiple guidelines and tools to support VLR preparation, reflecting a range of methodologies and frameworks to suit diverse cities and regions globally (UN-Habitat, 2020; UN-Habitat, 2021).

3. Thesis Objectives, Scope & Hypotheses

Understanding the context, evolution and challenges for climate action, this master's thesis focuses on Vitoria-Gasteiz to understand and analyze its climate action efforts. As said before, recognized for its ambitious environmental policies, Vitoria-Gasteiz has implemented its Sustainable Energy and Climate Action Plan in 2020 and the AU2030VG in 2021. The city's commitment is further demonstrated by its participation in the EU Missions for climate adaptation and the Vitoria City Contract, to guide efforts towards carbon neutrality by 2030. These initiatives position Vitoria-Gasteiz as a model in Europe's decarbonization efforts and sustainable development goals.

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[19] https://sdgs.un.org/sites/default/files/2020-10/GlobalGuidingElementsforVLRs_FINAL.pdf

The objective of this thesis is to examine Vitoria-Gasteiz's local frameworks and broader international climate goals. It explores how the city's integrated strategies meet climate targets, enhance local sustainability, and strengthen citizen engagement.

The thesis has an underlying hypothesis that although Vitoria-Gasteiz has a strong and technically well-developed sustainable development and climate action plan (AU2030VG & Climate City Contract), this does not ensure the achievement of its ambitious climate targets. To accelerate the achievement of climate goals, stronger strategies for coordination, tracking, and reporting are crucial. Effective local climate action can contribute to strengthening monitoring mechanisms, leading to better decision-making and, consequently, a more efficient achievement of targets. Considering this, policy recommendations can be made to enhance the effectiveness of Vitoria-Gasteiz's climate action. A dialogue between different localization strategies, especially those used for the Paris Agreements and SDGs, aims to draw on a set of lessons learned.

4. Methodology

To check the hypothesis, the thesis will follow five methodological steps that will lead to insights and policy recommendations.

Step 1: Contextualizing Vitoria-Gasteiz's climatic agenda within the broader urban challenges and climate diplomacy development

Objective: Understand Vitoria-Gasteiz's climatic agenda in the context of global urbanization trends and climate diplomacy, linking local actions to international frameworks and challenges.

Method: (i) Literature Review: Conduct a comprehensive review of relevant documents and official records, including: (a) The 2030 Agenda from the 2016 United Nations Conference on Housing and Sustainable Urban Development (Habitat III); (b) The New Urban Agenda (NUA) focusing on its five main pillars: national urban policies, urban legislation, urban planning and design, local economy, and local implementation; (c) Regional documents such as the Euskadi Basque Country Multilevel Agenda 2050; (d) Global frameworks like the United Nations Environment Programme (UNEP) and the UN Framework Convention on Climate Change (UNFCCC);

Output: A contextual analysis detailing how Vitoria-Gasteiz's climate agenda integrates with broader urban challenges and climate diplomacy. Providing a foundation for understanding the city's role in global climate strategies and highlighting the importance of local actions in achieving international climate targets. The analysis will serve as a basis for further steps in evaluating and enhancing the city's climate policies and practices.

Step 2: **Establishing the Baseline**

Objective: Compare Vitoria-Gasteiz's climate targets under the Local Action Plan Against Climate Change (2009) & Local 21 Agenda with the 2030 Vitoria Urban Agenda (AU2030VG) & Climate City Contract.

Method: (i) Review documents and official records of Vitoria-Gasteiz's climate action plan; (ii) Identify changes in ambition and targets over time; (iii) Highlight the evolution in goals, strategies, and implementation mechanisms.

Output: A detailed comparative analysis report showing the progression of Vitoria-Gasteiz's climate ambitions and targets, providing a foundation for understanding the city's climate action trajectory.

Step 3: **Surveying Current Assessment Methods and its Effectiveness**

Objective: Evaluate the effectiveness methods used to track climatic advancements in the AU2030VG and the level of alignment between what was planned and what has been implemented as well as with the Climate City Contract.

Method: (i) Review official tracking the current Voluntary Local Review (VLR) of Vitoria-Gasteiz that reflects the achievements of the AU2030VG.

Output: An evaluation of the current assessment methods used by Vitoria-Gasteiz, identifying strengths and weaknesses in the existing tracking mechanisms and the level of goals achievement.

Step 4: Analysis of Vitoria-Gasteiz Plans in Relation to Diverse Frameworks.

Objective: Identify mechanisms that could be incorporated to enhance effectiveness of AU2030VG tracking methods present in cities supported by the Paris Agreement.

Method: (i) Gather insights and best practices from experts and case studies of Latin American and Caribbean cities supported by the IDB.

Output: A reflection regarding possible synergies of both methodologies

Step 5: Identifying Improvements Opportunities and Provide Policy Recommendations.

Objective: Identify potential improvements to accelerate climate action in Vitoria-Gasteiz and achieve its climate goals by tackling weaknesses and incorporating lessons learned.

Method: (i) Synthesize findings from Steps 1-3; (ii) Develop policy recommendations based on successful practices observed in other cities; (iii) Propose specific improvements to Vitoria-Gasteiz's coordination, tracking, and reporting mechanisms.

Output: A set of actionable recommendations for Vitoria-Gasteiz, including detailed proposals for enhancing coordination, tracking, and reporting mechanisms to accelerate the achievement of climate goals.

By following these methodological steps and structure, the thesis will check the hypothesis and provide concrete recommendations for improving Vitoria-Gasteiz's climate action framework. As well as insights on localization more broadly.

5. Vitoria-Gasteiz: Negotiating its Climatic Agenda and Urban Challenges

Dimensioning Urban Climatic Challenges at The Local Level

The challenge of mitigating and adapting to climate change is paramount for cities in the current urbanization context. The visionary 2030 Agenda for Sustainable Development, introduced at the landmark 2016 UN Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, sets forth a transformative 20-year roadmap for sustainable urban development. The New Urban Agenda (NUA) seamlessly links effective urbanization with holistic development, emphasizing dynamic job creation, enhanced quality of life, and robust urban policies to accelerate the achievement of SDG 11, which aims for inclusive, safe, resilient, and sustainable cities (UN-Habitat, 2020).

Urbanization is accelerating at an unprecedented pace, with the urban population expected to grow from 56% today to 68% by 2050 (United Nations, 2018). Cities, as dynamic hubs, generate over 80% of global GDP and have the potential to drive sustainable growth if managed well. However, rapid urbanization presents significant challenges such as the need for affordable housing and sustainable infrastructure (The World Bank, 2020). Cities consume between 60-80% of global energy and emit 70% of GHG, making them central to efforts in combating climate change. Building resilient, inclusive, and green cities requires coordinated policies and innovative investments (UN-Habitat, 2020).

*Diagram 3. SDG Progress Unveiled: a data journey*
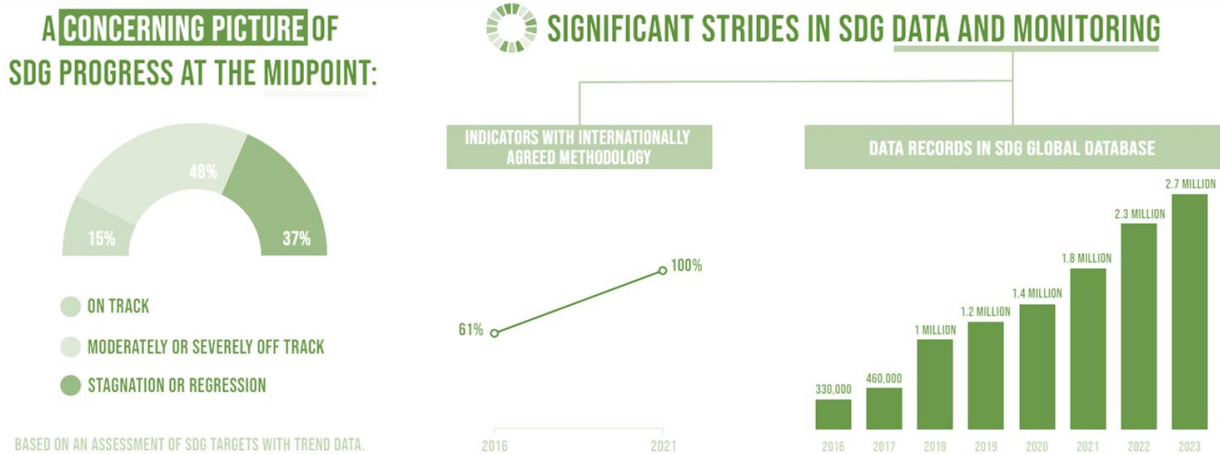
Source: UN SDG Progress Report 2023

The local implementation of SDGs is crucial. Without the proactive involvement of local actors, up to 65% of the goals risk not being met (United Nations, 2023). The Bultzatu 2050 Agenda adapts the 2030 Agenda to the Basque regional context, emphasizing collaborative commitments from institutions, social actors, and citizens (Basque Government, 2020). Sectors such as transport and buildings, managed at the subnational level, are central to GHGs' emission reduction efforts. UNEP and UNFCCC highlight the strategic significance of urban areas in global climate strategies, stressing the need for investment in low-carbon urban development (UNEP, 2022; UNFCCC, 2020).

Cities, with their high population densities, are pivotal spaces for achieving adaptation goals. In LAC, for instance, about three out of five cities with at least 500,000 inhabitants are at high risk of natural disasters, which climate change will exacerbate. This impacts urban value chains and triggers significant bioclimatic transformations. According to the Inter-American Development Bank, many cities will experience profound bioclimatic changes by the end of this century (Vera & Sordi, 2022).

Urban development is crucial for the Basque Country, one of Europe's most urbanized regions. Only 2% of the Basque population lives in rural areas, making it a densely populated region with significant self-governance (Eustat, 2020). Former UN Secretary-General Ban Ki-Moon astutely stated, "the battle for sustainable development will be won or lost in cities" (United Nations, 2015). Well-planned and meticulously managed urbanization will be a powerful tool for achieving sustainable development globally (United Nations, 2018).

Map 2. *Metropolitan Areas and World Population*
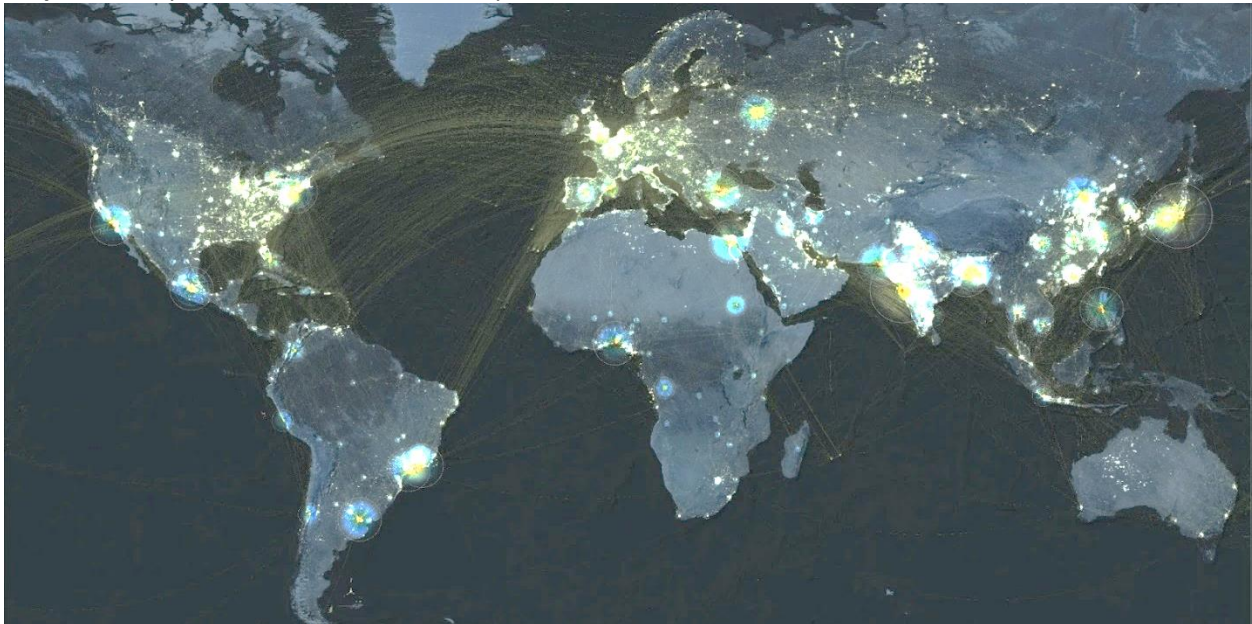
Source: Lo Metropolitano: escala, complejidad y gobernanza. Crédito: Groundlab.

While urbanization has driven economic growth, social welfare, and cultural innovation, subnational governments are often first responders to climate change but lack clear objectives, technical capacity, resources, and an innovation culture for sustainable urban planning (OECD, 2020). European cities are experiencing more frequent and intense heat waves, such as Paris reaching 42.6°C in 2019 and London exceeding 40°C in July 2022, impacting public health and infrastructure (European Environment Agency, 2022). Cold waves also pose challenges; the severe cold wave in 2012 and the "Beast from the East" in 2021 brought unusually low temperatures and heavy snowfall, disrupting transportation and public health in cities like Amsterdam and Madrid (Met Office, 2021). Changes in precipitation patterns have led to catastrophic flooding and droughts. In 2021, extreme rainfall caused severe flooding in Germany and Belgium, while Southern Europe faced droughts affecting agriculture and water supply

(European Environment Agency, 2022). The Alps are experiencing glacial retreat, impacting freshwater supplies and tourism.

As cities navigate the multifaceted climate challenges of the 2030 Agenda and the NUA, aligning local urban initiatives with international climate goals is essential. Effective collaboration among Multilateral Development Banks and international entities is crucial.

Understanding Green Diplomacy: Climate Multilateral Agendas in Context

The world faces interconnected polycrises profoundly impacting people and the planet. In this context, Multilateral Development Banks (MDBs) are collaborating more effectively to deliver greater positive impacts. Under the Brazilian presidency of the G20, MDBs committed to operating as a more unified, larger, and more effective system, aligning with the G20 leaders' call for an intense reform agenda.

The 80th anniversary of the Bretton Woods Agreements, which created the IMF and the World Bank, emphasizes the key role of multilateral development agencies in 21st century's financial architecture. Discussions aim to enhance institutional capabilities to navigate global economic challenges and sustainable development impacts. Barbadian Prime Minister Mottley has been a vocal proponent of MDB reform. In July 2022, with the SDGs deadline approaching, she convened a high-level forum in Bridgetown, Barbados, resulting in robust requests to address international financial challenges and a call to transform the Bretton Woods financial system. "The international financial architecture is shortsighted, crisis-prone, and bears no relation to today's economic reality," stated UN Secretary-General António Guterres (2022), supporting Prime Minister Mottley's plan to build a global alliance of nations committed to transforming the global financial architecture to address the climate battle.

MDBs play a unique role in the global mission to fight and respond to climate change. The ambitious "Bridgetown Initiative", a new Marshall Plan of the 21st century, aims to modify loan terms to be more advantageous and provide greater funds for countries adapting to the climate crisis. The plan suggests creative approaches such as Ecuadorian Debt-for-Nature green bond financing and the inclusion of "catastrophe resilience clauses" in sovereign debt contracts.

