Towards a European Green Deal with Cities

The urban dimension of the EU's sustainable growth strategy

Hannah Abdullah (Ed.)

CIDOB GLOBALCITIES
BARCELONA CENTRE FOR INTERNATIONAL AFFAIRS

Ajuntament de Barcelona

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INTRODUCTION

Hannah Abdullah
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The European Union (EU) is widely considered a global leader in climate action. Yet, until the launch of the European Green Deal (EGD) in December 2019, it had no comprehensive policy framework to tackle climate change and the transition towards more sustainable development. Proclaimed Europe's "man on the moon moment" by the then newly appointed Commission President Ursula von der Leyen, the EGD aspires to provide such a framework, leading the EU to become the first continent to cut its emissions to net zero by 2050.

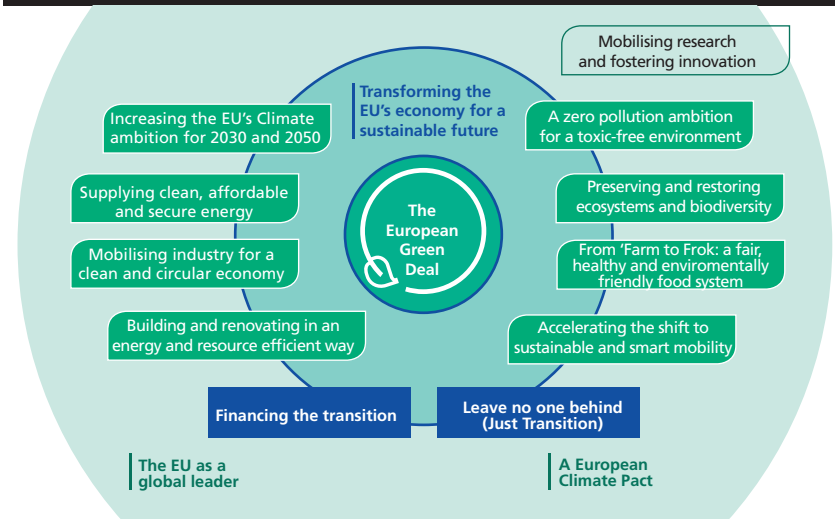
The EGD has been promoted as the EU's post-2020 growth strategy, which will drive the bloc's transition to a competitive green and circular economy that is decoupled from non-reAnewable resource use. But the initiative's ambitions and the climate and ecological risks at stake make it more than just another growth strategy. As the EGD roadmap states, the goal is to draw up "deeply transformative policies" that mainstream sustainability and climate action in all EU policies and programmes (EC, 2019a). In other words, the EGD aspires to foster long-term systemic change. This will not only require significant macro-level economic, infrastructural and technological innovation, but also micro-adaptations in lifestyles, behaviour and consumption patterns. Such change will also depend on a political and organisational evolution of public administration, away from traditional silo-based working cultures and towards a more cross-cutting and citizen-driven way of operating.

Similar to the integrative approach of the United Nation's 2030 Agenda, the EGD encompasses a broad range of complementary and correlating goals. Among others, these include decarbonising the energy sector, accelerating the shift to clean mobility and a circular economy, reducing pollution, promoting resource-efficient building and renovation, creating a healthier food system and preserving biodiversity without leaving anyone behind (see Figure 1). The assumption is that none of these thematic goals can be achieved in isolation. Over the course of 2020, the Commission has rolled out a raft of legislative proposals and financial and action plans that detail how the EU foresees delivering on its climate ambitions in the EGD's priority areas.[1] The enabling tools for the implementation of these plans and proposals are still evolving, with some being more advanced than others.

1. These include the Sustainable Europe Investment Plan and the Just Transition Mechanism and Fund (January), which form the EGD's financial pillar; the European Climate Law (March); the Circular Economy Action Plan (March); the Farm to Fork Strategy (May); the EU Biodiversity Strategy for 2030 (May); the Renovation Wave (October); the 2030 Climate Target Plan (December); and the European Climate Pact (December). Other plans, such as the EU Strategy for Sustainable and Smart Mobility currently being developed by the Directorate-General for Mobility and Transport (DG MOVE), will be presented in 2021.

This volume explores the current window of opportunity for systemic change, and how the EU is stepping up urban governance programmes and cooperation with cities to make the most of its Green Deal.

Figure 1. The priority areas and thematic pillars of the European Green Deal (Source: EC, 2019a: 3).



The arrival of the COVID-19 crisis initially set back policymaking and the implementation of the EGD. But over the course of the year, it became clear that the EU's post-pandemic recovery plan and next long-term budget – eventually approved at the European Council summit in December 2020 (EUCO, 2020a) – should have the potential to boost and accelerate the Green Deal agenda for systemic transformation. The health emergency has highlighted our vulnerability to multiplying crises that are increasingly unpredictable, as well as the need to build more sustainable and resilient societies and economies. If, as the Commission has announced, the Next Generation EU (NGEU) stimulus package and 2021–2027 Multiannual Financial Framework (MFF) are channelled towards a green and socially just recovery,[2] it would constitute a unique opportunity for an economic and social reset that will better prepare Europe for managing and adapting to future crises – climate and beyond.

1. The role of cities in the European Green Deal

The proposed reset will depend on actively engaging all scales of government – national, regional and local. Stronger partnerships with city governments and urban stakeholders will be of particular importance. Not only because cities are home to around 75% of the EU's population and responsible for a large part of its energy consumption and greenhouse gas (GHG) emissions, but also because they are leaders in climate innovation and the place where citizens engage in climate action. As Frans Timmermans, Executive Vice-President of the Commission for the EGD, put it, cities "will have a huge role to play in the fundamental transformation that the Green Deal is to drive in our society".[3] This volume explores the current window of opportunity for systemic change, and how the EU is stepping up urban governance programmes and cooperation with cities to make the most of its Green Deal. By unpacking the core premises of the EGD and the most relevant goals for cities, the volume examines how the EGD will support the climate and energy transition already underway in cities; and, in turn, how local climate action can contribute to and accelerate Europe's green transformation.

2. The special meeting of the European Council in July 2020 concluded that climate action will be mainstreamed in policies and programmes financed under the 2021–2027 MFF (€1.074 trillion) and NGEU (of which €390bn will be disbursed in grants and €360bn as loans to member states). Green financing will also be given a boost, with plans to raise 30% of the NGEU budget through green bonds. Further, an "overall climate target of 30% will apply to the total amount of expenditure from the MFF and NGEU and be reflected in appropriate targets in sectoral legislation" (EUCO, 2020b).
3. https://cor.europa.eu/en/news/Pages/We-must-act-now-together-.aspx

The contributions and needs of cities

Many European cities are already driving innovation and social engagement for the transition to a carbon-neutral Europe. Together with regional governments, cities are responsible for 70% of climate mitigation actions and 90% of climate adaptation measures (ICLEI, 2020), and their carbon reduction targets are often more ambitious than those of the EU and member states. The pioneering role of cities became clearly manifest in the controversial debate around the EU's 2030 Climate Target Plan, which will determine the bloc's ability to deliver on the Paris Agreement and its own 2050 goal. With Nordic and western member states wanting a more ambitious target than poorer, coal-reliant ones from the east, a compromise was struck at the December 2020 Council summit to increase the 2030 emissions reduction target to at least 55% (up from 40% compared to 1990). By contrast, cities from across the EU managed to rally behind and lobby for an increase to at least 60% (Eurocities, 2020). Going a step further, 58 members of the Eurocities network called on EU institutions "to support leading cities aiming to do their part of [the 2030] goal with an even higher reduction target of 65%".[4]

Cities from across Europe were among the first to welcome and support the EGD. But they have also stressed that more knowledge, improved capabilities and adequate financial resources are needed at the local scale.

It came as no surprise, then, that cities from across Europe were among the first to welcome and support the EGD. But they have also stressed that more knowledge, improved capabilities and adequate financial resources are needed at the local scale to develop faster and better territory-based solutions to the climate emergency. Top-down governance approaches alone will not achieve the desired transformation. Many of the risks and impacts of climate change are place-specific and require tailored, bottom-up responses that address the specific vulnerabilities and opportunities of local jurisdictions and their populations. Further, mitigation and adaptation measures cannot function as stand-alone policies, but need to be integrated with other territorial and urban development issues, most of which fall within local governments' competencies, such as energy, transport, construction, water, waste and public space. Local and regional authorities implement 70% of EU legislation, they handle one-third of public spending, manage two-thirds of public investment and provide numerous direct services to their inhabitants (*Mannheim Message*, 2020). Rather than being side-lined to the position of mere rule takers, it is vital that they are given a proactive role in the policy elaboration and implementation of the EU's sustainability strategy.

Throughout 2020, cities, their networks and other platforms that represent local authorities organised information and advocacy campaigns to ensure that there is solid understanding of local needs, interests and opportunities in the policymaking and implementation of the EGD and related recovery programmes. In June, the European Committee of the Regions (CoR) created the Green Deal Going Local working group[5] to place cities and regions at the core of the EGD and ensure that both the EGD and recovery plan "translate into tangible projects and direct funding for local and regional authorities" (CoR, 2020). In October, 39 local leaders from across Europe launched the Mannheim Message at the 9th European Conference on Sustainable Cities and Towns, in which they committed to developing "local green deals" with their communities (*Mannheim Message*, 2020). Yet, the Message also stresses that to effectively localise the EGD, cities "cannot remain purely implementation

4. https://eurocities.eu/wp-content/uploads/2020/10/C40-x-Eurocities-Open-Letter-FINAL.pdf. According to experts, 65% is the minimum to keep the 1.5°C goal of the Paris Agreement within reach (Wilson et al., 2020).
5. https://cor.europa.eu/es/engage/Pages/green-deal.aspx

partners, but need to be part of the process of defining regulatory, fiscal and financial frameworks at all levels" (ibid.). The latter issue has also been taken up by major and capital European cities lobbying EU institutions to give local authorities direct access to the 2021–2027 MFF and programmes to be rolled out under the EGD and NGEU, as well as for the EU to mandate member states to better engage cities in the design of national post-COVID-19 recovery plans.[6]

Over the past two decades, the EU has progressively stepped up its support for urban climate action, signalling its recognition of the importance of cities in this area.

The EU's responses

Over the past two decades, the EU has progressively stepped up its support for urban climate action, signalling its recognition of the importance of cities in this area. However, to take full advantage of cities' potential for the achievement of the EGD, the EU and member states need to create more effective multi-level governance mechanisms that foster horizontal integration and ensure the coordination and alignment of priorities across the EU, national, regional and local governments. Strengthening interlinkages and synergies, as well as identifying barriers to cooperation, will be vital to achieving the EGD and its holistic, cross-cutting ambitions. This will also require the EU's urban governance policy to be strengthened and an integrated approach developed that moves beyond treating urban policy simply as an aspect of cohesion and regional development policy, or as a thematic area of research and innovation programmes.

The von der Leyen Commission has begun to take steps in this direction. The newly created Mission Area for Climate-Neutral and Smart Cities,[7] which is fully anchored in the EGD, approaches urban climate action as an integral part of the EU's broader sustainability policy. In particular, the Mission aims to enhance cities' role as accelerators of Europe's green transition by acting as laboratories for experimentation and innovation. The Mission Board has recommended that the Commission should "support, promote and showcase 100 European cities in their systemic transformation towards climate neutrality by 2030 and make these cities into experimentation and innovation hubs for all cities, thus leading on the European Green Deal" (Gronkiewicz-Waltz et al., 2020: 7). The proposal, which will be implemented in the framework of the H2020 European Green Deal Call, also recommends formalising multi-level and co-creation processes in a "climate city contract" that would ideally be signed by the city government, the Commission and the respective national or regional authorities.[8] Among other things, the purpose of this contract would be to "coordinate the national/regional and EU authorities to deliver the necessary legal, governance and financial framework conditions to support each city" and to "create a one-stop shop for multi-level negotiations to facilitate city action for the transition" (Gronkiewicz-Waltz et al., 2020: 12). While fostering the co-creation of new knowledge and solutions across different scales of government, the programme will enable cities to increase the EU's climate ambition for 2030 and beyond, a core goal of the EGD (see Figure 1).

The EU is also creating a range of other programmes and updating existing ones to provide better technical and policy support to cities in the EGD framework and foster closer cooperation between cities and

6. In February 2020, the mayors of 34 major and capital cities signed a letter to the EU institutions asking for direct access to the forthcoming EGD funds (https://budapest.hu/sites/english/Lapok/2020/eu-lobby.aspx). In October, nine leading mayors asked for at least 10% of the recovery funds to be opened up directly to local governments (https://eurocities.eu/wp-content/uploads/2020/10/202010-Letter-from-European-Mayors-on-the-EU%E2%80%99s-Recovery-and-Resilience-Facility.pdf).
7. https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/climate-neutral-and-smart-cities_en
8. See: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1669. Consortia can apply for up to €53 million. Only one consortium will be selected, which will be tasked with the responsibility of designing the one-stop shop multi-level governance platform and the Climate-Neutral City Contract in close collaboration with the cities and Commission.

European institutions. The proposed European Urban Initiative – Post 2020 (EU, 2019), which is to implement the Urban Agenda for the EU and create a stronger link to EU policies (especially cohesion policy), will support urban action for the EGD through capacity building, support for innovative actions and policy development. In 2021, the EU Covenant of Mayors for Climate and Energy, the EU's flagship programme for urban climate action, will be reformed to broaden its expertise beyond the focus on the energy transition by, for example, offering guidance to signatory cities in other priority areas of the EGD. Further, to complement the Covenant's specialisation, the Commission launched the Green City Accord (coordinated by Eurocities, ICLEI Europe and CEMR) in October 2020,[9] which will assist cities in other areas of the EGD, including improving air and water quality, conserving nature and biodiversity, and making progress towards the circular economy.

Urban governance and development issues cut transversally across all priority areas of the EGD.

Finally, the EU is strengthening science-policy collaborations at city scale to respond more effectively to complex global challenges, especially climate-related ones (see Acuto et al., 2018). Until recently this happened mainly through research and innovation programmes like H2020 (now Horizon Europe). In 2019, the creation of the Cities Science Initiative at the Commission's Joint Research Centre[10] further bolstered the capacity of science and research to help address urban challenges in Europe by supporting evidence-informed local policymaking. The knowledge networks established around these city-science interfaces will be vital for developing the cutting-edge technology and social innovations the EGD's goals depend on, as well as for accelerating the uptake of scientific urban information by local policymakers and practitioners.

The urban dimension of the EGD

Urban governance and development issues cut transversally across all priority areas of the EGD (see Figure 1). Some of the sectoral EGD action plans launched over the course of 2020 explicitly address the urban dimension and its opportunities and challenges and formulate how cities will be engaged and supported. So far, the plans with the most promising and advanced opportunities for engaging cities are the Circular Economy Action Plan, the Biodiversity Strategy for 2030, the Farm to Fork Strategy and the Renovation Wave.

With the circular economy being one of the main building blocks of the EGD objective of decoupling economic growth from non-renewable resource use, cities will receive important support in this area. The Circular Economy Action Plan launched in March 2020 recognises that many cities are already working in this direction and foresees the setup of a Circular Cities and Regions Initiative that will help local governments develop circular economy plans and fund demonstration projects.[11] Jointly launched in May, in the midst of Europe's first COVID-19 crisis, the Biodiversity and Farm to Fork (F2F) strategies are mutually reinforcing and at the centre of the EU's green recovery plan. Aimed at protecting nature and reversing the degradation of ecosystems, the Biodiversity Strategy has made actions for greening cities and reversing the loss of urban green spaces one of its focal areas (EC, 2020a). The importance granted to urban areas is partly a response of the COVID-19 lockdowns and social-distancing measures, which have highlighted the value of green space for citizens' physical and

9. https://ec.europa.eu/environment/topics/urban-environment/green-city-accord_en
10. https://ec.europa.eu/jrc/communities/en/community/city-science-initiative
11. https://ec.europa.eu/info/research-and-innovation/research-area/environment/circular-economy/circular-cities-and-regions-initiative_en

mental well-being. Similarly, the F2F Strategy underlines how the pandemic demonstrated the urgent need for a comprehensive approach to food sustainability and a more resilient food system (EC, 2020b). It mentions cities as key actors in promoting healthy and sustainable diets in institutional catering (e.g. in schools and hospitals), educating citizens on healthy nutrition, sustainable food production and reducing food waste, as well as in strengthening urban–rural linkages with their surrounding areas to develop sustainable farming and food systems.

The broader EGD roadmap for the energy transition still fails to adequately address the urban scale. The same goes for its vision for the mobility transition.

In 2021, the EU will revise all of its climate and energy legislation to make it fit for the new 2030 emissions reduction target of 55%. An important step towards the new goal was taken in October 2020, with the launch of the "Renovation Wave for Europe – Greening our buildings, creating jobs, improving lives" (EC, 2020c). As the title indicates, the programme goes beyond the energy efficient renovation of Europe's building stock.[12] It has also been singled out as a way to kick-start the post-COVID-19 recovery of the construction sector and to reduce energy poverty in the crisis by supporting the poor with more energy-efficient housing. With all three of these issues and developments most affecting cities, the programme represents an important boost to the urban dimension of the EGD and its energy pillar.

At the same time, the broader EGD roadmap for the energy transition still fails to adequately address the urban scale. The same goes for its vision for the mobility transition. While the roadmap for the "EU Strategy for Sustainable and Smart Mobility" (DG MOVE, 2020) – being drafted by the Directorate-General for Mobility and Transport (DG MOVE) at the time of writing – mentions urban mobility, the theme is underdeveloped. This volume addresses omissions and opportunities in both these areas of the EGD.

2. Structure of the volume

The volume is divided into three parts. The first unpacks the urban aspects of some of the key premises of the EGD. It analyses the role of cities in the developmental paradigm shift underpinning the EGD; the challenge of creating systemic change in urban areas; and the question of how the transition to a climate-neutral, competitive and inclusive economy will be financed at city level. Part two zooms in on two central EGD pillars that are of particular importance to the urban transition: energy and mobility. Part three examines the centrality of cities for achieving an inclusive and just transition. The final section outlines how city diplomacy can (and already is) reinforcing the EU's influence as a global climate leader, and places the EU and European cities' efforts in the context of the global climate governance ecosystem that has emerged since the Paris Agreement.

I. Towards a deal with cities

A primary premise of the EGD is that rethinking climate policy as a comprehensive sustainable growth strategy can bring about the developmental paradigm shift necessary to secure Europe's future. The first part of the volume examines the urban dimension of this planned transformation.

12. Currently, around 75% of Europe's building stock is energy inefficient (EC, 2020c).

Expanding on the issues raised in this introduction around strengthening multi-level governance mechanisms to improve the support for and engagement of cities in the EGD, **Sonia De Gregorio Hurtado** explores how the integration of city-specific approaches into the programmes of the NGEU and MFF 2021–2027 could help achieve the desired changes. Climate action in European cities is so advanced, she argues, that with the right support it could turn the EU's upgraded ambitions into a reality in the medium term. Further, the chapter examines how cities can promote the "new European humanism" that underpins the EGD's vision of holistic and all-encompassing transformation by delivering change at a human scale in local communities; directly reaching out to citizens; raising awareness; fostering engagement; and providing arenas for consensus building.

The EGD is a project in process, with one foot held back by old political and bureaucratic constraints and one stepping towards the still not fully fleshed-out future agenda.

At the same time, the EGD's transformative promises do not easily translate into concrete local action. Focusing on the local delivery of the energy transition, **Vanesa Castán Broto** critically analyses the dominant ideas of change embedded in the EGD and their limitations when applied to concrete urban contexts. The EGD is a project in process, with one foot held back by old political and bureaucratic constraints and one stepping towards the still not fully fleshed-out future agenda. As such, it contains several contradictions but also opportunities. Many of its premises and goals lack innovation and merely continue existing policies, such as through the EGD's framing as a "growth strategy". That said, the EGD's transformative language and holistic vision also presents opportunities for negotiating a radically new political project of sustainable socioeconomic reform. Moving forward with this project, Castán Broto emphasises that it is misleading to view local governments as "mediating agents" that can implement the desired change in the short term. Urban change is necessarily long term. Urban interventions have to tackle the heterogeneity of city infrastructures and life, are often incomplete, and are open to contestation and reversal. Viewed from this perspective, Castán Broto sees the unfinished nature of the EGD as a blessing in disguise that will allow policies to adapt to changing conditions.

The final chapter of this section turns to the key question of how the envisaged transition will be financed at city level. EU-level financing is one of the key sources of climate finance for European cities. **Priscilla Negreiros and Angela Falconer** provide an overview of the financial pillar of the EGD – the Sustainable Europe Investment Plan (SEIP) – and how it will affect funding opportunities for urban climate infrastructure and projects. With EGD financing and delivery mechanisms largely based on existing EU funding channels, the chapter provides updated information on the three main sources of climate funding for cities through European Commission funds, the European Investment Bank, and European Structural and Investment Funds. While there is still no full picture of the funding opportunities that will be available to cities, overall funding for urban climate action is bound to increase. More information is needed to understand whether this upgrade will be sufficient to address cities' needs and put them on track for the 2050 target. Looking beyond the numbers, the authors argue that enabling cities to contribute to the EGD is not only about stepping up funding, but crucially also about removing barriers to local government access to EU funds, including regulatory, budgetary, political and practical barriers.

II. Key pillars of the urban green transition: energy and mobility

The EGD's goals of delivering a clean energy and sustainable transport transition are two areas where cities can and already are making a real contribution. Europe's urban areas are major contributors to the EU's energy consumption and are responsible for 23% of the EU's GHG emissions from transport (EEA, 2019).[13] However, as mentioned above, the EGD so far fails to fully address and build on these opportunities. The chapters in this section examine these gaps in the EGD's energy and mobility policymaking and explore how they can be tackled.

In a wide-ranging critique of the underlying premises and targets of the EGD, **Peter Droege** argues that the EU has to move more boldly and quickly towards a distributed and renewable energy system that is focused on cities and founded on new technologies and community benefits. While the Renovation Wave's push for energy-efficient retrofitting and smart innovation in buildings is important, it is not enough. For Droege, the EU needs to go "beyond green, beyond the deal". Most vital of all, he argues, is to nurture a negative-carbon society (NCS) – a strategy that is essential to lowering the quantities of GHG emissions in the atmosphere, but that is currently absent from the EGD. The chapter calls for a revised EGD that would do well to adopt a "regenerative European policy protocol" promoting the complete shift towards renewable energy by concentrating on individual and collective innovation across cities, and the creation of an urban-focused NCS. Such a shift would depend on reforming and opening up urban and regional energy markets in ways that make energy and energy technology embedded parts of cities and communities, rather than an external supply system or imported commodity. While this scenario is still far from mainstream, European cities are among the most dynamic agents driving it through transformative energy policy and societal action. This leading role of cities should be reflected in the energy plans and legislation the EU will roll out in 2021.

Emilia Smeds and Clemence Cavoli address the limited consideration of the urban context in the EGD's priorities for future mobility. They emphasise that this omission is surprising, given that emissions from urban road transport make up a substantial share of emissions from the European transport sector, and that in many cities urban mobility transitions are not on track to achieve the 2050 target. A possible reason is that EU policy and actions in the field of urban mobility have always been restricted by the subsidiarity principle. Given these restrictions, the Commission has in fact developed an expanding array of urban "soft" policy instruments such as funding programmes and guidance documents. Building on existing instruments, the authors provide policy recommendations for how the EU could step up support for cities by creating the right framework conditions for the development of local "transition pathways" to sustainable urban mobility. More broadly, they raise the need for the Commission to give greater importance to urban mobility as a policy area, and to rethink the subsidiarity principle in the face of the climate emergency. The diffuse and interconnected nature of climate change requires stronger support for local authorities from the EU and a coherent multi-level governance system for urban mobility.

13. Transport accounts for a quarter of the EU's total GHG emissions (EC, 2019b).

III. Cities for an inclusive and just transition

The broader policy objectives of the EGD for an inclusive and just transition are to be achieved through the EU Climate Pact[14] and Just Transition Mechanism.[15] Part three explores how these instruments will depend on closer cooperation with cities for their effectiveness.

Launched in December 2020, the EU Climate Pact invites people, communities and organisations to participate in building a greener Europe by learning about climate change, sharing knowledge and developing and scaling up solutions. However, getting people to back the EGD will be a challenge, as the European public is deeply divided (Oroschakoff, 2020). At one end are those increasingly concerned about climate change who are pressing for more ambitious climate policies, including the growing number of green voters (Pearce, 2019) and youth movements like Fridays for Future. At the other are workers, companies and regions that fear the reconfiguration or destruction of the carbon-intensive jobs and industries they depend on. To ensure inclusion and societal cohesion throughout Europe's green transition, change and innovation need to be carefully managed in dialogue with citizens and in specific local contexts. In her chapter on the EU Climate Pact, **Irene García** discusses how cities can help mediate these conflicts. As leaders in climate action with extensive experience in deliberative and participatory processes, local governments are well-positioned to launch climate dialogues with a wide range of stakeholders and facilitate the formulation of joint solutions. Written before the launch of the EU Climate Pact, the chapter analyses the EU's political motivations for creating the initiative and the public consultation process that fed into its design. Building on these insights, García argues that giving cities a greater role in the future elaboration of the Pact would enable the EU to better address the concerns and ideas of Europeans expressed in the consultation process and move closer to the goal of engaging a broad range of citizens and stakeholders. Since the launch of the Pact in December 2020, one way for local authorities to become engaged is as "Climate Pact Ambassadors". The CoR, which represents local and regional interests in the Pact, has described this role as a chance "to provide periodical feedback on the effectiveness of EU policies on the ground and promote vertical integration."[16]

As leaders in climate action with extensive experience in deliberative and participatory processes, local governments are well-positioned to launch climate dialogues with a wide range of stakeholders and facilitate the formulation of joint solutions.

The ambition of an inclusive EGD is closely related to the aim of a just transition that leaves no one behind. The EGD follows from a series of similar high-profile agendas to balance economic growth with environmental preservation and social equity. Most of these have had mixed results and their promises of a more just and healthier world pale against the backdrop of continued rising GHG emissions and worsening social inequality. Sceptics have dismissed the EGD as being no different (Varoufakis & Adler, 2020). Providing a more optimistic outlook, **James J. T. Connolly** views the EGD as a potential catalyst for a European welfare state that makes climate justice an essential part of ensuring health and wellbeing. However, he argues that to deliver on its transformative ambitions, the EU needs to learn from the mistakes and misdirection of past agendas and develop an urban climate justice perspective. As it stands, the EGD's Just Transition Mechanism (JTM) offers only a narrow slice of climate justice. Its limited focus on supporting carbon-intensive regions fails to address a whole range of other climate justice issues (from housing to health and economic insecurity), many of which are

14. https://ec.europa.eu/clima/policies/eu-climate-action/pact_en
15. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/just-transition-mechanism_en
16. https://cor.europa.eu/es/engage/Pages/European-Climate-Pact.aspx

concentrated in cities and exacerbated by the impacts of the COVID-19 crisis. In addition, and more fundamentally, the problem with the JTM is that a socially just green transition cannot be secured with a single policy instrument, but needs to be a guiding principle in the design and implementation of all policies. For Connolly, an EGD that is socially just would above all build on three climate justice principles: it would establish combined social and ecological goals that avoid unintended negative consequences for vulnerable populations; it would attend first and foremost to the needs and risks of the vulnerable; and it would work with and through cities, which – he argues – is the most effective way to approach the EGD's goals while respecting the preceding two principles.

The EGD's Just Transition Mechanism offers only a narrow slice of climate justice. Its limited focus on supporting carbon-intensive regions fails to address a whole range of other climate justice issues, many of which are concentrated in cities and exacerbated by the impacts of the COVID-19 crisis.

The EU would waste much potential if it failed to develop a strategy for engaging cities actively in its Green Deal diplomacy.

