UNICITIES

White Paper:
The Role of Universities in the Transition to Climate-Neutral Cities

UniCities: Unlocking the Transformative potential of Ukrainian Universities towards climate neutral and sustainable cities

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INTRODUCTION

This white paper, developed within the UniCities project supported by the Erasmus+ program of the European Union, examines the critical role of universities in advancing cities' transition to climate neutrality. UniCities is a key initiative aimed at empowering Ukrainian universities as agents of sustainable urban transformation. This document highlights the impact of university-city partnerships, transdisciplinary research and education, and multi-stakeholder collaborative frameworks that enable universities to drive sustainable urban transformation.

As cities strive to meet ambitious climate targets, universities provide essential expertise, innovation, and collaborative spaces that facilitate progress. The paper outlines key structural reforms within universities to enhance transdisciplinary collaboration, explores the value of mission-oriented approaches, and presents successful case studies from cities and universities in Spain, Sweden and Ukraine.

The white paper brings together actionable policy recommendations, such as establishing formal university-city collaboration centers and agreements, promoting urban living labs, and expanding funding for collaborative research. These recommendations offer a strategic roadmap for stakeholders—including policymakers, academic leaders, and municipal authorities—to implement and maintain impactful climate initiatives.

Special attention is given to the role of Ukrainian universities in supporting climate-resilient urban reconstruction in a post-war context. By integrating sustainability into rebuilding efforts, Ukrainian institutions can demonstrate how immediate recovery needs can align with long-term climate goals, setting a model for resilience and sustainable growth.

The findings underscore that, while climate challenges are complex, coordinated action driven by strong university-city partnerships and comprehensive policy support can accelerate progress toward resilient, sustainable, and climate-neutral cities. Through collaborative efforts, universities and cities can address local and global climate imperatives, fostering urban environments that are ecologically and socially sustainable, and building a foundation for a healthier planet and thriving communities.

PROJECT OVERVIEW

Basic Data

UniCities is an institutional cooperation project co-funded by the European Commission in framework of ERASMUS program.

Program: ERASMUS2027, Key Action 2, CBHE

Subprogram: Joint Projects

Project Title: Unlocking the Transformative potential of Ukrainian Universities towards climate neutral and sustainable cities - UniCities

Project Number: 101083099

Project website: http://unicities.org.ua

Overall Objective of the project

The overarching goal of the project is to unlock the transformative potential of Ukrainian universities as catalysts and accelerators of systemic change in cities towards sustainability, resilience and climate neutrality through interdisciplinary, challenge-driven and collaborative education, research and innovation.

Project Duration

Start date:	February 1, 2023
End Date:	January 31, 2026
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White Paper: *The Role of Universities in the Transition to Climate-Neutral Cities*

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Abstract

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1 Background

1.1 The Urban Sustainability Imperative

Cities are at the forefront of the transition toward sustainability, given their substantial impact on greenhouse gas (GHG) emissions and their critical role in shaping population well-being. Today, majority

of the global population resides in urban areas, where the environmental impact of human activity is most concentrated (United Nations DESA, 2019). Cities are not only hubs of economic activity and innovation but also sites of significant environmental stress due to high energy consumption, transportation emissions, and waste production. The need for cities to achieve climate neutrality—reducing GHG emissions to net-zero—has become a global priority, underscored by initiatives such as the United Nations' Sustainable Development Goals (SDGs). In particular, SDG 11 emphasizes the importance of creating sustainable cities and communities, while SDG 13 focuses on urgent climate action (United Nations, 2015).

The European Union has committed to ambitious climate goals through frameworks like the European Green Deal, which envisions a climate-neutral Europe by 2050. The European Green Deal promotes a holistic approach to sustainable development, underscoring the central role of cities in achieving these objectives through measures like sustainable transportation, energy-efficient buildings, and pollution reduction strategies. Realizing these urban sustainability goals requires systemic changes that involve all sectors, moving beyond traditional governance structures and fostering novel partnerships at local, national, and international levels.

In response to these needs, the European Commission has launched the Mission to achieve 100 climate-neutral cities by 2030, aligning with global frameworks such as the 2030 Agenda and the European Green Deal. The EU Cities Mission is more than an aspirational target; it calls for concrete, coordinated actions across multiple sectors and stakeholders, transforming the vision of climate-neutral cities into reality.

1.2 The Role of Universities in Urban Sustainability

Universities hold a vital role in driving urban transformation toward sustainability. As centers of education, research, and innovation, they bring scientific rigor, technological advancements, and a highly skilled workforce to address the complex challenges of urban sustainability (Purcell et al., 2019). Through their research outputs and community engagement, universities have the ability to influence both local and global sustainability agendas, positioning them as "anchor institutions" that are deeply integrated within cities. This integration allows them to mobilize resources, expertise, and networks in ways that can catalyze significant urban change (Moreno-Serna et al., 2022).

Characterized by a multidisciplinary approach, universities draw on diverse fields such as engineering, environmental science, social sciences, and urban planning—each essential for addressing the multi-faceted challenges of climate change (Ezquerra-Lázaro et al., 2021). This interdisciplinary expertise enables universities to act as hubs of knowledge and innovation, providing cities with research-based insights essential for crafting effective policies and practical solutions for urban sustainability.

Within a mission-oriented framework, universities contribute not only through research and innovation but also by providing a collaborative foundation essential for addressing climate challenges. Achieving climate goals demands shifts in governance and institutional culture, fostering cooperation among the

quadruple helix of public authorities, academia, industry, and civil society, alongside active citizen engagement. As catalysts for societal change and sources of knowledge, universities support cities in transforming climate ambitions into actionable outcomes, paving the way for resilient and sustainable urban environments.

1.3 Challenges in University-City Collaboration

Despite their potential, universities face numerous challenges when collaborating with cities on sustainability initiatives. Traditionally, higher education institutions have operated within disciplinary silos, with academic departments often focusing narrowly on specialized areas. This compartmentalized structure can hinder interdisciplinary collaboration, which is essential for addressing complex issues like climate neutrality (Flynn et al., 2017). Additionally, university cultures tend to prioritize academic autonomy and research excellence, which can sometimes be at odds with the applied, community-focused projects that cities require for immediate sustainability needs (Mataix et al., 2017).

Universities also encounter structural challenges, as they are often slow to adapt due to entrenched bureaucratic processes, tenure systems, and a focus on traditional academic metrics such as publications and citations (Koester et al., 2006). This rigidity can limit the flexibility needed for dynamic, cross-sector collaborations with municipalities, which operate under different governance models and typically have shorter project timelines.

Moreover, resource limitations, both financial and logistical, can pose significant barriers to implementing joint sustainability projects. City budgets may not have the capacity to support large-scale initiatives, and universities may struggle to secure the funding needed for urban interventions. These challenges highlight the importance of policy support to foster university-city partnerships, creating frameworks and incentives that encourage collaboration and help both entities reach their full potential in advancing climate-neutral urban development.

1.4 Existing Models of University-City Collaboration

In response to the challenges associated with university-city partnerships, several successful collaboration models have emerged, demonstrating how academic institutions can actively support urban sustainability goals.