While the global climate agenda has advanced significantly, several methodological misalignments still require recalibration, particularly in how the Paris Agreement and the 2030 Agenda for Sustainable Development track progress. As mentioned in the introduction, the Paris Agreement measures success through NDCs, which are commitments made by individual countries outlining their specific climate action plans and targets. These NDCs are periodically updated and assessed to ensure they align with the overarching goal of limiting global temperature rise. In contrast, the 2030 Agenda tracks progress through a comprehensive set of SDGs and its targets, monitored using a detailed framework of 231 unique indicators. This approach allows for a broad assessment of sustainable development, encompassing economic, social, and environmental dimensions.

However, the methodologies for tracking progress under the Paris Agreement and the 2030 Agenda are not fully aligned. The NDCs focus primarily on emissions reduction and climate resilience, whereas the SDGs cover a wider array of issues, including poverty, health, education, and inequality.

This misalignment presents challenges at the subnational level, where local governments must integrate national and global climate goals with local sustainable development objectives.

In Vitoria these challenges are significant. Vitoria is committed to achieving climate neutrality by 2030, aligning with both the 2030 Agenda and the Paris Agreement. However, the city's ability to track and report progress is complicated by the differing methodologies and reporting requirements of these two frameworks.

Vitoria-Gasteiz, like many other cities, must reconcile the focus on emissions reductions emphasized by the Paris Agreement with the broader socio-economic and environmental targets outlined in the SDGs. For instance, while the city's NDC-related actions might focus on reducing GHG emissions from transportation and energy sectors, the SDGs require a more holistic approach that also addresses impacts on employment, health, and education.

European Green Deal & The Challenge of Vertical Integration At The Subnational Level

The European Green Deal (2019) represents a comprehensive roadmap towards a sustainable, carbon-neutral future for the European Union (EU). Achieving its ambitious goals requires effective coordination and cooperation across all levels of governance, including subnational entities such as cities and regions. One significant challenge is vertical integration at the subnational level within the context of the European Green Deal, which highlights the importance of aligning national and EU policies with local action to accelerate progress towards environmental sustainability.

Diagram 4*: European Green Deal*
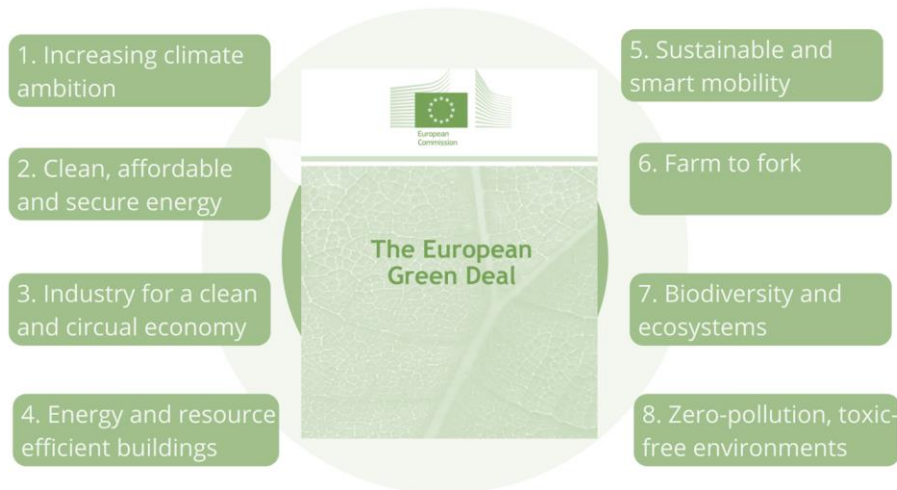
Source: compilation from the documents consulted for this thesis by the author

The European Green Deal, launched in 2019, aims to transform the EU into a climate-neutral continent by 2050 (European Commission, 2019). It encompasses a wide range of policy initiatives, including decarbonizing the economy, enhancing energy efficiency, preserving biodiversity, and promoting sustainable agriculture and transportation. Key components include

the Climate Law, the Renovation Wave, the Farm to Fork Strategy, and the Circular Economy Action Plan (European Commission, 2020).

One of the main challenges in implementing the European Green Deal lies in achieving vertical integration, which involves aligning policies and actions across different levels of government. At the subnational level, cities and regions play a crucial role in implementing green policies due to their direct impact on issues such as energy consumption, waste management, and urban planning (OECD, 2020). However, subnational entities often face barriers such as limited resources, capacity constraints, and competing priorities.

Several factors hinder subnational vertical integration in the context of the European Green Deal. Firstly, there is a lack of clarity and consistency in policy frameworks, making it challenging for subnational governments to align their actions with EU and national objectives. Additionally, funding mechanisms may not adequately prioritize local needs, leading to disparities in resource allocation. Moreover, administrative complexities and bureaucratic hurdles can slow down the implementation of green initiatives at the local level (European Committee of the Regions, 2021). To enhance subnational vertical integration, policymakers should prioritize the following strategies:

(i) Clarifying Roles and Responsibilities: Clearly defining the roles and responsibilities of subnational governments in implementing green policies can improve coordination and accountability (European Commission, 2020).

(ii) Strengthening Capacity Building: Investing in capacity-building initiatives at the local level can empower subnational entities to develop and implement effective green strategies. Training programs and technical assistance can enhance the skills and knowledge required for sustainable governance (OECD, 2020).

(iii) Enhancing Financial Support: Providing targeted funding and financial incentives can help overcome resource constraints and encourage subnational governments to prioritize sustainability. This includes grants, loans, and subsidies specifically designed for local green projects (European Investment Bank, 2019).

(iv) Promoting Knowledge Sharing: Facilitating peer-to-peer learning and knowledge exchange among subnational entities can foster collaboration and replication of best practices. Platforms for sharing experiences and innovations can accelerate the adoption of effective policies and practices (European Committee of the Regions, 2021).

Achieving the objectives of the European Green Deal requires strong collaboration and coordination between different levels of governance. Subnational vertical integration plays a crucial role in translating EU and national policies into tangible action on the ground. By addressing barriers and leveraging best practices, policymakers can unlock the full potential of cities and regions in driving the transition towards a sustainable and resilient future for Europe. As Jeffrey D. Sachs emphasizes the interconnectedness of SDGs, including climate action (SDG 13), and Amartya Sen's Capabilities Approach highlights the importance of addressing inequalities and enhancing capabilities, these principles should guide the efforts to strengthen subnational involvement in climate diplomacy (Sachs, 2015; Sen, 1999).

The EU Mission Climate-Neutral and Smart Cities & The Role of Vitoria-Gasteiz
Back in the 1970s, when most cities in Europe were prioritizing cars and roads, Vitoria-Gasteiz, the capital of the Basque Country in northern Spain, took a radical decision to prioritize pedestrians and allocate more public space to its residents. This decision marked the beginning of a comprehensive approach to urban planning that placed a strong emphasis on sustainability and environmental quality. The creation of the first cycle path, now extending up to 200 km, and the establishment of the "Green Ring," an extensive network of parks around the city, were pivotal steps in this transformation. These measures significantly improved the city's environmental quality and quality of life, maintaining the human scale of a green city (Elzen, Geels & Green, 2004).

Vitoria-Gasteiz is green "by nature," boasting over 42 square meters of green space per person, making it the European city with the largest area of consolidated green parkland. The city's complex socio-economic urban planning and environmental policies have positioned it as a global reference for sustainable urban development. These commitments have enhanced the city's resilience, health, safety, and balance, supported by robust social policies (Elzen, Geels & Green, 2004).

Environmental policy in Vitoria-Gasteiz has consistently enjoyed broad consensus. This environmental sensitivity is deeply embedded in the social and political consciousness of its citizens. The "Civic Covenant for Sustainable Mobility in Vitoria-Gasteiz," signed in 2007, exemplifies this consensus, involving various social actors to redefine the framework for a new urban model. This broad agreement was crucial for Vitoria-Gasteiz's designation as the European Green Capital in 2012, with unanimous support from all municipal groups.

In 2012, the European Commission awarded Vitoria-Gasteiz the European Green Capital Award in recognition of its environmental and urban development policies, particularly those related to climate change, mobility, air quality, noise pollution, water management, and the protection of nature and biodiversity. This recognition highlighted the city's efforts to develop a more sustainable approach, marking it as the first modest medium-sized southern European city to receive this honor (European Commission, 2013).

In 2019, the Global Forum on Human Settlements, a UN initiative, named Vitoria-Gasteiz a Global Green City for its achievements in fulfilling the SDGs and Agenda 2030. The city joins the winners, including Vienna, Vancouver, Oakland, Curitiba, Nantes, Mannheim, and Yokohama, recognized for sustainable mobility, energy efficiency, smart city initiatives, zero waste policies, and more. The jury analyzed 85 indicators in various categories to reach its decision (UN Habitat, 2019).

At the Climate Ambition Summit 2020, UN Secretary-General Antonio Guterres urged nations to declare a "climate emergency" to achieve net-zero greenhouse gas emissions by 2050. Vitoria-Gasteiz's major commitment is to become carbon-neutral by 2030, two decades ahead of the global target. The city has been selected by the European Union as one of the 100 cities to participate in its "Intelligent and Climate Neutral Cities" mission to achieve this goal (European Commission, 2020).

This mission is part of the EU's broader Horizon Europe research and innovation framework, which aims to address major societal challenges through collaborative efforts. By participating in this mission, Vitoria-Gasteiz will implement cutting-edge technologies and

innovative practices across various sectors, including energy, transportation, waste management, and urban planning. The city will work closely with other selected cities to share knowledge, strategies, and best practices, fostering a network of leaders in climate action. This collaborative approach not only accelerates the city's progress towards carbon neutrality but also enhances its resilience against climate impacts, making Vitoria-Gasteiz a model for sustainable urban development on the global stage.

Diagram 5: *EU Mission Vitoria Gasteiz*

Source: https://www.iges.or.jp/

The main success and challenge over the past 50 years has been maintaining political and social consensus on the environment. Vitoria-Gasteiz has clearly understood that being European Green Capital in 2012 and aiming for carbon neutrality by 2030 is an opportunity to intensify its commitment to sustainability. This "green effort" is seen as an opportunity for prosperity and a new approach to development that is inclusive, respectful, and human-scaled (Elzen, Geels & Green, 2004).

Vitoria-Gasteiz's goals for 2030 aim to position it as a hub of green practices in Europe and internationally. The city is committed to strengthening its green status and actively engaging in the green agenda, leading research, innovation, and collaborative initiatives. With a strong focus on sustainability, Vitoria-Gasteiz seeks to leverage environmental funding initiatives to advance its green roadmap. This opportunity will serve as a platform to showcase innovative environmental projects, paving the way for a sustainable future. Through the implementation of a comprehensive "climate contract," including urban and social development strategies, Vitoria-Gasteiz is taking substantial steps to become a smarter, more resilient, and environmentally friendly city on its way to achieving climate neutrality (Elzen, Geels & Green, 2004).

6. Establishing the Baseline

To understand the city's progress and commitment to achieving net-zero emissions, in this part the thesis, Vitoria-Gasteiz's climate action targets under the Local Action Local 21 Agenda & Plan Against Climate Change (2010) and the 2030 Vitoria Urban Agenda (AU2030VG) are compared, and the consistency with the Climate City Contract is checked. The domains of comparison are (i) the evolution of climate goals, (ii) strategic focus areas (iii) indicators & (iv) the targets. This comparison will reflect the evolution and check implementation status.

Evolution of Climate Goals

This change in Vitoria-Gasteiz's targets is a result of climate diplomacy efforts at the European level, showcasing how the breach between climate diplomacy and local action materializes in a revised plan that accelerates the localization of climate commitments, bridging this gap between climate efforts and local action.

Vitoria-Gasteiz's climate action strategy has evolved significantly from the Local Action Plan Against Climate Change (2009) to the 2030 AU2030VG. Initially, the city signed the Aalborg Charter in 1995, launching Agenda 21, with a decarbonization target by 2050, focusing on environmental sustainability, waste management, and renewable energy. Key indicators included air quality, renewable energy use, and waste management. In 2010, the second Local Action Plan included 228 actions and 304 interventions for sustainability goals.

The AU2030VG advanced the decarbonization target to 2030, demanding accelerated efforts. This new plan maintained decarbonization focus while expanding to social justice, technological innovation, digitalization, and gender equity. With the aim of tracking more climate advancement, new indicators for climate resilience, sustainable mobility, and public health. While both plans share indicators like GHG emissions and renewable energy use, AU2030VG's goals are more ambitious, aiming for rapid reductions by 2030.

Local 21 Agenda & Plan Against Climate Change:

The Local Agenda 21 of Vitoria-Gasteiz, despite being a continuous sustainability effort since 1998, presents a weaker and less effectiveness-oriented framework compared to other strategies like the city's Urban Agenda. Although it addresses a wide range of environmental and social issues, it lacks specific objectives and robust monitoring mechanisms to effectively assess the progress and efficacy of the investments made. Nonetheless, it was a valuable preliminary effort in advancing the city's sustainability goals.

Regarding climate change, the Local Agenda 21 reports progress in mitigation and adaptation through the international Carbon Disclosure Project (CDP) platform[20], receiving a "Leadership" classification. However, the evaluation is based on the CDP methodology and not on a robust internal monitoring and evaluation framework that allows continuous and detailed tracking of actions and their real impact on emission reduction and climate change adaptation. In this instance of formulating Vitoria-Gasteiz's sustainability roadmap, carbon neutrality was just one more topic that received little attention.

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[20] In the context of climate change, the "CDP platform" refers to the Carbon Disclosure Project, an international non-profit organization that runs a global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. The CDP platform collects and organizes self-reported climate data from these entities, providing a framework for them to disclose their greenhouse gas emissions, climate risks, and management strategies.

Image 5: *Agenda 21 Local*

For instance, noise analysis focuses on developing strategic maps and implementing participatory action plans, such as the Nightlife Noise Map and the Responsible Nightlife Action Plan. However, there is a lack of rigorous, continuous monitoring of the impact of these actions on noise reduction and residents' quality of life. In terms of mobility, the review and adaptation of the Sustainable Mobility and Public Space Plan, and the promotion of public transport and alternative modes like electric bicycles are highlighted. Nevertheless, the lack of specific indicators and scattered, uncoordinated actions hinder comprehensive evaluation of progress toward sustainable mobility.[21]

However, the lack of a specific performance indicator system and the absence of SMART[22] objectives limit the ability to evaluate the effectiveness of the implemented actions. Many of the initiatives were preliminary expressions of intent, aimed at raising visibility of problems and giving a voice to the main stakeholders.

The Local Agenda 21 of Vitoria-Gasteiz shows a commitment to sustainability through various actions and projects but lacks an effective monitoring and evaluation framework to accurately measure the impact of these actions and ensure progress towards the established sustainability goals.

2030 Vitoria-Gasteiz Urban Agenda[23].
Building upon the foundations laid by the Local Agenda 21, the 2030 Vitoria-Gasteiz Urban Agenda takes a significant step forward by enhancing focus and linking planning efforts to a greater number of trackable indicators. This new agenda aims to improve the effectiveness of sustainability initiatives by incorporating specific objectives and providing an initial framework

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[21] The agenda also addresses water and energy. Significant efforts in demand management and energy efficiency are noted, but without a clear system of indicators, it is challenging to measure the results effectively. The reduction in domestic water consumption and improved energy efficiency are positive steps, but without a robust evaluation framework, determining long-term impact is difficult. In waste management and nature conservation, advances are made in waste collection and biodiversity protection. It also addresses water and energy. Although significant efforts have been made in demand management and energy efficiency, the Local Agenda 21 does not present a clear system of indicators to effectively measure the results of these actions. The reduction in domestic water consumption and the improvement in energy efficiency are positive advances, but without a clear evaluation framework, it is difficult to determine the long-term impact. Among other areas, in waste management and nature conservation, advances are seen in waste collection and biodiversity protection.
22 Understood as specific, measurable, achievable, relevant, and time-bound indicators.
[23] This document integrates over 40 previous sectoral plans and strategies referred to in the Annex 3

for monitoring and evaluating progress, which is still not fully aligned with a development effectiveness framework. By doing so, it seeks to ensure that the efforts to address environmental and social challenges are not only more focused but also more transparent and accountable.