IV. The EU as global climate leader

The EGD is testimony to the EU's ambitions to be a global climate leader. Its roadmap announces that the Commission aims to "develop a stronger 'green deal diplomacy' focused on convincing and supporting others to take on their share of promoting sustainable development" (EC, 2019a: 20). While member states are mentioned as partners in this endeavour, cities and local governments are left out. This overlooks the fact that European cities are often champions of climate diplomacy. They have collaborated in global networks for over three decades to meet and raise climate targets. The EU would waste much potential if it failed to develop a strategy for engaging cities actively in its Green Deal diplomacy.

In more indirect ways, the EU already builds on the achievements of European cities in transnational climate networks by opening up some of its urban climate programmes to cities in third countries. As **Xira Ruiz Campillo** shows in her chapter, the EU Covenant of Mayors for Energy and Climate (CoM), which the Commission created in 2008 and which is today one of the most successful networks of transnational climate governance, is exemplary in this regard and can provide lessons on how to better involve cities in the EU's Green Deal diplomacy. The chapter traces how the CoM's evolution has been aligned over the years with the development of regional and global climate negotiations and targets, such as the EU's 2020 climate and energy package and the Paris Agreement.[17] The CoM is an example of how the EU has invested in local climate action to support both EU and international climate agreements. Further, with the CoM's signatories including cities in third countries, it has become a multilevel governance mechanism that functions not only to share good practices across Europe, but also with Europe's partners around the world. The global reach of the CoM was reinforced by its merger with the Compact of Mayors in 2015, which resulted in the creation of the Global Covenant of Mayors for Climate and Energy, for which the EU has provided strategic direction. Ruiz Campillo emphasises how, by giving cities room for flexibility and experimentation, the CoM has fostered local-level climate action that enriches and complements established national and regional approaches. Through the CoM, cities have become key advocates for the EU's global climate leadership. To enhance the benefits of the CoM and related urban climate programmes for the EU's Green Deal diplomacy, the EU would do well to give them a more central and formal role in the EGD's strategy for global cooperation.

17. With the EU's new 2030 climate target adopted in December 2020, the programme is bound to undergo another update in 2021 (see above).

The increasing contribution of European cities to the EU's climate leadership has also evolved in the context of a changing global governance ecosystem for climate action. This new ecosystem took shape around the 2015 Paris Agreement. It pushes global efforts to address climate change into new territory that is about much more than intergovernmental negotiations. It is made up of a sprawling array of institutions and governance platforms that are centred on the UNFCCC but involve a wide range of actors, including local and regional governments, businesses and civil society groups. In his chapter, **Charles Roger** explains this new climate governance ecosystem, the place of the EGD within it, and analyses how it will condition the activities of the EU and European cities moving forward. In many ways, the Paris ecosystem emerged in reaction to the perceived governance gap after the failed negotiations at Kyoto, which created room for non-state and sub-state actors to take leadership and experiment with new approaches. The novelty of the new constellation of actors lies not only in the processes and structures that account for their coming together. It has also provoked a paradigm shift from negotiation to "implementation mode" in global climate governance. The EGD forms part of this shift toward action. According to Roger, the new implementation phase presents both challenges and opportunities. Among them, the Paris pledge-and-review system is particularly relevant for the EU and European cities in the EGD framework and beyond. They should ensure that it is effective and provides maximum leverage for non-state actors to put pressure on states and refine the interplay of institutions in the Paris ecosystem in ways that support successful local implementation initiatives and their upscaling. Cities' on-the-ground expertise will also help develop new implementation approaches to improve compliance with the Paris commitments and their upgrading.

The increasing contribution of European cities to the EU's climate leadership has evolved in the context of a changing global governance ecosystem for climate action.

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TOWARDS A DEAL WITH CITIES

- A GREEN DEAL FOR THE URBAN AGE: A NEW ROLE FOR CITIES IN EU CLIMATE ACTION

  Sonia De Gregorio Hurtado

- THE EUROPEAN GREEN DEAL AND THE CHALLENGE OF SYSTEMIC CHANGE IN URBAN AREAS

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  Priscilla Negreiros and Angela Falconer

A GREEN DEAL FOR THE URBAN AGE: A NEW ROLE FOR CITIES IN EU CLIMATE ACTION

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In December 2019, just before the outbreak of the COVID-19 pandemic, a European Commission communication set out the "European Green Deal for the European Union". The opening paragraph recognises that "tackling climate and environmental-related challenges is this generation's defining task" (EC, 2019a: 2), placing this responsibility at the core of the EU's new post-2020 growth strategy. Compared with the EU's previous economic roadmap, the Europe 2020 strategy (2010–2020), the European Green Deal (EGD) introduces an important paradigm shift. While climate and sustainability issues were present in the former, they appeared as sectoral targets that were frequently in contradiction with the overall objective of turning "the EU into a smart, sustainable and inclusive economy" (EC, 2010: 7). By contrast, the EGD proposes a new holistic strategy that seeks to decouple economic growth from the use of resources and achieve carbon neutrality by "mainstreaming sustainability in all EU policies" (EC, 2019a: 15). The Commission has presented the new strategy as an opportunity for Europe to undertake pending structural changes and to become a world leader in the circular economy, clean energy and clean technologies. The EGD aims to deliver benefits for the environment and biodiversity protection, health, quality of life, resilience and competitiveness as part of an ambitious vision that will require the review of existing policy and governance frameworks (including legislative changes) and the commitment of all EU actors.

The paradox of our urban age (Gleeson, 2011) is that European cities are at the forefront of the complex and ambitious transformations that lie ahead of the EU. Cities not only concentrate some of the major challenges of our time, they are also the territorial and socioeconomic nodes driving the solutions to these very challenges.[1] This chapter highlights the need to include cities as active stakeholders in the EGD and explores the opportunities for strengthening the initiative's local dimension in the post-2020 funding period.

1. European cities are hubs of innovations that concentrate around 70% of jobs and generate 85% of the EU's GPD (Futurium, 2020).

I. City climate transition as an opportunity for the EU

While the EU has played a leading role in global environmental debates and international climate politics, its progress towards the holistic vision and developmental paradigm shift proposed by the EGD has been slow.

At a time of "climate emergency", the EGD presents a vision of a future Europe that establishes a new policy discourse at EU level. It seeks to open up a transformational path for the economy in line with environmental sustainability. In broader international policy debates this discourse is far from new. In the early 1970s, the landmark Club of Rome report *The Limits to Growth* (Meadows et al., 1972) concluded that the dictum of economic growth is unsustainable in the long term, unless it is based on principles of ecological stability. While the EU has played a leading role in global environmental debates (Zito, 2005) and international climate politics (Wurzel & Connelly, 2011), its progress towards the holistic vision and developmental paradigm shift proposed by the EGD has been slow. The long-term reluctance to decouple economic growth from environmental and climate impacts suggests that the EGD's implementation will meet considerable political, economic, societal and industrial obstacles and opposition, even if only implicit in many cases. It will also encounter administrative and technical limitations that will make path dependency one of the main obstacles EU institutions and member states must overcome (at national, regional and local levels).

To tackle these challenges, the EU has embarked on a series of initiatives. Legislative changes include the European Climate Law of March 2020. Strategies and action plans have been drawn up, such as the 2030 Climate Target Plan adopted in December 2020, increasing the EU emissions reduction target for 2030 to 55%, the Circular Economy Action Plan presented in March 2020, and the Biodiversity Strategy for 2030. Non-legislative initiatives include the European Climate Pact launched in December 2020 (see García in this volume). Financing instruments have been created, above all the new Just Transition Fund (see Negreiros & Falconer in this volume), and investment in advanced research and innovation has been promised (35% of the Horizon Europe budget is earmarked for projects addressing climate solutions).

While the EGD's greater climate ambitions and the intention to introduce a developmental paradigm shift have been widely greeted as good news, the initiative's shortcomings have also been heavily criticised. Most relevant to this chapter is the concern that the EGD may evolve into a greenwashing tool. This risk is particularly high if the EU fails to redistribute growth opportunities and foster socioeconomic opportunities for the most vulnerable, and continues to undermine its environmental integrity by providing support to fossil fuel infrastructure projects and industries (Pontecorvo, 2019; Varoufakis & Adler, 2020).

The implementation of the EGD is particularly complex because of the programme's comprehensive approach, which aims to mainstream the green transition in all EU policies and address economic, social and environmental issues in synergy. Its wide-ranging measures cover policy areas from finance to energy production, industry, mobility, construction, pollution, agriculture and biodiversity, among others.

Around 80% of Europe's population live in urban areas. Logically then, the political agency of cities and the regenerative development of urban environments are crucial to achieving the ambitious goals of the von der Leyen

Commission (De Gregorio Hurtado, 2020a). Cities are at once "places of high concentration of problems and generators of growth" (EC, 2011), innovation and social cohesion. On the one hand, they are responsible for 75% of global energy consumption (UN-Habitat, 2007) and generate about 70% of GHG emissions as well as other pollutants (*Urban Agenda for the EU*, 2019: 6). Further, their population density, infrastructure, economic activity and goods make them highly vulnerable to climate change impacts (EC, 2019b: 6). But local governments have also become "climate leaders" (Fuhr et al., 2018) since the turn of the century, pioneering the design and implementation of innovative climate policies and actions (Reckien et al., 2018; Eurocities, 2020b). Many European cities have taken a proactive role by developing local climate plans and participating in cutting-edge climate research projects (e.g. in the context of the EU Horizon 2020 programme). Cities like Copenhagen, which has committed to carbon neutrality by 2025 in the framework of the Carbon Neutral Cities Alliance (CNCA), are setting more ambitious climate goals than the EU and member states.

Plans for the concrete involvement of cities, as well as EGD multi-level governance mechanisms that fully integrate local authorities are still evolving and lack ambition.

Notably, urban climate change experimentation has been both technical and social in nature (Bulkeley & Castán Broto, 2013). It has not just been about delivering route-maps for GHG mitigation, but also about social awareness-raising through participation and co-creation processes, as well as drawing increasing attention to and mitigating climate change impacts on the most vulnerable urban groups and neighbourhoods. Because of their role as pioneers, cities are ready to contribute to EU progress on climate, sustainability and environmental standards in the short-to-medium term. They are also much-needed consensus-building arenas as well as territories of experimentation for achieving the EGD's objectives, while supporting delivery on other global sustainability agendas (e.g. the 2030 Agenda and the Paris Agreement).

The EU Commission has recognised the importance of cities and their governments for reaching the EGD's objectives. But plans for the concrete involvement of cities, as well as EGD multi-level governance mechanisms that fully integrate local authorities are still evolving and lack ambition. An interesting initiative that recognises the relevance of cities for the EU's climate goals is the newly created Horizon Europe Mission Area for Climate-Neutral and Smart Cities, which presented its first comprehensive report, "100 Climate-neutral cities by 2030 – by and for the Citizens" (Gronkiewicz-Waltz et al., 2020) in September. The report makes concrete policy proposals on how to make the most of the EGD (and its financing lines, including the Multiannual Financial Framework (MFF) and the Next Generation EU Recovery and Resilience Facility) by investing in the urban climate transition and financing city climate plans. The Mission Board proposes to support 100 cities with over 50,000 inhabitants in the systematic transformation towards climate-neutrality over the course of the next decade.[2] The idea is to promote these cities as national and European frontrunners in the implementation of the EGD and to gather knowledge and experience on effective localisation strategies. The initiative, which will foster governance transformation, financial mechanisms to support local authorities and the identification of policy gaps, has five key objectives: to establish an agenda for the transformation of cities into innovation hubs; develop new forms of participative and innovative city governance; develop a new economic and financing model for climate action; put in place an "integrated urban planning model"; and deploy smart systems and data platforms (Gronkiewicz-Walter et al., 2020: 8).

2. A shortcoming of the proposal is the exclusion of smaller cities, which are those most in need of support to build capacity around climate governance and action.

The active involvement of cities in the holistic transformation the EGD envisions provides an opportunity to turn Europe's green transition from a utopia into a reality in the medium term.

When examining the role of cities in the EGD, it is important to recall that the EGD aims to be more than a programme for Europe's ecological transformation and the construction of a sustainable and resilient economy. In July 2020, David Sassoli, the President of the European Parliament, held a series of public events entitled "Ideas for a New World",[3] in which he sought to develop new approaches to a post-COVID Europe with philosophers, writers, economists and civil society and social leaders. At the first event Sassoli described the EGD as an instrument for tackling the economic and environmental crisis we currently face. But also, and importantly, he presented it as a policy framework that consolidates a "new European humanism", which recognises the intimate interrelations between the economy, ecology, social policies and democracy, and which can potentially guide Europe into a more sustainable future. This vision echoes the writings of the French philosopher Edgar Morin (2011), who argues that the environmental question is the key to understanding and rethinking the contemporary world. From this perspective, the EGD can act as a uniting force at a time when European society and the EU political apparatus are characterised by increasing fragmentation, as well as an all-encompassing policy instrument through which a more equitable Europe and other necessary societal changes can be pursued.

Cities are crucial to this ambitious vision. The profound political, economic and societal changes it requires will essentially depend on local-level action and the commitment of civil society and other local stakeholders to construct a more sustainable Europe through more sustainable urban communities. As the closest level of government to citizens, cities have the capacity to raise awareness and engagement around the green transition, while providing arenas for building consensus around common visions and necessary changes in fields such as consumption, mobility, energy use and social cohesion. Planned investments in the digital transformation by the Next Generation EU (NGEU) recovery fund will be of great importance for further enabling citizen and community engagement and monitoring local advancements in this regard.

The active involvement of cities in the holistic transformation the EGD envisions provides an opportunity to turn Europe's green transition from a utopia into a reality in the medium term. At the local level, the necessary political, economic and social transformations for the first time appear feasible by building on existing knowledge, affordable technologies, institutional capacities and governance structures, as well as by taking advantage of a European urban society that is increasingly concerned with climate and environmental risks.[4]

II. Towards a green and just urban recovery post-COVID

Two months after the announcement of the EGD, when the first steps towards its implementation were taken in the framework of the institutional negotiations around the new MFF 2021–2027,[5] which had been delayed by Brexit, the COVID-19 pandemic and its socioeconomic impact radically changed the European policy landscape. It is remarkable that in the midst of this crisis and its highly uncertain evolution at EU, national and local levels, the EGD has not been side-lined by more immediate and urgent concerns. Instead, the programme has been defended as essen-

3. https://europarl.europa.eu/the-president/en/newsroom/event-6-july-1500--europe-changing-the-paradigm
4. A 2019 Eurobarometer survey found that 92% of Europeans agree that GHG emissions should be reduced to a minimum to make the European economy climate neutral by 2050 (EC, 2019b).
5. The MFF regulates the annual EU budget in terms of allocation of resources to specific policy fields aligned with EU priorities for seven years.

tial by different institutional and non-institutional actors. An analysis of the vivid policy and media debate during the spring and summer of 2020 shows a general consensus that the EGD is central to the EU's capacity to tackle the health and socioeconomic impacts of the pandemic. It has not only been seen as putting Europe on track for a healthier future, but its financing instruments and action plans have also been considered an opportunity for a sustainable and just recovery.

The majority of member states share this vision. In March, the members of the European Council made a joint statement highlighting the important role of the green transition and the digital transformation in the allocation of the NGEU funds to address the socioeconomic crisis.[6] In April, 17 EU climate and environment ministers circulated an open letter in which they declared that the EU's capacity to manage the impact of the pandemic will essentially depend on its ability to bridge the fight against COVID-19 with tackling biodiversity loss, the low carbon transition and climate change. The opposite view had been raised in a debate in March, when a group of 37 members of the European Parliament (MEPs) asked the Commission to delay the EGD. However, the majority of MEPs shared the Council and Commission's view (EP, 2020: 4).

The commitment of the majority of member states to the EGD, as expressed in the open letter by the climate and environment ministers, not only demonstrates the intention to align their policies with those of the EU on the issue, but also signals a commitment to place the green transition at the centre of their national COVID-19 recovery plans. For most member states this will require changes to their national energy and climate plans (NECPs)[7] in the short-to-medium term, as these were drafted before the launch of the EGD.

As mentioned above, the EU has presented a number of plans and instruments to lead Europe out of the health crisis and repair the economic and social damage caused. The most important is the NGEU plan, which integrates the EU Recovery and Resilience Facility, a sort of "Marshall Plan for the EU", which was proposed by the Commission in May 2020. From the very first draft, the plan was devised in a manner that requires recovery measures to adhere to the priorities of the EGD. More specifically, along with the instruments of the MFF 2021–2027, the NGEU will fund actions in the fields of climate and energy. Member states are now under pressure to rapidly plan the allocation of the resources that will be available from 2021 to fund projects advancing the green transition.

Building on their experience with urban climate action, cities can effectively contribute to implementing the climate dimension of the EU recovery plans and instruments. The complex, multilevel nature of European governance constitutes an opportunity in this context, as it integrates European, national and sub-national governments (Bache, 2008). The climate initiatives implemented by cities in previous and current MFFs, as well as other EU instruments that operate at local level, such as the EU's urban policy, have high potential for fostering top-down and bottom-up Europeanisation (Kern & Bulkeley, 2009; De Gregorio Hurtado, 2020a). Europeanisation here includes not only the impact of EU institutions on member state actions but also vice versa. Crucially, these top-down and bottom-up dynamics extend to relations between the EU and local authorities and allow for the up-scaling of innovative ideas and policies formulated at the local level.

6. https://www.consilium.europa.eu/media/43076/26-vc-euco-statement-en.pdf
7. National energy and climate plans (NECPs) are the member states' route-maps to meet the EU's energy and climate targets for 2030, introduced under the Regulation on the governance of the energy union and climate action (EU/2018/1999). "These plans, along with the legislation for their implementation (e.g. The Spanish Government is working in the Climate Change Act) will set the framework in which the different actors will have to face the decarbonization of the economy and the adaptation to climate change effects in the short and medium-term" (De Gregorio Hurtado, 2020a).

Because of their capacity and willingness to act in alignment with EU urban and climate policies, cities and their networks are emerging as much-needed allies of EU institutions in achieving the transformation proposed by the EGD.

At the same time, European cities have become more Europeanised thanks to a long tradition of transnational cooperation to exchange knowledge and jointly develop solutions to shared challenges. Some of the most effective European city networks have formed around urban climate issues. To aid these cooperation structures, the EU Commission supported the creation of the European Covenant of Mayors (CoM) in 2008, which today has 10,198 signatories (Ruiz Campillo in this volume). The Europeanisation effect of the CoM has often been described as a driver for the construction of local capacity to mitigate and adapt to climate change in member states (e.g. Croci et al., 2017). There are clear indications that national and regional governments' climate strategies could benefit from the knowledge acquired in the CoM framework and the experiences of member cities.

Yet, the tensions and fragmentation between member states with diverging priorities that emerged in the negotiations around the next MFF and NGEU increase the risk of de-Europeanisation. Further, as the EGD stresses, "not all Member States, regions and cities start the (green) transition from the same point or have the same capacity to respond" (EC, 2019a: 16). If not addressed sufficiently, this imbalance could worsen disparities and the lack of consensus between and within member states on how the EU should advance towards a just green transition. To counter these divisions and support the most vulnerable regions, the Commission plans to reinforce the EGD's Just Transition Mechanism, mentioned above, as part of its COVID-19 crisis response.

Enhancing the role of municipalities in climate action could help advance EGD objectives across the EU and overcome the governance challenges posed by the risk of de-Europeanisation. National interests do not determine European cooperation at the local level in the same way they do at member state level. Because of their capacity and willingness to act in alignment with EU urban and climate policies, cities and their networks are emerging as much-needed allies of EU institutions in achieving the transformation proposed by the EGD. The implementation of the EGD and the recovery plan contain much room for enhancing collaboration between the Commission and cities around climate issues in the post-2020 period. But to mobilise cities' capacity to contribute to EU climate action, EU institutions and member states must formally recognise their potential contribution, institutionalise it in concrete policy arenas and instruments that will be implemented in the years to come and provide cities with the necessary economic resources.

For the past three decades cities and regions have been demanding that EU institutions become more responsive to their needs and interests and give them a bigger role in decision-making, policy design and implementation, and budgeting. To lobby for accelerating this change in the context of the EGD, the Committee of the Regions (CoR) launched a new "Green Deal Going Local" working group in June 2020. The group's objective is to guarantee that cities (and regions) are involved in the definition, implementation and assessment of EGD initiatives that have an urban dimension. Similarly, cities and regions have lobbied for more involvement in the 2021–2027 MFF and NGEU. In May, the CoR, together with various European city networks, created the so-called Cohesion Alliance (with more than

12,000 signatories) to demand a recovery plan that is fully accessible to all regions and cities to strengthen the post-2020 Cohesion Policy in order to address social, economic and territorial disparities. A declaration from July 15th specifically asks for the MMF and recovery plan to "be channelled through a bottom-up approach" and for their design to take into account local needs.[8] Further, in October, the mayors of nine capitals and major European cities[9] sent an open letter to the EU institutions,[10] urging them to earmark at least 10% of the recovery fund for local governments and to mandate that member state governments better engage cities in their national recovery plans (Missé, 2020). The message of these various lobbying initiatives is twofold: on the one hand, cities clearly signal their commitment to contribute to the objectives of the EGD and NGEU; on the other, they underline their lack of resources and competencies, calling for more EU support and engagement in EU decision-making and policy design.

The intention to engage local authorities needs to be translated into concrete policy mechanisms, instruments and legislation at EU level.

Responding to these calls, at the 2020 Cities Forum[11] Elisa Ferreira, Commissioner for Cohesion and Reforms, declared that cities would have a formal role in the design and implementation of the Cohesion Policy for the post-2020 period. But similar promises were made in the previous programming period (2014–2020). The intention to engage local authorities needs to be translated into concrete policy mechanisms, instruments and legislation at EU level. The Communication that announced the EGD took some initial steps in this direction by highlighting that the "the urban dimension of Cohesion Policy will be strengthened" (EC, 2019a: 23), as well as by recognising the EU Covenant of Mayors as "a central force" that the Commission will continue to support (ibid.). However, as described above, the urban dimension of the EGD and the mechanisms for its implementation in a multi-level governance system still need fuller formulation. Further, member states need to commit to developing association agreements and operational programmes for the 2021–2027 period that give a greater role to municipalities in the delivery of the EGD and that are in full coordination with NECPs and other relevant sectoral policies (urban, social, etc.). Some member states have begun to engage cities in designing their post-2020 operational programmes.

III. Cities as "Green Dealers" for a development paradigm shift in the EU

To fully develop the EGD's urban dimension and build on cities' experience in climate governance and action, a number of city-specific approaches could be integrated into the instruments and initiatives that will formalise the NGEU and MFF 2021–2027. To be effective and cohesive, these would need to take into account differences between cities across and within member states, allowing for alignment between EGD policies and instruments, NECPs, regional and local climate plans, and other relevant sectoral policies. Further, they should not only focus on cities, but view cities in relation to their wider functional areas, adopting the territorial view that is crucial to climate policies. This final section details some city-specific initiatives that could be particularly effective in supporting the EGD and that in many cases build on already-existing programmes:

8. https://cor.europa.eu/en/engage/Documents/Cohesion%20Alliance/Declaration%202.0/COR-2020-02262-00-03-WEB-TRA-EN.pdf
9. Barcelona, Bratislava, Budapest, Hannover, Lisbon, Milan, Paris, Prague and Warsaw.
10. The letter can be read here: https://eurocities.eu/wp-content/uploads/2020/10/202010-Letter-from-European-Mayors-on-the-EU%E2%80%99s-Recovery-and-Resilience-Facility.pdf
11. Annual forum at which the European Commission (represented by the Directorate-General for Regional and Urban Policy, DG Regio), member states, regions and municipalities jointly discuss urban development.

- Critics of the NGEU recovery plan have expressed concerns about the difficulties member states will face in allocating funds in a responsible and efficient manner, responding to the urgency the situation requires and complying with EU deadlines. Delays allocating structural funds in some countries in the present MFF (2014–2020) drew particular attention to this issue during the negotiation of the recovery budget.[12] Against the backdrop of these debates, **municipal governments' potential to allocate funding from the MFF and Green Deal instruments to policy areas that lie within their competencies and where they can generate more added value is an interesting prospect**. Cities have been on the frontline of managing the impacts of both climate change and the pandemic. They have good knowledge of their citizens' needs, of the interrelated socioeconomic and ecological challenges in their territories, and know where action is most needed and where best results can be achieved. In most cases, they also have relevant experience in the implementation of EU instruments and local climate plans. The direct engagement of local authorities in the distribution of EU funds and the delivery of sustainable development agendas is supported by the recognition of cities as drivers of sustainability and climate mitigation and adaptation in the 2030 Agenda, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction.
- **Cities have proven particularly effective at implementing EU programmes that engage with the physical dimension of sustainable urban development**. The MFF and NGEU could capitalise on this capacity by channelling funding towards urban physical and infrastructure transformation programmes, especially in the following areas: mobility, waste treatment, energy renovation of residential and public buildings, incentives for the creation of local energy communities, the electrification of heating and cooling systems in residential and public buildings, the greening of public space to reduce heat island effects, biodiversity recovery, and the creation of green corridors and nature-based solutions. Yet, such projects need to include ex-ante conditionality to guarantee the carbon-neutrality ambition is met and to ensure coherence with programmes characterised by a holistic approach to sustainability (see following bullet point). Many of these initiatives could be aligned with the Renovation Wave for Europe launched in October 2020 under the EGD,[14] which aims to foster energy efficiency in public and private buildings.
- **To achieve the EGD's holistic vision, the urban physical and infrastructure transformations mentioned above need to be integrated with actions geared towards the social, economic and governance dimensions of sustainable urban development**. The latter have proven to be more difficult for cities to address in the framework of comprehensive strategies. Nevertheless, the past decade has seen some advances in this area in the context of EU urban policy instruments, which stress the need to further support holistic sustainable urban development approaches. In this regard, the integrated regeneration of vulnerable urban neighbourhoods, a pending policy issue in the EU 2014–2020 framework (De Gregorio Hurtado, 2020b), constitutes a relevant field of action. A social Green Deal that leaves no one behind can boost transformation, address vulnerabilities and explicitly integrate the objective of creating social opportunities for all by working in the urban domain.[15] Further, cities' capacity to drive socioeco-

12. It is relevant to point out that in June 2020, "85% of planned spending [for the programming period 2014-2020] has been committed, and 41% spent paid out, which is slower than in previous periods" (Bachtler et al., 2020: 48). Beyond this, there are relevant differences between programmes and thematic objectives. For example, climate adaptation, an area that is closely connected to the green agenda of the Recovery Plan, has even lower commitment and spending rates (ibid.).

13. For the EU to reach its 2050 target, smaller cities must also be engaged in such initiatives over the coming years.

14. https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en

15. https://eura.org/8-urban-regeneration/

nomic transformations in the context of the EGD was addressed in a recent Eurocities' report, *The European Green Deal. Delivering results for citizens with Europe's cities* (2020a), which showed that many European cities are well-positioned to lead local re-skilling and upskilling programmes that prepare workers for the green and digital transition, boost a circular economy and make "strategic use of public spending to drive transformation while sustaining social cohesion" (Eurocities, 2020a: 2). Cities are also well-positioned to raise awareness around climate change-related issues, fostering citizen engagement, participation and co-creation.