One notable example is the Universidad Politécnica de Madrid (UPM) in Spain, which has established a structural framework designed to encourage cross-sector partnerships. UPM's Innovation and Technology for Development Center (itdUPM) illustrates how universities can implement organizational innovations that enhance flexibility and interdisciplinary cooperation. Among its initiatives is Alianza Shire, Spain's first humanitarian multi-stakeholder partnership, which highlights how universities can connect academic knowledge with practical, real-world applications (Moreno-Serna et al., 2022).

Similarly, KTH Royal Institute of Technology in Stockholm, Sweden, initiated and hosts the Viable Cities Strategic Innovation Program, which is pioneering the mission "Climate-neutral cities by 2030 with a good life for all within planetary boundaries." This program currently involves 23 cities across Sweden, representing 40% of the country's population. Viable Cities serves as a national model for collaborative climate action, engaging cities, universities, businesses, civil society organizations, and national agencies in the co-development of strategies and actions through Climate City Contracts. These contracts formalize commitments between cities and key local and national stakeholders, including academic institutions, setting ambitious goals and fostering cooperation and accountability. Such national platforms support continuity, mutual learning, and cross-city collaboration, providing a scalable model that other countries could replicate (Rohracher & Kordas, 2024).

1.5 Opportunities for Transformative Impact

Universities have significant opportunities to support the transition to climate-neutral cities. As educational institutions, they can cultivate a new generation of professionals who are deeply aware of sustainability challenges and equipped with the skills to address urban sustainability and climate transition issues. Through community engagement, universities can also help raise public awareness of sustainability, empowering residents and various local stakeholders to adopt climate-smart practices and fostering a culture of environmental responsibility (Moreno-Serna et al., 2024).

Additionally, as knowledge producers, universities can provide city leaders with essential data on topics such as urban trends, infrastructure vulnerabilities, and effective climate mitigation and adaptation strategies. This evidence-based approach to policymaking strengthens urban resilience, enabling cities to respond proactively to the complex and evolving challenges posed by climate change.

At an organizational level, universities can create neutral, innovative arenas that encourage interdisciplinary research and transdisciplinary partnerships aimed at solving real-world problems. Cities, in turn, can bolster these partnerships by developing incentive structures that recognize and reward universities for their contributions to public sustainability initiatives. Such incentives reinforce the mutual benefits of university-city collaboration, amplifying the collective impact on urban sustainability (Soberón et al., 2023).

1.6 Policy Frameworks to Enhance University-City Collaborations

For universities to fully contribute to urban sustainability, supportive policy frameworks are essential. Policies that encourage cross-sector collaboration, establish financial incentives, and offer adaptable governance structures can help address the institutional challenges that often impede university-city partnerships. European initiatives, like the Horizon Europe mission targeting "100 climate-neutral and smart cities by 2030," exemplify mission-driven policies that provide a structured pathway for universities and cities to collaborate effectively, with clear goals for sustainable urban transformation (European Commission, 2020).

Moreover, local initiatives such as Sweden's Viable Cities program demonstrate the impact of structured agreements like Climate City Contracts. These contracts formalize partnerships by setting clear roles, responsibilities, and sustainability targets, ensuring that all parties are aligned in their commitment to climate action. Such frameworks not only reinforce collaboration but also provide accountability, which is essential for meeting the ambitious climate objectives set by international agreements, including the Paris Agreement and the European Green Deal (Rohracher & Kordas, 2024).

By adopting and adapting these policy frameworks, other countries can facilitate robust university-city collaborations that drive meaningful progress toward climate-neutral urban development.

1.7 Ukrainian Experience in University-City Collaboration

In Ukraine, universities are increasingly taking on a strategic role in fostering urban resilience and climate neutrality, particularly in the context of post-war reconstruction. The UniCities project, supported by the Erasmus+ program of the European Union, is a key initiative aimed at empowering Ukrainian universities as agents of sustainable urban transformation. This focus is critical as Ukraine faces the urgent task of rebuilding cities with sustainable infrastructure while navigating the complexities of recovery. The project underscores the importance of universities in driving systemic change and promoting sustainability in urban development.

Enhancing Collaborative Skills for Climate Transitions

Ukrainian universities involved in the UniCities project, including the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (KPI), Chernihiv Polytechnic National University (CNUT), Academician Yuriy Bugay International Scientific and Technical University (ISTU), and Yaroslav Mudryi National Law University (NLUU), are actively incorporating sustainability and climate-focused content into their educational programs and research agendas. For instance, KPI offers courses and practical training on energy efficiency and low-carbon technologies, equipping students with the skills needed to support Ukraine's transition to a sustainable energy economy. These initiatives not only provide students with hands-on experience in urban energy projects but also contribute to local goals for energy conservation and emissions reduction.

Creating University-City Partnership Centers

A core strategy of the UniCities project has been to establish collaboration centers within universities, functioning as hubs that connect academia with government, businesses, and community organizations. These centers are designed to foster innovation and facilitate the co-development of climate-smart policies and urban strategies. By embedding these centers within universities, Ukrainian institutions can play a direct role in urban planning, bringing research-based insights and evidence-informed recommendations into local climate policy discussions.

Addressing the Challenges of Reconstruction

Ukrainian university-city partnerships face unique challenges in the reconstruction process, including the ongoing war, which continues to have a devastating impact on lives and urban infrastructure nationwide. Limited resources and the urgent need for rapid infrastructure restoration further complicate these efforts. Despite these obstacles, these partnerships highlight the importance of collaborative approaches. Cities like Chernihiv, Rivne, Dolyna, and Lviv are working closely with local universities to develop climate action plans and implement energy-efficient infrastructure. This collaborative model has the potential to demonstrate how university expertise can support cities in achieving climate goals while addressing the pressing demands of swift reconstruction.

Strengthening Capacity for Innovation and Systemic Change

The UniCities project highlights the need for capacity building and systemic innovation within Ukrainian universities. By learning from international models, such as Sweden's Viable Cities program and Spain's CitiES2030 platform, Ukrainian institutions are gaining valuable insights into collaborative governance and urban sustainability. Through training sessions and workshops, they are building the knowledge and expertise required to drive sustainable urban transformations at both the local and national levels.

2. Purpose

The purpose of this white paper is to investigate and articulate the critical role that universities can play in advancing the transition to climate-neutral cities. This document explores how academic institutions, with their combined research, educational, and collaborative functions, are well-positioned to help cities achieve ambitious sustainability and climate objectives. Specifically, the paper examines the potential of universities to act as catalysts for systemic urban change, highlighting the innovations, partnerships, and structural reforms that enable them to contribute effectively to sustainable urban development.

As cities around the world confront intensifying environmental and climate-related challenges, achieving climate neutrality has become a pressing priority. This transition necessitates not only new technological solutions but also innovative governance models, active community engagement, and transdisciplinary collaboration—all areas where universities are uniquely suited to make a substantial impact. Equipped to generate and co-create knowledge, conduct challenge-driven research and innovation, and educate future leaders, universities hold a pivotal role in shaping sustainable urban futures. By examining current university-city collaborations and showcasing best practices, this white paper aims to provide insights into how universities can amplify their influence in supporting cities' sustainability agendas.

2.1 Objectives of the White Paper

1. **Examine Current University Roles in Urban Sustainability**

This white paper explores how universities contribute to urban sustainability through their research, teaching, and collaborative efforts. By analyzing existing contributions, including case studies from

various contexts, the paper identifies specific strengths and areas where university-led climate initiatives could improve.