Image 6: *Agenda Urbana 2030 de Vitoria Gasteiz*

Although the Agenda tangentially addresses the issue of climate change, it does not establish a specific decarbonization goal or a binding trajectory based on the necessary investments to achieve it. It presents a general diagnosis that lacks a solid baseline regarding emission reductions and focuses more on climate change adaptation than mitigation. Carbon neutrality is one of the five main focuses of the agenda, but the lack of a thorough analysis and an adequate monitoring and evaluation mechanism limits its ability to effectively solve the identified development problems and verify how much of the problem has been resolved by the plan's conclusion.

It has four main objectives: (i) Identify needs and challenges: Detect the city's future needs, problems, opportunities, and challenges according to the 2030 Agenda and the Urban Agenda; (ii) Define policies and actions: Establish policies and actions to address these challenges, integrating them into the 2030 Urban Agenda Action Plan; (iii) Facilitate implementation: Develop systems and mechanisms to support the monitoring and evaluation of the strategy; (iv) Promote collaboration: Foster collaboration between municipal areas and governance spaces from the outset to improve the implementation of the Local Urban Agenda.

The governance of the Urban Agenda of Vitoria-Gasteiz is structured at three levels: political, technical, and social. In political governance, leadership will be assumed by the Political Group, which includes the Mayor's Office, the Political Steering Committee, and the Political Commission, ensuring necessary coordination and agreements. Technical governance will be handled by the Technical Group, composed of the Project's Technical Directorate and the Technical Steering Committee, who will coordinate and support the implementation of projects. Social governance will be articulated through Focus Groups, participatory workshops, and the Urban Forum, promoting the exchange of best practices and sustainable urban initiatives. Additionally, the process will be disseminated in existing spaces such as "Auzogunes" and "Elkargunes".

The prioritization of objectives and interventions is carried out through a participatory and consultative framework, where the central variable for prioritization is the expressed interest of the consulted stakeholders, rather than the technical effectiveness of the interventions and their causal attribution for solving the development problems identified in the diagnosis.

Image 7: Participation Focus Groups

Source: Agenda Urbana 2030 de Vitoria-Gasteiz

Citizen participation in Vitoria-Gasteiz was organized through workshops and surveys. In the first session, 10 people from various associations discussed key needs such as the mix of agricultural and industrial uses, education for sustainability, and improvements in mobility and social housing. In the second session, with 9 participants, progress was reviewed and actions such as the revision of the General Urban Planning Plan (PGOU)[24], improvements in mobility, and the promotion of social housing were prioritized. A third workshop brought together 12 young people and seniors to discuss accessibility, social cohesion, and quality of life, highlighting the need to improve inclusion and accessibility. Additionally, an online survey with 974 responses identified priorities such as affordable housing, urban regeneration, and sustainable mobility, emphasizing the importance of inclusive and sustainable urban development.

Climate City Contract

The City Contract is the first technical document among those we have reviewed that clearly defines a development problem—carbon neutrality. It identifies its determinants and establishes a series of measures with a causal attribution of their effectiveness to resolve this development issue. This contract represents an important advancement in Vitoria-Gasteiz's sustainability journey, marking the first technical document with a specific focus on mitigation. This comprehensive plan employs econometric evaluations to establish a causal link between proposed measures and the resolution of the identified development problem: achieving carbon neutrality by 2030. The City Contract outlines a clear trajectory to achieve this goal, complete

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[24] Plan General de Ordenación Urbana (General Urban Planning Plan). It is a comprehensive urban planning document that outlines the zoning, land use, and development regulations for a city or municipality. The PGOU serves as a framework for managing urban growth, infrastructure development, and environmental protection, ensuring coordinated and sustainable urban development.

with concrete measurement mechanisms and binding instruments for the localization of the NDC.

Image 8: *Vitoria-Gasteiz City Climate Contract*
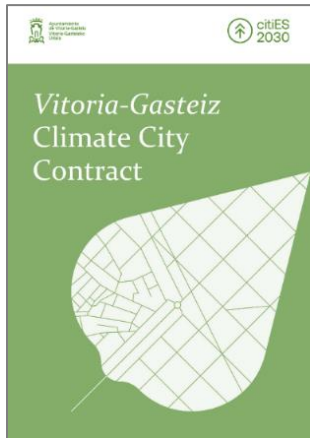
Vitoria-Gasteiz's Urban Agenda 2030 aims for a green, climate-neutral, resilient, and self-sufficient city by transitioning to energy efficiency, renewable resources, and circular economy practices. This involves technological, digital, regulatory, and ecological changes, alongside innovations in economic and social structures. Building on three decades of sustainability efforts, the City Contract sets ambitious goals. Milestones include the Local Agenda 21 (1998), joining the Covenant of Mayors (2008), and winning the European Green Capital (2012). The SECAP 2030 targets a 29% reduction in energy consumption, 61.5% in direct GHG emissions, and 83.1% in net GHG emissions by 2030, compared to 2006 levels, ensuring sustainable energy access and climate resilience.

The SECAP 2030 is composed of two interrelated action plans: the Integrated Energy Transition Action Plan and the Climate Change Adaptation Action Plan.[25] It identifies six key priorities or strategies that must be addressed to achieve climate neutrality. The aim is to carry out urban, social, and environmental regeneration with objectives like improving energy efficiency in residential and tertiary buildings, connecting households to a decarbonized district heating network, and integrating green infrastructure into urban planning. [26]

The City Contract highlights collaboration with large industrial companies like Mercedes Benz, Michelin, PepsiCo, and Eroski, which have their own decarbonization targets.[27] These projects aim to accelerate progress towards climate neutrality by improving energy efficiency, universal accessibility, and sustainable mobility, and integrating green infrastructure into urban planning.

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[25] The SECAP 2030, created with input from various stakeholders, uses econometric evaluations by Material Economics to identify gaps in transport, buildings, electricity, and waste, guiding actions to achieve climate neutrality by 2030.

[26] The strategy promotes renewable energy and Energy Communities, decarbonizes mobility with a sustainable model and Low Emission Zone, supports the circular economy, enhances biodiversity and carbon sequestration, and uses digital tools to create a Digital Twin of Vitoria-Gasteiz for better decision-making.

[27] The Alava Technology Park and the Alava Campus of the University of the Basque Country have decarbonization plans, contributing to the city's climate goals. Two pilot projects include the urban regeneration and eco-rehabilitation of the Zaramaga neighborhood and the Ensanche XIX - Entrepreneurial Eco-District.

The plan sets detailed targets for each area. The Integrated Regeneration and Eco-rehabilitation of Neighborhoods strategy aims to improve energy efficiency in buildings, connect households to digital and decarbonized heating networks, and enhance public spaces with green infrastructure. The Generation of Energy from Renewable Sources strategy includes thermal and electrical power projects, solar energy installations in buildings, and promoting energy communities to combat fuel poverty.[28]

It also proposes a mobility and sustainable transport strategy focused on transforming and decarbonizing the city's mobility system by developing a new sustainable mobility model, implementing traffic calming zones, extending pedestrian and cycling networks, and promoting the electrification of transport.[29] As well as a Circularity of the Local Economic System strategy that aims to modify the urban economic-productive system to a circular model, boosting the circular transition of economic activity sectors, and developing efficient waste collection and management services.[30] And a Green Infrastructure and Carbon Footprint Reduction strategy that aims to improve the ecological, environmental, and social functions of urban green spaces, expand the Green Belt, and enhance the carbon sequestration capacity of urban trees.[31]

Moreover, the City Contract includes SMART indicators, ensuring that the initiatives are not only well-defined but also trackable and accountable. These indicators provide a framework for monitoring progress and evaluating the effectiveness of the actions taken, making the entire process more transparent and results oriented.[32]

The City Contract also includes a series of financial and regulatory measures to ensure the effective implementation of these actions. A total of 500 million euros will be allocated for financing renewable energy and energy efficiency projects, with tax incentives for businesses and individuals adopting clean technologies. Additionally, new regulations will be implemented to regulate air quality and reduce industrial emissions by 40% by 2030.

Establishing a real-time monitoring system will allow the collection and analysis of data on energy consumption, GHG emissions, and other key indicators, facilitating informed decision-making and strategy adaptation as necessary. Transparency and citizen participation will be ensured through open data platforms and regular public consultations.

In summary, the City Contract of Vitoria-Gasteiz is a comprehensive document that not only clearly defines the development problem of carbon neutrality but also establishes a series of measures with causal attribution of their effectiveness to resolve this problem. With well-defined indicators and a focus on transparency and accountability, this contract provides a robust

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[28] By 2030, energy upgrades in 2,750 homes will improve efficiency, reducing consumption and emissions. Public buildings aim to halve energy use, saving 100,000 MWh and cutting 50,000 tons of CO2 annually. Efficiency programs in 15,000 homes will lower consumption by 250,000 MWh and CO2 by 125,000 tons annually. The plan also targets 150,000 MWh of solar energy and biomass heating to reduce CO2 by 25,000 tons each year.

[29] Urban transport aims to reach 28 million passengers annually, cutting private vehicle use and emissions. Installing 35 EV charging points per 1,000 inhabitants by 2030 will boost electric vehicle adoption, reducing GHG emissions. Reducing private vehicle use by 20% and expanding bike lanes to 350 km will decrease CO2 emissions by 15,000 tons annually. Electric taxis will cut emissions by 5,000 tons annually.

[30] In the area of waste management, reducing the total generation of household and commercial waste to 0.92 kg/inhab/day by 2030 will result in lower methane and other GHG emissions from landfills.

[31] Expanding the area occupied by parks, gardens, and urban green spaces to 20 m² per inhabitant by 2030 will increase carbon capture through urban vegetation.

[32] By 2030, the industrial sector will cut energy use to 1050 GWh/year and produce 225,000 MWh/year of renewable energy, reducing emissions. A 100% electric bus fleet will lower transport emissions. Green roofs, facades on 500 buildings, and planting 30,000 trees will capture 60,000 tons of CO2 annually. Creating 50 urban parks will improve stormwater management, flood resilience, and absorb 10,000 tons of CO2 annually.

framework for monitoring progress and ensuring that the actions taken are effective and sustainable in the long term.

Three Localization Stages: Shifting In Strategic Focus Areas In Each Instrument

The evolution of strategic priorities among the three instruments analyzed—Local 21 Agenda & Plan Against Climate Change, 2030 Vitoria Urban Agenda, and the Climate City Contract—reflects a shift from a broad, ambitious sustainability agenda to a more focused, measurable, and development-effective model.

Image 9: Plan de Lucha contra el Cambio Climático
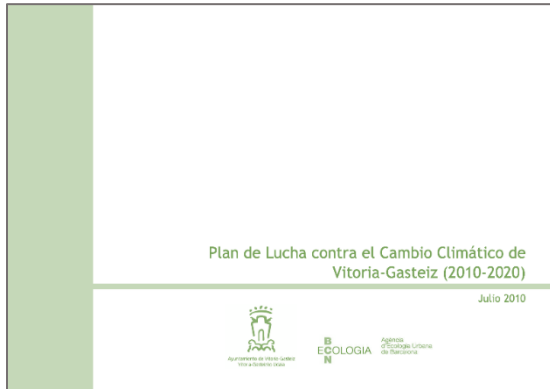
The Local Agenda 21 & Plan Against Climate Change, initiated in 1998, laid the foundation for Vitoria-Gasteiz's sustainability efforts. This agenda adopted a holistic and ambitious approach, addressing a wide range of environmental and social issues, from waste management and renewable energy to noise reduction and public transport. While it was valuable in raising awareness and giving voice to various stakeholders, its broad scope also revealed its main weakness: the lack of specific objectives and robust monitoring mechanisms.

The agenda struggled with measuring the effectiveness of investments and actions taken, making it difficult to accurately assess progress and impact.

Building upon these foundations, the 2030 AU2030VG represented a significant shift in strategic focus. AU2030VG aimed to improve the effectiveness of sustainability initiatives by incorporating specific objectives and providing an initial framework for monitoring and evaluating progress. This agenda expanded its scope to include social equity and digitalization, reflecting a more integrated approach to sustainability. While still ambitious, AU2030VG introduced a broader range of trackable indicators and set more determined goals, integrating environmental, social, and economic development to comprehensively tackle climate change. However, it still lacked fully developed SMART monitoring indicators, which hindered effective evaluation of the investments' efficacy.

The Climate City Contract marks the culmination of this evolution, representing a focused, measurable, and development-effective model. The Climate City Contract outlines a clear trajectory for decarbonization, setting ambitious targets and establishing robust monitoring mechanisms. It focuses on specific areas such as energy efficiency, renewable energy, sustainable

transport, and waste management, ensuring that initiatives are well-defined, trackable, and accountable.

In summary, the strategic priorities in Vitoria-Gasteiz's sustainability plans have evolved significantly from a broad, ambitious agenda to a more focused, measurable, and development-effective model.

Table 2. *SWOT Analysis of AU2030VG*

STRENGTHS	WEAKNESSES
• Historical Commitment to Sustainability: Demonstrates a long-standing dedication to sustainability initiatives. • Clear Targets and Achievements: Evident in surpassing significant environmental goals. • Political Consensus and Support: Unanimous backing from all political groups in the City Council. • Comprehensive Strategic Framework: Integration of multiple strategic documents ensures alignment with SDGs.	• Complex Coordination Needs: Managing diverse stakeholders and multiple plans. • Funding Challenges: Securing adequate resources for ambitious projects. • Dependence on External Support: Vulnerability due to reliance on international entities. • Public Awareness and Engagement: Varying levels of community involvement. • Resource Limitations: Limited human and technical capacity
OPPORTUNITIES	**THREATS**
• EU Mission Support: Access to funding and technical assistance. • Community Engagement: Leveraging citizenship actively • Innovation in Energy and Mobility: Advancements in renewable energy and transport. • Circular Economy Initiatives: Promoting waste reduction and resource efficiency. • Educational and Research Partnerships: Collaboration with academic institutions.	• Economic Constraints: Impact of economic downturns on sustainability efforts. • Political Changes: Potential shifts in policy direction. • Technological and Regulatory Hurdles: Need for constant adaptation to new regulations. • Global Economic and Political Instability: Risks to funding and collaboration. • Social Resistance: Opposition to sustainable practices from certain groups.