- **Local institutional and social capacity building (involving all relevant actors, including citizens) will be another priority**. Programmes need to be designed that focus on building local capacity transversally across different sectors of local government and with specific economic resources and personnel. Other urgent cross-cutting themes are urban health and equal opportunities (e.g. better understanding the gender dimension of policy actions). Such programmes should particularly respond to the needs of small cities and towns, cities with less capacity (institutional, technical, economic, etc.) and those that have little or no experience with holistic approaches to climate action and governance.
- **Finally, all the measures proposed could be enhanced by aligning their climate dimension with the urban dimension of Cohesion Policy**, under which all member states will allocate at least 6% of their European Regional Development Fund expenditure to integrated sustainable urban development (ISUD). Instruments such as the Integrated Sustainable Urban Development Strategies, Integrated Territorial investments (ITI) and Community-led Local Development (CLLD) have great potential to create synergies with EU climate policy. If, as announced, the Commission reinforces its urban agenda in the new programming period, this would constitute a promising field of action. There is especially fertile ground for creating synergies and fostering cooperation between the Directorate-General for Climate Action (DG Clima) and the Directorate-General for Regional and Urban Policy (DG Regio).

Closer collaboration with cities would enable the EU to deliver progress on the decarbonisation of the European economy and other EGD objectives in the short-to-medium term. The socioeconomic and environmental benefits this would bring in urban and rural areas, along with the growing collective awareness of moving towards a greener and better future for all, could help overcome remaining resistance to a green transition the EU cannot put off any longer.

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THE EUROPEAN GREEN DEAL AND THE CHALLENGE OF SYSTEMIC CHANGE IN URBAN AREAS

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The European Green Deal (EGD) constitutes a three-legged strategy to transform the European economy through public investment, the redirection of private capital towards climate and environmental action, and guidance and regulation to avoid locking in carbon-intensive practices. This effort has been held up by the outbreak of the COVID-19 pandemic and member states' financial demands to prop up existing, carbon-dependent economies (Elkerbout et al., 2020). Nevertheless, at its launch in December 2019, the EGD appeared to be an ambitious effort to activate a transition to a different society that is compatible with our planet's limits. Its ambition of a just transition that leaves no one behind also came after a decade dominated by austerity measures that have led to declines in social services and healthcare, affecting mostly disadvantaged groups and increasing inequality (Stuckler et al., 2017). The EGD roadmap raised expectations about an entirely new approach to tackling the global environmental crisis.

Initial European Union (EU) policy documents published with the EGD suggested that the initiative is no game changer. Ursula von der Leyen, EU Commission President, confirmed that the EGD is a growth strategy – a growth strategy "that gives back more than it takes away", but a growth strategy nonetheless (EC, 2019b). The EGD seeks to square the circle of sustainable and inclusive growth (EC, 2019a), except growth cannot be sustainable because it continues to use resources and sinks. It cannot be inclusive because it exploits and excludes people while extracting capital from their labour (for a recent critique in the context of the American Green New Deal policy, see Mastini et al., 2021). Addressing global environmental challenges requires a fundamental reorganisation of current production and consumption systems, which means abandoning growth as the main strategy for achieving the wellbeing of humans and ecosystems. For many of us, the EGD is simultaneously a source of hope because of its generative potential in providing a new example of an ambitious green policy and a slap in the face as it renews the European commitment to a growth paradigm.

A lot of the effort in squaring this circle of green growth will be deployed in cities around Europe. The EGD recognises local authorities'

The EGD cannot be judged solely as a compendium of policy proposals and budget lines. Rather, it is a tool for thinking about possible futures and how change happens across society.

role in preserving natural capital, improving buildings' energy performance and reviewing air quality guidelines (EC, 2019a). Local and regional governments will shape many other critical areas of the EGD, including facilitating collaborations with local industries, enabling the digitalisation of infrastructure, supporting multimodal transport, and delivering sustainable food systems and a sustainable hospitality industry. They will also be central to the negotiation and implementation of the European Climate Pact, which aims to facilitate citizens' inclusion in EGD policymaking and implementation (see García in this volume).

Local and regional governments have multiple capacities to address climate challenges alongside the Sustainable Development Goals. United Cities and Local Governments' report on the localisation of the Sustainable Development Goals (SDGs) has shown that transforming consumption and production goes hand in hand with eradicating inequality and poverty (UCLG, 2020). Localisation and proximity are critical entry points for solidarity-driven action that provides public services and protects local resources. Local experiences will be invaluable in delivering the EGD. However, local governments' capacities to implement sustainable policy have been compromised by austerity measures (Eckersley & Tobin, 2019). The COVID-19 pandemic has further exacerbated problems of service delivery at the local level. The EGD may find significant challenges to translating its promises into tangible impacts that are noticeable in people's lives and environmental outcomes.

This chapter explores some of those challenges and looks at the local delivery of the EGD goals in a context of uncertain urban change. The chapter focuses on one of the EGD's key objectives: delivering a clean energy transition. The first section is about the energy transition envisaged in the EGD. The second section questions the dominant ideas of change and how they fit the problem of transition. The third section warns against the inequalities created by green policies. The chapter concludes with a reflection on the unfinished nature of the EGD.

I. The sustainable energy transition in the EGD and the role of urban areas

As explained above, the EGD is first and foremost a growth strategy and as such represents the continuity of existing policies. This is in part because the EGD as a political project is still being constructed (Gaventa, 2019). New narratives need to be created that make it possible. The EGD cannot be judged solely as a compendium of policy proposals and budget lines. Rather, it is a tool for thinking about possible futures and how change happens across society. The EGD emerges within a given political and bureaucratic context, embedded in inertias that constrain change, if not preventing it entirely. Simultaneously, the EGD provides the framework to advance more radical proposals for action, subject as always to the fraught negotiations between the member states and the Commission.

Take, for example, the question of the sustainable energy transition and how it is approached in the general context of the EGD (see also Droege in this volume). The EGD speaks of profoundly transformative policies to "rethink policies for clean energy supply across the economy, indus-

try, production and consumption, large-scale infrastructure, transport, food and agriculture, construction, taxation and social benefits" (EC, 2019a). The text also highlights that engaging consumers and enlisting the support of regions is central to the energy transition, pointing towards potential policy innovation in behaviour change and subnational governance. The transformative language alongside the focus on areas beyond the traditional remit of European energy policy suggests opportunities for negotiating a new political project around energy.

The EGD seeks a radical change from one economic state to another and local and regional governments are seen as mediating agents of that change. However, this expectation relies on an urban policy fantasy.

However, the latest report on the state of the Energy Union demonstrates that the EGD's energy objectives reproduce well-trodden policy terrain and do not challenge the consensus on what constitutes a workable transition to sustainable energy (see EC, 2020a). The key pillars of the current policy have been part of the EU's climate ambitions for decades:

- increase the share of renewables in energy generation;
- promote energy efficiency measures;
- ensure energy security; and
- stabilise the internal market.

The operation of energy policy at the European level depends on the negotiations between the Commission and the member states, as detailed in the communication to establish the "foundations" for an energy transition within the Energy Union (EC, 2019c). The communication assesses member states' first-ever submission of the national energy and climate plans (NECPs). The ambition is to demonstrate that NECPs can become an example of best practice in energy policy. NECPs are presented as innovative policy tools that for the first time break silos and consult with a wide range of stakeholders. However, those consultations are not necessarily radical or transformative. The Spanish NECP, for example, was drawn up by an expert team, following regulatory and policy concerns. The plan was open for public consultation from February 22nd to April 1st 2019. Public consultation is not the same as public participation. Communicating expert-led actions to the European Commission takes precedence over understanding cities' and citizens' needs.

However, there are some exciting ideas embedded in the EGD. For example, it explicitly states that fossil fuel subsidies should end, which amounted to €50 billion in the EU in 2018 (EC, 2019c). In the EGD the European Commission commits to collect accurate data on energy subsidies and to examine taxation practices, while proposing to reform the 2003 Energy Taxation Directive. Tax exemptions constitute de facto fossil fuel subsidies. The drive to end subsidies and tax exemptions for the fossil fuel industries could have an enormous impact. However, the socio-economic effects on the most disadvantaged people and their interactions with energy poverty still need to be evaluated.

The other eye-catching aspect of the EGD is the Just Transition Mechanism (JTM). This involves the redistribution of €150 billion to support workers, companies and regional governments in fossil-fuel producing regions. The JTM acknowledges the social and economic consequences of a transition to clean energy and that the poorest sectors of society are likely to pay for it, making the EGD an environmental policy with a social heart.

The dynamics of urban change should be examined in relation to efforts to plan and deliver such change.

The role of cities in the energy transition remains open but unspecified. Cities are recognised as important, for example, because emissions are linked to classic urban sectors like energy efficiency in buildings and transport (EC, 2019c). Yet, the EGD lacks a sense of the importance of cities in the energy transition. Cities concentrate many activities associated with carbon emissions and drive the consumption patterns that shape those emissions. The transition to sustainable energy cannot be achieved by a change in technology alone (e.g. a shift to renewable energy). Rather, interconnected changes have to occur at different levels, affecting industries, public services, households and people. Cities reveal many of those interconnections. One example is the impact of energy taxation reform in everyday life.

Cities provide opportunities for decarbonisation. No single actor can deliver an energy transition. It requires insights from everyone: from private businesses, families, communities, industries, and of course, local governments. The energy transition will affect every aspect of our lives, and everyone needs to be on board. However, this commitment to inclusion does not imply that everyone has to agree on what the energy transition means and how it is going to be delivered. Rather than achieving a single, monolithic consensus, the transition requires multiple voices to be heard. Urban planners routinely face the challenge of integrating multiple voices and, thus, planning processes in cities may be points of entry to discuss and collaborate in a collective energy transition.

The energy transition depends on the involvement of citizens in shaping their energy futures. In the EGD, energy is a complex, technical problem that only experts can discuss. This framing hinders collective dialogue. Without dialogue, the EGD risks overlooking the needs of cities and citizens. Second-guessing their priorities is no longer good enough: they must be brought into decision-making.

II. Understanding the nature of urban change

One of the obstacles to urban climate governance is the nature of change in urban infrastructures. The EGD is in line with dominant narratives of environmental action seeking a transition: a reconfiguration of material and social relations following interventions with cascading consequences across multiple systems and institutions. This is "systemic change", because it will need to be so fundamental that it will simultaneously affect multiple aspects of our existence. The EGD's engagement with industrial sectors, renewable energy, toxic environments, ecosystems and biodiversity, food and mobility assumes that none of those systems operate in isolation. They depend, for example, on feedback loops related to institutional operation, consumption practices and changing generational cultures. The EGD is therefore presented as an integrative policy framework that seeks to move beyond single-intervention policies. The EU Commission's Communication on the EGD explains that this is part of its commitment to "deeply transformative politics" (EC, 2019a).

The EGD seeks a radical change from one economic state to another and local and regional governments are seen as mediating agents of that change. However, this expectation relies on an urban policy fantasy:

the assumption that specific interventions, led by local or regional governments, can simultaneously transform the built environment, urban ecosystems and the ways urban environments are lived. This urban policy fantasy departs from the idea that the main challenge is to find and finance the right area of intervention, for example, by enabling the European Investment Bank to develop technical assistance programmes to allow local governments to establish fundable clean energy projects. The solutions are thought of as a ready-made package, which is already insufficient as on-the-ground local realities vary greatly across European cities. Proposals for the EGD rightly focused on the unintended consequences of climate and other green policies (e.g. Claeys et al., 2019). Other commentators identify "barriers" to the EGD as if there were levers everywhere that prevent progress (Tsakalidis et al., 2020). These proposals struggle to conceptualise the nature of urban change.

The EGD is an unfinished project, especially when considering the vagaries of implementation and the localised impacts of the proposal.

Instead, I propose that the dynamics of urban change should be examined in relation to efforts to plan and deliver such change. On the one hand, urban change has to wrestle with the fundamental heterogeneity of urban infrastructures and how infrastructures are reimagined continuously in place. On the other hand, urban change depends on recognising those changes: transitions are often incomplete, ambiguous and open to contestation and reversal. I explored these two challenges in my book *Urban Energy Landscapes* (Castán Broto, 2019), through an empirical analysis of the energy transitions that cities underwent during the 20th century. I focus on four cities whose trajectories challenged normative understandings of how energy systems should be organised and operated: Hong Kong (PR of China), Bangalore/Bengaluru (India), Maputo (Mozambique) and Concepción (Chile). At first sight, it may seem that those cities' experiences have little bearing on what is happening in Europe with the EGD because the concerns that led to their energy transitions during the 20th century are very different from those that have motivated the EGD. Moreover, the geographical particularities of these energy transitions may not entirely fit European circumstances. However, my attempt was, specifically, to situate ideas of energy transitions in extraneous contexts to examine the fundamental assumptions we make about change in urban infrastructure.

The first assumption relates to the heterogeneity of urban infrastructures. Engagement with an analysis of how infrastructures work in multiple urban contexts has revealed that no single model of infrastructure provision works in every country or even in every city and that all infrastructure provision systems are constituted through an array of encounters between technologies, cultures, institutions and people's practices (Lawhon et al., 2017). In *Urban Energy Landscapes*, I approached this heterogeneity by examining the diverse characteristics that enable a city to govern energy, to allow energy resources and technologies to circulate and reach users, and to use it in choreographies shaped by the structure and history of the built environment. In part, this is the challenge the EGD faces: how to address the diverse urban characteristics, diverse urban histories and diverse modes of being urban that we find across the European Union.

However, the EGD follows a very different infrastructure provision model, one that assumes the dominance of centralised, capital-controlled utilities and their priority over fragmented service provision. This is also a model

that makes many sacrifices to deliver efficiency, for example, by reducing the means for people to participate in decision-making and question the utilities themselves. The focus on large investments and the reconfiguration of banking institutions overlooks the fact that a lot of transformative action occurs in fragmented ways and outside dominant systems of provision. It also minimises the role of civil society and communities in creating innovative solutions which are, for the most part, presented as the preserve of the private sector and – sometimes – the national government. Further, the model compromises the autonomy of less powerful and non-standard actors (such as social enterprises or actors within the innovation economy) to claim and provide resources and services.

The second assumption invites us to differentiate the instantaneous from the long-term. Braudel (1972) proposed that engagement with temporalities of change was key to transcending disciplinary boundaries towards an integrated understanding of human society that aligns with the EGD's objective to create systemic change. Braudel criticised short-term analyses that give a perspective at the level of the individual, linking events to daily life within a short moment of awareness. The short term, Braudel argues, is deceptive and capricious. What seems palpable in the short term does not translate into a full-fledged analysis of historical change. He is also wary of cyclical analyses that focus on specific issues (such as housing bubbles or economic crises) without assembling a multidimensional social analysis. A true understanding of human realities requires dialogue with a long-term perspective, the *longue durée*. According to Braudel, this long perspective engages with "structure": something that refers to the forms of organisation that shape society, the degree of coherence of human institutions and the fixed relations between the realities of the world and people. Braudel provides an indelible example comparing the short-term analysis of the weather that we experience in everyday life with the climate's long-term structures. For Braudel, many aspects of human life, from the relation between ecosystems and the walking routes through them, belong to the *longue durée*.

Building on Braudel's reasoning, in my study of urban energy transitions I decided to engage with "landscapes". For me, urban energy landscapes represent the solidified aspects of human relationships with energy technologies and resources, as they are integrated into contemporary cities and settlements. Like Braudel, I was particularly interested in the slow – almost immobile –temporalities that shape the *longue durée*: the durability of the charcoal cookstove in Maputo's informal settlements; the persistence of firewood among deprived neighbourhoods in Concepción; the embedding of individual air conditioning system as the default cooling technology in Hong Kong; the persistent overlapping of water and energy services in Bangalore. These apparently immobile phenomena represent the constitution of landscapes in practices that link the short-term temporality of the everyday with the long-term temporality of the *longue durée*. Those specific, context-located, immobile practices furnish our intuition of the *longue durée*. Such long-term perspective also entails that change is always ongoing and unfinished. If there is an urban energy transition at work, it is an open-ended one.

The EGD is therefore an unfinished project, especially when considering the vagaries of implementation and the localised impacts of the proposal. Seeing it as unfinished may at first create discomfort, but it could

be a blessing in disguise. This realisation shifts our attention towards implementing the EGD over the long term, creating capacities that can be sustained to adapt policies to changing conditions. One lesson from the COVID-19 pandemic is that our societies are only equipped to deal with one crisis at a time: the need to respond to the public health crisis and the crisis of confidence that ensued has eclipsed the newly gained confidence in addressing climate change challenges displayed in the EGD (Colli, 2020). Perhaps the EGD is a tool whose value lies not so much in addressing climate change, but in recognising that the ongoing crisis of climate change is a consequence of a continuous mode of operation that is at odds with the people's and the planet's health and wellbeing. The EGD is about fostering a long-term culture of care for our environments. To do so, the EGD could soften some of its economic-driven discourse on green growth and focus instead on the kind of interventions that make a difference to ecosystems and wellbeing at the local level, seeking to change hearts alongside infrastructures. This would be an EGD that would move away from identifying "green opportunities", and look instead at envisioning and designing ways of living within the planet's limits.

There is a promise in the EGD's commitment to "deeply transformative politics" which makes it something other than a tool for governments to reproduce themselves. It should bring a social renovation, a new political commitment to democracy.

Social innovation has a vital role to play in this kind of change. Community energy, new models of co-housing and infrastructure sharing, social enterprises, locally oriented industry collaborations, agroecology, and the social value of public spaces and natural capital are some of the areas in which local and regional governments can play central roles in advancing a long-term vision of sustainability that moves away from growth discourses. The forthcoming *World Cities Report* on the value of urbanisation proposes recognising the urban commons as a fundamental strategy to harness the environmental value in cities and settlements (UN-Habitat, 2020). The urban commons refers to cultural or biophysical resources accessible to everyone in the city that enable collective design processes. The pioneering experience of Bologna, Italy, a city that in 2014 adopted the Bologna Regulation on Civil Collaboration for the Urban Commons, is an example of a long-term vision to deliver sustainable cities and settlements. The Bologna Regulation involved a collaboration pact between citizens, the local government and any other interested organisations to provide care and regeneration actions in the city.

III. The recurrent challenge of urban inequality

The EGD contains attempts to address the elephant in the room: inequality (see Connolly in this volume). Unfortunately, the impacts of green economy measures on society's most disadvantaged sectors are evident (Rice et al., 2020). Movements such as the *gilets jaunes*, which followed fuel tax protests, have sparked anti-government sentiments. The EU and the member states must remain mindful of the EGD's impacts and how it aligns with collective visions of social change.

Green policies are not inherently good. Green gentrification and climate gentrification are terms that refer to the increasing realisation that green infrastructures and protection infrastructures to protect against climate change impacts lead to the expulsion of disadvantaged groups from urban areas (Gould & Lewis, 2016; Anguelovski et al., 2019; Connolly, this volume). Unfortunately, green policies are increasingly attracting

criticism because of their potential to exacerbate inequalities, especially within urban environments.

There is also a promise in the EGD's commitment to "deeply transformative politics" which makes it something other than a tool for governments to reproduce themselves. It should bring a social renovation, a new political commitment to democracy. For example, the EGD could help grapple with the energy divide: the massive disparities in energy access across the EU and how they translate into an epidemy of energy poverty (Bouzarovski & Tirado-Herrero, 2017). The energy divide refers to the deprived households in member states who are unable to meet their energy needs while facing increasing energy costs and the consequences of living in inefficient properties. The EGD tackles energy poverty head-on, focusing on household renovations and efficiency as its main strategy. However, the impact of these measures on disadvantaged populations are still not entirely understood.

The JTM explained above addresses some of these problems directly (EC, 2020b). It has a strong territorial focus and is sectoral in nature. It is also concerned with aligning multi-scalar processes and establishing close cooperation between national and local authorities (Sabato & Fronteddu, 2020). The JTM focuses on supporting carbon-intensive industries, fossil fuel-dependent countries and communities. There is less awareness about the enormous impacts the EGD will bring about.

The challenge of energy poverty runs deeper and relates to the need to open up energy planning and decision-making to citizens. Integrating citizens into decision-making through meaningful processes beyond consultation policies is essential to create feasible and broadly accepted energy policies.

Conclusion

The EGD shows ambition and commitment. However, its transformative aspirations do not automatically translate into concrete proposals that will make transformation a feasible political project.

The EGD must deliver a sustainable society at a human scale. Action at a human scale takes place in neighbourhoods and communities, connecting them in broader regions, but without losing track of the range of impacts green actions have on individual lives. Delivering an energy transition at a human scale requires citizens to be reconnected with the means of energy production, with the multiple dimensions that shape their energy systems from the natural resources that fuel them, the infrastructures that organise them, and the practices that depend on them.

However, the EGD is an ongoing, unfinished project that requires political commitment to be garnered. Prioritising a view on the diversity of urban infrastructures and the need to conceive the transition as an open-ended process is a strategy for recognising multiple intervention areas related to people's lives. Is there potential for a real transformation of our societies and our energy systems? It is too early to say. The EGD's impacts and results will only become apparent as its political project materialises.

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The European Green Deal (EGD) is an ambitious set of policy initiatives aimed at reducing greenhouse gas (GHG) emissions to net zero by 2050 and moving the continent to a clean and circular economy (EC, 2019). Europe is one of the world's most urbanised regions (UNDSA, 2019).[1] Considering this, how will the EGD finance the transition to a climate-neutral, competitive and inclusive European economy at the city level? Generally, urbanisation has been good for human development and economic growth. Cities concentrate business, innovation and technology, and they facilitate access to food, infrastructure and healthcare. However, cities are also responsible for around 70% of human-induced GHG emissions (United Nations, 2020).

Financing urban, low-carbon infrastructure is a major challenge for cities in all regions of the globe, as they are dependent on many types of public actors (city governments, national governments, multilateral public funds) and private financial institutions. Slow urban growth in Europe presents particular challenges for the green transition. European cities face less pressure for new infrastructure than cities in developing countries, but must adapt existing infrastructure to low-emission patterns. This will demand specific types of financing and business models to achieve the rapid turnover required.

In this chapter, we focus specifically on the role of European Union (EU) funds in promoting climate-smart urban infrastructure in the region and how the EGD might affect the current funding system in place. We also explore a number of challenges European cities already face while trying to access existing EU climate funds, including those that are regulatory, budgetary, political and capacity-related in nature.

I. The European Green Deal

In December 2019, the European Commission first presented its ambitious plan to shift towards climate neutrality, the EGD. The initiative proposes GHG emission reductions of 50%–55% by 2030 and hitting net-zero emissions by 2050 by decoupling economic growth

1. While 74.5% of European citizens live in cities, the urban growth rate in Europe is falling gradually and is set to decline further in coming years. By 2050, Europe will be the third-most urban region in the world, with 83.7% of its citizens living in urban areas, just behind North America, with 89% living in cities - and Latin America and the Caribbean, with around 87.8% (UNDSA, 2019).

from resource use. It also proposes a European Climate Law to make the targets a legal obligation (EC, 2019). The EGD is expected to stimulate governments to set new targets domestically and will require huge efforts to mobilise finance for strategic decarbonisation programmes across Europe.

EU-level financing represents one of the key sources of climate finance for cities in Europe.

In January 2020, the European Commission published the Sustainable Europe Investment Plan (SEIP) for the EGD, which aims to mobilise public investment and help unlock private funds leading to at least €1 trillion of private and public sustainable investments over the coming decade (EC, 2020c; 2020e). It provides more detail on the expected levels of funding to be delivered and mobilised to implement the EGD, as well as an insight into the delivery mechanisms to be used to channel funds. Seed funding will come from the EU budget, member states, the European Investment Bank (EIB) and EU Emissions Trading Scheme revenues from carbon allowances.[2] The delivery channels announced so far are largely pre-existing institutions, funds and initiatives (EC, 2020c).

With EGD sources of seed financing and delivery mechanisms heavily based on existing EU funding channels, close scrutiny is required to understand the influence of the EGD in general and on cities in particular. This is further complicated by Next Generation EU (NGEU), the EU's COVID-19 recovery plan for Europe, which was ratified in May 2020 and amounts to €750 billion of additional support and reinforcement for the 2021–2027 EU budget. The NGEU plan mentions many EGD components, and some commentators claim that it will reduce some EGD investment commitments (Mackenzie, 2020), while others argue that certain commitments will be increased (EC, 2020d).

The key delivery channels for EGD-related funding will include:

1. European Structural and Investment Funds;
2 . The Invest EU Programme;
3 . A new Just Transition Mechanism;
4 . A new facility focused on the renovation of existing buildings.

While the EGD and its investment plan have broad and ambitious targets, they do not yet provide a detailed understanding of how those targets will be realised in terms of delivery mechanisms. The extent to which the delivery mechanisms and funding commitments already announced will be sufficient to achieve the decarbonisation targets set is not yet clear, particularly in relation to cities and urban climate-smart infrastructure. We need to understand in more detail how the delivery mechanisms will be implemented and whether they will be able to help overcome some of the current challenges of financing decarbonisation in cities. The mechanisms and their potential relevance for cities are discussed further in the next section.

II. EU funds: city access and the impact of the European Green Deal

Today, EU-level financing represents one of the key sources of climate finance for cities in Europe (CECCE – ECR, 2017). Compared to other cities in the world, European urban areas have access to large amounts

2. Sources of finance to fund the EGD are estimated as follows: The EU budget will contribute €503 billion (from 2021 to 2030) of spending on the environment across all EU programmes while national government co-financing contributions, alongside EU structural funds, are expected to amount to €114 billion. Invest EU will mobilise €279 billion (from 2021 to 2030) of private and public climate-related investments by, inter alia, offering guarantees to reduce the risk in operations. EU Emissions Trading Scheme revenues from carbon allowances allocated will contribute an estimated €25 billion.

of national public funding and, in many cases, can also raise commercial funding backed by their own creditworthiness. For some European cities, EU funds are one of the main sources of public funding.

Before announcing the EGD, at least 20% of the EU budget for the 2014–2020 period was dedicated to climate action. Cities mainly access EU funding through their national governments, although designated cities and regions can play a role in the administration of funds, for example as intermediate bodies in the funds-flow process. Yet, the EU funding landscape is very complex and for many cities the first barrier is understanding what funds are available to them. To explore this barrier further, we present an overview of the existing funding opportunities for urban climate finance, how they might be affected by the EGD, and the challenges in accessing them.

Current EU-level sources of funding

Within the 2014–2020 Multiannual Financial Framework, cities have access to several types of support through grants, technical assistance and financial instruments. These funding opportunities can be accessed directly by a city official or through a city's national governments. The vast majority of funding is currently channelled through national governments.

There are three main sources of funding for cities in the EU. First, the European Structural and Investment Funds (ESIF), which include five thematic sub-funds and are the largest source of EU funding. Second, the European Commission, which has several programmes to support European municipalities, although it has no direct responsibility at the local level. The third main source of climate-smart funding for cities is the European Investment Bank.

All of these funds will be affected by the EGD, as indicated by financial commitments mentioned in its investment plan. The finer implementation details, however, remain unclear.

The European Structural and Investment Funds (ESIF)

More than half of all EU funding is channelled through the five European Structural and Investment Funds (ESIF) jointly managed by the European Commission and the EU countries.[3] The ESIF planned budget for 2014–2020 was around €639 billion, with about €460 billion coming from the EU and the remaining €179 billion coming from national governments.

Every seven years the Multiannual Financial Framework (MFF) determines the maximum annual amount the EU can spend in each of the five funds. Within this cycle, partnership contracts between the EU Commission and the member states are created and then made operational through programmes that often have a sectoral basis, with different axes reflecting EU and national priorities. Regional and local governments can, in theory, be assigned responsibilities as managing authorities or implementing bodies but, generally, national authorities take on this role.

3. The ESFI comprises five funds: the European social fund (ESF), the Cohesion Fund (CF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF).

Three of the ESIF are of particular relevance for urban areas:

- **The European Regional Development Fund (ERDF)** aims to correct economic and social imbalances within regions and includes low-carbon economy projects as one of its main priorities;
- **The European Social Fund (ESF)** supports employment-related projects throughout Europe;
- **The Cohesion Fund** targets transport and environment projects in countries where the gross national income (GNI) per inhabitant is less than 90% of the EU average.