2. **Identify Structural and Organizational Innovations in Universities**

Effective climate action requires universities to break down internal silos and adapt traditional academic structures. This paper delves into structural and organizational innovations within universities that facilitate cross-sector collaboration, adaptability, and interdisciplinary research. It draws on examples like the Universidad Politécnica de Madrid's itdUPM initiative, which demonstrates how universities can establish flexible frameworks to support sustainability collaborations with external stakeholders.

3. **Explore University-City Partnerships and Collaboration Models**

This white paper highlights successful models of university-city collaboration that advance sustainability goals. By examining partnerships in cities such as Madrid, Valencia, and Stockholm, it illustrates how frameworks like Climate City Contracts and structured urban testbeds can enhance universities' contributions to municipal climate initiatives, underscoring their potential to influence local policies and generate meaningful sustainability impacts.

4. **Address Challenges in University-City Collaborations**

While universities have significant potential to contribute to urban sustainability, they often encounter challenges such as limited funding, bureaucratic barriers, and misaligned institutional logics and goals with city agendas. This white paper identifies these obstacles and offers recommendations for overcoming them, focusing on strategies to incentivize and support effective partnerships. The aim is to provide a roadmap for universities and municipalities to navigate these common challenges and optimize their collaborative efforts.

5. **Provide Policy Recommendations to Enhance University Contributions**

Supportive policy frameworks are essential to unlocking the full potential of universities in helping cities achieve climate neutrality. This paper offers policy recommendations addressing critical areas such as incentivizing university involvement in urban projects, expanding funding opportunities, and establishing platforms for collaboration at national and international levels. These practical guidelines aim to empower policymakers, academic leaders, and municipal authorities to foster environments that encourage strong university-city partnerships.

6. **Highlight International Perspectives and Adaptable Models**

Climate neutrality is a global objective that requires locally tailored solutions. This white paper incorporates examples from a range of geographic contexts, including Ukraine's UniCities program, which shows how universities can aid cities in sustainable reconstruction following crises. This

international perspective ensures the paper offers adaptable insights for diverse urban settings, acknowledging that cities face unique challenges based on their socio-political and economic contexts.

2.2 Expected Impact of the White Paper

By examining the multifaceted roles of universities in climate-neutral city initiatives, this white paper seeks to inspire actionable changes within academic institutions and urban governance. For universities, it serves as a guide to leverage their academic resources, reform internal structures, and expand partnerships to maximize their contribution to climate goals. For cities, the paper provides insights into the value of universities as critical partners in sustainability, emphasizing the need for formalized and well-supported collaborations.

Ultimately, this white paper aims to bridge the gap between academic potential and urban needs, promoting a shared understanding of how universities and cities can work together toward climate neutrality. By doing so, it contributes to the broader agenda of sustainable urban development, advancing global climate objectives while empowering cities to become resilient, sustainable, and inclusive communities for all residents.

3. Universities as Anchors for Urban Sustainability

Universities are increasingly seen as essential partners in promoting urban sustainability due to their multifaceted roles as centers for knowledge, innovation, collaboration, and community engagement. These institutions significantly contribute to advancing sustainable urban environments, acting as "anchor institutions" with the potential to drive systemic change through research, education, and co-creation. As hubs of scientific expertise and skilled professionals, universities provide cities with a solid foundation of knowledge and data, empowering municipalities to set and achieve ambitious sustainability goals and move toward climate neutrality (Purcell et al., 2019; Moreno-Serna et al., 2022).

3.1 Educational and Research Capabilities

One of the primary ways universities support urban sustainability is through education and research. They educate future leaders and professionals, equipping them with a deep understanding of sustainability principles. Many institutions are developing interdisciplinary programs focused on urban resilience, climate policy, and sustainable technology, which prepare graduates to tackle climate-related challenges (Flynn et al., 2017). By training expert adept in both technical and social aspects of sustainability, universities enable cities to address climate challenges from multiple perspectives.

In addition, universities drive innovation in sustainable urban practices through their research. They conduct studies in renewable energy, environmental science, sustainable architecture, and urban planning, providing cities with data-driven insights and technologies that support climate-neutral goals. For instance, research from universities in Sweden and Spain has informed local policies and city planning, demonstrating the value of science-based approaches in urban governance (Moreno-Serna et

al., 2022; Rohracher & Kordas, 2024). By making research accessible to policymakers, universities play a crucial role in translating complex scientific knowledge into actionable urban strategies.

3.2 Convening Power and Community Engagement

Beyond academic contributions, universities serve as neutral arenas for dialogue and collaboration among diverse stakeholders. As conveners, they bring together public officials, businesses, civil society organizations, and researchers to discuss complex sustainability issues. This convening power enables universities to facilitate discussions that may be difficult in other settings due to competing interests or limited resources (Ezquerra-Lázaro et al., 2021; Moreno-Serna et al., 2022).

Community engagement initiatives, such as urban testbeds and living labs, are often organized on university campuses or in partnership with cities. These initiatives allow stakeholders to experiment with sustainable practices and technologies in real-world environments, fostering a hands-on approach to climate action. For example, the Universidad Politécnica de Madrid (UPM) has created collaborative spaces through its Innovation and Technology for Development Center (itdUPM), where researchers and community members co-design projects addressing sustainability issues in urban neighborhoods. By involving community members directly, universities help cities build public support for climate initiatives and ensure that solutions are both locally relevant and widely accepted (Moreno-Serna et al., 2022).

3.3 Multi-Level Influence: Local and Global Impact

The impact of universities on urban sustainability extends beyond their immediate communities; as centers of international collaboration, they play a critical role on the global stage. Universities frequently engage in cross-border partnerships to share best practices, helping cities worldwide implement effective climate solutions. Additionally, universities contribute to global frameworks, such as the United Nations Sustainable Development Goals (SDGs) and the European Green Deal, by aligning their research and policy initiatives with these international agendas (United Nations, 2015; European Commission, 2019).

These global connections enable universities to act as "glocal" agents, adapting international climate goals to local contexts. For instance, through the UniCities project, Ukrainian universities have partnered with European institutions to develop sustainable reconstruction strategies, demonstrating how knowledge exchange can guide urban recovery during and after wara and other crisis. By fostering international collaboration, universities help cities adopt innovative practices, accelerate progress, and build resilience to climate challenges that cross national borders (Purcell & Chahine, 2019; Rohracher & Kordas, 2024).

3.4 Driving Interdisciplinary Solutions to Complex Challenges

Urban sustainability challenges, such as air quality, climate adaptation and mitigation, and infrastructure resilience, are inherently complex and require solutions that span multiple fields. Universities, by their

very structure, are well-equipped to provide interdisciplinary approaches to these issues, integrating knowledge from various disciplines to address the social, economic, and environmental dimensions of sustainability. Research centers focused on climate and urban resilience, such as those at KTH Royal Institute of Technology in Sweden, illustrate how interdisciplinary collaboration within universities and transdisciplinary work with urban stakeholders can produce comprehensive strategies for urban sustainability (Rohracher & Kordas, 2024).

By involving faculties from engineering, social sciences, health sciences, and public policy, universities can tackle the multifaceted nature of sustainability challenges. This interdisciplinary perspective not only helps cities implement holistic solutions but also encourages a long-term view of urban development that considers both immediate and future needs. Furthermore, interdisciplinary programs produce professionals who think critically and creatively about sustainability, providing cities with talent capable of bridging sectors to develop impactful climate solutions (Flynn et al., 2017; Moreno-Serna et al., 2022).