Source: compilation from the documents consulted for this thesis by the author

With New Goals, New Targets Come

The AU2030VG Plan includes 85 strategically designed actions to reduce GHG emissions across transportation, energy, economy, and social systems and the Climate City Contract goes further, providing a more comprehensive framework. It has a strong alignment with international standards, enhances credibility and ensures local contributions to global targets. Frequent reviews and comprehensive monitoring support adaptive management and transparency. However, challenges include the need for significant resources to maintain high evaluation capacities and the complexity of managing large indicator sets, which necessitates advanced data management systems and expertise. Ensuring effective local integration of high-level frameworks requires strong governance structures and continuous stakeholder engagement. The evaluation capacity is considered high for most plans due to the integration of multiple indicators and alignment with international standards. However, the Vitoria-Gasteiz Climate Change Action Plan is considered to have moderate capacity due to less frequent reviews and fewer indicators. Recognizing that decarbonization cannot be achieved solely through emission reductions, the plan includes comprehensive strategies to enhance carbon sequestration, thereby ensuring a holistic approach to carbon neutrality. The SECAP 2030 plan within the Climate City Contract establishes clear, ambitious goals. These targets are not only ambitious but are also supported

by detailed strategies that span across various sectors[33]. Financial and regulatory measures are integral to the effective implementation of these targets. A significant allocation of 500 million euros for financing renewable energy and energy efficiency projects, along with tax incentives for businesses and individuals adopting clean technologies, underlines the financial commitment to achieving these ambitious goals. New regulations to reduce industrial emissions by 40% by 2030 further demonstrate the regulatory support needed to drive these changes.

The establishment of a real-time monitoring system for tracking energy consumption, GHG emissions, and other key indicators ensures that progress towards these targets is continuously monitored, allowing for informed decision-making and strategy adjustments as necessary. This transparency, coupled with regular public consultations, ensures that the implementation of the Climate City Contract remains accountable and inclusive. The integration of detailed, measurable goals across various sectors and the inclusion of comprehensive carbon sequestration strategies underscores the plan's holistic approach to sustainability. This ambitious and structured framework positions Vitoria-Gasteiz as a leading city in the global fight against climate change.

Diagram 6: *Timeline showing the progression of agreements, achievements and targets.*
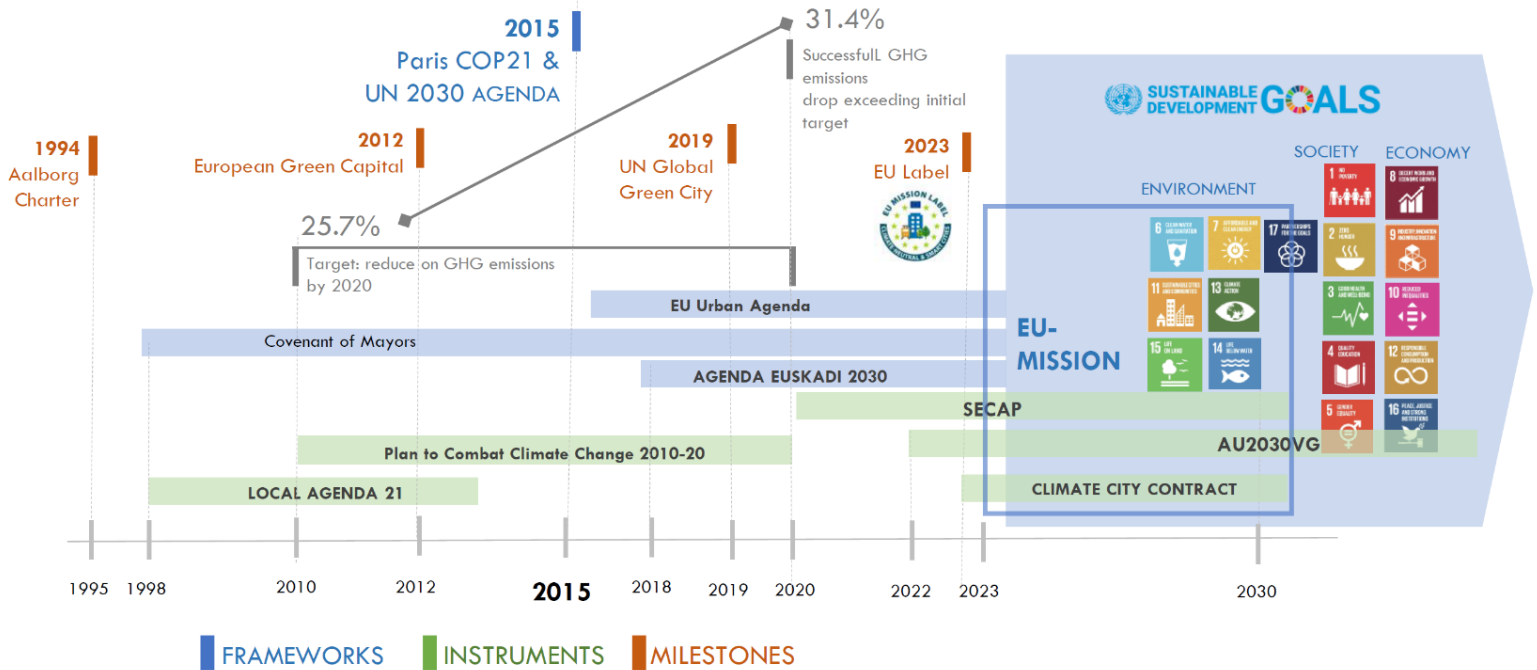
Source: compilation from the documents consulted for this thesis by the author

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[33] Reducing industrial energy use to 1050 GWh/year by 2030 requires efficiency improvements and new technologies. Achieving 225,000 MWh/year in renewable energy needs substantial investment. Transitioning to 100% electric buses by 2030 will cut GHG emissions. Increasing public transport use to 28 million passengers annually involves enhancing services. Reducing waste to 0.92 kg/inhabitant/day and expanding green spaces to 20 m² per inhabitant will boost carbon sequestration. Creating two urban distribution centers by 2030 will optimize logistics and reduce emissions.

Table 3. Comparison of sustainability documents

		Horizon 2050	Horizon 2030	EU MISSION
Key Instruments		Plan to Combat Climate Change 2010-2020 + LOCAL AGENDA 21	PACES2030 AU2030VG	Climate City Contract
Strategic Topics		• Environmental sustainability • Urban development and improvement of green infrastructure. • Citizen participation in environmental and urban decision making.	• SDG integration by encompassing broader areas such as social justice, equality, education, and technological innovation. • Energy efficiency and renewables • Sustainable mobility • Circular and sustainable economy • Health and wellbeing	• Regeneration and Eco-Rehabilitation of Neighborhoods. • Energy from Renewable Sources and Communities. • Mobility and Sustainable Transport. • Circularity of the Local Economic System. • Green Infrastructure and Carbon Footprint Reduction. • Intelligent Data-Driven Management.
INDICATORS	**COMMON**	• CO_2 emissions: Both agendas measure CO_2 emissions per capita and by sector (transport, buildings, industry). • Air quality: Urban air quality monitoring. • Renewable energy: Percentage of energy from renewables. • Waste: Waste management and reduction, with selective collection rates.		Increase in public transport and cycling (%). Reduction in private car use (%). Total GHG emissions (tCO2e/year) by sector.
	ADDED	• Urban resilience: Indicators of resilience to climate change. • Social justice and equity: Poverty indicators, access to housing, electoral participation, gender violence. • Public health: health indicators, life expectancy, premature mortality rates.		Implementation of smart city technologies. Carbon sequestration capacity of urban trees (tCO2/year). Circular economy initiatives implemented. Sustainable mobility: km. bicycle lanes, electric vehicle charging points, non-motorized modes of transportation.
Inconsistencies		• **Different timelines**: AU2030VG advances decarbonization targets, requiring a significant acceleration of efforts compared to Agenda 21. • **Thematic coverage**: The AU2030VG is broader and covers social, economic and technological aspects that Agenda 21 does not cover in such depth.		• Scope 3 Emissions. • Sector Inclusion. • Data Gaps.
Targets		Climate Change Plan targeted a 25.7% reduction in GHG emissions by 2020. Promote education for sustainability. Implement local sustainability action plan.	• Reduce energy consumption by 29% by 2030 compared to 2006. • Reduce direct GHG emissions by 61.5% by 2030. • Reduce net GHG emissions by 83.1% by 2030. • Address specific climate risks such as droughts, river flooding, pluvial flooding, heat waves, and extreme winds.	
Improvements		• **Focus on indicators**: The AU2030VG introduces many more indicators to measure progress in various areas, whereas Agenda 21 was more focused on traditional environmental indicators. • **Citizen participation**: The AU2030VG includes more mechanisms for citizen participation and inclusive governance.		• Expand Scope 3 Emissions Accounting. • Detailed Sector Analysis. • Data Collection and Monitoring. • Strengthen Cross-Sector Collaboration. • Public Engagement and Education.

Source: compilation from the documents consulted for this thesis by the author

7. Surveying Current Assessment Methods and their effectiveness

While the previous part of the thesis analyzed the technical strength of each plan, we will now focus on understanding the various accountability mechanisms and evaluation systems implemented within the AU2030VG and the Climate City Contract. This section will detail how these systems ensure transparency, stakeholder engagement, and continuous improvement in tracking climate advancements.

Both documents employ a variety of methods to track and assess progress in achieving climate goals, encompassing both traditional and innovative approaches to ensure comprehensive monitoring and evaluation. However, as we will see, the Climate City Contract achieves a higher degree of specificity in its proposed development effectiveness mechanisms. Despite this, even though the Climate City Contract goes a step beyond the AU2030VG in tracking, reporting, and assessment methods, there is still room for improvement when examining each specific sectoral goal.

The primary methods used by both instruments include: (i) Real-time Monitoring Systems: Advanced technologies, such as air quality sensors and emission monitoring systems, provide precise, real-time data on CO^2 emissions and pollutants, allowing for immediate corrective actions and identification of pollution hotspots; (ii) Renewable Energy Tracking: Smart grids and renewable energy technologies enable the tracking of energy production from renewable sources and the city's overall energy efficiency; (iii) Sustainability Indicators: Indicators such as CO^2 emissions per capita, urban air quality, and renewable energy consumption measure progress and are periodically reviewed and updated; (iv) Citizen Participation Metrics: Engagement in sustainability initiatives is tracked through surveys, public consultations, and community programs; (v) Collaboration Networks: Data and best practices are shared through collaborations with other cities and international networks, enhancing assessment and implementation strategies (vi) Periodic Voluntary Reviews and Reports: Annual bulletins and periodic reviews provide updates on the progress of sustainability initiatives, ensuring transparency and accountability.

Currently both documents, the AU2030VG and the Climate City Contract are active instruments for localizing SDGs more broadly (AU2030VG) and to target carbon neutrality (Climate City Contract). Given that at the local level these are different but interconnected agendas we will look at tracking and reporting mechanisms of both and assess if mechanisms are appropriate to monitor and assess results.

Mechanisms For Tracking and Reporting Progress In The AU2030VG
The following chart provides a detailed assessment of the strategic challenges of the AU2030VG, highlighting the total actions, net-zero actions, decarbonization percentages, and the most relevant actions for each category. This detailed breakdown illustrates the specific measures taken and their justifications in the context of Vitoria-Gasteiz's commitment to sustainable urban development:

Table 4. *AU2030VG Strategic Challenges Focus on Decarbonization*

| Strategic Challenges Assessment	Total Actions	Net-Zero Actions	Measure linked to Decarbonization Share (%)	Most Relevant Action	Justification
Connected and Balanced VG	17	9	10,58%	R1-7 New urban transport system	Significantly reduces CO2 emissions by promoting cycling and public transport.
Productive, Innovative, Entrepreneurial, and Digital VG	20	6	7,05%	R2-19 Circular Economy	Encourages the transition to a green and circular economy.
Green, Climate-Neutral, Resilient, and Self-Sufficient VG	21	15	17,64%	R3-36 Energetic Communities	Promotes renewable energy and energy efficiency in houses
Caring and Solidary VG	15	1	1,17%	R4- 53 Healthy and active life	Promotes sustainable living habits, though with less direct impact on decarbonization.
Creative and Attractive VG	12	4	4,70	R5-83 Sustainable tourism	Promotes sustainable tourism practices.
Total Strategic Challenges	**85**	**35**	**41,14%**		

Source: compilation from the documents consulted for this thesis by the author

While the plan proposes a more solid and integral narrative than the Local 21 Agenda, an important theme is still to be discussed—the effectiveness of its measures to accelerate decarbonization and the mechanisms incorporated in it to ensure their achievement. To address this, the table below provides a detailed analysis of the AU2030VG Plan's strategic challenges, focusing on their contribution to the decarbonization mission.

This balance is crucial for a holistic approach, ensuring comprehensive development across various domains. However, this also indicates that placing more emphasis on decarbonization-specific actions could expedite the achievement of the net-zero goal by 2030. There is clear potential to enhance the focus on decarbonization within all strategic challenges, thereby strengthening the city's efforts towards significant emission reductions. Although the current distribution integrates environmental, social, and economic dimensions effectively, reinforcing the decarbonization mission with additional targeted actions would better align with the urgent climate objectives, ensuring a more robust and accelerated path to net-zero emissions.

The AU2030VG development process exemplifies how technical expertise, citizen participation, and political support can be effectively combined to create a robust and comprehensive sustainability strategy. The Department of Territory and Climate Action's coordination ensured that the plan was well-founded, widely supported, and poised for successful implementation, driving Vitoria-Gasteiz towards its goal of net-zero emissions by 2030.

Diagram 7. *Organizational chart for the governance of AU2030VG*
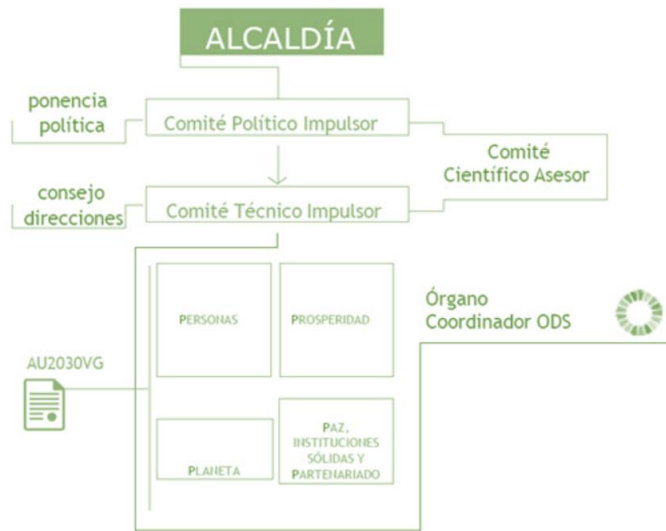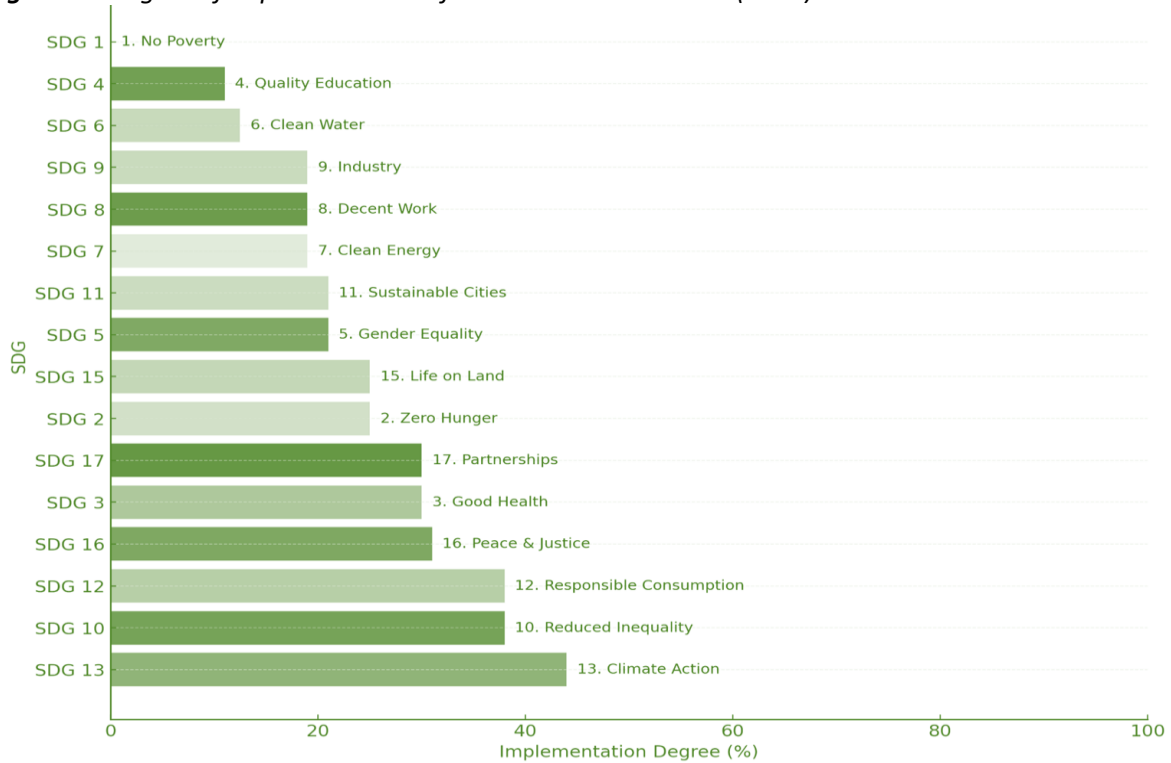

Source: AU2030VG

As shown on the diagram above, after comparing AU2030VG with other relevant documents, it presents a robust governance structure and accountability mechanisms designed to promote citizen participation and ensure transparency in the implementation process. The organizational structure is divided into three levels: political, technical, and social, ensuring effective coordination and broad inclusion of diverse actors.