ESIF	Total funding available (2014–2020)[4]	EU Commission proposal to the 2021–2027 MFF[5]	Urban climate finance interest
European Regional Development Fund (ERDF)	€276 billion, from which: - EU funds = €199 billion - National funds = €77 billion	€200 billion (only EU funds)	The fund Regulation has a chapter (Chapter II) dedicated to sustainable urban development, which requires the national cooperation agreements to have a specific axis in this field. For 2021–2027, an increased urban earmarking from 5% to 6% was announced at a time when budget cuts are being made to Cohesion Policy.[6]
European Social Fund (ESF)	€120 billion, from which: - EU funds = €84.3 billion - National funds = €36.2 billion	€89.6 billion (only EU funds)	Cities, the private sector and other organisations can apply to the fund to conduct professional training in green technologies.
Cohesion Fund	€73 billion, from which: - EU funds = €62.1 billion - National funds = €11.3 billion	€41.3 billion (only EU funds)	The fund Regulation has an article (Article 4) listing investment priorities, such as low-carbon strategies for all types of territories, particularly urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.

Urban Innovative Action, for example, is funded by the ERDF and provides direct resources to cities (of 50,000 or more inhabitants) to test innovative solutions to urban challenges. While only a modest part of the overall ERDF (€372m of ERDF funding in the 2014–2020 period), the funding is normally available via calls organised by the European Commission to which cities respond directly, covering different innovative areas of urban financing. Although it is not a dedicated climate finance fund, it has promoted nature-based solutions, energy efficiency and climate adaptation among other initiatives.

An interesting example is the city of Breda (in the Netherlands), which received a €4 million grant to test innovative nature-based solutions such as a construction material that allows trees to grow over quay walls.[7] **URBACT III,** which is co-funded by ERDF, is an instrument of Cohesion Policy that seeks to promote regional city networking, peer-learning and the exchange of good practices to tackle shared challenges and improve urban policies. The programme provides grants for capacity building in European cities. Finally, the Joint Assistance to Support Projects in European Regions (**JASPERS**), funded from ESIF funds and implemented by the EIB, is a programme which includes significant support for local

4. Data from https://cohesiondata.ec.europa.eu/funds [Accessed on September 20th 2020].
5. The new 2021–2027 MFF was first proposed by the EU Commission in 2018 and revised in May 2020 due to the COVID-19 crisis. In July 2020 the European Council approved the proposal, but in order to be adopted the proposal must be ratified by the European Parliament and member states, which is expected to happen in December 2020. The financial figures provided in the table are from: EP, 2019.
6. De Béthune, T., 2018.
7. More information on the Green Quays Programme in Breda available at: https://uia-initiative.eu/en/news/enabling-nature-take-over-green-quay-walls-breda [Accessed on September 25th 2020].

and regional authorities as well as municipal utilities to assist with project development, from the early stages of conception through to the final application for EU funding. JASPERS is particularly relevant as it intends to accelerate the absorption of ESIF funds at city level.

Although it is not clear how the EGD will distribute climate funding, its investment plan mentions that, "the Cohesion Fund and the European Regional Development Fund are expected to invest at least EUR 108 billion in climate and environment-related projects over the next 7 years (2021-2027), more than 30% of the total envelope" (EC, 2020c). Yet, under the current MMF 2014–2020, the EU Cohesion Fund and the ERDF have spent approximately €106 billion on environment-related projects.[8] The EGD budget could provide significant assistance to cities to address challenges deepened by the COVID-19 crisis, but more information is required to understand if the EGD will increase the budget available for cities compared to the previous MMF budget.

The EGD budget could provide significant assistance to cities to address challenges deepened by the COVID-19 crisis.

Finally, few details are currently available on the new Just Transition Mechanism (JTM), but it is understood that it will support the regions most heavily dependent on fossil fuels, such as Poland and the Czech Republic. The mechanism aims to mobilise €100 billion over the 2021–2027 period with contributions from the EU budget, and with co-financing by member states and Invest EU. It is proposed to include a fund to support the creation of new economic opportunities, a Strategic Investment Facility that will be integrated into Invest EU and a public loan facility. The NGEU plan proposes an increase in the Just Transition Fund of up to €40 billion. The Strategic Investment Facility will provide €15 billion for investments in green and digital transitions, with the aim of mobilising up to €150 billion of investment. It remains to be seen what activities will be funded by the JTM and how relevant they are to cities specifically.

European Commission programmes

Cities are able to access EU funding directly through European Commission programmes. For example, the well-known **LIFE Programme** provides grants and co-financing for public bodies (including cities), the private sector and NGOs to promote environmental activities and climate action. Since its launch in 1992, LIFE has funded a total of 530 projects by local authorities (out of a total of 5082 projects).[9] One example is LIFE's €1 million UrbanStorm project in the municipality of Viimsi in Estonia that aims to increase the climate resilience of Estonian municipalities and their ability to manage flooding caused by heavy rainfall.[10] LIFE's specific role in the EGD means the programme's funding envelope will be increased to €5.4 billion for 2021–2017, a 72% rise on 2014–2020.

Another important European Commission programme is **Horizon 2020**, an €80 billion programme dedicated to research and innovation. Although the programme is directed at research organisations, many project calls focus on urban issues related to sustainability and climate change. For example, a €3 million project called CityChangerCargoBike by an Austrian mobility research organisation was approved in 2018 to promote the large-scale use of cargo bikes in European cities.[11] The

8. To estimate this number, we have summed up the total contribution of the Cohesion Fund and the ERDF in three environment-related areas (Environmental Protection and Resources Efficiency; Low-Carbon Economy and Climate Change Adaptation; and Risk Prevention). Data available at: https://cohesion-data.ec.europa.eu/funds/ [Accessed on October 6th 2020].
9. LIFE database: https://life.easme-web.eu/ [Accessed on 20 September 2020].
10. More information about this project available at: https://www.viimsivald.ee/development-sustainable-and-climate-resilient-urban-storm-water-management-systems-nordic [Accessed on 20 September 2020].
11. More information about this project available at: https://cordis.europa.eu/project/id/769086 [Accessed on 20 September 2020].

Horizon 2020 programme also funds other initiatives aimed at cities, such as **JPI Urban Europe**, a research hub that supports interdisciplinary urban innovation projects, and the technical assistance facility from the **European Energy Efficiency Fund**, a public–private partnership blended fund that provides grants, loans and technical assistance to cities in the area of energy efficiency.

The EGD announced that half of all EIB funding will be invested in climate projects by 2050. Considering the high level of city-level projects financed by the bank, this decision could have a significant impact on policy in European cities.

In September 2020, the European Commission launched the European Green Deal Call, funded by Horizon 2020, to promote projects responding to the COVID-19 crisis through tackling climate change. For cities, this has resulted already in a specific call for proposals on "Climate-Neutral and Socially Innovative Cities", which aims to develop a one-stop shop for cities providing expertise on technical, financial and socio-economic topics to develop and measure climate action plans. However, from 2021 to 2027 the Horizon Europe research and innovation programme will also contribute even further to the EGD. Indeed, 35% of the programme's budget (currently proposed to be €100 billion) will be set aside for climate-friendly technologies.

Separately, the European Commission has recently published a new strategy focused on renovating existing buildings, "A Renovation Wave for Europe – Greening our buildings, creating jobs, improving lives" (EC, 2020f), with the objective of doubling annual energy renovation rates in the next ten years, which currently stand at around 1%. This may have a direct impact on European cities (CUT, 2019) since 58% of potential emission reductions in cities come from commercial and residential buildings. The investment plan also states that efforts will be put into working towards achieving net-zero emissions in European car fleets sometime in the 2030s, but the delivery mechanisms for this are not yet clear.

European Investment Bank (EIB) funding

The EIB is a supporter of city-level climate action and in line with the EGD it will become the EU's climate bank. From 2015 to 2019 the EIB lent €113.5 billion to urban projects. Urban project lending typically accounts for between a quarter and a third of total EIB lending, about 36% of which are climate mitigation or adaptation projects at city level.[12]

The EGD announced that half of all EIB funding will be invested in climate projects by 2050. Considering the high level of city-level projects financed by the bank, this decision could have a significant impact on policy in European cities. Yet the EIB, which only finances projects over €30 million, tends to work mainly with larger cities. Smaller cities often need to aggregate projects to be able to access EIB funding (e.g. via aggregators like the Fund FLAG in Bulgaria).[13] That said, the EIB tries to support smart city projects in smaller cities by working with local financial intermediaries, such as municipal and local banks that are especially active in the EU (e.g. Belfius in Belgium, BGN in the Netherlands and BGK in Poland).

The EIB will also implement 75% of the Invest EU Programme, which forms part of the next MMF 2021–2017 budget. Invest EU combines 14 EU financial instruments under one umbrella, aiming to improve the access to and mobilisation of public and private finance investment within the EU through guarantees. The programme, which was first agreed to in 2019, was finan-

12. Interview with EIB.

13. More information available at: https://www.eib.org/en/press/all/2020-251-eib-and-fund-flag-agree-eur25-million-loan-for-cities-across-bulgaria [Accessed on October 16th 2020].

cially enhanced by the NGEU programme to be able to face the COVID-19 economic crisis. The Invest EU Programme contains various funds and facilities that are relevant to cities, with EU guarantees underpinning support in key policy areas, including sustainable infrastructure, a technical advisory hub to support project preparation, an investor-project matchmaker facility, and a number of thematic financing facilities that provide loans and guarantees for energy efficiency, SMEs, innovation, sustainable infrastructure, etc. (EC, 2020a).[14] For example, ELENA, the European Local Energy Assistance programme, provides technical assistance and project preparation support to public and private entities to develop energy efficiency and renewable energy investments for buildings and urban transport (EIB, 2019).

III. Current constraints in mobilising EU funding for urban low-carbon, climate-resilient investments

Obstacles preventing the flow of EU public funds into urban climate and infrastructure projects are largely related to four factors:

1) ***Political constraints:*** Most EU-level funds are directed to national governments. While the European Commission and the EIB provide direct access to cities for climate investments, a large chunk of EU funding is concentrated in the ESIF. Political divergences between different levels of government are one of the main obstacles cities face when seeking access to EU climate-related funds. In February 2020, the mayors of major European cities signed a joint letter asking the EU for direct access to funds in the 2021–2027 MMF, which would enable them to respond faster and more effectively to the climate emergency (Reuters, 2020). Currently, 34 major cities have signed the letter.[15] The capital cities of the Visegrád countries – Bratislava, Budapest, Prague and Warsaw – which stand in opposition to their respective national-populist central governments, have even gone as far as creating a "Pact of Free Cities", which calls for European cities to be given direct access to the EU Cohesion Fund.

   In addition, local authorities themselves often suffer from competing priorities and limited resources that may lead to the prioritisation of economic development activities over climate-smart infrastructure. As a result of the COVID-19 pandemic, cities are also facing major budget restrictions that might lead to further shifts in priorities. In a joint letter to the European Commission, the Europe Board of the Covenant of Mayors called for the EU's economic relief packages to pursue a green recovery strategy at the municipal and regional levels:

To best support cities and regions in their recovery efforts while accelerating the energy and climate transition, these investments should be channelled towards the transformation to a climate neutral society (Covenant of Mayors, 2020).

   The letter cited examples of how cities like Milan had announced ambitious measures for moving towards a circular economy and reducing the use of cars after the end of lockdown. Furthermore, multi-level governance is strongly promoted via the Urban Agenda for the EU and the thematic partnerships between central and local government and other stakeholders, while the political messaging on the EGD, strongly in favour

Political divergences between different levels of government are one of the main obstacles cities face when seeking access to EU climate-related funds.

14. The European Fund for Strategic Investments, the Natural Capital Financing Facility, the Private Finance for Energy Efficiency Instrument (PF4EE) and the EIB Municipal Framework Loans.

15. A list of the cities that have signed the letter can be found here: https://budapest.hu/sites/english/Lapok/2020/eu-lobby.aspx

of a green recovery, has stimulated a positive response from cities, for example in the Mannheim Message (2020), which emphasises the need for cities to make "local green deals".

2) *Regulatory and budgetary constraints:* Another important constraint is that most EU funding requires 45% or more co-financing from cities. For municipal authorities, which generally have tight budgets and often limited borrowing capacity (many cities cannot borrow money in private financial markets), this requirement is hard to meet. The COVID-19 crisis has further exacerbated this problem, with estimates suggesting that local government revenue will be 15–25% lower in 2021 due to the pandemic (Wahba, 2020). However, long-term funding from the EIB can finance the city's counterpart funding to match EU funding up to a cumulative 90% of investment costs across EU and EIB funding.

3) *Capacity-building constraints:* Many cities in the EU have insufficient administrative and technical knowledge to prepare funding applications and ensure the bankability of potential investments. The insufficient capacity of EU cities, particularly small and medium-sized ones, to respond to complex EU or related national project calls, is a major constraint. Often the deadlines are very tight and some funds require specific technical information (e.g. risk assessments, environmental reports and detailed financial analysis) which many cities cannot deliver. Language barriers pose a further obstacle. Many of the calls directed at cities are in English only (e.g. Horizon 2020), presenting an extra barrier for non-English speakers.

   In addition, cities often lack the financial expertise required to design project funding structures, including non-grant funding. Financial instruments that normally involve revolving funds are often quite complex and not all cities have the required technical capacity for structuring the instrument and combining a range of funding. For example, Integrated Territorial Investment (ITI), a tool introduced in 2014 for use during the European Structural and Investment Funds (ESIF) programming period to bundle funding from different sources, has not, in practice, been able to aggregate many financial instruments. Although in some countries (like Poland) it has successfully stimulated urban investment on a functional urban area basis rather than purely within existing city administrative boundaries.[16]

4) *Knowledge gaps:* Identifying suitable sources of funding among the wide range of EU climate-related funds is a major challenge for cities. Many of the funds and project preparation facilities are thematic, such as the EIB's Natural Capital Financing Facility, and are not specifically directed at cities. It is often hard for cities to understand and navigate the EU funds.

   EIB initiatives such as JASPERs, ELENA and URBIS, the EU Covenant of Mayors, the Urban Agenda for the EU portal and URBACT all assist cities in navigating EU funds as part of their mandate. Yet, there is still no centralised source of information available. On the contrary, the proliferation of sources of advice, instead of providing guidance, risks increasing cities' confusion about where to go, who to ask and what the different facilities have to offer. Climate adaptation funds come with additional difficulties, as fewer investment options exist.

16. EIB interview.

Another constraint is poor communication on EU rules and timelines for funding programmes. For example, the requirements for the next EU MMF 2021–2027 funding programme that will begin in early 2021 have not been fully formulated at the time of writing (October 2020). This includes the concept of the circular economy at city level, which has yet to be defined by the European Commission. This lack of information means that cities have even less time to prepare their applications, and as a result less chance of accessing financing, especially given the long lead time needed to prepare urban infrastructure investments.

Conclusion

The EGD represents a major shift in gear for European environmental policy. Action at the city level will be key to achieving the programme's ambitious targets. Based on past experience, the majority of financing available for EGD implementation will likely be channelled through existing EU funds and institutions. A requirement is likely to be imposed for at least 6% of the ERDF funding to be allocated to urban investment (compared to 5% in the last programming period) and many initiatives will be targeted at climate- and environment-related measures. This represents a substantial volume of funding. Thus, early signs indicate that overall funding for cities may increase beyond past levels. It is welcome news that the EIB is increasing its climate-related projects under the EGD, which may potentially increase direct access to funding for cities.

However, more information is needed to understand whether the delivery mechanisms and funding commitments already announced will be sufficient to achieve the EU's ambitious decarbonisation targets and whether the EGD will also be a gamechanger for addressing cities' needs, including on urban climate-smart infrastructure.

European cities already face major challenges in trying to access climate-smart infrastructure funding. Addressing these challenges is essential to getting cities on the right track. One key improvement, responding to the political constraints, would be to simplify and expand the access modalities for EU funds – an elusive goal during the preparation period of every new programming period – and make more direct access funding channels available to cities. In parallel, expanding the key urban-related programmes in funds such as Horizon 2020 and LIFE, while also mainstreaming urban action across programmes, will be important to increasing city-level climate action.

The development of the EU Sustainable Finance Taxonomy should additionally encourage commercial investment into green and climate-smart urban investment. Project preparation facilities should also be strengthened to respond to capacity-building constraints in cities. Improving city officials' access to these facilities could also be a potential source of knowledge about EU financing opportunities, helping to solve the knowledge gaps in many EU municipalities.

The next implementation steps and the design of the delivery mechanisms will be decisive and set the tone for how European cities advance on their much-needed green recovery.

European cities already face major challenges in trying to access climate-smart infrastructure funding. Addressing these challenges is essential to getting cities on the right track.

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KEY PILLARS OF THE URBAN TRANSITION: ENERGY AND MOBILITY

- BEYOND GREEN, BEYOND THE DEAL: TOWARDS THE RENEWABLE CITY

  Peter Droege

- PATHWAYS FOR ACCELERATING TRANSITIONS TOWARDS SUSTAINABLE MOBILITY IN EUROPEAN CITIES

  Emilia Smeds and Clemence Cavoli

BEYOND GREEN, BEYOND THE DEAL: TOWARDS THE RENEWABLE CITY

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The European Green Deal (EGD) offers a glimpse into a greener future for our cities, and a role for them to contribute to a greener future for Europe and the world. But it is no longer enough to be green. It is no longer enough to aim at deals. A fundamental rewiring of the European city and the wider economy is needed. In order to attempt to counteract the climate tailspin the world is in, Europe has to move more boldly and quickly to a distributed and fully renewable energy system and restructure its agricultural and forestry practices, and its food, building, automotive and other manufacturing industries. The EGD falls short of this need.

The critical aim for the 2020s is to go far beyond the soft carbon neutrality aims of the 1990s and pursue a climate-positive regeneration of the European biospheric systems of which our cities are very much part. When tallying emissions balances in 2050 substantially more carbon should be found to be drawn from the atmosphere than injected into it. Fundamental drivers are, for example, the cessation of fossil fuel and cement emissions and the widespread ramping up of industry, agriculture, forestry and wetland capacities to absorb and retain atmospheric carbon.

The very notion of a "deal" is to be challenged. The EGD moniker is a term twice removed from its original – the New Deal of Franklin D. Roosevelt's 1930s economic and social reforms in the United States, associatively transformed into the US Green New Deal (Friedmann, 2019), and now used by the European Commission without the "new" and hence strongly implying the old, reinforcing its Trumpian connotations (Schwartz & Trump, 1987).

The very idea of a "deal" is misleading. Survival is not a game of cards, or a process of negotiation with win-win outcomes but a question of ecological fit. Nature does not bargain, and punishes those bent on disrupting it. Global atmospheric CO_2 concentrations in the year 2020 are at 415 ppm and those of CH_4 – methane – approach 1,900 ppb. At selected Arctic hotspots they are almost twice as high, as the remobilisation of potentially massive amounts of greenhouse gas (GHG) hitherto

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locked up in methane hydrate ice concentrations begins. These largely fossil fuel-driven gas levels are now 150% and 300% above the long-term planetary stable peaks of 280 ppm and 600 ppb, respectively, and are rising exponentially (NOAA, 2020). Earth's atmosphere was at these high levels during the Pliocene 3.3 million years ago, prior to the extraordinary climate stabilisation period of the Holocene. But due to the delay between GHG rise and thermal energy forcing we are now racing back into Earth's distant past to the mid-Miocene 15 million years ago (de la Vega et al., 2020). Mean average temperatures (MATs) then were 3ºC–4ºC higher across the globe including the seas. Because oceans absorb the majority of excess heat and have lower levels of surface temperature increase than land, this translated into land temperatures that were between 7.5ºC and 10ºC higher than today (Xu et al., 2019).

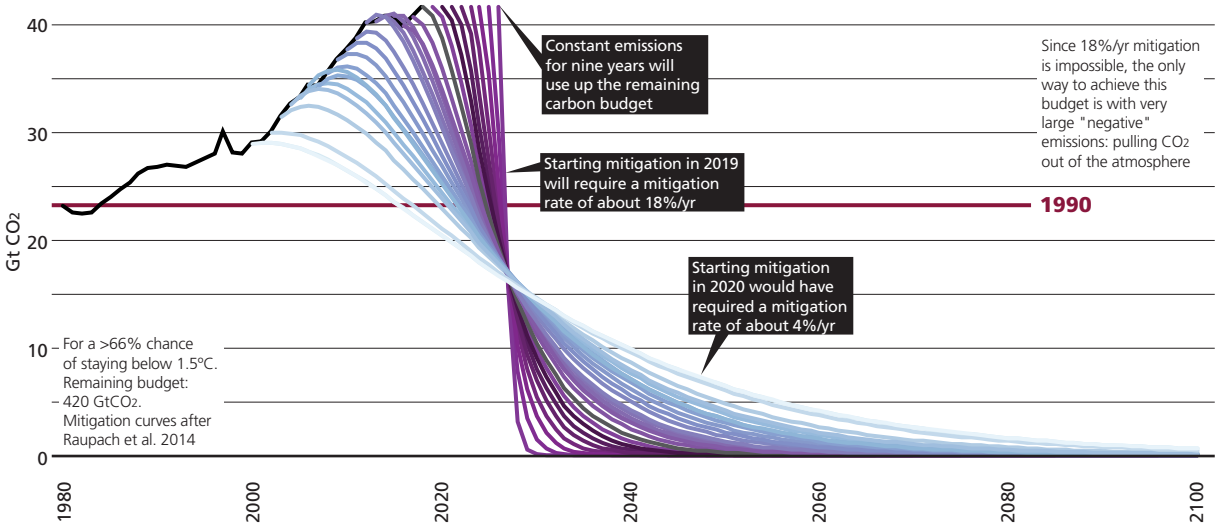
Even when using the unrealistically low near-linear projections along the "Business as Usual (BAU)" RCP8.5 path, or a three-degree MAT rise, one-third of the world's population is likely to be exposed to mid-Saharan temperatures by 2070 (Xu et al., 2019): 7.5ºC higher than in the 1880s, or MATs of over 29ºC. This is far beyond any reasonable expectation for the survival of anything resembling today's society, and even most species alive today, including *Homo sapiens*. The evidence is stark. Current global average temperature levels – nominally 1.2ºC above industrial levels of the late 19th century – are already over 2ºC above mid-18th century true pre-industrial levels. We watch helplessly as Arctic sea ice, the Greenland ice pack and global glaciers melt away like ice cubes on hot asphalt, while many of our forests, peatlands and wetlands now combust easily and frequently in Australia, South America, North America, Europe and across Siberia and the Arctic circle. Farmers and miners lend these fires a most unhelpful hand with their slash-and-burn accommodation of the voracious global hunger for soy beans, palm oil, beef and gold. Temperature increases and changing weather patterns due to increasingly erratic jet stream patterns triggered by Arctic heating makes this even worse. And yet, very little – if anything – is being done to try and halt it, let along reverse its course. The EGD only vaguely and weakly points in a general direction and at too distant a target date. It could be seen as a step in the right direction, but without admitting its inadequacy it carries the risk of cementing complacency.

The role of cities

Commercial energy is largely used in the building and transport sectors, making urban areas crucial to transforming the energy paradigm. Energy renewability, embodiment, efficiency and sufficiency continue to form a magic quadrangle that can guide immediate action. The great potential contribution to be made to transforming our immediate living environments and general place in the world is being missed in the EU's so-called Green Deal, and by a wide margin. For example, by aiming at reductions relative to 1990 levels, it actually perpetuates a very high annual emissions level (Figure 1). It does not sufficiently seize the opportunities to lower carbon[1] emissions embodied in the production, maintenance, powering, heating and cooling of our residential environments, work spaces and the built environment in general.

1. "Carbon" here stands for *carbon dioxide equivalent greenhouse gas (GHG-e) emissions*: not all GHGs actually contain carbon.

Figure 1: The minimum annual emissions reduction path required to adhere to the Paris Climate Agreement's 1.5°C aspirational ceiling with a 66% success perspective – compared to the 1990 baseline against which the EU's 90% reduction target by 2050 is set – is far too little and too late.



Source: (Global Carbon Project, 2020; 1990 baseline superimposed by author).

Material carbon embodiment and biosequestration in particular offer potentially important growth: the future lies in nurturing a *negative-carbon* society (NCS). This strategy is essential to lowering the quantities of GHGs in the atmosphere, to keep our well-tempered greenhouse Earth from rapidly sliding into a hothouse state. However, the shift towards an NCS is not on the EGD's agenda. It should be amended to embrace the rapid proliferation of NCS principles and projects and their mobilisation across the EU's built environment production system. It is a call to reform and sustainably open the energy markets and structure them for sustainable, renewable resources by exposing costly fossil and nuclear power to their real costs, creating the required regulatory and policy frameworks and removing all the overt and hidden ways fossil fuels are subsidised with several trillion USD annually: the IMF reported 5.2 trillion USD global in such post-tax subsidies in 2017 (Coady et al., 2019). This is no longer just urgent, it has become manifestly and long overdue as a result of political delays and incumbent industry inertia. And, given the primacy of cities and urban areas in global human settlements, the Renewable City – urban environments, economies, movements and systems entirely reliant on renewable energy resources – is now an essential, even basic, precondition to any hope of stabilising the global climate (Droege, 2006). The future lies in a negative carbon cycle and, consequently, in highly carbon-retentive cities and regions.

A truly carbon-negative built and cultural environment removes, sequesters, stores and binds anthropogenic surplus greenhouse gases that are already in the atmosphere. Even this nominal balance will not be enough: a massive regenerative action agenda needs to enact "global gardening", the un-development and re-nurturing of Earth's biosphere. To turn this exceptional emergency into a survivable future will require virtually all the COVID-19 recovery funds (Whitlock, 2020) or other economic stimulus funding, and a repurposing of military expenditure and assignment of national and EU-wide climate defence budgets, many times the size of current defence budgets,

while engaging in intensive climate diplomacy. In these fraught, fragile and fractured times, if the EU does not lead, who will?

I. Green Deal predicaments

The future lies in a negative carbon cycle and, consequently, in highly carbon-retentive cities and regions.

The delay tactics of incumbent interests and resistance to critical action over the past generation mean that today 100% renewable is no longer enough and the zero emissions target is set too high to meet climate stabilisation aims. We now know what some of us have long suspected: the United Nations Framework Convention on Climate Change (UNFCCC) targets and frameworks were not only far too loose and narrow but also aimed in the wrong direction: up, rather than down. Similarly, the projections of the Intergovernmental Panel on Climate Change (IPCC) have been notoriously scientifically slow and conservative – and in their summaries for policymakers influenced by both political pressure and wishful thinking. We can now plainly see that throughout the past decades of "climate negotiations" there was never a "carbon budget" to work with. It had already been depleted by the time the very image of a "carbon budget" was implanted in the dominant policymaking consciousness. Another long-held myth concerned the mechanical systems thinking that led to linear projections and simple-minded graphs showing how lowered emissions would directly correspond to lowered temperatures via the global climate and carbon systems. The fact is that by the late 1980s, when climate change began to be popularised in earnest, atmospheric CO_2 concentrations were already substantially above the long-term stable level of 280 ppm, namely at 350 ppm (NOAA, 2020). No evidence then – let alone now – suggests that such elevated levels would allow climate stability to be retained.

The most promoted and accepted of these comforting illusions, and already baked into the fallacious Kyoto Protocol, was the notion of emissions trading. Many popular "inconvenient truth" presentations and reports by climate protagonists from Al Gore to Prince Charles and Sir Nicholas Stern relied on this. A coterie of carbon compensation and offset scheme operators quickly began peddling their services in the 1990s to ride the offset guilt wave, for example in the putative greening of airline passenger miles. The unnerving notion of living inside a great and expanding excess carbon bubble was made to feel safe by the reassuring construct of the carbon "budget". It is currently presented as being just above 400 Gt and will be "exhausted" at current emission rates in less than ten years. In truth it was exceeded back on June 10th 1986 when (then) NASA's James E. Hansen, an early purveyor of the carbon budget myth itself, correctly predicted the very hot water humanity finds itself in now before a US Senate committee (US Congress, 2014; Mooney, 2016). Only two years later Hansen returned to Congress to assert that he was 99% certain that climate change had started (Shabecoff, 1988).