3.5 Acting as Hubs for Innovation and Talent Development

Universities also serve as incubators for green innovation, supporting startups, research accelerators, and technology centers that contribute to sustainable urban solutions. Through initiatives such as research incubators and technology transfer offices, universities foster the development of green technologies and climate-smart solutions that can be scaled within urban settings. This supports cities in achieving their climate goals while simultaneously strengthening the local economy through sustainable business growth (Mataix et al., 2017).

Moreover, universities attract students and researchers from around the world, contributing to a talent pipeline skilled in climate resilience and environmental science. In cities with large universities, this steady influx of talent introduces fresh ideas and innovation, enhancing the city's capacity to address climate challenges. As anchor institutions, universities thus provide cities with both technological solutions and the skilled workforce needed to implement them effectively (Moreno-Serna et al., 2020; Koester et al., 2006).

3.6 Addressing Barriers and Challenges

While universities hold great potential to support urban sustainability, they face several obstacles, including internal silos, limited funding, and bureaucratic constraints. Traditional academic structures can hinder cross-disciplinary collaboration needed to address complex urban issues, and the focus on academic publications often sidelines applied projects that could benefit cities directly (Moreno-Serna et al., 2022).

To overcome these barriers, formalized partnerships between universities and cities are essential. These agreements align university research agendas with municipal needs, set clear goals, and incentivize academic institutions to prioritize public impact. Additionally, policies at national and regional levels that

fund and incentivize university-city collaborations are crucial to maximizing universities' contributions to sustainable urban development (Ezquerra-Lázaro et al., 2021).

3.7 Policy Recommendations

To strengthen universities' roles as essential partners in urban sustainability, the following policy recommendations address the key areas discussed in this chapter:

1. Promote Education in Sustainable Development

Governments should incentivize universities to embed sustainability into curricula across all disciplines. This can be achieved through grants, awards, and official recognition for programs that equip students with the skills and knowledge necessary for urban and societal sustainability transitions.

2. Formalize University-City Collaboration Agreements

Municipalities and universities should establish formal collaboration agreements that define shared sustainability goals, roles, and measurable outcomes, providing a structured framework for effective and accountable partnerships.

3. Establish Financial Support for Interdisciplinary and Transdisciplinary Research

Funding bodies should create grant programs dedicated to interdisciplinary and transdisciplinary sustainability research, prioritizing projects that directly address urban challenges and bridge academic expertise with practical solutions.

4. Leverage Universities' Convening Power for Multi-Stakeholder Collaboration

Universities should actively create platforms for multi-stakeholder collaboration, engaging public authorities, industry leaders, civil society, and researchers. Governments could support this convening role through grants that cover operational costs and enhance mission-driven innovation.

5. Support Living Labs and Testbeds for Urban Sustainability

Universities and cities should jointly establish urban testbeds and living labs for exploring innovative sustainability solutions. Local and national governments could assist by designating "innovation zones" with regulatory flexibility, allowing urban stakeholders and universities to experiment with solutions in real-world settings.

4. Structural Innovations and Organizational Reforms in Universities

As the need for climate action becomes more urgent, universities are increasingly recognizing the necessity of internal transformation to better align their research, educational, and community roles

with sustainability goals. Achieving this alignment requires structural and organizational changes that promote interdisciplinary collaboration, flexibility, and engagement with external stakeholders. This chapter explores various structural innovations and organizational reforms that universities are implementing to support climate-neutral objectives and strengthen partnerships with cities, examining case studies that illustrate how universities are evolving to become key players in sustainable urban transformation.

4.1 Breaking Down Academic Silos for Interdisciplinary Collaboration

A major challenge for universities in supporting urban sustainability is the siloed nature of traditional academic structures. Departments often operate independently with minimal cross-disciplinary engagement, which can hinder universities' ability to address complex, interconnected issues like climate change. To overcome this, many universities are restructuring to encourage interdisciplinary collaboration, allowing academic programs and research projects to bridge traditional divides.

For instance, the Universidad Politécnica de Madrid (UPM) has established interdisciplinary centers like the Innovation and Technology for Development Center (itdUPM), which brings together experts from various fields to collaboratively tackle sustainability challenges. This approach fosters a culture of interdisciplinary research, encouraging solutions that integrate insights from engineering, environmental science, urban planning, and social sciences (Moreno-Serna et al., 2022). Such centers demonstrate how universities can break down silos to promote cross-disciplinary partnerships essential for advancing climate-neutral goals.

Similarly, interdisciplinary research programs that focus on sustainability are becoming more common globally. Programs that merge fields such as environmental science, data analysis, public health, and urban studies enable students and researchers to address the multidimensional aspects of climate change and urban resilience. This framework not only enriches academic inquiry but also equips students with practical skills to meet cities' sustainability needs (Purcell et al., 2019; Koester et al., 2006).

4.2 Adaptive Organizational Models to Enhance Flexibility

To respond effectively to fast-evolving sustainability challenges, universities are adopting more adaptable organizational structures. Traditional hierarchies and rigid governance systems can limit a university's ability to respond swiftly to new demands, such as those required by climate action. Adaptive models, which encourage fluid interactions between departments and external partners, create a responsive institutional environment conducive to sustainable innovation.

For example, the "dual operating system" model used by itdUPM operates both within and alongside the traditional university hierarchy, allowing it to engage flexibly with partnership opportunities, community needs, and funding sources without being constrained by typical governance barriers (Mataix et al., 2017). This model represents a shift toward a more decentralized structure, enabling

universities to participate in cross-sector projects that require agile decision-making and timely implementation of sustainable solutions.

4.3 Structural Support for External Partnerships and Urban Collaboration

Universities are increasingly establishing dedicated structures to facilitate collaboration with cities, industry, and civil society organizations. These structures help universities leverage academic expertise for urban sustainability initiatives, such as urban planning, renewable energy, and climate adaptation.

A common approach is the creation of offices or centers dedicated to external collaboration, often called “offices of partnerships” or “offices of community engagement.” These units serve as liaison points between universities and local governments or businesses, facilitating partnership development and supporting urban testbeds where universities and cities collaborate on sustainable practices and technologies. For example, through its living lab and strategic collaboration initiatives, KTH Royal Institute of Technology has established a partnership with Stockholm’s city council, enabling real-time testing and feedback for climate and sustainable urban development projects. This model illustrates how structured partnerships can bridge the gap between academic research and practical urban solutions, accelerating climate action and resilience.

4.4 Transdisciplinary Programs and Curriculum Reform

To support climate-neutral city goals, universities are revising their curricula to include transdisciplinary programs focused on sustainability. This reflects a growing recognition that effective climate action requires knowledge spanning multiple fields. Universities are designing programs that integrate engineering, environmental science, public policy, and urban planning, enabling students to address sustainability issues holistically.

An exemplary approach is UPM's Master’s Program in Strategies and Technologies for Development (MSTD), which brings together students from various disciplines for project-based learning around the UN Sustainable Development Goals (SDGs). This program emphasizes how technological and social innovations can combine to address urban sustainability challenges (Moreno-Serna et al., 2022). Such curriculum innovations prepare students for roles requiring an interdisciplinary understanding of climate issues and the skills to work within collaborative, multi-stakeholder frameworks.