The presence of the mayor at the top of this structure contributes a high level of commitment and political accountability, reinforcing the binding nature of the decisions made. Additionally, the inclusion of technical and scientific committees ensures that policies are well-founded and aligned with evidence and best international practices. Despite these strengths, areas for improvement were identified, such as the need to strengthen monitoring and evaluation mechanisms, link citizen decisions, provide institutional training, and include vulnerable groups.

While the new plan proposes a more solid and integral narrative, an important theme remains to be discussed: the effectiveness to reach its goals and decelerate decarbonization. To address this, the table below provides a detailed analysis of the AU2030VG Plan's strategic challenges, focusing on their contribution to the decarbonization mission. It highlights the total number of actions, the number of net-zero actions, the decarbonization percentage for each strategic challenge, the most relevant action, and its justification.

A critical insight from the data reveals that only 35 out of 85 strategic challenges are directly oriented toward the decarbonization mission, representing just 41.14% of the total actions. The remaining 58.86% address vital aspects of sustainable development such as social equity, health, and innovation. This balance is crucial for a holistic approach, ensuring comprehensive development across various domains. However, this also indicates that placing more emphasis on decarbonization-specific actions could expedite the achievement of the net-zero goal by 2030.

Diagram 8. *Degree of implementation of SDGs in Vitoria-Gasteiz (2022)*

Source: Compilation based on AU2030VG Voluntary Local Review

As shown in table 2, comparing the AU2030VG with other relevant documents, AU2030VG presents a robust governance structure and accountability mechanisms designed to promote citizen participation and ensure transparency in the implementation process. The organizational structure is divided into three levels: political, technical, and social, ensuring effective coordination and broad inclusion of diverse actors. The presence of the mayor at the top of this structure guarantees a high level of commitment and political accountability, reinforcing the binding nature of the decisions made.

Additionally, the inclusion of technical and scientific committees ensures that policies are well-founded and aligned with evidence and best international practices. Despite these strengths, areas for improvement were identified, such as the need to strengthen monitoring and evaluation mechanisms, link citizen decisions, provide institutional training, and include vulnerable groups.

Revising the VRL we can assess the degree of advancement for the SDGs. Their implementation shows that SDG 13 (Climate Action) leads with the highest rank at 44%, reflecting strong climate initiatives. Both SDG 10 (Reduced Inequality) and SDG 12 (Responsible Consumption and Production) are at 38%, while SDG 16 (Peace, Justice & Strong Institutions) is at 31%. SDG 3 (Good Health) and SDG 17 (Partnerships) both stand at 30%. Lower implementation is observed in SDG 4 (Quality Education), SDG 6 (Clean Water), and SDG 5 (Gender Equality), which range between 11% and 21%. Notably, SDG 1 (No Poverty) shows no recorded progress, indicating a potential area for improvement.

Overall, the chart provides a clear overview of Vitoria-Gasteiz's progress towards the SDGs, highlighting areas of strength and opportunities for further development. The AU2030VG plan incorporates indicators to monitor various objectives, including land use, biodiversity conservation, green infrastructure, and sustainable mobility. These indicators are crucial for evaluating the effectiveness of the strategies implemented and ensuring they align with the broader goals of the AU2030VG. However, there are few explicit mechanisms to track their advancement and the achievement of results. Additionally, the plan establishes real-time monitoring systems to collect data on environmental indicators such as air and water quality, energy consumption, and green space utilization. These systems enable continuous tracking and provide the ability to make timely adjustments to strategies based on real-time data.

Regular reviews and comprehensive monitoring are integrated to support adaptive management. Periodic reviews are planned for tracking progress towards meeting the objectives. The plan also emphasizes engaging citizens and stakeholders in the monitoring process to ensure transparency and accountability. It uses participatory tools such as surveys, workshops, and focus groups to gather input and feedback from the public.

Collaboration with industrial partners, academic institutions, and other stakeholders is encouraged to share data, best practices, and innovations, thereby enhancing the overall effectiveness of the strategies. Finally, the plan outlines a robust governance framework with clearly defined roles and responsibilities for political, technical, and social governance, including bodies to oversee the implementation and monitoring of the plan.

<u>Mechanisms for Tracking and Reporting Progress in the Climate City Contract</u>
On the other hand, the Vitoria-Gasteiz Climate City Contract outlines various mechanisms to track and report the progress of its climate action goals. These mechanisms include the incorporation of more Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) indicators, which are used to track progress in areas such as energy efficiency, GHG emissions, renewable energy production, and waste management. These indicators are crucial for evaluating the effectiveness of the actions implemented.

Additionally, the plan emphasizes the establishment of real-time monitoring systems to collect data on energy consumption, GHG emissions, and other key performance indicators. These systems allow for continuous tracking and timely adjustments to strategies as needed. To support adaptive management, regular reviews and comprehensive monitoring are integrated into the plan. This ensures that progress towards meeting the targets is consistently evaluated and necessary adjustments are made based on empirical data and ongoing analysis.

Furthermore, the plan includes mechanisms for engaging citizens and stakeholders in the monitoring process, ensuring transparency and accountability while fostering community support for climate actions. Collaboration with industrial partners, academic institutions, and other stakeholders is also encouraged to ensure a broad-based approach to achieving climate goals. This collaboration involves sharing data and best practices to enhance the overall effectiveness of the climate strategies. The plan outlines a robust governance framework with clearly defined roles and responsibilities for political, technical, and social governance, designed to ensure coordinated and effective implementation of climate actions. Despite this

comprehensive approach, there are several potential weaknesses in the mechanisms for tracking and reporting progress, given the high level of ambition in the indicators.

Table 5. *Climate City Contract Assessment*

	POTENTIAL SHARED CHALLENGES	EXECUTION & MEASUREMENT ARRANGEMENTS
Complexity of Management	Managing a wide range of indicators across various sectors can be complex, though the Climate City Contract, with specific focus on climate indicators, may find it relatively easier to manage.	This may require advanced data management systems. The complexity might lead to challenges in data integration, analysis, and reporting, potentially impacting the overall effectiveness of the monitoring process.
Dependence on Political Will	Both plans rely heavily on sustained political commitment for successful implementation and monitoring.	Changes in political leadership or priorities could hinder the consistent implementation and monitoring of the plan.
Adaptation to Changing Conditions	The ability to adapt to evolving conditions and emerging challenges is crucial for both frameworks	The mechanisms may not be flexible enough to quickly respond to unforeseen events or changes in external conditions, potentially limiting their effectiveness.
Engagement with the Mission	Effectively engaging a diverse range of stakeholders consistently over the long term can be challenging for both frameworks	Ensuring meaningful and continuous involvement requires substantial effort and resources.
Resource intensity	Both frameworks require significant resources for implementing real-time monitoring systems and extensive data collection.	This can strain local capacities, especially if not adequately supported by national or external funding.
Coordination with National Policies	Ensuring alignment with national policies and integrating local actions into broader national frameworks is important for both plans.	Ensuring this requires robust coordination mechanisms. Any misalignment or lack of synchronization with national strategies could undermine the effectiveness of the local plan.

Source: compilation from the documents consulted for this thesis by the author

While the Vitoria-Gasteiz Climate City Contract presents a well-structured and comprehensive approach to achieving climate goals, addressing these potential weaknesses is essential to ensure the successful realization of its ambitious targets. The plan's mechanisms for tracking and reporting progress need to be robust, adaptable, and adequately resourced to effectively manage the high level of ambition and sectoral complexities involved. Specific indicators, such as those related to energy consumption, renewable energy production, and transport emissions, will require more frequent measurements to ensure timely adjustments. The biennial review cycle may be insufficient for these dynamic areas, necessitating more frequent monitoring to ensure that interventions remain effective and on track.

Table 6. *Key Differences between AU2030VG and Climate City Contract*

Key differences	AU2030VG	CLIMATE CITY CONTRACT
SCOPE & FOCUS	Broader focus on urban sustainability, including land use, biodiversity, green infrastructure, and social equity.	Specific focus on climate action goals, such as energy efficiency, GHG emissions reduction, and renewable energy production.
INDICATORS	Uses a wide range of indicators covering various aspects of urban sustainability.	Focuses primarily on indicators related to climate actions and GHG emissions.
REAL-TIME MONITORING	Real-time monitoring includes a broader set of environmental indicators beyond just energy and emissions.	Primarily focused on real-time monitoring of energy consumption and GHG emissions.
PARTICIPATORY APPROACH	Emphasizes a high level of citizen participation and uses a wide array of participatory tools.	Also, values citizen participation but focuses more on stakeholder engagement for climate actions
GOVERNANCE STRUCTURES	Comprehensive governance structure that includes political, technical, and social governance tailored to urban sustainability.	Governance structure is specifically designed to ensure effective implementation and monitoring of climate actions

Source: compilation from the documents consulted for this thesis by the author

The AU2030VG and the Climate City Contract each offer comprehensive frameworks designed to monitor and advance urban sustainability and climate action goals in Vitoria-Gasteiz. While both plans exhibit significant strengths, there are areas where enhancements could facilitate more effective implementation and achievement of targets.

The AU2030VG Plan establishes a detailed baseline through the use of SMART indicators, which cover a broad spectrum of urban sustainability metrics, including land use efficiency, biodiversity levels, and the extent of green infrastructure. This comprehensive baseline allows for nuanced tracking of progress and the identification of areas needing improvement. For example, indicators tracking the increase in urban green spaces directly tie into biodiversity and climate resilience goals. Adaptive management is supported by periodic reviews that ensure strategies are continually refined based on real-time data.

In contrast, the Climate City Contract emphasizes specific climate-related metrics, such as reductions in GHG emissions, energy consumption, and increases in renewable energy use. This focused approach allows for precise tracking of climate action progress. Real-time monitoring systems capture detailed data on these metrics, facilitating timely adjustments to interventions. The ability to quickly respond to data insights ensures that the plan remains dynamic and responsive to emerging challenges.

Both plans highlight the importance of sectoral approaches, yet the Climate City Contract provides more detailed sector-specific strategies. The AU2030VG's broader focus includes significant emphasis on social dimensions, such as public health and social equity, alongside environmental goals. This integrated approach necessitates careful resource allocation to balance immediate climate action needs with long-term sustainability goals. For example, initiatives to improve energy efficiency in buildings also aim to address social equity by reducing energy poverty.

Effective governance structures are vital for the success of both plans. The AU2030VG's governance model includes political, technical, and social bodies, ensuring that diverse perspectives are incorporated into decision-making. The inclusion of technical and scientific committees ensures that policies are evidence-based and align with international best practices.

The Climate City Contract's governance structure is similarly robust but places a stronger emphasis on multi-stakeholder collaboration. By fostering partnerships with industrial partners, academic institutions, and community groups, the plan ensures that a wide range of expertise and resources are leveraged. This collaborative approach enhances the plan's capacity to address complex challenges, such as technological upgrades in the industrial sector or the expansion of green infrastructure.

Transparency is a cornerstone of both plans, with mechanisms in place to engage citizens and stakeholders continuously. The AU2030VG employs participatory tools like surveys, workshops, and focus groups to gather public input and ensure that community voices are heard. This approach not only builds public trust but also ensures that the plan is responsive to local needs.

The Climate City Contract similarly prioritizes transparency and stakeholder engagement but emphasizes the use of data-driven insights to inform public discourse. By making real-time data available to the public, the plan fosters an environment of accountability and informed participation. This transparency is crucial for maintaining momentum and public support for ambitious climate goals.

Despite the comprehensive nature of both plans, challenges such as resource intensity, complexity of management, and dependence on political will remain. For the AU2030VG, managing a diverse range of indicators across multiple sectors can be complex, requiring advanced data integration and analysis capabilities. The Climate City Contract, while more focused, still faces significant demands in terms of resource allocation and stakeholder coordination.

Opportunities for improvement include enhancing the flexibility of monitoring mechanisms to adapt to changing conditions and ensuring alignment with national and international policies. Strengthening these areas will help mitigate risks associated with political and economic fluctuations, thereby ensuring sustained progress toward sustainability and climate goals.

In conclusion, both the AU2030VG and the Climate City Contract present well-structured and comprehensive approaches to urban sustainability and climate action. By understanding and addressing the unique strengths and challenges of each framework, stakeholders can better tailor their strategies to enhance the effectiveness of their efforts. This comparative analysis provides valuable insights to guide future urban sustainability and climate action initiatives in Vitoria-Gasteiz and beyond.

Table 7. Climate City Contract Swot Analysis

STRENGTHS	WEAKNESSES
▪ Historical Commitment to Sustainability: Demonstrates a long-standing dedication to sustainability initiatives.	▪ Complex Coordination Needs: Managing diverse stakeholders and multiple plans.
▪ Clear Targets and Achievements: Evident in surpassing significant environmental goals.	▪ Funding Challenges: Securing adequate resources for ambitious projects.
▪ Political Consensus and Support: Unanimous backing from all political groups in the City Council.	▪ Dependence on External Support: Vulnerability due to reliance on international entities.
▪ Comprehensive Strategic Framework: Integration of multiple strategic documents ensures alignment with SDGs.	▪ Public Awareness and Engagement: Varying levels of community involvement.

▪	Innovative Pilot Projects: Showcases leadership in sustainable urban development.	▪	Resource Limitations: Limited human and technical capacity
OPPORTUNITIES		**THREATS**	
▪	EU Mission Support: Access to funding and technical assistance.	▪	Economic Constraints: Impact of economic downturns on sustainability efforts.
▪	Community Engagement: Leveraging citizenship actively	▪	Political Changes: Potential shifts in policy direction.
▪	Innovation in Energy and Mobility: Advancements in renewable energy and transport.	▪	Technological and Regulatory Hurdles: Need for constant adaptation to new regulations.
▪	Circular Economy Initiatives: Promoting waste reduction and resource efficiency.	▪	Global Economic and Political Instability: Risks to funding and collaboration.
▪	Educational and Research Partnerships: Collaboration with academic institutions.	▪	Social Resistance: Opposition to sustainable practices from certain groups.