II. Stuck in neutral: 100% is not enough – and 0 is too high

The EGD has been developed as "*a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth*

is decoupled from resource use" (EC, 2019: 2). This valiant summary statement is flawed: "no net emissions" is an inadequate aim, since CO_2 concentrations in the atmosphere today exceed levels from stable civilization-supporting times by 150% (and 300% in the case of CH_4 methane). To continue to aim at emissions neutrality is like trying to stop a car racing at high speed towards a brick wall by putting it into neutral. Unfortunately, "climate neutral by 2050" has also become an uncritically promoted and adopted target for many European cities (Salvia et al., 2021). To aim at a false, weak and distant target may be a far worse strategy than simply working to replace urban energy systems with renewables-based ones as quickly and practically as possible, and by whatever means.

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The best future a revised EGD can aspire to is massive propagation of current knowledge in regenerative developments such as practical innovations in buildings, neighbourhoods and communities; here most importantly – and challengingly – it must tackle the existing building stock. Elevating the retrofitting and refurbishment of the energy-wasting building and plant stock to a European priority and making it the very foundation of construction and planning regulations is fundamental (here, the Renovation Wave for Europe that was launched as part of the EGD in October 2020 is a step in the right direction (EC, 2020a). It pales only in comparison to decarbonising and denuclearising the EU's energy sources and the dramatic shift away from coal, oil and gas, while finally retiring the all-too-slowly waning, costly and, in times of rising heat waves and drying rivers, increasingly dangerous nuclear reactor fleet.

The carbon budget myth has helped foster a widespread and tragic complacency. The EGD also fails to face up to the urgent challenge of endowing the building, transport, industrial and agricultural sectors with the ability to withdraw copious amounts of excess GHGs from the atmosphere and bind them in soils and materials, supporting biodiversity and sustainably managing increasingly scarce water resources. These simple means have existed as the basis of good land management for millennia. Largely lost today, they would help regenerate the natural photosynthetic systems on which we depend for life support. When urban agendas lead to major afforestation and carbon sequestration not only in products such as wood or carbon products for buildings but in agricultural soils, regenerated wetlands, mangroves and coastal areas, then cities can begin to help stabilise the climate.

Sustainability principles have emerged as urgent survivability measures, it's just that not everyone has noticed it yet. Relying on renewable energy, ending the combustion of fossil resources, ending carnivorous food culture and industrial agriculture, lowering atmospheric GHGs and binding them in soils and materials, shrinking lifestyle footprints, revolutionising water management and shoring up biodiversity supports are essential elements in NCS actions and demands for the built environment.

III. Cities and regions embracing renewable energy

Imagine a world with abundant and ubiquitous energy for all, based only on sunshine, wind and water, powering and empowering our cities and communities from within at little or no resource cost, building local prosperity and strengthening security and social cohesion. Energy

and energy technology represent an embedded dimension in this new world rather than an external source or supply system – an essential characteristic of cities rather than an imported commodity. This world is within reach not only because it is so easily imaginable and compelling, but because it is already developing across many cities, towns, businesses and communities today.

Urban centres and their neighbourhoods and districts, but also their wider regions, become particularly critical, if not essential, in the great energy transformation defining the 21st century.

No more oil wells and pipelines, coal mines, radiation alarms or power decisions made behind closed doors. Instead, a diverse yet connected multitude of renewable transport, building and industry-integrated generation and transmission systems will supplant the centralised power behemoths of the 19th and 20th centuries. This new energy world is renewable and sustainable, local and global, continental and regional. It emerges as a loose and redundant – and hence more resilient – tangle of systems, kept energised by a myriad of consumers and providers, often and frequently switching roles. It links power, heating and cooling, storage and networks, stationary and mobile systems and agents. Applied in islands and across grids alike, it embraces utilities and networks as enablers and communities as accountable partners.

This new world liberates and empowers, resists control by monopolies and sidesteps attacks by terrorists alike. "Smart" network technologies and protocols support the smooth functioning and transactional accuracy of the system. Here, cities power themselves and their regions, providing their own industrial, transport, agricultural and residential energy. Indistinguishable from cities and their economies, the energy infrastructure will be financed and owned by communities, investors, users and producers. This is an equitable and exciting world of intelligent prosumers (or *conducers*, or, more accurately, *prod-users*), engaged city leaders, advanced self-sufficient industries and communal cooperatives made elegant, proficient and efficient by smart web architectures and information technology-based trading platforms.

And now imagine how to get there from here. The remainder of this chapter seeks to plot the plethora of possible pathways between the already achieved and the still needed in policy, practical, conceptual and visionary ways. The energy supply in the early 21st century is still overwhelmingly fossil fuel-based and kept centralised by the doggedly defended inertia of incumbent interests – but the great and dynamic transformation is already underway and tangibly active, from individual initiatives to industrial investments. What may seem utopian to some has already become a reality for others.

Cities are formed of and around energy infrastructure: they are increasingly interconnected and sophisticated bundles of generation, distribution, networking and storage systems bridging power, thermal energy and mobility, storage and networks. Urban centres and their neighbourhoods and districts, but also their wider regions, become particularly critical, if not essential, in the great energy transformation defining the 21st century – more tangibly so than in each of the sectoral domains of agriculture, industry or transport. This transformation follows a wider emerging trend: the rise of renewable electricity as paramount societal infrastructure around which thermal,

mobile, storage, network and, above all, power carrier and conversion strategies are woven, enabling ubiquitous energy harvesting, storage, dispatch and arbitraging – but also local trading and financial empowerment for individuals, neighbourhoods, districts and regions.

A haunting past is still with us: a vast GHG stream is constantly being pumped into an atmosphere that has long been oversaturated with fossil fuel exhausts, if we take the planet's ability to maintain a habitable temperature and biological equilibrium as the "saturation" gauge. This system has been in overshoot for at least a generation now, since we have long passed a 1°C and now perhaps even 2°C mean annual temperature rise above real pre-industrial levels. To bring it to a sustainably steady state, nothing short of an immediate and all-consuming massive emergency agenda akin to wartime mobilisation is required – a world at peaceful but constructive conflict with its own incumbent energy habits. When it comes to the organisation of societal action, cities could have an advantage over national governments: local communities can measure time and change in immediate and concrete outcomes. City and also state or provincial leaders are held accountable in more direct ways than national politicians can be. Many cities and urban alliances have emerged that are taking on the role of energy policymakers, innovators, contractors, producers, consumers and implementors in this transformation towards a renewable world.

Nowhere is this change felt more strongly than in shifts from old-style centralised power supply contracts to a ubiquitous world of energy markets, increasingly interconnected with if not defined by global, regional and local information systems. The actual shift to renewable energy may not yet have become quite mainstream, even in Germany where half of electricity is already provided by renewable sources. But the very idea has long galvanised an entire technology-savvy generation – not least because it fits the new decentralised paradigm of a networked society. The popular imagination of technology afficionados increasingly connects the idealised civic benefits of ubiquitous computing and telecommunications of the 1980s with those of an energy singularity, embracing encrypted electronic accounting systems providing access to every energy user on the grid, however small or large. The energy web (Droege, 2006) is here to stay and grow.

Cities and regions still rank among the most tangible and dynamic change agents in transformative energy policy and societal action worldwide. The steady rise of renewable energy policy adoptions and target setting measures among European urban centres and agglomerations is expressed not only in the numbers of active urban energy programmes but also in the rising popularity of renewable energy among voters and corporate constituents. A significant change since the late 2000s has been the sharp decline in the cost of renewable energy systems, their storage and production. This explains in part why strong progress and very substantial renewable energy transformations are being achieved by companies, countries, states and local communities against a background of persistent, even growing, policy resistance at some national but also EU levels, inspired by incumbent industries and dressed up as progressive-sounding "climate-neutral" policies (Droege, 2018).

IV. Regenerative European policy: the new energy market framework

The EGD would do well to adapt what I call a "regenerative European policy protocol", which shifts towards a paradigm of renewable energy by focusing on individual and collective innovation across cities and regions.

Local, national and global proliferation of the principles underlying these initiatives has long been critical, even without policy, regulatory and market frameworks being fully adjusted. Unfortunately, in some jurisdictions, like Germany, they have become ever more onerous and complex. Simplification and bold adjustment to match the new technological – and climate – reality is urgently needed. The EGD would do well to adapt what I call a "regenerative European policy protocol", which shifts towards a paradigm of renewable energy by focusing on individual and collective innovation across cities and regions. The EU needs to support its member states, regions and cities in the fundamental transformation of their economies, institutions and governance to enable the systematic replacement of inherited energy systems with distributed renewable energy infrastructures that are fully founded on new technologies and community benefits. This includes finding ways of regenerating and retrofitting existing neighbourhoods and their building stock.

Halting the current, accelerating slide into a climate abyss is the true meaning of "sustainability": it has always been about "survivability". The rising number of innovations provide the methods and projects for a sustainable development trajectory that is fast becoming a global paradigm. It is the very core, the seed, of overdue emergency action agendas. The initiatives that form Europe's "seeds of the future" include the many extraordinary successes and advances in the proliferation of renewable energy already made: the powerful feed-in tariffs; the rise of 100% renewable buildings, communities and regions; the broad march of solar and wind into many countries' power mixes; the revolution of national policies to embrace energy transitions; and the rise of renewable energy investment – which has long become the dominant mode in annual capital expenditures in new power generation capacity worldwide.

A renewable city supports and thrives on closer cooperation with its hinterland, region, nation-state and beyond. It relies on intelligent renewable energy networks that monitor a constellation of decentralised renewable energy plants and generators at varying scales. It will need improvements and extensions to existing energy supply infrastructures to improve integration, connection and, most importantly, increase accessibility to different types of renewable energy. Favourable and compatible spatial planning policies and guidelines at the urban, regional, federal and even EU levels will be sought to achieve equitable, safe and reliable flows and access to such energy sources.

Six market shifts are essential to construct a new, entirely emission-free urban energy agenda as the basis of a new market framework for Europe's countries and community. These focus on *a) Proliferation of European and worldwide policies; b) Regulations; c) Technical support; d) Finance; e) Barrier removal; and f) Infrastructure and regeneration*. The European Association for Renewable Energy, EUROSOLAR, has developed, elaborated and promoted this New Energy Market Order (NEMO) over a number of years (see Eurosolar, 2013–2021).

V. Negative carbon balance: Climate positive frameworks for the European city

The great carbon bubble our civilisation, its economy and our cities float on represents one of the greatest, most radical and rapid disruptors in the known history of this planet – even surpassing those that caused previous extinctions. The EGD seems unaware that without massive concerted action this has an existential inexorability. Its proposed actions require sharpening, emboldening and transforming in order to go "beyond the deal" –realising that this is not about creating yet another feeble "win-win" but to avoid the big lose-lose. Especially in cities this "beyond the deal" agenda of NCS – the negative carbon society – can and must become concrete, specific and tangible.

No city is an island. Only a renewable energy-based, net carbon concentration-lowering European economy can offer the foundation for the urban-focused negative carbon society that needs to be established urgently. Arithmetical neutralisation is not enough. Only by a) eliminating and b) reversing the flow of GHG emissions from construction, building (cement and other materials) and food (agriculture) production and consumption can we begin to rectify the direction of the emission vector – in other words, reverse it.

Because cities and their policy apparatuses have a powerful role to play in that transformation, they must receive more knowledge, technical and financial support in their efforts to face this great calamity. Local, national and global proliferation of the principles underlying the documented initiatives has long become critical – without current policy, regulatory and market frameworks having been sufficiently adjusted. To articulate the call for action, we propose what we call a "Regenerative City Protocol", a set of paradigms and principles that support the regeneration of cities and regions and the complete shift towards renewable energy. It also supports government guidance for individual, community, industry and research innovation in adopting carbon sequestering construction and manufacturing processes. The fostering of biodiversity is fundamentally a core urban and regional planning task. European cities and urban communities are challenged to promote ecologically much more accountable and aware lifestyle choices and consumption patterns, including urban integrated and peri-urban organic and carbon-negative agricultural supply systems.

It is a call to Europe, its member states and cities – as well as regions, nations and cities elsewhere – to stand up and support fundamental transformations in the economy, institutions and governance. This is the only way to systematically replace inherited energy systems with distributed renewable energy infrastructures founded on new technologies and community benefits – a fundamental requirement for a broad draw-down agenda for destabilising atmospheric carbon. Crucially, it also involves finding ways of regenerating and retrofitting existing neighbourhoods and their building stock – moving to renewable energy surplus production and simultaneous negative carbon flows. Other paramount policy targets include investments in regenerative agricultural and forestry transformations, building and industrial carbon entombment practices, and rapid coal, natural gas and petroleum phase-out paths.

The Circular Economy (EC, 2020b; EP, 2020) is well-placed to become the basis and driver of a negative carbon economy. For the moment, it remains a weak and weakly applied guidance instrument: only a small fraction of the EU's resource stream is reused or recycled. But circular economy processes must be strengthened in a way that ensures that agricultural, building and construction, road infrastructure, energy and industrial processes become carbon sequestering, in wood or other atmospherically extracted carbon rich materials such as algae-derived carbon fibre. At the same time, fundamentally flawed technologies such as nuclear power, natural gas as "transition energy", "clean coal" and carbon capture and storage (CCS) – a not only costly but also technically disconcerting and impractical technology – must be strenuously avoided.

At the time of writing, the COVID-19 pandemic stalks Europe and the world. Many trillions of dollars and euros are being created by central banks to shore up faltering economies. Far too much of this is being applied to subsidise toxic, old and fossil-fuelled industries. The existential opportunity for the European Central Bank is to designate all of these funds to a broad restructuring and regeneration of the European economy (Eurosolar, 2020). In this way cities and distributed urban infrastructures become empowered as both engines and focusses of a green economic renaissance and meaningful urban metabolism of truly planetary significance.

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PATHWAYS FOR ACCELERATING TRANSITIONS TOWARDS SUSTAINABLE MOBILITY IN EUROPEAN CITIES

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Meeting the European Green Deal's (EGD) target of climate-neutrality by 2050 will require a 90% reduction in emissions from the transport sector, as formulated in the European Commission's Communication on the EGD in December 2019 (EC, 2019a). "Accelerating the shift to sustainable and smart mobility" is identified as one of eight thematic priorities in the Communication and places an emphasis on:

- shifts from road transport to rail and inland waterways;
- automated and connected multimodal mobility;
- phasing out fossil-fuel subsidies and extension of the EU Emissions Trading Scheme to aviation and maritime transport;
- increased production and deployment of alternative transport fuels, specifically zero- and low-emission vehicles;
- transport becoming "drastically" less polluting "especially in cities", including more stringent air pollutant emissions standards and CO_2 emission standards for vehicles.

It is notable that the *urban* context is not given much emphasis in the Commission's priorities for future mobility: beyond emphasising the need to reduce air pollution in cities, the Communication does not mention walking, cycling, public transport or new mobility services that are central to daily mobility in urban areas. The formulation of new sectoral policy instruments linked to the EGD is still in its infancy, but the omission is nevertheless surprising, considering that tackling urban emissions is critical for meeting the 90% reduction target for transport. Road transport accounts for approximately 72% of total greenhouse gas (GHG) emissions in the EU (EC, 2019b), with urban areas contributing 40% of total road transport CO_2 emissions (EC, 2020). Overall, urban areas are estimated to account for 23% of CO_2 emissions from transport in the EU (EEA, 2019).

The Directorate-General for Mobility and Transport (DG MOVE) is currently developing an "EU Strategy for Sustainable and Smart Mobility" that will set out how the 2050 target can be met. The roadmap published for consultation on this strategy *does* mention the urban

dimension. It includes an objective of "revamping the European agenda for sustainable urban and regional mobility, including cycling, intermodal transport and transport-on-demand" (DG MOVE 2020: 3) and states that the strategy will "set a pathway for the sector to master the twin green and digital transitions" (DG MOVE, 2020: 1). This chapter will discuss how the EU can support local authorities to develop "transition pathways" towards sustainable urban mobility and the 2050 target.

The urban context is not given much emphasis in the Commission's priorities for future mobility.

We start by briefly discussing the evolution of EU policy instruments with an influence on urban mobility in Europe. While different instruments have had their successes, in the following section we argue that, to date, urban mobility transitions have been uneven and too slow to achieve the 2050 target for transport decarbonisation. We propose the concept of "transition pathways" developed within the Horizon 2020 CIVITAS SUMP-PLUS project as an approach to supporting European municipalities in accelerating transitions to sustainable urban mobility.[1] To conclude, we offer policy recommendations relevant to the European Commission and the EU Strategy on Sustainable and Smart Mobility.

I. EU instruments influencing urban mobility: successes and challenges

In order to provide policy recommendations for how the EU could support urban mobility transitions, we begin by outlining the past evolution of EU policy instruments to give an understanding of possible ways forward.

Historically, EU transport policies have not focussed on urban issues. This is due to two factors. First, the EU does not have a "fully institutionalised" urban mobility policy. As urban mobility is not mentioned by the EU treaties, the EU does not have specific legal power in this field (Halpern, 2014; Rommerts, 2012). Second, as highlighted by Cavoli (2015) and Timms (2011), the Commission's action in the field of urban mobility – and urban policies in general – is restricted by subsidiarity issues. The "principle of subsidiarity", as stipulated in the Treaty on European Union, aims to ensure that "powers are exercised as close to the citizen as possible".[2] This has often led to the explicit or implicit expectation that EU institutions should refrain from initiating policies and regulations related to urban issues (Atkinson, 2010; Jordan, 2000). Despite these constraints, since the 1990s the EU has been giving increasing importance to urban issues, including mobility (Atkinson, 2010).

In the 1990s, urban mobility interventions were indirectly funded under the EU's Framework Programmes for Research and Technological Development and the URBAN regeneration programmes. In 2000, the establishment of a dedicated urban mobility unit within the Directorate-General for Energy and Transport marked a turning point. This indicated the Commission's willingness to formally recognise the importance of urban mobility issues (Rommerts, 2012). For the first time, the 2001 *White Paper on Transport* directly discussed the need to address mobility issues generated at the urban level (EC, 2001). The *White Paper 2011 Roadmap To a Single European Transport Area* marked another milestone for EU policy by officially recognising urban mobility as one of the key pillars of EU transport policy. Ambitious EU targets for urban mobility were announced, such as halving the use of "conventionally fuelled vehicles" in urban areas and

1. www.sump-plus.eu
2. Article 5(3) of the Treaty on European Union.

achieving "CO_2-free city logistics" by 2030 (EC, 2011: 9). However, in both the 2001 and 2011 white papers, the focus on urban mobility remains limited and they explicitly or implicitly stress that EU action in this area is limited by the principle of subsidiarity.

The issue of subsidiary explains why the majority of the Commission's action in the field of urban mobility has been through "soft" policy instruments, such as funding programmes, Communications and guidance documents targeted at urban areas. Over 60 EU transport, environment and climate laws have also been adopted since the 1990s, which have had an *indirect* impact on urban mobility (Cavoli, 2015). For example, the 2008 Ambient Air Quality Directive has contributed to accelerating the implementation of sustainable mobility policies at local level (Cavoli, 2020). For the most part, subsidiarity concerns have prevented the Commission from establishing binding policies targeting urban mobility directly.

The issue of subsidiary explains why the majority of the Commission's action in the field of urban mobility has been through "soft" policy instruments.

Unequivocally, the EU's strongest influence on urban mobility issues has stemmed from its research and development programmes. In 2001, the EU Commission established a dedicated funding programme called CIVITAS – Clean and Better Transport in Cities that has been co-funding innovative urban mobility policies and planning across EU cities. The launch of CIVITAS marked the beginning of direct Commission action dedicated to urban mobility and a shift from research-oriented projects to "demonstration" projects aiming to implement urban transport policies. Furthermore, since 2007 the EU's Framework Programmes and the Horizon 2020 programme have had dedicated calls focusing on urban mobility innovation and policies. EU funding allocated to urban transport has increased substantially, from €11.2 billion from the European and Structural Investment Funds between 2007 and 2013 to €16.3 billion between 2014 and 2020 (European Court of Auditors, 2020).

There is evidence that funding instruments have contributed positively to urban mobility transitions. A large-scale ex post evaluation of EU financial instruments for sustainable urban mobility projects between 2002 and 2013 found that EU support was perceived as creating significant added value, with small and medium-sized cities reporting particularly high effectiveness of EU support (Tomassini et al., 2016).[3] Research by Cavoli (2015) has shown that the CIVITAS funding programme has created "political space" for European cities to explore new sustainable mobility policies that might not have been pursued otherwise and has acted as an "accelerator" of sustainable mobility policies at the local level. Smeds (2018) found that urban mobility experiments undertaken as part of CIVITAS projects in Ljubljana and Bristol had kickstarted longer-term trajectories in which particular policy experiments were scaled up city-wide.

Communications such as the Commission's 2007 Green Paper on urban mobility (EC, 2007), 2009 Action Plan on urban mobility (EC, 2009) and 2013 "Urban mobility package" have launched new types of "guidance" on mobility in European cities. The "Urban mobility package" stressed the need to "reinforce the support to European cities for tackling urban mobility challenges" (EC, 2013: 2) by introducing standards, and paved the way towards the introduction of the Sustainable Urban Mobility Plan (SUMP) guidelines (EC, 2014; Rupprecht Consult, 2019). These recom-

3. This included projects funded by the Framework Programmes, Intelligent Energy for Europe, ERDF/INTERREG, Cohesion Fund, LIFE, TEN-T and loans funded by the European Investment Bank. 525 projects in 140 cities were evaluated using survey and case study research, primarily reporting on the perspectives of city beneficiaries.

mend a planning process for local authorities to develop transport policy strategies in line with the principles of sustainable urban mobility, with a shift in focus from traffic engineering to "planning for people". Recent research has indicated that there were a total of 1000 "active" SUMPs across European municipalities in 2017 (ICLEI, 2018). However, the extent to which EU "guidance" documents have a tangible impact on urban mobility policies and trends is under-studied and difficult to assess in a rigorous way. The primary impact of EU Commission Communications tends to be on the internal politics of the European institutions, sending "strong political messages" that lead to changes in policy (Cavoli, 2015).

The transport sector has not seen the same gradual decline in GHG emissions noted in the EU's energy, agriculture, industrial and service sectors.

In evaluating the Commission's funding programmes relating to urban mobility for the 2014–2020 period, the European Court of Auditors (2020: 4) recently concluded that "six years after the Commission called for a step-change [in progress towards more sustainable urban mobility], there is no clear indication that cities are fundamentally changing their [policy] approaches". We note that six years is a short time after which to assess the impact of an EU policy package at the local level, and that evaluating such impacts is notoriously complex (Russo & Rossi, 2009). We argue that this gradually expanding arsenal of policy instruments developed by the Commission is impressive considering the subsidiarity constraints within which it has operated. Towards the end of the chapter we will return to opportunities for refining existing EU instruments. Rather than stating that little progress has been made, or attributing this to EU policies, we observe that transitions towards sustainable urban mobility have been highly uneven across Europe, and we provide a brief stocktake in the next section.

II. The unevenness of urban mobility transitions across Europe

We define transitions as a process of incremental reconfiguration of urban mobility systems in line with the sustainable mobility paradigm (Geels, 2018; Banister, 2008).[4] As the focus here is on the EGD's 2050 climate-neutrality target, we examine transitions by looking at two proxy indicators: CO_2 emissions and levels of private car use.[5]

The transport sector has not seen the same gradual decline in GHG emissions noted in the EU's energy, agriculture, industrial and service sectors: emissions only started to decrease in 2007 (EC, 2019d) and in 2017 were 28% higher than in 1990 (EEA, 2018). Road transport accounted for more than 82% of these GHG emissions in 2017 (EEA, 2018) and produces most of the emissions generated in urban areas. In the absence of a large-scale dataset for GHG emissions attributable to urban areas across the EU, we cannot draw definite conclusions regarding the decarbonisation trend for urban mobility. However, when considered alongside other evidence, the available data suggest that the emissions trend is not on track to achieve the 2050 net-zero target.

Private car use has decreased since the 2000s in large western European capital cities such as Vienna, Copenhagen, Paris, Berlin, London (Wittwer & Gerike, 2018), Oslo, Zurich, Stockholm, Geneva, Milan (Teoh et al., 2020) and in mid-sized cities such as Bristol, Cardiff, Bordeaux and Toulouse (Cavoli, 2015). However, in many cities the opposite

4. The reconfiguration perspective (Geels, 2018) reflects recent shifts away from the earlier conceptualisations of socio-technical transitions as more radical *regime shifts*, from one dominant socio-technological regime to another, e.g. from horse-drawn carriages to the automobile (Geels, 2012).
5. This does not mean that other indicators such as road safety or air pollution are not important, indeed in relation to decarbonisation and reduced car use these can be defined as co-benefits.

has occurred. Reviewing trends between 2007 and 2017 in 13 large European cities, the European Court of Auditors (2020) found that there had been a significant shift away from private car use only in two cities, while car use had actually increased in five cities (Madrid, Barcelona, Budapest, Copenhagen and Riga). Statistics at the national level show that car use grew across the EU-28 from 1995 to 2009, with only some countries exhibiting a "peak car" plateau from 2009, and continued growth in large parts of eastern Europe (Focas & Christidis, 2017). Analysis of survey responses from 336 European municipalities as part of the SUMP-PLUS project indicated that the self-reported degree of experience with sustainable urban mobility planning is highly dependent on city population size.[6] 46% of municipalities with fewer than 50,000 inhabitants reported having no experience, and 73% reported not having a Sustainable Urban Mobility Plan in place, which is problematic considering that 8,000 European towns with 5,000 to 50,000 inhabitants account for approximately 21.6% of the EU population (Servillo et al., 2014: 8).

The SUMP-PLUS project has developed a novel conceptual framework focused on "transition pathways" towards sustainable urban mobility.

If we understand transitions as *incremental*, we could point to specific European cities and say that transitions have occurred. Even so, in many cases, the pace of urban mobility transitions has been too slow to put these cities on track to achieve the 2050 target. Bristol is an illustrative example: a typical mid-sized UK city in terms of governance, local autonomy and public transport supply, but which has a long history of sustainability policies and was awarded the competitive title of European Green Capital for 2016. While private car commuting decreased by 6.3% between 1991–2011 to 52.3%, CO_2 emissions from transport reduced by approximately 8% between 2005–2016.[7] Extrapolating a continuation of this historical trend in year-on-year emission reductions into the future, Bristol would only achieve a reduction of approximately 27% by 2050 from a 2005 baseline.[8]

We can thus conclude that in some contexts, transitions towards the 2050 net-zero target need to be *accelerated*, while in other contexts transitions need to be *kickstarted*, including a reversal of current trends. To achieve the EGD target, we need new conceptual approaches and practical methodologies that European municipalities can draw on to plan for 2050 and build local capacity to achieve their ambitions.

III. Developing urban mobility transition pathways towards the 2050 target

The SUMP-PLUS project has developed a novel conceptual framework focused on "transition pathways" towards sustainable urban mobility, and guidance supporting cities in formulating pathways to 2050 in the practical form of strategic planning documents.[9]

"Pathway" is today a commonly used term with reference to decarbonisation. At global and EU scales, "emissions pathways" refer to various policy packages through which different reductions in net emissions can be achieved by a target year (IPCC, 2018; EC, 2018). These pathways may be developed through *forecasting* models, where analysis of potential emission reductions is undertaken against a baseline of current trends extrapolated into the future, such as growth in travel demand

6. Analysis of raw survey data by Emilia Smeds and Peter Jones, originally collected as part of the CIVITAS SUMPs-UP project. See SUMP-PLUS Deliverable D1.1 for further information. "Sustainable urban mobility planning" refers to planning that diverges from traditional car-oriented planning.
7. While domestic emissions declined by approximately 54% and total per capita emissions fell by 74% during the same period.
8. Authors' back-of-the envelope calculation based on BEIS (2018) local authority CO_2 emissions estimates 2005–2016. Based on a compound annual growth rate of -0.7% between 2005 and 2016.
9. By Emilia Smeds and led by Professor Peter Jones, UCL Centre for Transport Studies. See SUMP-PLUS Deliverable D1.2 for a more comprehensive discussion.