By integrating sustainability into academic programs, universities contribute directly to creating a skilled workforce prepared to support urban sustainability initiatives. Graduates from transdisciplinary programs are equipped to bridge research and practice, applying their knowledge in fields such as sustainable energy, urban planning, and environmental management, which strengthens city-level climate initiatives and builds long-term capacity in urban administrations (Purcell et al., 2019).

4.5 Overcoming Structural Challenges to Sustainability Efforts

Despite advancements in organizational reforms, universities still face structural challenges that may limit their impact. The traditional emphasis on academic publishing and tenure, for instance, often prioritizes research output over applied community engagement, which can divert resources away from urban sustainability projects.

Additionally, securing funding for interdisciplinary and applied research can be challenging, as funding bodies often favor conventional academic projects over collaborative, community-focused initiatives. National and regional policies that incentivize university contributions to sustainability can be instrumental in overcoming these challenges. By creating funding opportunities that prioritize university-city partnerships and interdisciplinary projects, governments can help universities overcome these structural barriers (Rohracher & Kordas, 2024).

Furthermore, establishing metrics that recognize and reward sustainability-focused work within universities can reinforce the value of structural reforms. Metrics that measure a university's impact on local climate goals, for example, can encourage academic institutions to prioritize projects with direct community benefits.

4.7 Policy Recommendations

To enhance the role of universities in urban sustainability, the following policy recommendations address structural and organizational challenges and foster effective collaboration between universities and cities:

1. Develop Dedicated Units for Enhanced City Collaboration

Universities should establish dedicated units to facilitate partnerships with cities and other stakeholders. These offices, funded by government grants or university budgets, can support urban sustainability initiatives by coordinating external collaborations.

2. Support Transdisciplinary Research Programs

Funding agencies should provide grants for transdisciplinary programs, particularly those focused on climate and urban sustainability. These programs should encourage collaboration across academic disciplines and involve various urban stakeholders to tackle complex sustainability challenges.

3. Integrate Sustainability in Faculty Development Programs

Universities should include sustainability training in faculty development programs, aligning teaching, research, and collaboration with climate objectives. Accreditation bodies can support this by recognizing institutions that incorporate sustainability competencies.

4. Develop Evaluation Metrics for University Contributions to Sustainability

Universities should adopt metrics to assess their impact on sustainable development goals, including urban sustainability. Government and accreditation agencies can support this through requirements for impact reports that highlight contributions to local sustainability and climate objectives.

5. Increase Financial Support for Transdisciplinary Research

Governments should expand funding for transdisciplinary research focused on urban sustainability and climate action. Priority should go to projects that foster collaboration between academic institutions, cities, and other urban stakeholders, aligning with local climate goals.

5. Dialogue and Cultural Change within Universities

For universities to become effective change agents in achieving climate-neutral and sustainable cities, a cultural shift is needed—one that fosters open dialogue, collaboration, and a collective commitment to sustainability. As universities strive to align their missions with urban climate goals, they must engage faculty, staff, and students in meaningful conversations about sustainability and the role of academia in building a climate-resilient society. By fostering an internal culture that values sustainability, universities can break down traditional academic silos, encourage interdisciplinary collaboration, and actively involve the academic community in impactful climate action. This chapter examines the role of dialogue and cultural change within universities, exploring case studies and highlighting how structured conversations, feedback mechanisms, and inclusive strategies can shape a sustainability-focused institutional culture.

5.1 The Importance of Dialogue in Fostering Readiness for Change

Dialogue is a foundational tool for preparing university communities to embrace sustainability. With their complex and hierarchical structures, universities often encounter resistance to change, especially when initiatives challenge established norms. Platforms for open, constructive dialogue allow faculty, staff, and students to discuss sustainability in a way that considers both individual and collective perspectives (Ezquerra-Lázaro et al., 2021). Through structured discussions, universities can build awareness and support for sustainability initiatives, enhancing the community's readiness for change.

The Universidad Politécnica de Madrid (UPM), for example, holds regular seminars and workshops focused on the Sustainable Development Goals (SDGs) as part of its strategy to foster a culture open to change. These seminars offer community members the chance to share ideas, concerns, and questions about sustainability, creating an environment of trust and shared purpose (Moreno-Serna et al., 2022). By facilitating dialogue, universities can help reduce resistance, dismantle institutional silos, and engage the community in co-developing sustainability initiatives.

5.2 Cultivating a Culture of Sustainability

Beyond facilitating dialogue, universities need to build a culture that inherently values and prioritizes sustainability. A sustainability-oriented culture encourages university community members to consider the environmental, social, and economic impacts of their work, research, and daily activities. Developing this culture requires universities to embed sustainability into their core values, vision, and strategies, signaling a strong commitment to climate action.

Shaping a sustainability culture also involves redefining success within the institution. Rather than focusing solely on traditional academic metrics like publications and citations, universities are beginning to recognize and reward contributions to sustainability. Some institutions now incorporate sustainability achievements into performance reviews and tenure evaluations, acknowledging efforts that contribute to climate goals (Purcell et al., 2019). Additionally, initiatives that engage students and staff in hands-on sustainability efforts, such as campus greening projects or sustainability-themed events, foster a sense of ownership and commitment to the university's climate mission.

5.3 Inclusive Engagement Across the University Community

For universities to successfully integrate sustainability into their culture, engagement must be inclusive and involve all members. Engaging students, faculty, staff, and administrators in sustainability discussions and projects promotes collective ownership of the university's climate initiatives. Inclusive engagement can include student-led sustainability organizations, faculty working groups, and university-wide committees focused on sustainable practices (Flynn et al., 2017).

To ensure broad participation, universities should offer multiple entry points for involvement, enabling community members to contribute according to their interests and capacities. Student-led initiatives, for example, can effectively drive campus sustainability. Programs like energy-saving campaigns, recycling initiatives, and sustainable transportation advocacy provide students with hands-on opportunities to practice sustainability. Faculty members might contribute through research, curriculum development, or policy advisory roles. This collective approach fosters a sense of community around sustainability goals, making them more likely to be adopted and sustained over time (Koester et al., 2006).

5.4 Creating Feedback Mechanisms to Inform Sustainability Strategies

Feedback mechanisms are essential for developing adaptable and responsive sustainability strategies within universities. Feedback loops provide insights into the effectiveness of initiatives, allowing universities to make data-driven adjustments. Regular feedback from faculty, staff, and students ensures that university leaders understand community perspectives on sustainability and can address emerging concerns.

Surveys, focus groups, and suggestion platforms can be effective tools for gathering feedback on sustainability efforts. For example, UPM's SDG seminars not only serve as platforms for discussing

sustainability but also as forums for gathering participant insights, which are then used to refine the institution's sustainability strategies (Ezquerra-Lázaro et al., 2021). Universities can also use annual sustainability reports to highlight progress, capture lessons learned, and outline next steps. Transparent reporting fosters accountability and demonstrates the institution's commitment to sustainability, reinforcing trust within the community.

5.5 Overcoming Resistance to Change

Resistance to change is common in large organizations, and universities are no exception. Faculty, students, and staff may hesitate to embrace sustainability initiatives due to concerns about academic freedom, time constraints, or unfamiliarity with climate issues. To overcome resistance, universities must engage in ongoing communication that clarifies the goals and benefits of sustainability efforts, emphasizing how these initiatives align with the institution's mission.