8. Vitoria-Gasteiz: Reconciling SDGs with the Localization of NDCs

The maturation of Vitoria-Gasteiz's climate agenda has not only advanced the technical localization of the SDGs but stands as a remarkable exercise in contributing to the vertical integration of Spain's NDC. This should be the principal message of this section. While none of the reviewed plans, including the AU2030VG, are legally binding, a clear maturation process is evident in both the institutional framework supporting climate action and the technical capacity to achieve climate goals.

These plans, though well-structured and aligned with international standards, rely heavily on political will and local resources for implementation, presenting both opportunities and challenges. Effective execution and sustainability of these initiatives depend on a strong governance framework, clear communication, and robust monitoring and evaluation mechanisms. Enhancing international collaboration and citizen participation, while addressing potential resistance and financial constraints, will be key to achieving the ambitious goals set out in these plans.

Even though their primary aim is the localization of the SDGs, the maturation process carried out by the city of Vitoria-Gasteiz is also significantly contributing to the vertical integration of Spain's NDC, thereby aiding in meeting the Paris Agreement more effectively. Spain's NDC sets specific and ambitious targets for 2030, including a 23% reduction in GHG emissions compared to 1990, 42% renewable energy in final energy consumption, a 39.5% improvement in energy efficiency, and 74% renewable energy in electricity generation.

There are several synergies, for example: (i) Emissions Reduction: *The Plan Nacional Integrado de Energía y Clima* (PNIEC) is fundamental to achieving a 23% reduction in GHG emissions by 2030 compared to 1990.[34] This plan includes measures covering key sectors such as energy, transport, industry, and agriculture. Implementing these measures at the local level in cities like Vitoria-Gasteiz aligns directly with national targets, providing a coordinated and cohesive approach to emissions reduction; (ii) Renewable Energy:

The goal of achieving 42% renewable energy in final energy consumption by 2030 is supported by local renewable energy generation projects. In Vitoria-Gasteiz, the city contract

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[34] In this context, the PNIEC (Plan Nacional Integrado de Energía y Clima) of Spain is a comprehensive national plan that sets the guidelines and targets for the country's energy and climate policy up to 2030. The PNIEC is crucial for achieving a 23% reduction in greenhouse gas (GHG) emissions compared to 1990 levels. This plan includes measures across key sectors such as energy, transport, industry, and agriculture. Implementing these measures at the local level in cities like Vitoria-Gasteiz directly aligns with national targets, providing a coordinated and cohesive approach to emissions reduction.

includes generating 150,000 MWh of solar photovoltaic energy annually and installing biomass district heating systems, significantly contributing to this objective; (iii) Energy Efficiency: Improving energy efficiency by 39.5% is another key objective of the PNIEC. In Vitoria-Gasteiz, strategies include the energy rehabilitation of public and private buildings and the implementation of energy efficiency technologies in the industrial sector.

These local actions align with national energy efficiency goals and are monitored through specific indicators to ensure their effectiveness; (iv) Adaptation and Resilience: Climate change adaptation is an integral part of Spain's NDC. In Vitoria-Gasteiz, the Climate and Energy Action Plan of Vitoria-Gasteiz (PAACC) includes creating new urban parks with green infrastructure to manage stormwater and improve flood resilience. These measures are crucial for reducing climate vulnerability and increasing local adaptive capacity, reflecting the national commitment to strengthening climate resilience.

Diagram 9: Correlation between SDGs and NDCs

Source: www.sei.org/tools/ndc-sdg-connections

All the above is concrete evidence of vertical integration and localization tackling both international frameworks simultaneously. The Vitoria-Gasteiz city contract, known as the Climate City Contract, stands out as a superior document by consolidating a variety of indicators covering transport, buildings, waste management, green infrastructure, agriculture, and overall GHG emissions.

This contract not only addresses national objectives for emissions reduction and energy transition but also sets specific and measurable goals, facilitating alignment with international standards and national policies. Additionally, it includes carbon sequestration strategies through renewable energy generation and biomass heating system installations, ensuring a holistic approach to carbon neutrality. In other words, the evolution of climate goals in Vitoria-Gasteiz and their alignment with Spain's NDC demonstrate effective vertical integration, where local actions significantly contribute to national commitments, reinforcing coherence and effectiveness in combating climate change.

Although negotiated separately, the Paris Agreement and the 2030 Agenda for Sustainable Development demonstrate a shared recognition that development is interconnected. Actions taken to achieve one development objective can profoundly impact other ambitions. The 2030 Agenda, comprising 17 SDGs, encompasses numerous climate-related initiatives, especially under SDG13. Similarly, national climate action plans NDCs under the Paris Agreement encompass a broad spectrum of development topics and actions, extending beyond mere climate change mitigation or adaptation efforts.

In contrast, the 2030 Agenda tracks progress through a comprehensive set of 17 SDGs and 169 targets, monitored using a detailed framework of 231 unique indicators. This approach allows for a broad assessment of sustainable development, encompassing economic, social, and environmental dimensions. However, the methodologies for tracking progress under the Paris Agreement and the 2030 Agenda are not fully aligned. The NDCs focus primarily on emissions reduction and climate resilience, whereas the SDGs cover a wider array of issues, including poverty, health, education, and inequality.

While the global climate agenda has advanced significantly, several methodological misalignments still require recalibration, particularly in how the Paris Agreement and the 2030 Agenda for Sustainable Development track progress. Europe's robust indicators for measuring GHG emissions and carbon footprint (Scope 1, 2, and 3) enable the comparison of cities across the continent. Tools like Udalsarea, Ihobe 2030[35i], the Basque Agenda Urbana[36], 2050 Bultzatu[37] are vital for this purpose. (Basque Government, 2021) The Paris Agreement measures success through Nationally Determined Contributions (NDCs), which are commitments made by individual countries outlining their specific climate action plans and targets. These NDCs are periodically updated and assessed to ensure they align with the overarching goal of limiting global temperature rise.

Localization is described as "the process of defining, implementing and monitoring strategies at the local level to achieve global, national and subnational goals and targets". The concept of vertical integration of NDCs should be seen as part of the broader top-down localization landscape of the Paris Agreement. Ideally, this will be done in collaboration with and

[35] Es una red de municipios vascos comprometidos con la sostenibilidad y la implementación de la Agenda 21 Local. Su objetivo es facilitar el intercambio de experiencias y buenas prácticas, promover la colaboración entre municipios y apoyar el desarrollo e implementación de políticas y acciones sostenibles a nivel local.
[36] Es una estrategia promovida por el Gobierno Vasco a través de Ihobe, su sociedad pública de gestión ambiental, que se centra en la sostenibilidad y la transición ecológica. Esta herramienta proporciona un marco para medir y mejorar el desempeño ambiental de los municipios, alineando sus acciones con los Objetivos de Desarrollo Sostenible (ODS) y la Agenda 2030.
[37] Es una hoja de ruta a largo plazo para el desarrollo sostenible del País Vasco, que se alinea con la Agenda 2030 y va más allá, estableciendo objetivos y estrategias hasta el año 2050. Su enfoque está en la integración de la sostenibilidad en todas las áreas de la política urbana, promoviendo la resiliencia, la inclusión social y la economía circular en las ciudades y municipios vascos.

with the support of national governments. NDC localization can be thought of as a three-part exercise involving alignment between local and national entities, financing and team building, and multi-level cooperation that combines bottom-up and top-down aspects to help raise the ambition of new NDCs.

Image 10: *Voluntary Local Review*

The NDC monitoring system is structured around six building blocks that focus on aligning mitigation goals, managing adaptation and climate resilience, contributing to climate finance, engaging in policy development, reporting, and aligning internal activities. It uses a contextualized approach to evaluate operations and is transparent and regularly updated. The Paris Agreement includes mechanisms for transparency and accountability, such as the Enhanced Transparency Framework (ETF), which requires countries to report on their progress and provides for international review. However, there are no penalties for failing to meet NDC targets.

The SDG monitoring system, on the other hand, utilizes national monitoring platforms and global indicators adapted to regional and national contexts, with disaggregated data by various demographic factors. It includes Voluntary Local Reviews with annual progress reports and open access to information. The SDG system also emphasizes harmonizing national planning with the 2030 Agenda, rigorous data-based evaluations, and multi-entity participation, but faces challenges in data homogeneity across different countries. The NDCs include many actions that also contribute to the SDGs, especially in the areas of water, food and energy.

i.   There are strong connections between NDC activities and the environmental SDGs, but the social SDGs are underrepresented.
ii.   The NDCs' climate actions show multiple synergies with other SDGs, indicating opportunities for more ambitious and coherent implementation.
iii. There is significant overlap between the NDCs and the SDGs, underscoring the importance of considering these agendas in an integrated manner.
iv.   Climate activities in the NDCs encompass both mitigation and adaptation, with a stronger focus on adaptation in developing countries.
v.   The NDCs not only address climate change mitigation, but also include many actions that contribute to the SDGs.

vi.   Climate finance must be better aligned with the priorities of recipient countries to maximize the effectiveness and equity of climate and development actions.

Table 8. *SDG and Paris Alignment framework comparison*

Aspects	Sustainable Development Goals	Paris Agreement
Global coverage	Adopted by 193 countries in September 2015	Adopted by 195 countries in December 2015
Synergies with development	Achievement of SDGs, including SDG 13, linked to climate change	Emphasizes climate change's relationship with development and poverty alleviation
Time frame	Implemented 2015-2030	NDCs generally set for 2025 or 2030, with updates every five years
Nationally determined targets	Governments set their own national targets guided by global ambition	Implemented according to national capabilities and circumstances
Gaps in connections	Some goals like energy (SDG 7) and sustainable cities (SDG 11) are well-covered, others like no poverty (SDG 1) and gender equality (SDG 5) are underrepresented.	There are gaps in how NDCs address certain SDGs, particularly those related to social inclusion, equality, and justice.
Monitor and reporting	Vague annual reporting, relaying on Multi-Level Governance approach, encouraging collaboration between national, regional, and local governments. This approach is vital for aligning national policies with local actions.	Transparency regime plays a crucial role in building trust among, enhancing credibility of climate actions and facilitating collective efforts.
Strengths	Broad Indicator Coverage: 232 global indicators covering multiple dimensions of sustainable development. National and Local Participation: Involvement of multiple entities and levels of government. Data Disaggregation: Detailed and disaggregated information by various criteria.	Comprehensive and Contextualized Approach: Includes both adaptation and mitigation in the monitoring. Transparency and Continuous Improvement: Evaluations based on the best available information and regularly reviewed. Coordination among multilateral development banks.
Weakness	Variability in Data Quality and Updating: Inequality in the robustness of national statistical systems. Lack of Homogeneity: Different levels of analysis and detail among countries.	Evaluation Complexity: Requires detailed and specific information for each country. Variable Implementation Capacity: Depends on each country's ability to develop long-term strategies.

Source: compilation from the documents consulted for this thesis by the author

As shown on the chart below SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action) are the only two SDGs that meet all Paris Framework modules, playing a pivotal role in addressing the interlinked challenges of urbanization and climate change. Cities, as hubs of economic activity and population centers, play a crucial role in implementing sustainable practices that can significantly reduce global emissions.

Effective governance, comprehensive mitigation and adaptation strategies, sufficient financing, and robust MRV systems are all essential components of achieving these goals. The Paris Agreement's focus on transparency and accountability through the Enhanced Transparency Framework complements the SDG's rigorous data-based evaluations, ensuring that progress is

monitored, and strategies are continuously improved. By aligning urban development and climate action, we can foster resilient, sustainable communities that are equipped to tackle the challenges of the 21st century.

Table 9. *Mapping the NDC implementation modules to the SDGs*

SDG	Governance	Mitigation	Adaptation	Finance	MRV
1. No poverty	✓		✓	✓	
Zero hunger		✓	✓		
3. Good health and well-being		✓	✓		
4. Quality education					
5. Gender equality	✓	✓	✓		
6. Clean water and sanitation	✓	✓			
7. Affordable and clean energy	✓	✓			
8. Decent work & economic growth	✓	✓	✓	✓	✓
9. Industry, innovation & infrastructure		✓	✓	✓	
10. Reduced inequities	✓			✓	
11. Sustainable cities	✓	✓	✓	✓	✓
12. Responsible consumption and production	✓				
13. Climate action	✓	✓	✓	✓	✓
14. Life below water		✓	✓		
15. Life on land		✓	✓		
16. Peace, justice and strong institutions	✓				✓
17. Partnerships for the goals	✓			✓	✓

Source: compilation from the documents consulted for this thesis by the author

9. Improvements Opportunities and Policy Recommendations

The current plan of Vitoria-Gasteiz presents a strong technical structure; however, it shows weaknesses in the mechanisms for detailed sector-specific tracking and monitoring. This analysis stems from the observation that, although the plan includes robust indicators capable of measuring the overall level of implementation, its biannual review approach and generalized evaluation tend to homogenize progress, overlooking the complexity and particularities of each strategic axis.

While the indicators within the plan are indeed comprehensive and detailed—covering crucial areas such as energy consumption reduction, GHG emissions, renewable energy generation, and sustainable mobility—they are primarily designed to provide an aggregate view of the city's progress towards its carbon neutrality goals. This broad-brush approach is effective for assessing overall implementation but falls short when it comes to the nuanced needs of individual sectors.

The biannual review schedule, though methodical, poses a significant challenge in terms of responsiveness. Given the dynamic nature of climate action and urban sustainability efforts, a six-month interval between assessments can delay the identification of emerging issues and the

timely application of necessary adjustments. This could potentially hinder the progress of specific sectors that may require more immediate attention and intervention.

Furthermore, the generalized evaluation approach tends to homogenize progress across all sectors, which can obscure the distinct challenges and achievements within each strategic area. For instance, the progress in energy efficiency for buildings might be different from that in sustainable transportation, yet the current evaluation framework does not adequately differentiate between these areas. This lack of sector-specific analysis can result in a skewed understanding of the city's overall progress and may lead to inefficient allocation of resources.

A more detailed and adaptive approach is necessary to address these weaknesses. Increasing the frequency of reviews would allow for more rapid identification and rectification of issues, ensuring that strategies can be adjusted in a timely manner. Developing specific indicators for each strategic axis would provide a clearer picture of the unique progress and challenges within each sector. This would facilitate a more targeted and effective monitoring process, allowing for tailored interventions that address the specific needs and conditions of different areas.

Adopting a sectoral perspective in the evaluation process is crucial. This would involve assessing progress within the context of each sector's unique characteristics, timelines, and implementation rhythms. Such an approach would highlight the diverse speeds and complexities inherent in different strategic areas, ensuring that the distinct challenges and advancements of each sector are recognized and appropriately managed.

Strengthening the adaptive capacity of the monitoring mechanisms is also essential. Incorporating flexible management practices that allow for the reallocation of resources and adjustment of policies based on real-time data would enhance the overall effectiveness of the plan. This would enable the city to respond more swiftly and effectively to emerging challenges and opportunities, ensuring continuous progress towards the goal of carbon neutrality.