(e.g. Bristow et al., 2008). Modelling tends to focus on the balance between the electrification of mobility and reductions in private car use (Capros et al., 2014). However, simulations by the European Climate Foundation found that action across the classic sustainable transport policy typology of *Avoid* (reducing the need to travel),[10] *Shift* (away from private car use to more sustainable modes) and *Improve* (improved vehicle efficiency) will be necessary (CLIMACT, 2018).[11]

An alternative approach is *backcasting*, a normative methodology that focuses on creating a vision of the desired future and tracing a pathway backwards from this future to the present, identifying the actions necessary to achieve the vision. Backcasting has been applied to analyse how detailed policy packages could achieve transport emissions reductions in the Netherlands and Sweden (Geurs & van Wee, 2000; Åkerman & Höjer, 2006) and at EU level (Höltl et al., 2018). All the studies cited so far are very important in providing evidence on the extent and urgency of decarbonisation needed: *what mix of action needs to be taken and by when.* However, many of these efforts at developing decarbonisation pathways do not include the *institutional* dimension of policy change, or discuss the *who* in depth, including the roles, responsibilities and capacities of different societal actors (Wangel, 2011). Even in the case of backcasting studies that *have* featured institutional perspectives (Hickman et al., 2010; Tuominen et al., 2014) we argue that there is still likely to be an "implementation gap" between the policy packages identified as optimal and the action taken by participating policymakers (Banister & Hickman, 2013) because:

- To our knowledge, few studies discuss how persistent political, financial and institutional barriers to policy implementation will be overcome (i.e. how the framework conditions for policy must change). Decades of research points to the fact that unconducive institutional frameworks, lack of local autonomy and multi-level politics, lack of organisational capacity, lack of funding, and poor public acceptability are the primary barriers to the implementation of sustainable mobility policies (Banister, 2008; ECMT, 2002; ICLEI, 2018).

- There is an asymmetry between these sophisticated, resource-intensive backcasting exercises and the policy context of many – particularly smaller – European municipalities, as discussed above. There is a need for simplified guidance supporting cities to develop transition pathways, which is what we outline below.

- We can define a pathway in a general sense as "the link between two end points representing a current state, on the one hand, and a future end state, on the other" (Givoni, 2013: 210) and the shift between states as a transition. The concept of transition pathways as developed in the SUMP-PLUS project, however, suggests that a *pathway should not be understood as a hypothetical scenario consisting only of emissions and policy packages, but as the full set of policies, resources, institutional and political changes that will allow a city to reach the 2050 target.* The SUMP-PLUS concept advocates:

- A process that European municipalities can use to *develop transition pathways that encompass a long-term vision and strategic timeline for urban mobility in line with the 2050 net-zero target.*

10. See TUMI (2019).

11. The CTI 2050 Roadmap Tool explored the feasibility of the EU reaching net-zero emissions by 2050, with the techno-economic simulation model finding that all pathways required: transport demand to be stabilised to 2018 levels; a mode shift away from private car use by 10%; and improvements in vehicle efficiency as the third crucial element.

- *A "vision & validate" backcasting approach* (CREATE, 2018), in order to decisively disassociate pathways from the "predict & provide" approach to transport policy that has driven expansion of automobile infrastructure based on forecasted ever-increasing growth in travel demand.

- *Participatory backcasting from a broader vision of the desired future city*, which goes beyond GHG emission reduction targets and urban mobility alone, for example drawing inspiration from existing case studies of 2050 city visioning processes (Neuvonen & Arche, 2017) and "urban foresight" (Dixon et al., 2018; Fernández Güell & Lopez, 2016). Research on mobility transitions in Copenhagen, Vienna, Paris, London and Berlin from the 1960s onwards, where private car use has been successfully reduced, has shown that urban decision-makers were driven by much wider concerns around quality of life and urban regeneration rather than environmental impact alone (CREATE, 2018).

- *Quantitative backcasting* to identify the mix of core mobility policies – and key milestones for these – that can achieve emissions reductions in line with the 2050 net-zero target, while also meeting other objectives (e.g. Vision Zero for road safety, air quality, accessibility and affordability). Tools like the EU Urban Transport Roadmaps scenario-builder[12] and SCATTER[13] can provide support for this.

- *Qualitative backcasting* to build a strategic timeline that sets out how the institutional, financial and political *framework conditions* for policymaking will need to change in order to achieve the vision (i.e. affecting what lies *outside the control* of policymakers) (GO-Science, 2017). Cities *already* face implementation challenges: timely implementation of a policy mix that can achieve the 2050 target is likely to include *more radical* policies that have not been possible to implement within existing conditions. Transitions will require increased organisational capacities, new sources of funding and financing, changes to national institutional frameworks and greater local autonomy in many cases. As well as improving public acceptance of sustainable mobility policies, local politics and mobility cultures will need to be challenged. To overhaul a city's parking system by 2025, for example, a new financing mechanism may need to be tested that can borrow against future revenues, or negotiation may need to be conducted with higher level administrations on new parking standards. "Tracing backwards" from each pathway milestone, such changes must be initiated well in advance.

- *Recognition of the context-specificity of pathways.* Missing from the conversation on decarbonising urban mobility at the EU level is the fact that cities are likely to reach the 2050 target in very different ways. Although all cities will need to consider policies across *Avoid*, *Shift* and *Improve* approaches in order to achieve sufficient emission reductions, the mix will vary on the basis of local preferences and each city's unique path dependencies. Pathways in a polycentric German region with existing car-dependence and a strong automotive industry might focus on *Improve*, while new approaches to *Avoid* or *Shift* may be used in a central or eastern European city with a high existing level of public transport use but increasing suburbanisation and car ownership. Not all cities can or necessarily need to be compact (Neumann, 2005). Sprawled settlements cannot easily transform themselves into a "15-minute city" (like Paris under Mayor Anne Hidalgo) or a city with seamlessly accessible pub-

12. See http://urban-transport-roadmaps.eu/
13. See https://scattercities.com/
14. For another approach, see Schippl et al., 2016.

lic transport by 2030 or 2050. Since these will be the concrete ways in which Europe's urban mobility transitions will unfold, we need a stronger focus on empowering cities to develop their unique pathways to complement emissions pathways modelling at EU or national levels.[14]

IV. Policy recommendations: supporting urban mobility transitions

With realism and our assessment of existing EU policy instruments (at the beginning of this chapter) in mind, we offer policy recommendations oriented towards the European Commission. How could the Commission support "transition pathways" in European cities, in order to achieve the EGD's 2050 target?

1. Getting the policy emphasis right

As soon as the EGD was announced by the Commission, numerous actors representing European local authorities highlighted the central role of cities in delivering the EGD (Eurocities, 2020; CoR, 2020). The EGD Communication (EC, 2019a) is an EU growth strategy and as such the focus on technology, innovation and environmental efficiency, and the lack of a prominent territorial focus, is unsurprising. Sectoral policy strategies will need to articulate the implications of the EGD for urban areas (Eurocities, 2020; CoR, 2020). The roadmap for the forthcoming EU Sustainable and Smart Mobility Strategy directly references urban mobility, but in a rather minor way.

In this chapter, in agreement with the position of the International Association of Public Transport (UITP, 2020), we argue that this strategy should make daily urban mobility and accessibility a cornerstone and explicitly recognise the need for action across *Avoid*, *Shift* and *Improve* and focus on strengthening support for public transport and active mobility, in addition to low-emission vehicles. The strategy roadmap emphasises digitalisation, which can be harnessed to improve sustainable modes and reduce the need to travel (as the COVID-19 pandemic has proven). The EGD comprises the Commission's strategy for achieving the UN's Sustainable Development Goals (SDGs) (EC, 2019a). Target 2 under SDG 11 emphasises access to public transport, in particular from an intersectional equity perspective,[15] but this is not addressed in the EGD. One of the deal's cornerstones is the concept of a "Just Transition", meaning socio-economic disparity and divergent impacts of economic restructuring at the regional level across Europe should be taken into account. There is a need to concretise the idea of "just transitions" at the urban level, including for mobility specifically (Hughes & Hoffman, 2019; Schwanen, 2020; Sheller, 2018).

15. "By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, men, children, persons with disabilities and older persons".

2. Significant strengthening of soft policy instruments

As discussed, binding EU policy instruments such as the Ambient Air Quality Directives have been effective in accelerating sustainable urban mobility transitions, even if not directly intended to do so. However, original research by Cavoli (2015) has shown that despite this, bind-

ing pieces of legislation tend to be unpopular amongst local and national policymakers, and are limited by subsidiarity concerns. The EU Strategy for Smart and Sustainable Mobility should focus on significantly strengthening existing "soft" policy instruments and introducing new ones, particularly new funding mechanisms. Although the strategy is very welcome, it will remain a non-binding Communication instrument akin to previous ones published by the Commission, meaning the specific new initiatives launched will be the crux.

3. A multi-level governance system supporting urban transition pathways

The governance system[16] discussed for the EGD so far relies on the existing 2018 regulation on the governance of the Energy Union.[17] This set out a 2030 Climate and Energy Framework with emission reduction targets. Member states were required to submit National Energy and Climate Plans covering 2021 to 2030, and national long-term strategies that set out how emissions reductions will be achieved up until 2050 in line with the Paris Agreement. The framework does not discuss how national targets and strategies should filter down to the local level. Mechanisms already exist through which European cities specify local targets and strategies, such as the Sustainable Energy and Climate Action Plans (SECAP) that signatories to the Covenant of Mayors are currently preparing in relation to 2030 targets. To support transition pathways for urban mobility, we recommend that:

- A coherent multi-level governance system for urban mobility is set out in the EU Strategy for Sustainable and Smart Mobility.

- The Commission publishes new guidance supporting European cities to develop Transition Pathway strategies for urban mobility that can achieve the 2050 net-zero target and which should align with the national plans mentioned above.[18] All member states should be required to establish national frameworks for Sustainable Urban Mobility Planning, mandating local development of 2050 Transition Pathways. National SUMP frameworks already exist in some member states (ICLEI, 2018).

- The Commission frames the Sustainable Energy Action Plans (SECAP) and Sustainable Urban Mobility Plans (SUMP) as two aligning strategic planning documents through which European cities should plan to meet 2030 targets for transport emission reductions. The 2050 Transition Pathway, SUMP and SECAP should all align in a given city (for a topic guide on harmonisation of SECAPs and SUMPs, see Fresner et al., 2019). The latest Commission-endorsed SUMP guidance (Rupprecht Consult, 2019) should be updated to feature a stronger emphasis on climate change, transition pathways and the 2030 and 2050 targets.

- The Commission considers how it can best provide urgent support for practical policy *implementation* to European cities, particularly smaller municipalities outside western and northern Europe. In addition to developing longer-term pathways to 2050, to meet the EU's 2030 emission reduction target, which is only just over nine years from the

All member states should be required to establish national frameworks for Sustainable Urban Mobility Planning, mandating local development of 2050 Transition Pathways.

16. See heading "governance system" at: https://ec.europa.eu/clima/policies/strategies/2030_en
17. Regulation on the governance of the energy union and climate action (EU)2018/1999.
18. Backcasting approaches for sustainable transport were actually developed from the early 2000s in EU-funded research projects (Miola, 2008) and the Commission could emphasise its support for this type of planning in formal policy guidance. Since the effectiveness of guidance documents as an EU policy instrument is unestablished (as discussed above), the Commission should also fund academic research that can rigorously evaluate the impact of any new guidance.

time of writing, European cities need to be underway with *detailed* planning of policy packages and how they will be implemented in 2021. This is why the SUMP-PLUS project has sought to expand on the current SUMP guidelines by offering detailed guidance on implementation approaches, policy sequencing and packaging (these are called "Implementation Strategies" and are being co-created with European partner cities within the project).

The Commission should consider extending the time frame of EU R&D co-funded projects from the typical three years to at least five years to allow urban areas to enjoy greater funding certainty.

4. Refining EU grant funding instruments

Without greater and better-designed financial support programmes from the EU, new guidance for European cities will not be effective.

While EU funding programmes have supported a diverse range of demonstration and pilot projects allowing cities to experiment with different policy approaches, the lack of continuity in EU funding to municipalities to enable upscaling remains a significant problem (Tomassini et al., 2016), as support from both the EU and national governments is often short-term and project-based (Ehnert et al., 2018; Godenhjelm et al., 2015). The Commission should consider extending the time frame of EU R&D co-funded projects from the typical three years to at least five years to allow urban areas to enjoy greater funding certainty. Many European cities are leading in terms of climate ambition and actively experimenting with sustainable mobility policies, but ultimately cities have limited capacity to "scale up" such experiments without greater local autonomy or financial support (Smeds & Acuto, 2018; Smeds, 2020).

Furthermore, a high degree of reliance on EU co-funded projects can result in piecemeal policy approaches, with a multitude of projects poorly integrated with policy strategies. In response to this problem, the European Court of Auditors (2020) has recommended that all EU funding to urban areas should be made conditional on the beneficiary having a Sustainable Urban Mobility Plan or equivalent policy strategy in place. We agree with this recommendation.

5. Establishing a stronger and more integrated institutional basis

Finally, to support these policy changes, the institutional basis of urban mobility within the European Commission needs to be strengthened. Since 2016, limited EU communication and guidance documents have been published, which could be explained by the fact that the dedicated "urban mobility" unit within DG MOVE was disbanded. Since then, urban mobility issues are indirectly addressed through the policies of various units within the DG, such as "Sustainable and Intelligent Transport". We argue that re-establishing a dedicated urban mobility unit within the Commission is critical to ensuring that urban mobility is given adequate importance and consideration within EU transport policy. Furthermore, an integrated approach across the EU Urban Agenda and the Urban Mobility Partnership established under it is needed, along with efforts to articulate the local implications of the EGD including through the EU Strategy for Smart and Sustainable Mobility.

Concluding reflections

In this chapter, we have explained how EU policy on urban mobility has always been to some extent limited by the subsidiarity principle. Despite this, since the 2000s the Commission has developed an impressive and often effective arsenal of "soft" policy instruments, such as funding programmes and guidance for urban areas. However, as a result of complex drivers – particularly institutional barriers – transitions towards sustainable mobility have been highly uneven across European cities, and in most cases too slow to achieve the 2050 target of a 90% reduction in transport emissions. We have proposed a novel approach to supporting local authorities. Specifically, "transition pathways" to sustainable urban mobility could be developed using "backcasting", incorporating attention to the changes in governance, financial resources and local politics required to meet the 2050 target, and the unique conditions and path dependencies of cities across Europe. Our recommendations have focused on the need for the Commission to give greater emphasis to urban mobility as a policy area, and the proposal that the Commission publish new guidance supporting urban areas in developing transition pathways in practice, complemented by supporting funding mechanisms.

We have offered recommendations that we feel are realistic in the context of existing EU policy and multi-level governance. Going beyond this, we offer some concluding reflections on the need to reinterpret the subsidiarity principle. In order to achieve the enormous challenge of a 90% reduction in transport emissions by 2050, increased support from regional, national and supranational institutions for local authorities across Europe is required. Art. 5(3) of the Treaty on European Union states that the EU should act "if the objective of the proposed action cannot be sufficiently achieved by the Member States either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level". These conditions are clearly fulfilled in relation to the EGD. In the past, direct EU policies targeting urban areas have had to be framed in very specific ways, e.g. cohesion, research and innovation. We argue that the climate emergency and the transboundary, collective action nature of climate change as a policy problem justifies stronger EU action in itself, as cited in the "subsidiarity check" in the roadmap on the EU Strategy on Sustainable and Smart Mobility. This is not the time for the Commission to be overly cautious, but for European researchers, policymakers and politicians to join forces and establish new collaboration mechanisms.

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CITIES FOR AN INCLUSIVE AND JUST TRANSITION

- FOR THE GREATEST CLIMATE IMPACT, ENGAGE PEOPLE WHERE THEY ARE: CITIES

  Irene García

- THE EUROPEAN GREEN DEAL AS CATALYST FOR CLIMATE JUSTICE IN CITIES

  James J. T. Connolly

FOR THE GREATEST CLIMATE PACT IMPACT, ENGAGE PEOPLE WHERE THEY ARE: CITIES[1]

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The EU Climate Pact will be launched in December 2020. It is one of the strategic pillars of the European Green Deal (EGD) proposed by the EU Commission in December 2019, which commits the EU to become climate neutral by 2050. The pact aims to reconnect with disenchanted citizens and grant everyone – youth, businesses, academia, trade unions and the media – a proactive role in designing climate actions and supporting the EU in its new goal. As the level of government closest to citizens and frontrunners in the fight against climate change, European cities have great potential for strengthening the Climate Pact and reaching out to a wide range of local stakeholders. From talking about climate to triggering action and working together, they can become a key partner, but only if their role is recognised and they are empowered and equipped to make the appropriate contributions.

The 2019 European Parliament elections showed that for the first time climate change was at the forefront of voters' priorities.

I. Background: The brewing of the EU Climate Pact

The 2019 European Parliament elections showed that for the first time climate change was at the forefront of voters' priorities. The Greens ended up being the election's big winners, increasing their number of MEPs from 51 to 74 to become the fourth largest political group (EP, 2019). Opinion polls in Germany and municipal election results in France have ratified this growing support for Green parties and policies.

This should come as no surprise to anyone. A month prior to the European Parliament elections, the Eurobarometer survey on climate change carried out in the 28 member states revealed that 79% of respondents considered climate change to be a very serious problem, and that widespread support exists for national and EU action to fight climate change and the transition towards a carbon-neutral economy (EC, 2019a). The youth mobilisations inspired by Greta Thunberg's activism, which urged the EU to double its ambition on greenhouse gas emissions (GHG) reductions, also helped draw attention to climate change.

1. This chapter was written in September 2020, before the EU Climate Pact was launched.

EU representatives finally grasped this call for action and decided to make it real. The European Commission President, Ursula von der Leyen, put climate at the centre of her presidency and on December 11th 2019 the Commission's executive vice-president, Frans Timmermans, presented the EGD to EU leaders, a plan to make Europe the first climate-neutral continent by 2050.

The Climate Pact is a response to the new, polarised and more fragmented political environment that resulted from the European Parliament elections.

The commitment to net-zero GHG emissions as soon as possible and by 2050 at the latest was supported by the EU parliament in its resolution of November 29th 2019 and endorsed by the EU Council on December 12th 2019.

Of course, the plan will go further than emissions. It will be about decarbonising the energy sector, building and renovating buildings in an energy and resource-efficient way, supporting industry to innovate and become global leaders in clean, circular economies, accelerating the shift to smart, clean mobility, preserving and restoring ecosystems and biodiversity, and promoting healthy and environmentally friendly food systems, with the European pillar of social rights guiding actions. In essence, it is Europe's new strategy for sustainable growth and job creation, where no one is left behind (CoR, 2019).

"We do not have all the answers yet, today is the start of a journey, but this is Europe's man on the moon moment", Von der Leyen said (EC, 2019c). One of the first steps on this journey is to get everyone on board. The EU Climate Pact, a broad initiative in the framework of the Green Deal is intended "to give everyone a voice and space to design new climate actions, share information, launch grassroots activities and showcase solutions that others can follow" (EC, 2020a).

Achieving net-zero emissions by 2050 will entail profound transformation of our society and economy. As the executive vice-president for the EGD, Frans Timmermans, put it: "This will affect every single institution upon which society is based … and we have a collective responsibility in preparing all these institutions to handle this, to leave no one behind and to bring everyone on board" (EC, 2020b).

In the same vein, in a webinar organised around the EU Climate Pact, Clara De La Torre, the EU Commission's director-general for climate action, said "We are making it a Pact as we need to do things together … One of the principles of the EU is solidarity. But selfishly, if we don't have everyone with us, we won't make it because ultimately, what we do in our everyday lives, how we behave, has an impact on how our politicians govern, how our industries envision their supply chains, etc."[2]

As well as the climate concerns of voters, these efforts towards inclusive and effective mobilisation are also a response to the new, polarised and more fragmented political environment that resulted from the elections. For the first time, Europe's traditional centre-left (S&D) and centre-right groups (EPP) lost the majority they had held for decades, in what was their worst result since European Parliament elections began in 1979. And although two-thirds of voters supported pro-European parties, Eurosceptic and far-right populist parties secured almost a quarter of all the seats.[3]

2. For further reference, see: "Second European Climate Pact webinar". Available at: https://www.youtube.com/watch?v=31JNPDP9KWM&feature=youtu.be

3. For further reference, see: "2019 European election results." Available at: https://www.europarl.europa.eu/election-results-2019/en

Further, climate narratives and interests vary (and clash) between member states. Those dependent on coal-fired power plants, such as Poland, Hungary and the Czech Republic, are concerned about their competitiveness and job losses, and have powerful industry lobby groups that may hinder progress.

Against this backdrop, building public support is key. The public consultations to gather stakeholder input on the pact acknowledged as much: "We need everyone on board, the people marching with Greta, and the people marching with the yellow vests ... How can we learn, how can we identify the gaps where action is not happening but it is absolutely needed, how can we replicate and scale best practices" (EU Climate Action, 2020).

The fact that the 2019 European Parliament elections recorded the highest turnout in the last 20 years affords us a glimpse of hope. Voters are looking to the EU for leadership and action. But what is the EU Climate Pact about and who should join this massive endeavour of talking, inspiring, and of fighting climate change?

The EU Climate Pact aims to get all Europeans involved and brings citizens, communities and organisations in all sectors of our society and economy together to make Europe climate neutral.

II. Spelling out the details of the EU Climate Pact

The EU Climate Pact is at the heart of the EGD. Born out of the idea that the implementation of the EGD should happen through a meaningful participatory and inclusive process with monitoring, reporting and accountability mechanisms, the EU Climate Pact aims to get all Europeans involved and brings citizens, communities and organisations in all sectors of our society and economy together to make Europe climate neutral by 2050 (EC, 2020c).

The pact has been conceived as an instrument to facilitate the exchange of information, to capture everyone's best ideas and contributions and to learn what is happening on the ground. In other words, it is a recognition that if we are to succeed in becoming climate neutral by 2050, we need to do more than merely refocus our economy away from fossil fuels. We also need to reinvent our governance systems. The transition from a vertical fossil-fuel-based system relying on a few stakeholders to a horizontal system based on renewable sources with a whole new set of local players is fertile ground for inclusive, innovative and resilient solutions. Yet, for such a transformation to take hold, it is important to have mechanisms that are transparent, provide guidance and legitimacy, and create the space for dialogue and interaction between all sectors and individuals.

Figure 1: Produced by the author based on EU content provided in the Second European Climate Pact webinar organised on July 14th 2020 by EU Climate Action.

Who is the EU Climate Pact for?	
Public administrations	National, regional and local authorities
Civil society	Local communities, grassroots organisations, activists
Academia	Scientific, research and innovation organisations and networks
Citizens	Consumers and households
Businesses	Non-profits, for-profits, social innovators, trade unions, investors, philanthropies
Youth	Already-active and inactive young people
Multipliers	Organisations and networks already taking climate action with the ability to reach places the EU is unable
Education	People who can change and influence education programmes, since the EU has no direct competence
Media	Traditional and non-traditional media to act as amplifiers for coverage of climate change, progress, stories, challenges, etc.

In preparation for the pact, the EU Commission organised a 12-week open public consultation from March 4th to May 27th to gather inputs from stakeholders ahead of the launch in mid-November 2020. Alongside the open public consultation, a webinar was organised to give interested individuals, organisations and networks participating in the consultation an opportunity to learn about the pact, ask questions and share information and ideas. In July 2020, a second webinar was held to discuss the Climate Pact in depth, co-create its key elements and foster action. "It was an extensive consultation for EU standards as the goal was for everyone to think thoroughly about the Pact", De La Torre said (EU Climate Action, 2020).

At the time of writing, the EU is processing the feedback provided through the consultation and events to shape the pact, and the outcome is still unknown. Yet, certain aspects emerged during the consultation process that can be shared already.

The first is the criteria guiding the EU Climate Pact's construction. The presentations by EU representatives at the webinars suggested the pact follows certain criteria or aspirational goals:

1. **The Climate Pact will be a vehicle for promoting broad social mobilisation.** The EU reckons that everybody has a stake in designing and implementing actions and that everyone plays a role in pressuring the EU to deliver on the Green Deal.
2. **Top-down will no longer work.** The EU wants this initiative to be what everyone wants it to be. The pact will be conceived not as something with set-in-stone guidelines, but as something organic that helps the EU to capture what is happening on the ground, facilitate the best exchange of knowledge and make progress.
3. **The EU Climate Pact will trigger action.** The Commission will promote individual and organisational commitments to concrete actions (pledges) and support initiatives to reduce GHG emissions and fight climate change.
4. **This will be a European project, something in which everyone has a responsibility.** The EU aims to draw legitimacy from people's ideas, inspirations and actions.
5. **The pact should not become a space for climate deniers.** Through the pact, the EU wants to welcome people who are ready to act and to create a European movement – a European wave of policies to turn the science into specific actions.
6. **The EU Climate Pact will succeed if everyone manages to do something together that they would not have achieved alone.** The pact is about working, learning and creating together, and informing about and sharing what is already working and where gaps exist in order to accelerate action and avoid reinventing the wheel.

The second known aspect is the profile of the respondents and their expectations and attitudes towards the public consultation.

Overall, citizens, civil society, businesses and other relevant stakeholders participating in the public consultation welcome this initiative and the EU's efforts to be at the forefront of climate change action and make a concerted response. They agree that for systemic change – in whatever form it takes – getting everyone on board is crucial.

In total, the EU Commission received over 3510 contributions, with 80% from Germany, France, Belgium, Italy and Spain, 32% of whom were young adults.

Younger people in particular see their role as watchdogs ensuring the EU Commission ups its commitment and sets interim incremental goals for the EGD. The fact that the Green Deal does not yet have a 2030 target concerns them. The Commission's proposed 2030 target is a 50–55% reduction in GHG emissions, insufficient if we want to deliver the commitments made under the Paris Agreement.

"Time is running out", Anouna de Wever, one of the founders of the "Youth for Climate" movement, told Timmermans in a conversation on the EU Climate Pact.[4] For the EU, meeting the 1.5ºC Paris Agreement target would mean hitting an interim target of at least 65% less CO_2 by 2030 (EP, 2020).

Beyond ensuring that the EU doubles down on its GHG emission efforts and meets the 2050 carbon neutrality targets, participants in the consultation and events organised around the pact highlighted that they saw the pact as an opportunity to be inspired, share knowledge and work together to shape EU climate policy and advance climate literacy; as well as to network and expand connections.

The third aspect relates to the general inputs from participants on the support needed from the EU to meet the pact's goals, which can be divided into the following topics:

- **Talking about climate:** what the pact's charter and storyline should include.

  The pact should be open to everyone: from citizens and NGOs to local authorities and companies. Yet there should be rules of the game to demonstrate that signatories to the pact are taking climate action in line with the specific commitments prescribed by the pact, and to avoid greenwashing or marketing misuse, particularly by big corporations. Equity, justice and accountability should be the pact's core values.

- **Triggering action:** how to promote action through individual and organisational pledges.