Change management workshops and training sessions focused on sustainability are effective tools for addressing resistance. These sessions educate university members on the importance of climate action, build understanding of sustainability goals, and equip participants with practical skills to support these initiatives. Additionally, involving respected leaders from within the institution as champions of sustainability can help build credibility and encourage others to support climate objectives (Ford & Ford, 2018). Universities can also address concerns by providing resources for sustainability-related work, such as funding for research projects, professional development, or curricular adjustments focused on sustainability.

5.6 Policy Recommendations

To foster a supportive culture of sustainability within universities, the following policy recommendations aim to enhance dialogue, engagement, and inclusivity in sustainability initiatives:

1. Institutionalize Regular Sustainability Dialogues and Workshops

Universities should establish regular seminars, workshops, and discussion forums focused on sustainability. These platforms enable continuous, constructive dialogue among faculty, staff, and students, fostering shared ownership of the university's sustainability goals. Support from national or regional grants for community engagement initiatives could incentivize these programs.

2. Incorporate Sustainability in Faculty Development and Evaluation

Universities should include sustainability achievements in performance evaluations and tenure considerations, encouraging faculty to integrate sustainability into teaching, research, and collaboration. National accreditation bodies can support this by recognizing institutions that reward sustainability-focused contributions.

3. Create and Strengthen Feedback Mechanisms

To ensure that sustainability initiatives are responsive to community needs, universities should implement formal feedback systems such as surveys, suggestion boxes, and focus groups. Transparent annual reports that communicate sustainability progress and incorporate feedback foster accountability and community trust.

4. Develop Incentives for Student-Led Sustainability Projects

Universities should incentivize student engagement in sustainability through grants, awards, or course credits for projects that contribute to campus climate goals. Such initiatives empower students to take an active role in sustainability efforts, cultivating leadership and practical skills aligned with urban climate-neutrality goals.

5. Invest in Change Management Training for Faculty and Staff

Universities should offer regular change management workshops that address resistance to sustainability initiatives. These workshops help faculty and staff understand the importance of climate action and equip them with practical skills for implementing change within their roles. Governments could support these programs as part of a broader commitment to education for sustainability.

6. Recognize and Support Sustainability Champions within Universities

Identifying and recognizing faculty, staff, and students who lead sustainability initiatives can inspire others and build momentum for change. Universities should formally acknowledge these champions through awards, funding, or additional support, reinforcing a culture that values sustainability.

6. University-City and Multi-Stakeholder Partnerships for Climate Action

As cities set ambitious climate targets, universities are becoming essential partners in climate action. They bring valuable research, knowledge, and innovative frameworks to the table, as well as neutral, creative spaces for collaboration among various urban stakeholders. In turn, cities provide real-world test environments and feedback that enhance the relevance and impact of academic research. These partnerships go beyond transactional relationships, creating a mutually beneficial dynamic that combines academic expertise with municipal resources to address climate issues effectively. However, university-city collaboration alone is not enough. Effective climate action requires multi-stakeholder partnerships that span the public, private, academic, and civil society sectors. This chapter examines the key components of successful university-city and multi-stakeholder partnerships for climate action, focusing on collaborative frameworks, practical examples, and mechanisms that enhance these partnerships.

6.1 Collaborative Frameworks and Mechanisms

To foster meaningful partnerships, universities, cities, and other urban stakeholders often create structured frameworks that define goals, responsibilities, and resource-sharing arrangements. These

frameworks provide a formal foundation for collaboration, ensuring that all parties are committed to long-term, measurable climate outcomes.

One effective model is the Climate City Contract, used in the EU Cities Mission and Sweden's Viable Cities program. Climate City Contracts set specific, measurable climate targets for cities and outline the contributions of various stakeholders, including universities, to achieve these objectives. By committing to shared goals, universities and cities promote accountability and transparency, creating a framework that all parties can actively support. Contracts may also include financial and technical assistance from national and regional governments, enabling resource-sharing and the scaling of successful strategies (Rohracher & Kordas, 2024).

Another collaborative approach is the establishment of living labs—real-world test environments for sustainability solutions. Living labs allow cities to pilot technologies and practices within community settings, gathering data and insights to refine broader implementation strategies. This approach enables innovative solutions to be tested and adjusted before being deployed city-wide and scaled to other cities, reducing risks and optimizing outcomes.

6.2 Case Studies of University-City and Multi-Stakeholder Climate Collaborations

University-city partnerships for climate action are increasingly common around the world, with numerous examples illustrating the potential impact of these collaborations:

Madrid and Universidad Politécnica de Madrid (UPM): UPM collaborates with Madrid on various sustainability projects through its Innovation and Technology for Development Center (itdUPM). The university is involved in practical initiatives, such as energy efficiency programs, sustainable transportation, and climate-resilient infrastructure projects. Structured partnerships enable alignment of goals, data sharing, and co-design of solutions between researchers and city officials, presenting a strong model of urban-academic collaboration (Moreno-Serna et al., 2022).

Barcelona's 2030 Agenda and Local Universities: In Barcelona, local universities play an instrumental role in the city's commitment to the 2030 Agenda for Sustainable Development. Universities support climate action by researching urban resilience, energy transition, and social inclusion, aligning their efforts with the city's sustainability goals. This partnership enables Barcelona to implement research-informed climate policies, with universities acting as advisory bodies to monitor and adjust policies as needed.

Valencia and Universidad de Valencia: Valencia has developed an innovative partnership with the Universidad de Valencia, integrating research-based climate solutions into municipal planning. The collaboration includes studies on air quality, green spaces, and waste reduction, with the university providing data and evidence that inform Valencia's sustainability strategies. This partnership has helped Valencia implement science-based policies and fostered a culture of innovation within its planning departments (Ezquerra-Lázaro et al., 2021).

These examples illustrate the diverse ways in which universities can support cities' climate goals, providing expertise that enables effective, research-backed policy implementation.

6.3 Challenges in Sustaining University-City Partnerships

While university-city partnerships offer significant benefits, they also encounter challenges that can hinder their effectiveness. One primary challenge is the alignment of goals and timelines between universities and cities. Cities often prioritize immediate, short-term climate interventions, whereas universities typically focus on long-term research projects. This misalignment can lead to conflicting priorities, making it challenging to sustain momentum in collaborative efforts (Flynn et al., 2017).

Funding limitations are another common obstacle. Effective university-city partnerships require resources for research, project management, and implementation, but securing sustainable funding can be difficult. Many funding bodies prioritize traditional academic research, which may not directly align with the applied, interdisciplinary work needed for urban climate initiatives (Purcell et al., 2019).

Furthermore, bureaucratic differences between universities and cities can complicate cross-sector collaboration. Differences in administrative structures, decision-making processes, and accountability standards often lead to delays and inefficiencies in project timelines. Addressing these challenges requires streamlined governance frameworks and flexible funding models that support adaptable partnerships capable of meeting evolving climate needs (Koester et al., 2006).

6.4 Policy Recommendations

To strengthen and sustain university-city and multi-stakeholder partnerships for climate action, the following policy recommendations address the essential needs for alignment, resources, and flexibility:

1. Establish Flexible Funding Mechanisms for Collaborative Programs

National and regional governments should create dedicated funding programs that support university-city and multi-stakeholder partnerships focused on climate action. These programs should prioritize projects with measurable urban climate outcomes and offer multi-year funding to ensure continuity, helping to overcome funding limitations and foster long-term collaboration.