Policy Recommendations for Vitoria-Gasteiz to Achieve Decarbonization Goals by 2030
Achieving ambitious climate action goals requires a multifaceted approach that integrates technological innovation, strategic investments, and robust community engagement. In the context of Vitoria-Gasteiz's commitment to advancing its climate action targets by 20 years, several support elements are crucial. These elements include the deployment of advanced monitoring technologies, significant investments in green infrastructure, active citizen participation, strategic collaborations, and the implementation of stringent policies and regulations. Each of these components plays a vital role in accelerating the city's transition to a sustainable, low-carbon future. These recommendations are the synthesis of the body of work and analysis provided thus far, as well as the information included in Annex 3, which refers to interviews held with several climate change specialists at the IDB, based on three questions aimed at enhancing effectiveness.

Recommendation 1: Regarding resource intensity regulation. Monitoring the progress of high-complexity technical indicators, such as those related to emissions reductions and energy efficiency, is inherently challenging. For instance, a study by the European Environment Agency (2020) highlights the difficulties cities face in accurately tracking real-time emissions data.

Developing and implementing advanced mechanisms for monitoring high-complexity technical indicators. This includes investing in state-of-the-art big data collection systems, advanced analytical tools like AI and machine learning, and comprehensive training programs for personnel to manage and interpret complex datasets.

Improved data accuracy and reliability will lead to better-informed decision-making and more effective policy adjustments, ensuring the Mission Plan remains on track to meet its targets. Enhanced monitoring capabilities will also enable early identification of issues and prompt corrective actions, ultimately improving the plan's overall effectiveness.

Recommendation 2: Regarding Balancing the Complexity of Management. Effective implementation of sustainability measures requires coordination among various stakeholders, as seen in the successful models of cities like Copenhagen and Freiburg, which have well-established multi-stakeholder governance structures (ICLEI, 2019).

Establishing clear implementation arrangements that coordinate all stakeholders effectively. This includes setting up dedicated coordination bodies or committees, regular stakeholder meetings, and integrated project management systems to ensure alignment and avoid misalignments across simultaneous frameworks.

Enhanced coordination and execution will lead to more efficient and effective implementation of sustainability measures. This streamlined approach will facilitate achieving decarbonization and other goals, as all parties involved will work towards common objectives with clear roles and responsibilities.

Recommendation 3: Regarding Sectorial Approach/Complexities. Different sectors face unique challenges that require tailored strategies. For example, the transport sector's transition to electric vehicles requires significant infrastructure investment and behavioral changes (IEA, 2020), while the buildings sector faces high retrofitting costs and labor shortages (BPIE, 2020). Focus areas:

- Transport: Implement policies and incentives to encourage behavioral changes, invest in electric vehicle infrastructure, and promote technological advancements to reduce emissions.
- Buildings and Heating: Provide subsidies or incentives for retrofitting projects, invest in training programs for skilled labor, and implement regulations to overcome property owner resistance.
- Industry: Offer financial incentives for technological upgrades and process improvements to enhance energy efficiency and reduce emissions.
- Waste Management: Develop and enforce policies to change consumer behavior, enhance recycling infrastructure, and ensure effective waste management practices.
- Green Infrastructure: Plan long-term strategies, secure substantial investments, and coordinate efforts to expand green infrastructure and enhance biodiversity.

Tailored strategies will effectively address sector-specific challenges, leading to comprehensive progress across all areas of sustainability and contributing significantly to the overall decarbonization mission.

Recommendation 4: Regarding Reducing Dependence on Political Will. The sustainability of long-term plans often depends on political continuity. Research by the OECD (2018) shows that incorporating key actors from various sectors can enhance plan resilience against political changes. By incorporating key actors such as universities, academic institutions, civil society, third-sector organizations, and NGOs to ensure the plan's sustainability independent of political will. These actors can provide continuity, expertise, and support regardless of changes in political leadership.

A broader base of support will enhance the plan's resilience and continuity, reducing the risk of disruption due to changes in political leadership or priorities. This diversified support network will ensure sustained momentum towards achieving the plan's goals. Recommendation 4

Recommendation 5: Regarding Engagement with Mission Communication. Effective communication strategies are crucial for public engagement and stakeholder alignment. Cities like Amsterdam and Vancouver have successfully implemented comprehensive communication strategies to promote sustainability initiatives (City of Vancouver, 2021).

Developing a robust and comprehensive communication strategy that coordinates efforts and actions aimed at positioning the city internally towards its citizens and social agents and externally towards the international community. This strategy should leverage digital platforms, public forums, and media campaigns to enhance visibility and engagement.

Improved communication will increase public awareness and support, facilitate stakeholder engagement, and enhance the city's reputation and influence on a local and global scale. Effective communication will also foster a sense of ownership and commitment among residents and stakeholders, accelerating progress towards sustainability goals.

Recommendation 6 Regarding Adaptation to Changing Conditions. The COVID-19 pandemic highlighted the need for rapid adaptability in urban planning and policy implementation (UN-Habitat, 2020). Cities that had flexible mechanisms in place, such as Singapore and Seoul, managed to adapt more effectively to the crisis.

Preparing for rapid adjustment with mechanisms to adapt quickly to exogenous conditions, including potential black swan events like disruptive technology, war, or pandemics. This involves developing contingency plans, flexible policy frameworks, and adaptive management practices.

Having flexible and adaptive mechanisms in place will ensure that the plan can withstand and effectively respond to unexpected challenges, maintaining momentum towards its goals despite external disruptions. This resilience will safeguard the plan's long-term success and sustainability.

Recommendation 6: Capacity-Building Exchange Experience. Exposure to successful sustainability practices from other cities can enhance local capabilities. Programs such as the EU's Urban Innovative Actions have shown that knowledge exchange can significantly improve local government performance (European Commission, 2020).

Implement the "Erasmus for Civil Servants" program to enhance the skills and knowledge of Vitoria-Gasteiz's public workers by facilitating temporary placements in cities known for their successful sustainability and climate action strategies. This initiative aims to transfer cutting-edge knowledge and practical skills in sustainability to Vitoria-Gasteiz's civil servants. By learning from

the successes and challenges of other cities, participants can bring innovative solutions back home. The program also aims to build a network of international contacts, fostering a global community focused on sustainability and climate resilience.

Providing local civil servants with new expertise and broader perspectives will foster a culture of learning and innovation. By adopting proven practices from other cities, Vitoria-Gasteiz can achieve sustainability targets more efficiently. This initiative will build public trust in local government's commitment to sustainability through transparent sharing of new practices and increased civic engagement through community involvement in implementing new ideas, thereby strengthening local support for sustainability efforts.

These policy recommendations are designed to ensure Vitoria-Gasteiz meets its decarbonization goals by 2030. By focusing on renewable energy promotion, energy efficiency improvements, sustainable mobility, controlled land use, and effective water management, the city can achieve significant reductions in GHG emissions and enhance its overall sustainability. Implementing these measures will not only help meet key indicators but also improve the quality of life for residents, making Vitoria-Gasteiz a model of urban sustainability.

In conclusion, while the current plan of Vitoria-Gasteiz is technically solid, it requires significant strengthening in its sector-specific tracking and monitoring mechanisms to ensure effective implementation tailored to the realities of each strategic area. By adopting a more detailed, adaptive, and sector-focused approach, the city can achieve a more precise evaluation and a more coordinated and efficient progression towards its ambitious goal of carbon neutrality by 2030.

10. Results, Reflections and Discussion

In a world of uncertainty and crisis, change is the only certainty that can guide our approach. As social actors committed to the 2030 Agenda, we share a common concern and diagnosis: a scenario of insufficient international achievement of the goals and targets set for 2030, and a significant lack of social awareness of what the SDGs are and what they mean for the population. At the equator of the agenda, only 15% of the goals were "on track" last year. (UN, 2023)

Well planned and managed, cities can provide solutions to climate change and lead the transformations needed to move us towards a more sustainable world. Furthermore, by promoting urban resilience and adaptation to reduce the negative impacts of climate change, we will be better prepared to respond to other urban challenges globally, providing an opportunity to connect, achieve economic growth, solve urban problems and address climate change collectively. This is the idea of the qualitative interview, to use best practices and lessons learned from local solutions to address broader challenges internationally.

The indicators that contribute most to decarbonization, such as those related to renewable energy and energy efficiency, should remain a priority. Those with lower contribution, although important, should be optimized to maximize their impact on emissions reductions. Policy integration and alignment with the NDCs and SDGs can strengthen these areas and ensure a more holistic approach to decarbonization in Vitoria-Gasteiz.

Vitoria-Gasteiz's climate strategy has evolved from a broad and ambitious framework to a more focused and measurable approach. The Local Agenda 21, initiated in 1998, laid the

groundwork and foundation for sustainable development but lacked specificity and robust monitoring mechanisms. The 2030 Vitoria-Gasteiz Urban Agenda (AU2030VG) advanced the strategic focus by incorporating specific objectives and a broader range of trackable indicators. The Climate City Contract marks the culmination of this evolution, presenting a detailed and ambitious plan with clear targets and comprehensive monitoring systems.

The evolution of Vitoria-Gasteiz's climate action plans reflects a maturation process that aligns local actions with national and international climate goals. The integration of specific, measurable, and ambitious targets in the Climate City Contract positions the city as a leader in the global fight against climate change. However, addressing potential weaknesses in resource allocation, political will, and stakeholder engagement is essential for the successful realization of these targets. The comprehensive approach of the Climate City Contract, supported by robust monitoring and evaluation mechanisms, provides a solid framework for achieving carbon neutrality and contributing to global climate goals.

Implementing the ambitious targets outlined in the Climate City Contract requires significant resources, including financial investments and technical expertise. Establishing real-time monitoring systems, managing extensive data collection, and ensuring continuous stakeholder engagement demand substantial local capacities. To overcome these challenges, it is crucial to secure adequate funding, both from national and international sources, and to invest in capacity building for local authorities and stakeholders.

Effectively engaging a diverse range of stakeholders and maintaining high levels of public awareness and participation are critical for the success of climate actions. While the AU2030VG and Climate City Contract emphasize citizen participation, ensuring meaningful and continuous involvement requires substantial effort and resources. Strategies to enhance stakeholder engagement include regular public consultations, participatory workshops, and transparent communication of progress and challenges.

11. Conclusions & Next Steps

Success in shaping environmental diplomacy through multilateral engagement, bilateral partnerships, and local community involvement shows how cities can actively contribute to global sustainability efforts and enhance their international standing (Wardhani & Dugis, 2020). Engaging in environmental diplomacy and green initiatives allows cities like Vitoria-Gasteiz to position themselves as leaders in sustainable development, boosting their public image and reputation globally.

Citizen participation is fundamental for smart cities to address sustainability challenges and climate change effectively. Actively involving citizens in decision-making processes, utilizing digital tools, and promoting transparency harnesses the collective intelligence and resources of residents to create more sustainable and resilient urban environments. Strengthening publicity, clarifying government responsibilities, prioritizing citizen needs, and promoting inclusive and environmentally friendly development are crucial (Li et al., 2022).

Incorporating sustainability into city branding narratives is essential for addressing environmental challenges. Cities aligning their branding with sustainable development goals can effectively integrate economic, environmental, and social imperatives (González & Gale, 2022).

Communicating a strong sustainability agenda helps attract investment, talent, and partnerships, driving sustainable urban growth (Yang et al., 2019). Involving residents in the branding process enhances their sense of ownership and belonging, leading to successful outcomes and empowering local authorities to implement sustainable practices with community support (Keunah & Kim, 2020).

Leveraging collaborative arrangements within smart cities can sustain environmental, economic, and social goals, emphasizing cultural sustainability (Errichiello & Micera, 2018). Private sector engagement is crucial in sustainable urban development, with collaborative frameworks closing the climate gap through investment and innovation (AlKhani, 2020). Cities investing in sustainability initiatives and collaborating with stakeholders are more likely to pursue policies for greater sustainability (Hawkins et al., 2015).

Collaboration among cities enhances their capacity to address sustainability challenges and combat climate change by facilitating knowledge sharing, resource pooling, and partnership formation. Working together, cities can leverage experiences and expertise to drive sustainable urban development and create lasting positive impacts on the environment and society.

Vitoria-Gasteiz's ambitions for sustainable development encompass climate action. This alignment enhances local actions, contributing to global targets while addressing local needs, and providing a path to a sustainable, climate-resilient future. Unfortunately, the path to achieving carbon neutrality is clearer than that for sustainable development. In fact, there is a possibility that climate goals will be met by 2030 while the sustainability goals will not.

Possible synergies with Paris Agreement looking towards projection to 2030

There are certain elements from the Paris Alignment structure that might be useful when thinking of possible improvements climatic acceleration. In a distilled way there are six elements that could be useful to have in mind. While the localization of the SDGs is a process that might be considered "bottom up" in the sense that the subnational unit is empowered and creates a plan. Whereas in Paris what is done is that there are agreements made at the national level that later need to go through the process of vertical integration. A process understood as more "top down" strategy. Taking under consideration such differential approach these might be some elements to consider.

(i)   Holistic Measurement: The Paris Alignment framework encompasses both mitigation and adaptation strategies, ensuring that cities address the full spectrum of climate challenges. This holistic approach aligns well with the diverse aspects of urban sustainability, including economic, social, and environmental dimensions, though somehow SDGs focus more on social issues.

(ii)   Consistency and Transparency: Using the Paris Alignment structure ensures consistent and transparent tracking of progress. This allows for more accurate monitoring and reporting, enhancing accountability and enabling cities to adjust strategies in real-time based on reliable data.

(iii) Enhanced Policy Integration: Aligning local sustainability goals with the Paris Agreement facilitates better integration of national and international policies. This

coherence helps cities like Vitoria-Gasteiz to leverage global support mechanisms and funding opportunities, accelerating the implementation of sustainable initiatives.

(iv)   Increased Ambition and Innovation: The Paris Alignment framework encourages cities to set more ambitious targets and adopt innovative solutions. By benchmarking against global best practices, cities can push the boundaries of their sustainability efforts and achieve significant advancements more rapidly.

(v)   Stakeholder Engagement: The framework emphasizes the importance of stakeholder engagement, fostering collaboration between governments, businesses, and communities. This inclusive approach ensures that diverse perspectives are considered, leading to more robust and widely supported sustainability strategies.

(vi)   Resilience Building: By incorporating adaptation measures, the Paris Alignment framework helps cities build resilience against climate impacts. This proactive stance not only mitigates risks but also enhances the long-term sustainability of urban environments.

Five Lessons learned of why Vitoria-Gasteiz can achieve this objective that might be useful for other cities

First Lesson: Cities Need Political Leadership and Commitment

Vitoria-Gasteiz's political commitment to sustainability and climate action has been strong and consistent. The city has demonstrated leadership by implementing Local Agenda 21 and now with the AU2030VG. Evidence of this commitment includes the successful execution of various sustainability initiatives under both frameworks, showcasing a clear and continuous dedication to environmental goals (AU2030VG, 2024; Local Agenda 21, 2000).

From the case of Vitoria-Gasteiz, other cities can learn that community involvement is key to achieving climate goals. The community of Vitoria-Gasteiz has demonstrated a high level of participation and commitment to environmental initiatives, which is crucial for the success of decarbonization goals. Programs that encourage public engagement, such as citizen assemblies and participatory budgeting, ensure that the population is actively involved in shaping and supporting sustainability projects. From the case of Vitoria-Gasteiz, other cities can learn the importance of securing resources and financing for sustainability projects. Vitoria-Gasteiz has access to European and national funding, as well as public and private investments, which support the necessary projects to reduce emissions.