  To catalyse action, participants stressed the need for a demonstration of commitment. For both individuals and organisations, ideas proposed included drawing up a catalogue of achievable actions, a list of standard pledges to inspire and give ideas, and prioritising pledges in terms of the benefits they may bring. For individuals, actions would be tailored to different geographies (coastal, urban, rural, etc.) and brought down to the local level to facilitate contributions in their everyday life. Lastly, ambassadors were proposed to help trigger action. The participants believe ambassadors should act as a bridge, linking ideas from the community to the resources available. They should be knowledgeable about the climate and EU politics, and be driven by passion and resilience, as there will be obstacles along the way. Ambassadors should also be theme-specific in order to encompass all areas of action and knowledge around the climate.

There should be rules of the game to demonstrate that signatories to the pact are taking climate action in line with the specific commitments prescribed by the pact, and to avoid greenwashing.

4. For further reference, see: "#EUGreenDeal live conversation on EU Climate Pact with Frans Timmermans." Available at: https://www.facebook.com/EUClimateAction/videos/2935481313139716

- **Working together**: how to support knowledge-sharing, capacity building and networking, both online and offline.

  The pact should make information ubiquitous and integrate climate into as many discourses and as many levels as possible to avoid it being a niche topic. In this, climate programmes in schools, city hall meetings, advocacy groups and so on are fundamental to provide education and training to various groups in society. The organisation of sectoral webinars, context-based and in different languages, would also be important to discuss climate-related policies and practices with a wider audience. Beyond webinars, other channels suggested for sharing knowledge and spreading know-how include platforms and websites. A multi-stakeholder match-making platform at the local level that helps citizens connect with funders could help boost action and facilitate local stakeholders becoming agents of change in their own communities.

III. Unlocking cities' potential in the EU Climate Pact

The Climate Pact is crucial to activating and uniting EU citizens and their different realities under the EGD umbrella. Fighting the current climate crisis requires a systemic change in which everyone dramatically changes their behaviour and consumption patterns. At the same time, the solutions to tackle climate change can and will impact our habits, employment and lives differently. As EU representatives acknowledge with the pact, if the transition to a carbon-neutral economy is not designed properly, the journey may leave many people behind, and the efforts will be undermined and fruitless.

Avoiding this means designing policies that address inequalities, maximise the benefits of a climate-neutral economy and minimise the disadvantages of the transition. And it also requires a well-designed process that engages citizens and relevant stakeholders in assessing the needs of their communities, addresses their concerns, grants them an active role in crafting the solutions and, most importantly, places equity, inclusion and collaboration at its heart.

Local authorities are well positioned to facilitate this. As engines of the modern economy and key providers of public services, they have the potential to strengthen the Climate Pact by becoming key partners in bringing everyone on board and creating support for climate policies, triggering action and facilitating knowledge-exchange and replication, and enabling and stimulating the locally driven partnerships that the Climate Pact seeks to embrace.

Today, cities host approximately 75% of Europe's population and are responsible for 70% of climate mitigation actions and 90% of climate adaptation measures. As major contributors to energy consumption and GHG emissions, and as the main victims of its adverse effects (extreme cold and heat, droughts, wildfires, rising sea levels, flooding, landslides, etc.), their role and engagement is crucial to fighting climate change. As pointed out by Rafał Trzaskowski, mayor of Warsaw: "Without local communities, the ambitious climate-neutrality goal of the European

Green Deal will simply not happen. We implement 70% of all EU legislation" (CoR, 2020a).

Indeed, cities stand on the frontline of climate change action and typically show greater commitment than the EU. Back in 2008, European cities gathered as part of the Covenant of Mayors initiative to voluntarily commit to achieving and exceeding EU climate and energy targets (see Ruiz Campillo in this volume). Today, the initiative counts on over 10,000 local and regional authorities, 94% of whom are EU-based, with an average CO_2 emission reduction target of 30% by 2020 and 47% by 2030 compared to baseline emissions projected in 2005. In other words, 10% and 7% above the EU target, respectively. A number of signatories are even aiming at climate neutrality (EU Neighbours, 2020).

Cities have long involved citizens and other relevant stakeholders in local climate decision-making and implementation, becoming fertile ground for social innovation.

Through their actions, local authorities are increasingly shaping practices, strategies and frameworks in which energy and climate action operationalises at the national and international levels. Cities are large enough to test and pilot different ideas before modelling solutions and small enough to discard them at lower cost if they are not fully functional.

At the same time, cities have long involved citizens and other relevant stakeholders in local climate decision-making and implementation, becoming fertile ground for social innovation. They acknowledge that for lasting and systemic changes, alongside government policies and regulation they need the engagement and behavioural change of everyone in their territories, as city authorities often control a small fraction of local GHG emissions – rarely above 10%.

For instance, in 2014 the mayor of Nantes, Johanna Rolland, decided to launch a "Great Debate" alongside her 23 fellow mayors in the metropolitan council. The goal was to activate Nantes's citizens to craft a plan and identify concrete initiatives related to the energy transition in Nantes. Over a seven-month period, the debate engaged 53,000 participants and gathered 11,000 contributions from 270 different local organisations. Based on the findings and discussions that emerged from the debate, Nantes metropolitan council approved a roadmap for the energy transition in 2018, outlining 15 goals and 33 initiatives (García & Khandke, 2020).

By organising the Great Debate, Nantes not only succeeded in enabling citizens to shape the energy transition in their territory, making them aware of the room for collective action and the impact each individual can have, it also managed to address citizens' needs and concerns by listening to their ideas and inputs and incorporating them in the roadmap for Nantes's energy transition.

So it was predictable that through the European Committee of the Regions (CoR) cities would embrace the Green Deal and voice their support for the Climate Pact. Parallel to the public consultation initiated by the Commission in March on the EU Climate Pact, the CoR launched a study on the views of local and regional authorities on the Climate Pact to determine the support they need in this field to transition towards climate neutrality. The findings fed into a draft working document which was discussed and voted through in June 2020 at the meeting of the Commission for the Environment, Climate Change and Energy (ENVE).

The final vote and adoption is scheduled for the plenary in October 2020, a few weeks ahead of the launch of the Climate Pact.

In general terms, local authorities stressed in the working document that "the Climate Pact should be first of all a platform for co-operation between local and regional authorities and the European institutions", and that they are committed to becoming "key partners" with citizens "in designing climate actions and shaping their environment" (CoR, 2020b).

The document also underlined that the COVID-19 pandemic should not "slow down the necessary transformation of the European Union towards climate neutrality". In the opinion of the cities, the pact should be used as an instrument to simultaneously fight climate change, tackle the economic crisis caused by the coronavirus pandemic and improve societies' resilience. The pact should also become a platform for further enhancing cities' action towards carbon neutrality, building on local experiences of policy co-creation and civic dialogues, and stimulating the creation of local climate pacts across the EU.

The EU has hit the nail on the head with the initiative of engaging Europeans in meaningful conversation, pinning down what climate means for them and, ultimately, transforming the talk into action through the Climate Pact. Recognising the role cities can and should play would allow the EU to better address the aspirations, ideas and concerns Europeans expressed in the consultation and events around the pact. And it would help meet the pact's overarching goal of ensuring the commitment and involvement of all stakeholders and citizens in making Europe carbon neutral by 2050, while ensuring social fairness. Below, a set of strategies and tools is listed that the EU should consider to empower and equip cities for this undertaking:

- **Talking about climate:**

  Cities are in a key position to launch climate dialogues with local stakeholders to analyse how climate change will impact citizens and communities and jointly navigate the possible solutions within reach, with equity and justice as the cornerstones. Given the different existing initiatives to support the EU reach climate neutrality by 2050 (i.e. the Covenant of Mayors, the National Energy and Climate Plans, the Territorial Just Transition Plans, the Recovery and Resilience Plans), the EU Climate Pact could provide help cities ensure they mainstream all the information and reach out to the relevant stakeholders in each case. The dialogues can take many different forms, such as living labs, conferences, workshops, climathons, community gatherings or town hall meetings.

- **Triggering action:**

  As the closest level of government to citizens, cities can tailor the impact of transitioning to a carbon-neutral society to their specific contexts and communities. This is particularly true for the citizen and community actions the Commission has identified for initial targeted support –buildings, mobility and tree-planting – as all lie within cities' competences. Cities can channel the resources coming from the EU on

climate action and assign them to projects that will increase citizen and community ownership, while making societies more socially, economically and environmentally resilient. Likewise, cities can facilitate knowledge exchange and practice sharing in these fields and support the replication of best practices by disseminating results and lessons learnt. The Covenant of Mayors may become a major tool in this regard.

Cities can also become ambassadors. Local authorities meet the criteria outlined by participants in the consultation and are, above all, great connectors. They can act as a focal point where citizens and local stakeholders connect, network, share information about their climate-related projects and partner up. In their role as ambassadors, cities can advance climate literacy. They can engage citizens and target different sectors of the population in a way that informs about options, prompts behavioural change and empowers each of us to find solutions to the daunting task of fighting climate change and collectively refocusing our carbon-intensive systems. Finally, they can provide periodical feedback on the effectiveness of EU policies on the ground and promote coherence and integration of policies across different levels of government.

The Climate Pact should provide stronger support to cities to promote multi-stakeholder collaboration.

- **Working together**:

Cities have long been working with citizens, civil society, businesses, academia and other relevant stakeholders to speed up actions against climate change. They have even created local climate roadmaps or pacts, as in the case of Nantes or Amsterdam. The Climate Pact should provide stronger support to cities to promote multi-stakeholder collaboration. This can be done by creating a platform that allows local stakeholders to connect with each other and team up for the design and implementation of local projects that accelerate climate action and new opportunities for the well-being of citizens, such as job creation and improved health. The Climate Pact can also help build local synergies by providing technical and financial guidance to cities on how to establish effective local partnerships around climate action.

Conclusion

Through its pact, the EU Commission aims to regain trust and confidence from disenchanted citizens demanding more action, and to connect with those not yet active, but whose engagement will be important to ensure an inclusive, competitive and just transition to a climate neutral Europe by 2050. It essentially seeks to bring everyone under the same roof, instilling a new culture of climate awareness conducive to behavioural change, from the individual to the largest multinational and supporting Europeans to accelerate whatever action to fight climate change they are undertaking.

Fortunately, the goals underlined by participants in the consultations and events around the Climate Pact are consistent with those of the EU. To make the pact inclusive, meaningful and action-oriented, the ball is now in the Commission's court. We cannot overlook the fact that, even if participation rates have been high, they have mainly come from a small list of countries (eastern European countries are notable by their absence). By contrast, cities across the EU have been frontrunners in devising

climate actions and engaging citizens and relevant local stakeholders along the way. They can certainly play a key role in strengthening the Climate Pact by fostering dialogues, reaching out to a wider constituency and facilitating climate action tailored to their own contexts and communities. But first the role they can play must be recognised and they must be empowered and equipped accordingly.

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THE EUROPEAN GREEN DEAL AS CATALYST FOR CLIMATE JUSTICE IN CITIES

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While the European Union (EU) has some of the world's most robust institutions for ensuring the welfare of its citizens, the launch of the European Green Deal (EGD) is an acknowledgment that emerging vulnerabilities from climate change require new approaches to maintaining societal wellbeing. This shifts the EU toward alignment with standardised global goals for keeping planetary warming from exceeding 2ºC relative to pre-industrial levels and toward rethinking the European mode of ensuring safe and healthy ways of life for its residents. On the surface, the EGD is largely an economic programme rooted in efforts to shift industry toward a low-carbon economy. However, looking deeper, it points toward a desired transition: does it indicate a possible evolution toward a European welfare state that takes into account climate justice?

The EGD encourages countries to rethink entrenched norms around economic growth with, it is hoped, positive repercussions for social and environmental outcomes. This push toward a green economy has been met with some cynicism (Varoufakis & Adler, 2020), given that analogous efforts to develop a similar agenda at the intersection of economy, environment and society (e.g. sustainability, climate mitigation/adaptation and resilience initiatives) have had mixed results when the essential metrics are considered. Overall greenhouse gas emissions have steadily declined since 1990 within the EU, though some sectors have shown a continual rise (EEA, 2020) and global warming has kept increasing. Meanwhile, in the EU and globally, social inequality has worsened in the time these programmes have been in operation, a trend that has been especially acute in cities (Musterd et al., 2017; Forster et al., 2017).

It is in this context of decades of high-profile initiatives resulting in more or less continual economic growth, a mixed record of environmental improvements and a clear worsening of social inequality that the EGD has emerged. One logical conclusion (especially among cynics): if the EGD is more of the same, it will produce the same outcomes. In this paper, I argue that such a fate can be avoided and that the political foundation for doing so has already been constructed through efforts including the Just Transition Mechanism and the EU Climate Pact (see García in this volume).

In order for the EGD to be a catalyst for transition toward a European mode of ensuring climate justice, a continued and deeper internalisation of the critique of prior efforts is needed.

Still, in order for the EGD to be a catalyst for transition toward a European mode of ensuring climate justice, a continued and deeper internalisation of the critique of prior efforts is needed. I propose three principles that should not only be present, but should be "first and foremost" in the implementation process. These include a commitment to tend *first and foremost* (but not solely) to (1) combined social and ecological goals; (2) the most vulnerable members of society; and (3) the variety of local conditions in cities. If strategies for developing a green economy in the EU adhere to these principles in a first and foremost fashion, opportunities for different outcomes to the past may arise.

In the sections that follow, I develop my reasoning for each of the three proposed principles. In support of the first principle, I make the institutional context of urban development explicit. I describe how this context generates a demand for attending to combined social and ecological goals first and foremost, in other words, *before* addressing economic goals. I also describe how failure to adhere to this first principle fuels spatial dynamics in cities that shift aggregate risk toward areas inhabited by the most vulnerable populations. This process of urban risk-shift leads to the need for the second and third principles. In support of the second principle, I describe what it means in the European context to first and foremost meet the needs of vulnerable members of society. I argue that knowledge of the local "riskscapes" experienced by these individuals offers a clear picture of the priorities that need to be addressed through local implementation of the EGD. In support of the third principle, I argue that, while there must be EU-level frameworks for action and some of these frameworks extend beyond the realm of cities, engagement with and through cities is the most effective way to connect the larger goals of the EGD with plans that adhere to the first and second principles above. I conclude by summarising my argument for why following these principles can make the EGD a catalyst for transition toward an EU that makes climate justice an essential part of ensuring health and wellbeing.

I. Principle 1: Combined social and ecological goals

One way to describe the EGD is as the latest in a series of efforts to work from different angles to achieve the fundamental sustainability goal of balancing economic growth with environmental preservation and social equity. This goal was crafted roughly 40 years ago as a policy agenda based on an increased understanding since the 1970s of the extent to which ecosystems are groaning under the pressure of unrestrained growth and social inequality is widening to troubling levels. That the EGD shares this fundamental goal with prior sustainability, climate and resilience agendas is not reflective of a lack of originality on the part of its framers, but rather acknowledges the circumstances we face. The EGD is needed because the underlying problem first expressed in sustainability agendas over 40 years ago remains stubbornly entrenched, despite having been attacked from various angles.

The problem is that an imbalance exists in the institutional support for economic growth, environmental preservation and social equity. Put simply, the institutional weight given to economic growth crowds out other agendas. Critical sustainability scholarship argues that this results

in a systemic capitulation to growth interests at the expense of efforts to address social and environmental goals (Martinez-Alier & Meynen, 2019). Figure 1 visualises this institutional problem relative to the outcomes we have seen over the past 40 years: the economy has grown, environmental preservation has had some mixed success and social equity lags behind. The result is continued imbalance in the institutional support for each of these areas.

An imbalance exists in the institutional support for economic growth, environmental preservation and social equity. Put simply, the institutional weight given to economic growth crowds out other agendas.

Figure 1. The European Green Deal seeks to rebalance the institutional lopsidedness in economic, environmental and equity-related initiatives present for over 40 years.

The solution to this problem of institutional imbalance has generally been to seek balance by giving all three institutional goals separate and equal weight. As an idea it is appealing, but it has serious limitations. When we look at the results on the ground as expressed in the increasingly common green urban planning orthodoxy (Connolly, 2019), we find that any move to vaguely integrate environment or equity with economic development is considered a win. The problem here is that the lopsided institutional context of urban development generates unintended consequences. Urban greening goals that seem laudable to begin with sometimes generate undesirable effects felt most acutely by vulnerable social groups. For example, urban greening sometimes displaces low-income populations (Anguelovski et al., 2018); compact eco-cities can support high consumption and exclusionary lifestyles (Frantzeskaki et al., 2019); and climate resilience measures at times exacerbate injustices by increasing long-run hazards for marginalised populations (Keenan et al., 2018).

Figure 2. When the fundamental goal is expressed as a desire to vaguely balance economy, environment and equity in separate but equal fashion, the lopsided institutional structure leads to initiatives that often deal with one but not another goal and, in doing so, generate unintended consequences that undermine sustainability initiatives.

More concretely, in the case of New Orleans (USA), a set of green interventions that reduced flood risk resulted in the widescale displacement

of vulnerable populations to still riskier locations (Peck, 2006). In German and Polish cities, recent low-carbon retrofits generated rent spikes that meant only higher-income populations could access more environmentally sustainable housing (Bouzarovski et al., 2018; Grossman & Huning, 2015). Such cases expose a complex process wherein social vulnerability and climate risks become wrapped up in a process of generating secure zones for well-resourced people and forcing vulnerable populations to accept life in areas with higher levels of risk. As a result, vulnerable populations experience efforts to shift towards a green society less as vehicles for transitioning to a secure development path and more as means for projecting historical biases onto future growth. To the extent that these biases favour the least vulnerable residents, spatial injustices remain stubbornly embedded in spite of goals meant to achieve the opposite (Connolly, 2018).

As the EU seeks a "green recovery" from the economic decline associated with the pandemic, concentrated negative physical and mental health effects suffered by vulnerable populations from the virus and lockdown conditions highlight the need to consider social and ecological goals as fully integrated.

The response to this scenario from those seeking a green policy that will not collapse under the weight of its own unintended consequences has to be the broad pursuit of green justice and of climate justice more specifically. A key element of green and climate justice is that it brings together social and environmental goals into combined initiatives – from this angle, the two are inseparable. In other words, green justice programmes diverge from the abstract goal of separate and equal balance across economic, environmental and equity goals in order to engage with the problem of institutional imbalance. The Just Transition Mechanism, which has been attached to the EGD, is a step in this direction, though it largely focuses on accommodating the extra needs of regions with a heavy reliance on fossil-fuel intensive industries for employment. This is a narrow slice of the green justice effort.

Broadly, green justice policy involves devising initiatives that combine the political weight of social and environmental agendas. That combined weight is then leveraged to build institutional support for somewhat reducing the weight given to economic growth goals in the context of greening initiatives. The goal here is not an abstract notion of separate and equal balance, but rather a conscious effort to reset the scale. The importance of a green justice approach is highlighted by the global COVID-19 pandemic. As the EU seeks a "green recovery" from the economic decline associated with the pandemic, concentrated negative physical and mental health effects suffered by vulnerable populations from the virus and lockdown conditions highlight the need to consider social and ecological goals as fully integrated. This approach is visualised in Figure 3.

Figure 3. When social and ecological goals are combined within a green justice framework, the resulting enhanced political weight can be leveraged to generate a new institutional position for economic development agendas.

II. Principle 2: Start with the most vulnerable members of society

If the programmes designed to generate a transition to a green economy first meet the needs of the most vulnerable members of society, the result is necessarily a combined social and ecological agenda. In order to address the first principle, the EGD (or at least the Just Transition Mechanism) should be conceived in this way. This does not mean placing economic development strategies in service to greening goals, but rather to combined green justice goals. It is important to note that the intention is not to limit benefits solely to the most vulnerable members of society. Rather, tending first and foremost to their needs is simply a way of ensuring that they do not continue to be left out of the benefits. Hence, Principle 1 and Principle 2 reinforce one another as essential components of the effort to generate a different institutional pathway for the EGD to the sustainability, resilience and climate programmes that came before it.

An EGD that serves as a catalyst for climate justice would first and foremost address the riskscapes of the most vulnerable members of society, rather than blindly grabbing any greener production shift that seems feasible.

Housing status, income, gender, ethnicity and nationality are some (though not all) of the characteristics that define the most vulnerable groups in European cities (Ranci et al., 2014; McLaren, 2003). Housing vulnerability relates to sudden and large decreases in affordability in areas where low-income populations were able to achieve a decent quality of life in the past but have been priced out. Income vulnerability in the European context is mostly associated with episodic job insecurity and income instability. Gender issues relate to a wide array of conditions such as the support available for women to enter the workforce (e.g. affordable childcare), and historically (often unacknowledged) high levels of violence and bias against women in professional and home settings. Gender issues also extend to a mixed set of challenges faced by those who identify as other than male or female and connect with a correlated set of issues around sexual identity. Vulnerabilities derived from ethnicity and nationality stem from the increasingly virulent backlash against (legal and illegal) migrants in numerous settings across the EU expressed in political hostility and exclusion. This issue is expected to become more acute as climate-related migration puts additional pressure on wealthy countries.

These categories of social vulnerability provide a lens through which to view the "riskscapes" for European residents. A riskscape is the full set of risks (e.g. relating to climate, health, housing or economic insecurity) perceived to be present within a given territorial boundary. For example, someone living in a low-lying coastal area with high dependence on a few heavy industries for employment may have an acute feeling of the risk of sea-level rise, the risk of loss of economic opportunity if industries are forced to relocate, and health risks related to industrial activities. The full set of risks associated with the particular geography in which someone lives makes up their riskscape. To the extent that the riskscapes of socially vulnerable groups differ systematically from those of less vulnerable groups, the ability to advance climate justice (or not) depends greatly on understanding this difference. In practice, an EGD that targets first and foremost interventions that address the elements of riskscapes that are unique to socially vulnerable people would seek to alleviate issues like the energy divide, green gentrification, job precarity and climate vulnerability, to name a few. In this way, geography becomes the vehicle for the development of a combined social and ecological agenda that guides policy toward climate justice *and* toward meeting broad climate goals at the same time.

The city-level is where riskscapes take shape and thus where we can best understand what a combined social and ecological intervention should look like.

An EGD that serves as a catalyst for climate justice would first and foremost address the riskscapes of the most vulnerable members of society, rather than blindly grabbing any greener production shift that seems feasible. It would be based on an environmental agenda constructed around the greatest need according to a comprehensive understanding of the experiences of the most socially vulnerable (relative to others). This approach is different to what has been done in the past. It does not start by asking those who are arguably the least vulnerable in society what green additions can be added to their economic growth agenda in the vague hope that both environmental and social benefits will result. We have already seen the impacts of that approach – greater social inequality and a selective environmental preservation that continues to be associated with worsening global climate change.

III. Principle 3: Work with and through cities

It has long been acknowledged that cities are the best platform for addressing the institutional challenges associated with meeting global climate goals. When the global sustainability movement turned towards urban planning as a tool for shaping actions at the local level, it was fully embraced. By the 1990s, urban planning was practically synonymous with sustainability. Later, local sustainability efforts were augmented with climate mitigation and adaptation, resilience, and "smart" planning initiatives in cities. All of this accumulated activity means that there is a strong and established platform for translating global, regional and state-level climate action agendas into urban-scale interventions. To not employ the EGD – and especially the Just Transition Mechanism – with and through cities would be to waste this valuable resource.

Further, moving toward the city scale is essential for the EGD in particular for two reasons. First, the city-level is where riskscapes take shape and thus where we can best understand what a combined social and ecological intervention should look like. For example, the city of Barcelona has recently embarked on a pilot programme for creating climate refuges that address the intersection of changing environmental conditions (e.g. increased heat and flooding) and multiple social vulnerabilities based on the gender, housing insecurity, income and ethnicity of residents in targeted neighbourhoods. It seeks to ground climate initiatives in the act of alleviating neighbourhood risks experienced by vulnerable residents. This programme is a small-scale pilot, but it points toward what can be leveraged by working with and through cities to develop a combined social and ecological agenda for the EGD. Barcelona City Council has partnered with a local coalition of social equity and ecological preservation interests that have nuanced understandings of the local conditions. A multiplicity of such partnerships would generate diverse and impactful responses to climate and social risks in European cities.

The second reason the city scale is essential for the EGD is that goals developed at the global, regional or state level cannot account for unintended consequences that arise as a result of local conditions. For example, California (USA) has embarked on an aggressive climate programme seeking to reduce greenhouse gas emissions to a similar extent to Europe. As part of this programme, it passed the Sustainable Communities and

Climate Protection Act of 2008, which mandated urban regions create land use plans that would result in lowered emissions. The state defined emission reduction targets and regions planned for the reduction. In the city of San Francisco, this meant that certain areas with transit access were targeted for new high-density development. Some of these areas had long been lower-income communities where mostly non-white people lived. However, the plans launched under these new climate initiatives to radically alter these communities rapidly increased the risk of displacement among vulnerable residents. Climate policy and real estate markets provide an example of localised feedback that can only be addressed in partnership with city-scale organisations.

The third principle proposed for catalysing climate justice through the EGD should be the easiest to accomplish, as there is an established and well-supported basis for city-level climate actions. In fact, this principle has already begun to be mobilised within the implementation of the EGD. The European Climate Pact clearly embeds a role for cities and urban grassroots groups in the EGD by establishing the centrality of connecting local communities and civil society with larger-scale industrial and regional interventions. The goals of the Climate Pact include ensuring a participatory and open approach that engages local organisations, which retains a central role for cities in the EGD. This third principle pushes the EGD to ensure that once frameworks have been adopted at the EU level, applications are adapted at the local level to account for the variety of feedbacks generated.

Conclusion

The three principles presented in this paper are designed to articulate a direction for the EGD that departs from prior analogous efforts in order to become a catalyst for climate justice, especially in cities. Prior sustainability, climate and resilience initiatives have reinforced institutional support for increased social inequality and have a mixed record of environmental improvements. Within these policy programmes, urbanisation processes tend to generate uneven riskscapes in which the neighbourhoods of vulnerable residents become sinks for society's emerging threats to wellbeing. Thus far, the EGD shows promising signs of having the capacity to internalise lessons from past endeavours. The Just Transition Mechanism and the Climate Pact are sister programmes that develop resources and reasoning for heading in the direction implied by the principles proposed here. However, the risk is that when it is rolled out, the agendas that push the EGD toward climate justice will become more and more marginalised. I argue for exactly the opposite. The principles described here should come first and foremost in order to ensure that the outcomes of prior programmes are not repeated.

Most importantly, the EGD needs to embrace and build on its historical position. It should seek to implement plans developed with and through cities to address the combined social and ecological risks of the most vulnerable EU residents, allowing the EGD to loop its activities into people's lives. Fundamentally, such an approach is a simple acknowledgment that the best way to leave no one behind in a green transition is to begin by tending to the needs of those who are most commonly neglected.

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THE EU AS GLOBAL CLIMATE LEADER

- THE EU COVENANT OF MAYORS: BOOSTING LOCAL CLIMATE ACTION FOR THE EU'S GREEN TRANSITION

  Xira Ruiz Campillo

- AFTER PARIS: THE NEW GOVERNANCE ECOSYSTEM FOR CLIMATE ACTION AND THE ROLE OF THE EU

  Charles Roger

THE EU COVENANT OF MAYORS: BOOSTING LOCAL CLIMATE ACTION FOR THE EU'S GREEN TRANSITION

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The role of cities as key actors in addressing climate change and achieving sustainable development has become widely recognised over the past two decades. For example, the 2013 report of the UN High-Level Panel of Eminent Persons on the Post-2015 Development Agenda stated that "cities are where the battle for sustainable development will be won or lost" (UN High-Level Panel, 2013). The European Union's (EU) Covenant of Mayors for Climate and Energy (CoM) is an example of how that battle is already being fought in the cities and municipalities of all sizes that will be a driving force behind the European Green Deal (EGD), the EU's new roadmap for reaching climate neutrality by 2050.