2. Create Joint University Climate Research Hubs

Universities and cities should consider establishing dedicated climate research hubs in collaboration with other urban stakeholders, focused on applied urban sustainability solutions. These hubs can facilitate data sharing, integrate academic research into city planning, and serve as centralized resources for climate action. Governments could provide financial support and incentives to universities that create research hubs dedicated to urban sustainability.

3. Align Research Incentives with Urban Sustainability and Climate Goals

Funding bodies and accreditation agencies should prioritize grants and rewards for research that aligns with urban sustainability and climate goals. By emphasizing applied, interdisciplinary, and transdisciplinary research that addresses real-world challenges, universities can better support cities' sustainability and climate objectives while fulfilling their academic missions.

7. Building National and International Platforms

Achieving climate neutrality in urban settings requires collaborative efforts that extend beyond individual cities and universities. National and international platforms provide structured pathways for cities, universities, governments, and private sectors to work together toward shared climate goals. By connecting stakeholders across regions and countries, these platforms enable the exchange of knowledge, alignment of strategies, and implementation of scalable climate solutions. Universities, as hubs of knowledge and innovation, play a critical role in these platforms, offering research insights, technical expertise, and data that bolster collective climate action. This chapter examines the importance of such platforms, showcases examples of successful initiatives, and suggests policy measures to enhance the development and effectiveness of national and international networks.

7.1 The Need for Collaborative Platforms in Climate Action

Addressing climate change requires a comprehensive approach involving multi-level governance and a diverse set of stakeholders. National and international platforms facilitate this collaboration by providing a framework through which cities and universities can synchronize their efforts. These platforms are particularly valuable in tackling complex challenges, like climate change, which require multifaceted solutions that no single entity can accomplish independently (Wolfram et al., 2019).

At the national level, platforms facilitate coordination among cities within the same country, promoting consistency in climate policies and fostering the exchange of best practices. Platforms such as Viable Cities in Sweden, CitiES2030 in Spain, and M100 in Romania enable cities to collaborate on climate objectives, sharing resources and technical support for local initiatives. On an international level, platforms like NetZeroCities encourage cross-border collaboration, allowing cities and universities to access a broader pool of knowledge and resources. By bridging national and international boundaries, these platforms strengthen urban areas’ capacity to implement effective, evidence-based climate strategies.

7.2 The Role of Universities in National and International Platforms

Universities serve as essential contributors within collaborative platforms, providing data-driven insights and facilitating research that underpins urban climate strategies. Their neutral stance and research-oriented focus make them trusted partners capable of introducing evidence-based approaches to multi-stakeholder platforms. Universities also function as conveners, organizing workshops, seminars, and knowledge-sharing events that connect local and international actors around shared climate goals

(Purcell et al., 2019). Through active participation in these platforms, universities amplify the impact of their research, ensuring that findings benefit multiple cities and regions rather than remaining confined to individual projects (Rohracher & Kordas, 2024).

7.3 Examples of National and International Climate Platforms

Several national and international platforms illustrate the potential of structured networks to advance urban sustainability and climate action. These examples demonstrate how coordinated frameworks enable cities and universities to pool resources, share best practices, and align strategies.

Viable Cities (Sweden): Viable Cities is a national platform in Sweden that brings together municipalities, universities, industries, civil society organizations, and government agencies to achieve the mission of climate-neutral cities by 2030 with a good life for all within planetary boundaries. Supporting 23 cities that represent 40% of Sweden's population, Viable Cities provides arena for co-creation, learning, and reflection processes among cities, academia, and other urban stakeholders. It develops and promotes tools for multi-level governance, like the Climate City Contract, to accelerate climate transition in cities. Through funding and orchestration, Viable Cities ensures that participating cities can develop and scale innovative climate solutions by fostering collaboration across local and national governments, academia, and civil society (Dóci et al., 2022).

citiES2030 (Spain): Spain's citiES2030 platform, similar to Viable Cities, links cities, universities, and private companies to support the European Union's 2030 climate objectives. By establishing a collaborative framework, citiES2030 helps cities craft comprehensive climate strategies and access academic expertise. Universities contribute research that aids city projects in areas such as renewable energy, sustainable urban planning, and environmental monitoring (Moreno-Serna et al., 2022).

NetZeroCities (EU): The European Union's NetZeroCities initiative aims to support cities across Europe in achieving climate neutrality by offering guidance, best practices, and technical assistance. NetZeroCities connects cities with research institutions, including universities, to devise and implement climate-neutral strategies. By leveraging expertise from diverse backgrounds, NetZeroCities facilitates knowledge exchange, ensuring that cities throughout the EU have access to the necessary resources to fulfill their climate commitments (European Commission, 2019).

These platforms demonstrate how multi-level, multi-stakeholder networks can drive climate action at scale. Integrating research and practice, national and international platforms empower cities to create actionable, evidence-based strategies that accelerate climate progress.

7.4 Overcoming Challenges in Building Collaborative Platforms

While national and international platforms offer significant advantages, establishing and sustaining these networks can be challenging. One primary challenge is the complexity of coordinating diverse stakeholders, each with unique objectives, timelines, and resource limitations. Effective platforms

require clear governance structures and communication protocols to align stakeholders and maintain focus on shared goals.

Securing consistent funding is another critical challenge. Collaborative platforms need financial support to cover operational expenses, support co-creation and learning activities, and facilitate systems innovation and implementation. Although some platforms, like Viable Cities, receive government funding, many others struggle to secure stable resources. Policy measures that provide dedicated funding for collaborative climate platforms can help address this barrier, ensuring these platforms have the resources needed for long-term sustainability.

Finally, differences in national and regional regulatory frameworks can hinder cross-border collaboration. International platforms often face difficulties harmonizing policies across countries, particularly when regulatory requirements differ significantly. Platforms like NetZeroCities work to mitigate this issue by offering regulatory guidance and promoting policy alignment among EU member states. Expanding this model to support broader international platforms could further enhance cross-border collaboration in climate action.

7.5 Policy Recommendations

To support and strengthen national and international platforms for climate action, the following policy recommendations address the needs for alignment, resources, and regulatory consistency:

1. Establish Dedicated Funding Streams for Collaborative Platforms

Governments should create funding programs specifically for national and international climate platforms. These programs could cover operational costs and support activities such as innovation, co-creation, learning, and implementation. Providing stable financial resources ensures that platforms have the capacity to sustain long-term collaboration and drive impactful climate action.

2. Encourage Universities to Act as Neutral Conveners within Platforms

Universities should be encouraged to play a central role as neutral conveners, organizing co-creation and knowledge-sharing events, facilitating dialogue, and promoting cross-sector collaboration. Policymakers can support this role by offering grants for convening activities and establishing frameworks that formalize universities' role as facilitators within climate platforms.

3. Promote Knowledge Exchange Across Platforms

National and international bodies should support knowledge-sharing between platforms, enabling cities and universities to learn from each other’s successes and challenges. Regular conferences, workshops, and online forums dedicated to platform collaborations can facilitate this exchange, creating a global network of climate action platforms.