Examples include EU funding from programs like Horizon 2020 and Next Generation EU, providing substantial financial backing for innovative sustainability projects. The ambitious decarbonization goal of Vitoria-Gasteiz for 2030 is achievable due to a combination of technological innovation, strategic investments in green infrastructure, citizen participation, effective collaborations, and robust policies.

Second Lesson: It is Important to put in Value the Sustainability Trajectories of Cities

Vitoria-Gasteiz has a track record of pioneering sustainable initiatives, such as the creation of the Green Belt and the promotion of sustainable mobility. This history provides a solid foundation to

build upon. The Green Belt project, initiated in the 1990s, is a testament to the city's long-standing dedication to creating and maintaining urban green spaces, significantly enhancing biodiversity and ecological connectivity (Green Belt Project Report, 1999; Vitoria-Gasteiz Sustainability Reports, 2005-2020).

From the case of Vitoria-Gasteiz, other cities can learn the importance of valuing sustainability trajectories. Vitoria-Gasteiz has a track record of pioneering sustainable initiatives, such as the creation of the Green Belt and the promotion of sustainable mobility. This history provides a solid foundation to build upon. The Green Belt project, initiated in the 1990s, is a testament to the city's long-standing dedication to creating and maintaining urban green spaces, significantly enhancing biodiversity and ecological connectivity.

Third Lesson: To Achieve Important Goals Cities, need Capacity for Innovation
The city is home to research centers, universities, and innovative companies that can contribute the technologies and knowledge necessary to rapidly advance decarbonization efforts. Institutions such as the University of the Basque Country and technology parks like Álava Technology Park provide a rich ecosystem for innovation in renewable energy and sustainable practices (University of the Basque Country Annual Report, 2021; Álava Technology Park Innovation Summary, 2022).

From the case of Vitoria-Gasteiz, other cities can learn that achieving important goals requires a capacity for innovation. The city is home to research centers, universities, and innovative companies that contribute the technologies and knowledge necessary to rapidly advance decarbonization efforts. Institutions such as the University of the Basque Country and technology parks like Álava Technology Park provide a rich ecosystem for innovation in renewable energy and sustainable practices.

Fourth Lesson: Community Involvement is Key to Achieve Climate Goals
The community of Vitoria-Gasteiz has demonstrated a high level of participation and commitment to environmental initiatives. This involvement is crucial for the success of decarbonization goals. Programs that encourage public engagement, such as citizen assemblies and participatory budgeting, ensure that the population is actively involved in shaping and supporting sustainability projects (Participatory Budgeting Report, 2019; Citizen Assembly Minutes, 2020).

From the case of Vitoria-Gasteiz, other cities can learn that community involvement is key to achieving climate goals. The community of Vitoria-Gasteiz has demonstrated a high level of participation and commitment to environmental initiatives, which is crucial for the success of decarbonization goals. Programs that encourage public engagement, such as citizen assemblies and participatory budgeting, ensure that the population is actively involved in shaping and supporting sustainability projects.

Fifth Lesson: Resources and Financing
Vitoria-Gasteiz has access to European and national funding for sustainability projects. These financial resources, along with public and private investments, can support the necessary projects to reduce emissions. Examples include EU funding from programs like Horizon 2020 and

Next Generation EU, which provide substantial financial backing for innovative sustainability projects (Horizon 2020 Funding Report, 2021; Next Generation EU Financial Allocation, 2022).

  The ambitious decarbonization goal of Vitoria-Gasteiz for 2030 is achievable due to a combination of technological innovation, strategic investments in green infrastructure, citizen participation, effective collaborations, and robust policies. The city has the leadership, capability, and resources necessary to advance its targets by 20 years and become a model of urban sustainability (AU2030VG, 2024; PACES2030, 2023; Local Agenda 21, 2000).

  From the case of Vitoria-Gasteiz, other cities can learn the importance of securing resources and financing for sustainability projects. Vitoria-Gasteiz has access to European and national funding, as well as public and private investments, which support the necessary projects to reduce emissions. Examples include EU funding from programs like Horizon 2020 and Next Generation EU, providing substantial financial backing for innovative sustainability projects. The ambitious decarbonization goal of Vitoria-Gasteiz for 2030 is achievable due to a combination of technological innovation, strategic investments in green infrastructure, citizen participation, effective collaborations, and robust policies.

Annexes

ANNEX 1: A note on the IADB Cities Network

Achieving the Sustainable Development Goals (SDGs) and climate commitments will require mobilizing more investment of all kinds: public, private, local, national and international, both in terms of capacity and capital. However, as outlined in recent IPCC reports, the need for climate finance is more urgent than ever, especially for cities in the Global South.

Cities are increasingly at the forefront of the global response to climate change, as urban leaders can implement climate change solutions in areas such as mobility, land use, infrastructure or restoration. For cities, the IDB's network makes it possible to prioritize the urban agenda in Latin America and the Caribbean, strengthen collaborative platforms that generate innovation and investment, accelerate reforms and best practices, and increase cities' readiness to invest.

For example, in 2017, the IDB's Housing and Urban Development Department (HUD) launched the Cities Lab, a network for innovation, experimentation and co-design of solutions that contribute to the sustainable development of cities in Latin America and the Caribbean. The Cities Lab aims to promote the creation of strong innovation ecosystems in local governments, strengthen decision-making and knowledge on the new issues of the sustainable urban agenda, and support cities in applying innovative approaches to promote inclusion, sustainable development and climate resilience.

The network is a tool for the implementation of the urban-related SDGs. With this mandate, the Bank is constantly strengthening its relationship with cities in the region to generate dialogue and disseminate information and good practices that can be replicated among them. This has allowed the Bank to consolidate a diagnosis of the current strengths and problems faced by local governments, as well as the solutions implemented and their impact. Each year, the Cities Network hosts the IDB Mayors' Forum to share knowledge and experience on issues relevant to cities in the region. The network currently includes more than 230 cities in Latin America and the Caribbean, with a total population of around 200 million.

The Cities Network is the brainchild of Maria Camila Uribe, Principal Technical Lead of the Housing and Urban Development Department and Coordinator of the IDB Cities Network of the Inter-American Development Bank (IDB) in Washington DC. She has over 18 years of experience in the public sector, having served as Secretary of Planning for Bogotá, Director of Cadastre and Taxation for the same city, advisor to the Colombian Ministry of Finance and the National Planning Department.

Together with Ms Nora Libertun de Duren, a leading expert on sustainability, social inclusion and affordable housing in urban areas. She has experience working with multilateral development banks, local governments and academia. She is also Professor of Urban Planning and Design at Harvard University. Previously, she served as Director of Planning and Natural Resources for the City of New York and has taught urban planning and international development at several universities, including Columbia University and the University of Buenos Aires.

ANNEX 2: Development of the Questionnaire and Questions for BID Climate Change Specialists

In the context of research on the localization of climate commitments at the subnational and local levels, a questionnaire was designed for climate change specialists from the Inter-American Development Bank (IDB). These specialists come from various regions in Latin America and the Caribbean, providing a broad and diverse perspective on localization strategies. The questionnaire aims to gather detailed information on current strategies, the advantages and weaknesses of international approaches, and practical recommendations for accelerating the transition to carbon neutrality in cities.

The questionnaire was designed to obtain clear and concise responses that allow effective comparison between different regions and countries. It is structured around three main questions, each exploring specific aspects of localization strategies, the strengths and weaknesses of the Paris Agreement and Agenda 2030, and practical recommendations for cities.

Questionnaire Questions

1. *What strategies are being followed in your region/country to localize NDCs at the subnational/local level?*

Purpose: Identify specific strategies each region or country is implementing to translate national commitments into concrete local actions.
Expected: Description of policies, programs, projects, and coordination mechanisms between different levels of government.

2. *What are the advantages and weaknesses of each of the two approaches (Paris Agreement and Agenda 2030) in achieving carbon neutrality?*

Purpose: Compare the approaches of the Paris Agreement and Agenda 2030 in terms of effectiveness and applicability at the local level.
Expected: Critical analysis highlighting strengths and areas for improvement of each approach based on concrete experiences and observed results.

3. *What three recommendations would you make to a city that wants to accelerate its path to carbon neutrality?*

Purpose: Provide practical and actionable advice based on the experience and knowledge of the specialists.
Expected: Clear and specific recommendations including policy, technical, and governance measures to boost urban climate action.

Questionnaire Participants
The questionnaire was sent to the following IDB specialists, selected for their experience and knowledge in climate change within their respective regions. It is important to highlight that these specialist cover every region in Latin America having an overview from the whole continent.

Central America	
Mexico	Fátima López
Costa Rica	Priscila Picado
Caribbean	
Barbados	Jennifer Doherty
Belize and Jamaica	Gerard Alleng
Andean Countries	
Colombia	José Manuel Sandoval
Peru	Jaime Fernandez Baca
Ecuador	Roberto Esmerald
Southern Cone	
Uruguay	Sofía Polcaro
Argentina	Juliana Almeida
Chile	Hipólito Talbot

Data Collection Procedure

Sending the Questionnaire: The questionnaire was sent via email to each specialist, along with a cover letter explaining the purpose of the research and the importance of their participation.

Collecting Responses: Specialists had two weeks to complete and return the questionnaire. Follow-ups were conducted to ensure a high response rate.

Data Analysis: Responses were compiled and analyzed to identify common patterns, regional differences, and specific recommendations. This analysis was used to develop conclusions and policy proposals presented in the thesis.

General Reflections

Coordination and Training: Effective coordination between different levels of government is crucial for successful NDC implementation at the subnational level.

Training and awareness on climate change and sustainable development are essential to ensure that all involved actors understand and can effectively contribute to climate strategies.

Agenda Integration: Climate strategies must be integrated with sustainable development goals to maximize benefits and address the multifaceted impacts of climate change.

Mainstreaming these issues across all economic sectors and public policy is fundamental for an effective transition to carbon neutrality.

Financing and Monitoring: Securing adequate and accessible funding sources is vital for implementing mitigation and adaptation measures.

Developing robust monitoring and reporting systems is necessary to track progress and adjust strategies as needed.

Citizen Participation and Education: Active participation of civil society and public education are crucial for creating a favorable environment for climate action and ensuring the sustainability of implemented measures.

Specific Recommendations

<u>Emission Inventories</u>: Cities should conduct detailed inventories of their greenhouse gas emissions to identify priority sectors and design specific and effective actions.

<u>Decarbonization Plans</u>: Developing long-term decarbonization plans, aligned with national NDCs and SDGs, is essential for establishing a clear roadmap to carbon neutrality.

<u>Sustainable Infrastructures</u>: Investing in sustainable and resilient infrastructures, including nature-based solutions and renewable energy technologies, can accelerate the transition to decarbonized cities and improve urban quality of life.

The questionnaire for IDB climate change specialists provides valuable insights into localization strategies, the strengths and weaknesses of international approaches, and practical recommendations for cities. The information collected is crucial for understanding how cities can accelerate their transition to carbon neutrality and effectively contribute to global climate goals.

ANNEX 3: 40 Documents consolidated for the elaboration of the AU2030VG

- Agenda 2030 de las Naciones Unidas para el Desarrollo Sostenible (2015) - Naciones Unidas
- Acuerdo de París sobre Cambio Climático (2015) - Naciones Unidas
- Nueva Agenda Urbana de las Naciones Unidas (2016) - Naciones Unidas
- Directiva 2008/50/CE sobre calidad del aire ambiente y una atmósfera más limpia en Europa (2008) - Unión Europea
- Directiva 2010/31/UE sobre la eficiencia energética de los edificios (2010) - Unión Europea
- Estrategia Europa 2020 (2010) - Unión Europea
- Plan Nacional Integrado de Energía y Clima (PNIEC) 2021-2030 (2020) - Gobierno de España
- Ley de Cambio Climático y Transición Energética (2021) - Gobierno de España
- Estrategia Española de Economía Circular 2030 (2020) - Gobierno de España
- Plan Nacional de Adaptación al Cambio Climático (PNACC) (2006, revisado en 2020) - Gobierno de España
- Plan de Acción para la Agenda Urbana Española (2019) - Gobierno de España
- Estrategia Española de Desarrollo Sostenible 2030 (2021) - Gobierno de España
- Plan Nacional de Calidad del Aire y Protección de la Atmósfera (2013) - Gobierno de España
- Estrategia Nacional de Infraestructura Verde y de la Conectividad y Restauración Ecológicas (2021) - Gobierno de España
- Plan de Acción Nacional de Eficiencia Energética (2008, revisado en 2014) - Gobierno de España
- Ley 2/2016, de 10 de febrero, de Suelo y Urbanismo del País Vasco (2016) - Gobierno Vasco
- Plan Territorial Sectorial del Sistema de Transporte Público del País Vasco (2002) - Gobierno Vasco
- Estrategia de Cambio Climático del País Vasco – Klima 2050 (2015) - Gobierno Vasco
- Ley Vasca de Sostenibilidad Energética (2019) - Gobierno Vasco
- Plan de Movilidad Urbana Sostenible (PMUS) de Vitoria-Gasteiz (2007, actualizado en 2019) - Ayuntamiento de Vitoria-Gasteiz
- Plan de Acción para el Clima y la Energía Sostenible (PACES) de Vitoria-Gasteiz (2019) - Ayuntamiento de Vitoria-Gasteiz
- Plan de Gestión de la Calidad del Aire de Vitoria-Gasteiz (2011) - Ayuntamiento de Vitoria-Gasteiz
- Estrategia de Biodiversidad de Vitoria-Gasteiz (2020)

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[EUS]: "unicitiES 2030 unibertsitateen eta hirien arteko loturan eta Hiri Adimendunen eta Klimatikoki Neutroen Europako Misioan kokatutako ekimena da, Unibertsitate Ministerioaren laguntzarekin. Binomio hori lehen aldiz 2023/24 ikasturtean pilotatzen da Gasteizen, Euskal Herriko Unibertsitatearekin UPV/EHU (Arabako Campusa) eta Gasteizko Udalarekin batera, Garapen Iraunkorreko Espainiako Sarearen (REDS-SDSN Spain) lankidetzarekin, 2030ean neutraltasun klimatikoa lortzeko hiriaren beharrekin bat datozen titulazio-amaierako lanak (GrAL/MAL) bultzatzeko helburuarekin"

[CAS]: "unicitiES 2030 es una iniciativa enmarcada en la conexión entre las universidades y las ciudades y Misión Europea de Ciudades Inteligentes y Climáticamente neutras, bajo el apoyo del Ministerio de Universidades. Este binomio se pilota por primera vez en el curso 2023/24 en Vitoria-Gasteiz de manera conjunta con la Universidad del País Vasco/Euskal Herriko Unibertsitatea UPV/EHU (Campus de Álava) y el Ayuntamiento de Vitoria-Gasteiz, con la colaboración de la Red Española de Desarrollo Sostenible (REDS-SDSN Spain), con el objetivo de impulsar el desarrollo de trabajos de fin de titulación (TFG/TFM) alineados con las necesidades de la ciudad para alcanzar la neutralidad climática en 2030"

[ENG]: "unicitiES 2030 is an initiative framed within the connection between universities and cities and the European Mission of Smart and Climate-Neutral Cities, with the support of the Ministry of Universities. This partnership is piloted for the first time in the 2023/24 academic year in Vitoria-Gasteiz jointly with the University of the Basque Country (UPV/EHU, Álava Campus) and the City Council of Vitoria-Gasteiz, with the collaboration of the Spanish Network for Sustainable Development (REDS-SDSN Spain), aiming to promote the development of final degree projects (TFG/TFM) aligned with the city's needs to achieve climate neutrality by 2030."