8. Strategic Recommendations for Ukrainian Universities in Sustainable, Climate-Neutral, and Resilient Urban Reconstruction

In Ukraine, the need for sustainable, climate-neutral, and resilient urban reconstruction is pressing, especially within the context of ongoing war and post-war recovery. Ukrainian universities can play a pivotal role in this process by providing expertise, research, innovation, and platforms for multi-stakeholder collaboration. Their involvement is essential for rebuilding cities in ways that prioritize sustainability and climate resilience. The following recommendations outline strategic actions that Ukrainian universities, in collaboration with local and international stakeholders, can undertake to integrate sustainability into rebuilding processes, addressing immediate recovery needs while ensuring long-term resilience against climate challenges.

1. Establish Urban Research and Innovation Hubs

- **Description**: Ukrainian universities, in partnership with local governments and other urban stakeholders, should create dedicated research and innovation hubs that focus on sustainable rebuilding aligned with the principle of "building back better." These hubs would explore diverse solutions, including governance and funding models, citizen engagement, policies, sustainable construction, renewable energy, and climate adaptation strategies suitable for urban reconstruction.
- **Action**: International organizations and government agencies can support these hubs through funding and technical assistance, while also facilitating knowledge exchange with universities experienced in post-conflict recovery and climate transitions.

2. Integrate Climate and Sustainability Goals into Urban Reconstruction

- **Description**: Integrating climate-neutral and sustainable practices into Ukraine’s reconstruction projects is crucial. Universities can offer expertise across various fields—from engineering to social sciences—to support these initiatives.
- **Action**: Ukrainian universities should collaborate with local governments to incorporate sustainability metrics and climate goals into reconstruction plans. Policymakers can facilitate this by allocating funds specifically for research and development in sustainable urban reconstruction.

3. Enhance Capacity for Transdisciplinary Research on Post-War Sustainability

- **Description**: Ukrainian universities should bolster their capacity for transdisciplinary research and mission-driven innovation to address the unique challenges of sustainable urban recovery in a post-war environment. This includes expertise in social resilience, economic recovery, and sustainable urban planning.
- **Action**: Partnerships with international universities experienced in post-conflict regions can provide valuable support through training, resource sharing, and joint research initiatives.

4. Establish University-Led Living Labs for Sustainable Urban Recovery

- **Description**: Ukrainian universities could develop living labs in cities undergoing reconstruction, where sustainable practices and technologies can be trialed in real-time. These labs would serve as pilot sites for innovations in green infrastructure, energy efficiency, resilient construction, smart policies, and citizen engagement.
- **Action**: Funding from international development organizations and climate-focused funds can support the establishment of these living labs. Additionally, partnerships between Ukrainian and international cities can facilitate the application of successful models across areas in need of rebuilding.

5. Engage Local Communities in Sustainability Dialogues for Rebuilding

- **Description**: Engaging local communities in discussions around sustainable reconstruction enables inclusive and contextually relevant rebuilding strategies. Ukrainian universities should lead these dialogues, ensuring that climate goals reflect the needs and aspirations of residents.
- **Action**: Support from government and international bodies can provide resources for community engagement activities, including workshops, forums, and educational campaigns, to raise awareness of climate-resilient rebuilding.

6. Create a National Platform for Climate-Neutral Reconstruction in Ukraine

- **Description**: Inspired by platforms like Sweden's Viable Cities, Spain's CitiES2030, and Romania's M100, a National Platform for Climate-Neutral Reconstruction should be established in Ukraine. Ukrainian universities should actively participate in this platform, collaborating with international partners to exchange knowledge, resources, and best practices relevant to post-war recovery.
- **Action**: Government and international support can help establish and fund this National Platform, with initiatives such as the UniCities project contributing to knowledge exchange and collaboration.

7. Secure Flexible Funding Mechanisms for Climate-Neutral Rebuilding

- **Description**: Sustainable rebuilding requires flexible, long-term funding that can address both immediate reconstruction needs and climate goals. Ukrainian universities, in partnership with local governments, should advocate for funding mechanisms specifically targeting climate-neutral rebuilding.
- **Action**: International financial institutions and aid agencies can provide grants and low-interest loans designed for climate-neutral and resilient reconstruction, supporting a sustainable recovery trajectory over the long term.

8. Develop Educational Programs in Climate-Resilient Reconstruction and Urban Sustainability

- **Description**: Ukrainian universities should expand their curricula to include programs focused on climate-resilient reconstruction and urban sustainability. These programs would equip the next generation of professionals with the knowledge and skills needed for sustainable rebuilding.

- **Action**: Government and educational grants can support the development of curricula and faculty training, ensuring a workforce that can implement climate-neutral strategies in urban planning and reconstruction.

9. Raise National and International Awareness on Climate-Neutral Reconstruction

- **Description**: Ukrainian universities can lead awareness campaigns and produce research emphasizing the importance of climate-neutrality in rebuilding efforts. This focus would underscore the role of sustainable reconstruction in fostering resilience and economic sustainability.
- **Action**: Support from government agencies and international partners can amplify these efforts, ensuring that climate-neutral rebuilding becomes a recognized priority at all levels.

Conclusion

The path to climate-neutral cities is challenging but achievable. Reaching this vision requires coordinated efforts, innovative solutions, and resilient partnerships. This white paper has demonstrated that universities, as centers of knowledge, innovation, and collaboration, are in a unique position to support cities in meeting ambitious climate objectives. By leveraging their educational, research, and innovation capacities, fostering transdisciplinary collaboration, and establishing strategic alliances with cities, industries, and civil society, universities can play a transformative role in advancing sustainable urban development.

In the face of urgent and complex climate challenges, collaboration between cities and universities is essential for creating solutions that are both practical and forward-thinking. The recommendations in this paper offer a roadmap for achieving these solutions, emphasizing structured partnerships, robust funding mechanisms, and inclusive engagement as the foundation for effective climate action. National and international platforms, together with transdisciplinary collaborative settings, provide essential support by bridging gaps in knowledge, resources, and governance.

However, the responsibility for climate action extends beyond cities and universities. Policymakers, funding bodies, and private-sector partners have critical roles in creating an environment that encourages and incentivizes collaboration. By investing in sustainable urban research, fostering smart policy development, and supporting the exchange and scaling of good practices, these stakeholders can empower cities and universities to maximize their impact and drive meaningful change.

For Ukraine and other regions in post-conflict or rapidly developing contexts, climate-neutral city initiatives present a unique opportunity to rebuild with resilience and sustainability at the forefront. Ukrainian universities, in partnership with local and global actors, can lead efforts to incorporate climate neutrality and resilience into urban planning and reconstruction. This approach not only addresses immediate recovery needs but also establishes a foundation for long-term climate adaptation, mitigation, and sustainability.

This white paper calls on all stakeholders to take immediate steps toward implementing these recommendations. The time for action is now. As rapid urbanization and shifting climate conditions reshape our world, the collaborative work initiated by cities and universities today will lay the groundwork for resilient and sustainable cities of the future. Through commitment, cooperation, and

proactive measures, we can achieve the vision of climate-neutral cities—urban spaces that exist within ecological limits, support vibrant communities, and foster a sustainable future.
Let this paper serve as both a guide and a call to action. May the partnerships, platforms, and policies it advocates inspire enduring collaboration and innovation, bringing us closer to a climate-resilient world. The goal of climate-neutral cities is within reach, and with dedicated efforts, we can make this vision a reality, creating urban environments that contribute to a healthier planet and promote well-being for future generations.

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