The European Commission launched the EU Covenant of Mayors, as it was then called, in 2008 following the adoption of the 2020 climate and energy targets, which compelled member states to reduce greenhouse gas (GHG) emissions by 20% compared to 1990, to increase renewable energies by 20% and to improve energy efficiency by 20% by 2020 (EC, 2008). Although these targets were mandatory only for member states, the idea behind the creation of the CoM was to mobilise municipalities and build on their potential to reduce GHG emissions and support the delivery of the 2020 goals.

Between 2014 and 2015, at the time of the negotiations of the Paris Agreement, the CoM underwent significant transformations and evolved into the EU Covenant of Mayors for Climate and Energy. With the change in the name came a broader focus and more ambitious goals. In addition to the work on mitigating GHG emissions, two new work streams were added: one on ensuring access to secure, sustainable and affordable energy for all, and a second that put a stronger emphasis on adaptation measures. Further, the CoM stepped up the mitigation target from 20% of emissions reduction by 2020 to 40% by 2030. This increase was in line with the EU's 2030 Climate and Energy Framework, which was adopted by member states in 2014 and comprised the EU's contribution to the Paris Agreement (EUCO, 2014). The CoM has thus become an important tool for the implementation of the 40% GHG reduction goal at the local scale. It also provides an example of how the European Commission has boosted local action to support the achievement of EU and international climate agreements.

The EU Covenant of Mayors provides an example of how the European Commission has boosted local action to support the achievement of EU and international climate agreements.

The CoM is a multilevel governance experiment that can contribute to increasing the commitment of European cities to climate change (Domorenok et al., 2020). It has evolved over the years into a mechanism not only for sharing good practices in urban climate governance across Europe, but also with third countries. At the time of writing, there are 10,358 signatories to the CoM from 57 countries inside and outside the EU, and the number keeps increasing. Although the vast majority of signatories are from EU countries, the CoM has also been signed by municipalities in third countries such as Turkey, Armenia, Mexico and Ukraine. Compared with other city networks that work on urban climate governance (e.g. ICLEI, Climate Alliance and C40 Cities), the CoM is one of the most successful in terms of membership numbers and global reach. It has been an inspiration for the creation of similar initiatives such as the Compact of Mayors created in 2014 by the UN and the UN Special Envoy for Cities and Climate Change, Michael R. Bloomberg, under the leadership of UN-Habitat and the major city networks C40 Cities, ICLEI and United Cities and Local Governments (UCLG).

To make participation easy, the CoM works in a simple and flexible manner. Upon signing, municipalities commit to voluntarily reduce their emissions by 20–40% (depending on the joining date) and to submit a Sustainable Energy and Climate Action Plan (SECAP). The SECAP provides information on cities' main sources of CO_2 emissions in sectors ranging from municipal buildings to transport, waste and the production of local energy. The plans also specify the tools, policies and budgets for meeting the goals to which cities have committed. Within two years of the approval of the SECAP, cities have to report on their progress and identify good practices, successful, innovative policies, and the tools used to implement them. In turn, the CoM offers its members technical and methodological support, engagement and visibility at EU level, and access to knowledge through the sharing of good practices amongst all signatories.

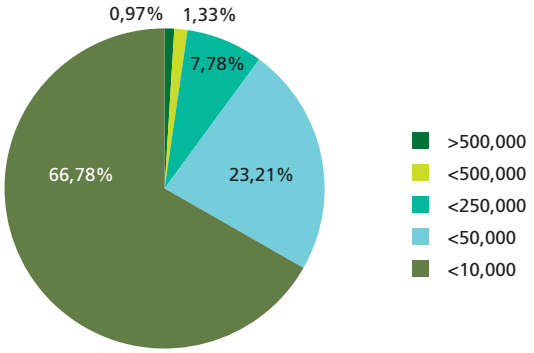
Over the coming months municipalities that joined the CoM before 2014 will have to report on the steps taken to meet the reduction of at least 20% of their GHG emissions by 2020. This will be a milestone for the CoM, as it will demonstrate how useful it has proven in reducing GHGs and in engaging local actors in climate governance. Although previous accounts by the signatory cities indicate that most are on track to meet their commitments (Croci et al., 2016; Kona et al., 2017; Melica et al., 2018), the number that have actually gone beyond the mere signing of the CoM to introduce meaningful policies to address climate change and sustainability challenges remains to be seen.

I. The EU Covenant of Mayors for Climate and Energy in figures

The increase in the number of signatories to the CoM over the years has been constant. Currently, it includes 10,358 signatories (cities and regional coordinators) covering a population of approximately 322,754,173, including some municipalities in third countries. The CoM has been especially useful for boosting climate action in small municipalities: currently, 66.78% of all signatories are municipalities with fewer than 10,000 inhabitants, 23.31% have between 10,000 and 50,000, and only 0.97% have a population of over 500,000 (see Figure 1). This shows its potential

to promote action at the local level of governance. This potential should not be disregarded: while small scale actions adopted locally may not significantly decrease global emissions by themselves, they can inspire other cities on how to reduce GHGs, provoking a snowball effect that can have a significant global impact.

Figure 1. Percentage of signatories by population. Data from the EU Covenant of Mayors for Climate and Energy website (accessed 2 October 2020).



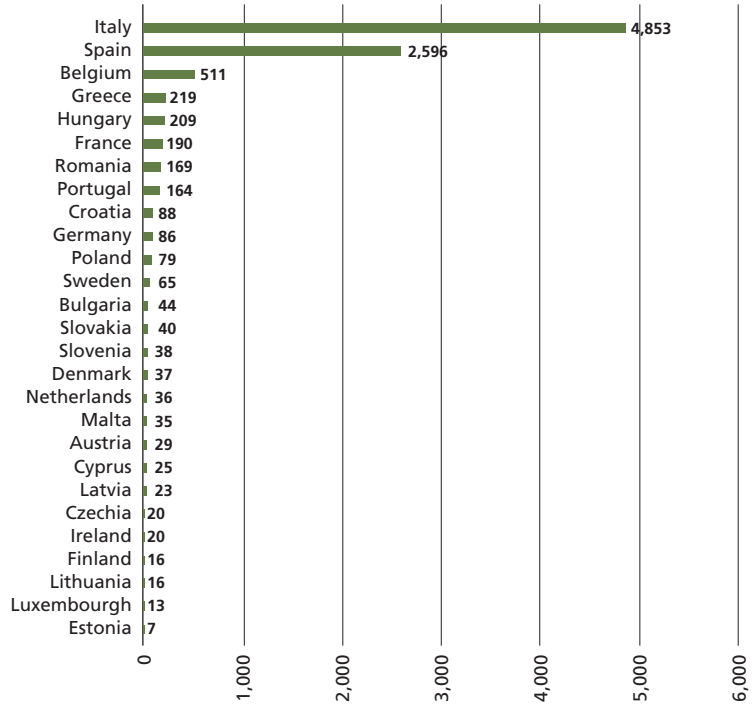
One of the reasons the CoM has attracted so many members is probably the flexibility it offers signatories. Rather than instructing cities on how to reduce their GHG emissions, the CoM has given cities the freedom to experiment and develop their own strategies. As a result, local authorities have formulated an incredible variety of approaches, tools and policies that might otherwise never have seen the light of day. Local-level climate actions range from initiatives promoting sustainable transport to the building of more cycle lanes, the purchase of new public vehicles and the promotion of transport sharing systems (for e.g. bikes, scooters and cars), and the improvement of energy efficiency in the residential sector by supporting better housing insulation. By giving municipalities room for flexibility and experimentation, the CoM has fostered local-level climate action that enriches and complements national approaches, making local authorities valuable partners for national governments and regional authorities (Kona et al., 2018: 574). Notably, the inventiveness of local authorities has often also prompted them to aim for more ambitious climate goals than their respective national governments. For instance, while the Spanish government committed to reducing its GHG emissions across sectors by 10% by 2020 compared to 2005, the cities of Seville and Bilbao committed to reduce their emissions by 29% (base year 2000) and the city of Gijón by 35% (base year 2007). Overall, CoM signatories committed to an average of 27% GHG reduction by 2020, 7% higher than the CoM's minimum requirement of 20% (Kona et al., 2017: 14).

Yet, the large number of CoM signatories conceals its somewhat limited geographical scope. Figure 2 shows the overwhelming Italian and Spanish majority. Belgium, the country with the third most signatory cities, has almost 2000 fewer members than Spain. Countries with a longer history of environmental public policies, such as Germany, Sweden and Denmark have only a few dozen cities participating in the EU Covenant. These discrepancies illustrate the CoM's far from homogeneous influence across the EU. In part, the lack of pre-existing national

By giving municipalities room for flexibility and experimentation, the CoM has fostered local-level climate action that enriches and complements national approaches, making local authorities valuable partners for national governments and regional authorities.

or regional support structures for local authorities to mitigate GHG emissions explains why the CoM has been more successful in some countries than in others. In countries like Italy and Spain where such support structures were missing, cities embraced the CoM in an effort to adopt coherent local policies to reduce GHGs and increase the share of renewable energy (Melica et al., 2018; Domonerok et al., 2020). A mechanism like the CoM is therefore particularly useful for mobilising cities in countries where local-level climate change policies are lagging behind. In line with this, the mobilisation of cities through the CoM and other similar initiatives can ensure wider participation from the bottom that will contribute to increasing national and European efforts to implement Europe's Green Deal.

Figure 2. Number of signatories by EU country. Data from the EU Covenant of Mayors for Climate and Energy website (accessed 2 October 2020)



II. The EU Covenant as a mechanism for influencing global climate governance

The CoM is only one of a number of instruments and initiatives that the EU has created to mobilise local climate action. Others include CIVITAS - Cleaner and Better Transport in Cities,[1] the European Green Capital award,[2] the recent Green City Accord[3] and 100 Climate neutral cities by 2030.[4] All these programmes have the benefit of mobilising cities through diverse incentives (whether the prospect of winning an award or of accessing funding opportunities), but they also pose many challenges. While their aims and objectives are very similar, they tend to have different reporting schemes, which can create confusion and be time-consuming for local authorities.

1. Civitas: https://civitas.eu
2. European Green Capital: https://ec.europa.eu/environment/europeangreencapital
3. Green City Accord: https://ec.europa.eu/environment/topics/urban-environment/green-city-accord_en
4. Mission 100 climate neutral cities by 2030: https://ec.europa.eu/jrc/communities/en/community/city-science-initiative/document/mission-100-climate-neutral-cities-2030

In cities, the European Commission seems to have found valuable partners for advancing its climate and environmental ambitions. By engaging cities in EU networks and projects, the Commission can leapfrog member state decision- and policymaking and demonstrate how specific strategies can be successfully implemented at the local level. It is no coincidence that the CoM was launched in 2008, only a few months after EU leaders adopted the 2020 climate and energy targets. So far, many cities' climate actions have already proven that a 20% reduction in GHGs by 2020 is a reality in their territories. In fact, recent estimates by the Joint Research Centre indicate that a 25% reduction had already been achieved by 2017 (Bertoldi et al., 2020: 27). Now, the goal of the CoM is to demonstrate that a 40% GHG reduction by 2030 is also possible. Moreover, cities that want to go a step further can apply to take part in the forthcoming 100 climate neutral cities by 2030 programme, a proposal by the Horizon Europe Mission Board for Climate-Neutral and Smart Cities to support cities to achieve climate neutrality by 2030 (Gronkiewicz-Waltz et al., 2020).

A mechanism like the CoM is particularly useful for mobilising cities in countries where local-level climate change policies are lagging behind.

From a constructivist perspective, offering cities the opportunity to share good practices among peers and engage with EU institutions is an effective strategy for the political and administrative Europeanisation of climate governance and for strengthening European identity. Further, with European cities having become pioneers in climate policies and actions, the CoM is ideally suited to sharing its experience in local environmental governance with third countries and to consolidating European global climate leadership. The global reach of the CoM was also reflected in the creation of the Global Covenant of Mayors for Climate and Energy (Global Covenant) in 2016, which brought together the EU Covenant for Climate and Energy and the Compact of Mayors. The EU's contribution to the Global Covenant has been of great significance: it not only brought the majority of member cities to the initiative along with its consolidated experience in mobilising cities in the region, it also contributed strategic direction by co-chairing the programme. This influence over the Global Covenant has enabled the EU to extend its urban climate governance model to other cities around the world.

Other European climate initiatives also build on this potential for international exchange and the transfer of experience. The 100 climate neutral cities by 2030 programme, for instance, is being planned not only as an instrument to step up the number of European cities striving for systemic change and climate neutrality, but also as a tool to facilitate and create synergies with other international climate initiatives (Gronkiewicz-Waltz:16). Other examples are the CIVITAS network, in which non-EU cities can also participate, and the Green City Accord, which will be open to cities outside the EU once the programme is consolidated within the EU. All these initiatives serve to consolidate the EU's global climate leadership by first mobilising local actors within the EU, and then sharing the acquired knowledge and experience with third countries. In this way, the EU not only shows that it can lead by example, it also influences the boosting of local action globally. The reality is that since at least 2013 the EU has been aware of the great potential of its so-called "green" or "climate diplomacy" (Ruiz Campillo, 2017). The EGD, which has "green deal diplomacy" build into it, will become one of the key instruments for convincing and supporting others to promote more sustainable development and to ensure green alliances with third countries and regions (EC, 2019: 20–21).

III. Ten examples of how cities already contribute to the European Green Deal

The influence over the Global Covenant has enabled the EU to extend its urban climate governance model to other cities around the world.

The EGD is the European Commission's top political priority and the roadmap for the transformation of the EU into a fairer and more prosperous society and economy. The twin green and digital transitions have become even more important since the COVID-19 crisis. The Commission has responded by reinforcing the EGD as Europe's post-crisis growth strategy, ensuring that recovery investments, job creation and support to the hardest-hit regions and sectors are in line with the principle of green and sustainable growth (EC, 2020). The EGD's holistic approach underlines that all EU actions and policies must contribute to its objectives (EC, 2019). This commitment will see the EU promote action at all levels to make the EU a greener and more sustainable region, which will in turn help it meet international environmental obligations such as the Paris Agreement and promote the 2030 Agenda.

Cities are far from being the main focus of the EGD (just seven mentions compared to 37 references to member states), but they are key to the transformation the EGD is to drive. The overall success of the CoM is an example of cities' contribution to tackling environmental and sustainability challenges. Cities have developed a broad range of initiatives to reduce their GHGs, ranging from the use of technology to reduce consumption of public lighting to planting trees and promoting ecological agriculture in municipalities. Given their innovative policies and actions, cities are an ideal laboratory for testing different approaches to the implementation of the EGD. What follows are examples of CoM member cities addressing the various action areas outlined by the EGD since 2008 that may serve as inspiration for other municipal, regional and national authorities:

1. *Increasing the EU's climate ambition for 2030 and 2050.* Almost half of the current CoM signatories (4491 municipalities) have already committed to the 2030 goal (i.e. emissions reduction by 40%), showing the great ambition and commitment of local actors.

2. *Supplying clean, affordable and secure energy*. Many CoM cities have installed photovoltaic power plants (e.g. Albox, Spain), mini-hydroelectric plants (e.g. Feltre, Italy) or wind farms (e.g. Mol, Belgium) in their municipalities as a way of producing more sustainable energy.

3. *Mobilising industry for a clean and circular economy.* Cities such as Munich (Germany) have developed information campaigns and training programmes for businesses that promote energy efficiency and environmental protection. Other examples include the city of Ghent (Belgium), which ran an energy coaching pilot project in which 15 local companies participated.

4. *Building and renovating in an energy and resource efficient way*. Dijon Métropole (France) has promoted the building of a low-energy eco-district in former wastelands using passive design with a focus on the creation of green areas and cycling and pedestrian mobility. Other cities like Genk (Belgium) and Koprivnica (Croatia) have invested in renovating the energy systems of residential buildings and installing more efficient windows and doors for better insulation.

5. *Accelerating the shift to sustainable and smart mobility*. Cities in the CoM have a great record in promoting sustainable mobility. Common measures include the creation of new bike lanes and the purchase of more efficient public vehicles; the promotion of bicycle tracks in the city through information boards (e.g. Zagreb, Croatia); the creation or improvement of pedestrian areas within the municipality (e.g. Dublin, Ireland); and the electrification of public transport (e.g. Gothenburg, Sweden). A great example of the transition to low-energy mobility can be found in Växjö (Sweden), which has managed to coordinate the transportation system for all goods purchased by the city council in a way that saves money and reduces CO_2 emissions and mileage.

6. *From "Farm to Fork": designing a fair, healthy and environmentally friendly food system*. Paris (France) has introduced a food carbon simulator for caterers to calculate the GHG emissions of the meals they serve and has adopted a Sustainable Food Plan (2015–2020) to promote green and healthy catering in municipal restaurants and schools. Other cities such as Buzet (Croatia) are promoting sustainable agriculture as a way of transitioning towards a more environmentally friendly food system.

7. *Preserving and restoring ecosystems and biodiversity*. Fingal County Council (Ireland) has connected cycling trails, greenways and green belts for recreation and biodiversity protection. Murcia (Spain) has built water-saving irrigation systems for green areas to help preserve water resources. In Loures (Portugal), tree planting and the cleaning of degraded forests will both contribute to preserving biodiversity and reducing GHG emissions.

8. *A zero-pollution ambition for a toxic-free environment*. Lessebo (Sweden) has undertaken works to decontaminate old landfills as a way to prevent pollution from spreading. Other municipalities like Coín (Spain) and Conco (Italy) are addressing light pollution by replacing public lighting.

9. *Pursuing green finance and investment and ensuring a just transition*. CoM cities offer great examples of how green public procurement can contribute to more sustainable cities. Many of them have opted to purchase 100% green energy for municipal buildings (e.g. Gooik, Belgium) or including green criteria in the procurement of furniture for public spaces, public transport, cleaning services and paper (e.g. Turin, Italy).

10. *Activating education and training*. Education is key to transforming citizens' consumption habits and cities are also doing their share. While educational activities at schools are some of the most popular initiatives among signatories, cities such as Helsingør (Denmark) have offered workshops to craftsmen, and Agioi Anargyroi-Kamaterio (Greece) has offered energy education to both adults and children.

Without doubt, the flexibility of the CoM in promoting mitigation and adaptation at city level is one of its main strengths. It gives cities the room to transition towards sustainable development in creative and context-specific ways. The above examples illustrate the determination of cities in the fight against climate change and how they can be relevant actors in the multi-level governance that will be necessary to transform the EU into the fairer, greener and more prosperous region the EGD envisions.

Conclusion

Cities are key actors in the consolidation of the EU's climate leadership and credibility in global governance.

Active and effective local responses will be needed if the European climate transition is to be successful. From the beginning, the CoM has channelled local climate action, supporting cities in their efforts to tackle climate change and offering them the possibility to gain national and European recognition. As shown above, initiatives implemented by cities in the CoM offer a great variety of options on how to address climate change and sustainability at the local level. The CoM supports cities in sharing their experiences and knowledge, and it fosters a sense of responsibility and overall unity in how to approach climate challenges from a European perspective.

In her presentation of the EGD, Commission President Von der Leyen declared that, with the EDG, Europe would show the rest of the world how to be sustainable and how to transform our way of living and working in a way that would convince others to move in the same direction. It should be added that without cities the rollout of the EGD will be almost impossible. Cities are key actors in the consolidation of the EU's climate leadership and credibility in global governance. All the initiatives cited in this chapter are examples of efforts the EU is making to engage cities in global environmental governance. At the same time, they highlight the importance of cities for the implementation of the EGD. Cities are key to the EGD's ambition of making Europe the first climate-neutral continent by 2050. The majority of the EGD's thematic priorities, from the transition to secure and affordable energy, sustainable transport, a more circular economy and a healthier food system, will rely on action by cities and the development of local policies in collaboration with citizens.

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AFTER PARIS: THE NEW GOVERNANCE ECOSYSTEM FOR CLIMATE ACTION AND THE ROLE OF THE EU

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Climate change is one of greatest challenges the world has ever faced. Its consequences, both human and environmental, are extraordinary (Houghton, 2015; Emanuel, 2018). Acting to limit its most harmful effects is at once essential and immensely difficult. States and other actors must confront a variety of tricky, overlapping cooperative and distributional issues (Bernstein and Hoffmann, 2019; Colgan et al., 2020). This can clearly be seen at the international level within the context of the United Nations (UN) negotiations, where states have sought to establish the mechanisms needed to reduce global emissions and adapt to the changes that are already imminent. For many years, these were singularly unsuccessful. The 1997 Kyoto Protocol, the first major agreement reached under the UN Framework Convention on Climate Change (UNFCCC), was harshly criticised. Its immediate successor – the Copenhagen Accord of 2009 – was even more widely lambasted. It was not until the Paris Agreement of 2015 that states agreed upon a response that is thought to hold greater promise for addressing the challenge of climate change (Held & Roger, 2018; Falkner, 2016). Yet, shortly after coming into force, its relevance was called into question by President Donald Trump, who announced that he was pulling the US out of the agreement (Macneil & Paterson, 2020).

The period after Paris is nevertheless significant because the global effort to address climate change has shifted into new territory. This has occurred through the establishment of what I refer to as the Paris "ecosystem" for climate action – a set of interlinked institutional arrangements, centred on the UNFCCC, aimed at pushing both state and non-state actors toward the common goal of mitigating and adapting to climate change. This is the context in which the European Union (EU) and European cities presently find themselves, and it will shape their activities moving forward. Understanding this new governance ecosystem – how it currently works, how it was made and how it must be re-made to work better – is therefore essential to properly thinking about their role and the place of the European Green Deal (EGD). With this aim in mind, I begin here with an overview of the governance ecosystem that has taken shape since 2015, explaining the key mechanisms that have been established. Second, I discuss how these mechanisms

were created. This is a complex and still-unfolding story, so I focus especially on highlighting some important themes relevant to the role of the EU, European cities and the EGD in this development. Finally, I discuss some of the broader implications of this new ecosystem and call attention to the challenges and opportunities Europe will confront in implementing and achieving its Green Deal.

The Paris "ecosystem" refers the panoply of institutions and governance platforms established in Paris, as well as those that have subsequently evolved under the UNFCCC to facilitate the agreement's objectives.

I. How the Paris ecosystem works

The Paris "ecosystem" refers the panoply of institutions and governance platforms established in Paris, as well as those that have subsequently evolved under the UNFCCC to facilitate the agreement's objectives. These formal mechanisms make up the "core" of the Paris ecosystem and they are mainly concerned with action by states. But a range of additional mechanisms have also been created either under the aegis of the UN or associated with it that involve a wider range of actors, such as regional governments, municipalities, businesses, civil society groups and even individuals. These hybrid mechanisms are a central innovation of this period and contrast sharply with earlier models of global climate governance (Rajamani, 2016; Hale, 2016). They constitute an interlocking web of international law and "soft law" that brings global climate action by a range of different actors – both public and private – together under one roof (Held and Roger, 2018).[1]

The overarching goal towards which all efforts in the Paris ecosystem aim is established by the Paris Agreement, which set a legally binding target for the world of limiting the global temperature rise to 2°C above pre-industrial levels, along with an aspirational goal of limiting it to 1.5°C (UNFCCC, 2015: Article 2.1a). This would be achieved by bending the global emissions trajectory downwards, ensuring greenhouse gas emissions peak as soon as possible, and achieving "a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of the century" (Ibid.: Article 4.1). The arrangements set up under the UNFCCC to advance these goals constitute a sophisticated mix of mechanisms that address states and so-called "non-party stakeholders". For states, the key arrangement is the iterated pledge-and-review framework under the Paris Agreement for setting, evaluating and revising national climate policies. For non-party stakeholders, the key arrangements are those set up under the Lima-Paris Action Agenda (LPAA), those called for by the UNFCCC decision adopting the Paris Agreement, and the Marrakech Partnership for Global Climate Action.

The pledge-and-review framework established for states centres on their nationally determined contributions (NDCs). NDCs are non-binding statements outlining the commitments they are willing to make to achieve the global targets set out in the Paris Agreement. Determined independently, these are designed to percolate up through state policymaking apparatuses and are not subject to negotiation within the UNFCCC context. However, they are set within a binding iterative "catalytic" framework designed to ratchet up climate action over time (Falkner, 2016; Held & Roger, 2018; Hale, 2020). Once states have set their initial NDCs, these are expected to be updated on a 5-year cycle. Biennial progress reports are to be published that track progress toward the objectives set out in states' NDCs. These will be subjected to technical review, and will collectively feed into a global stocktaking exercise, itself operating on an offset

1. The Paris ecosystem does not contain all governance initiatives. It may be thought of as the central subset of state and non-state climate governance initiatives within the broader "transnational" regime complex for climate change that are directly associated with the UN and UNFCCC and which are expressly aimed at facilitating the objectives of the Paris Agreement, see Keohane and Victor, 2011; Abbott, 2012.

5-year cycle, where the overall sufficiency of NDCs will be assessed. The information gathered from states' individual reports and reviews, along with the more comprehensive picture attained through the "global stocktake" will, in turn, feed back into and shape the formulation of states' subsequent pledges. The logic, overall, is that this process will offer numerous avenues where domestic and transnational political processes can play out, facilitating the making of more ambitious commitments and putting pressure on states to comply with their nationally determined goals (Dai, 2010; Falkner, 2016; Allan, 2018).

As mentioned above, though, the Paris ecosystem is about much more than states. In contrast with earlier models of climate governance, there is now widespread recognition of the contributions non-state and sub-state actors – cities, in particular – can make to global climate action (Hoffmann, 2011; Bulkeley et al., 2014; Lui et al., 2020). These actors have long been involved in shaping the negotiations. As far back as 1995, for instance, 150 local authorities formed the Local Governments and Municipal Authorities Constituency to coordinate their engagement (Medarake et al., 2019). And since then, numerous moves have been made to support these kinds of efforts under the UNFCCC. Much of this is quite recent. One of the first major attempts was the Momentum for Change Initiative started in 2011 by the UNFCCC Secretariat, which began to call attention to a range of so-called "Lighthouse Activities" and offered awards for particularly successful examples of climate action. This expanded in the lead-up to Paris – this time, with growing support from member states – especially through the LPAA launched in December 2014. The LPAA built directly on the work of the UN Secretariat, which organised the UN Climate Summit in September of that year and was aimed at "catalyzing action" through a variety of partnerships and initiatives (Widerberg, 2017; Chan et al., 2018). The LPAA was, in a sense, an extension of this one-time event into a more proactive, ongoing effort. The most immediate output of the LPAA was the Non-State Actor Zone for Climate Action (NAZCA), a platform hosted by the UNFCCC Secretariat that allows stakeholders to register their voluntary commitments, associate themselves with the UN and become important "members" of the Paris ecosystem. Of these, cities and regional governments constitute one of the largest groups, accounting for just over half of all the "actors" registered in the NAZCA database.

The Paris ecosystem is about much more than states. In contrast with earlier models of climate governance, there is now widespread recognition of the contributions non-state and sub-state actors – cities, in particular – can make to global climate action.

These early initiatives were considerably expanded through the decision adopting the Paris Agreement. Two innovations were particularly important. The decision called, first, for the holding of a "high-level event" that would regularly bring state, non-state and sub-state actors together to announce, highlight, track and scale up transnational climate governance initiatives. Second, it called for the appointment of two high-level champions who would be responsible for coordinating the high-level event and leading efforts to raise the level of ambition by non-party stakeholders. In 2016, the first two high-level champions (from France and Morocco) then spearheaded the Marrakech Partnership for Global Climate Action, which aims to facilitate interactions between and contributions by party and non-party stakeholders. The non-party stakeholders involved are those specifically affiliated with the UN process through the NACZA platform, and the partnership itself encompasses a variety of mechanisms and activities intended to steer transnational governance arrangements toward the objectives of the Paris Agreement.[2]

2. The *Yearbook of Global Climate Action*, itself an initiative that emerged from the Marrakech Partnership, offers a fascinating overview of these new arrangements: see United Nations Climate Change Secretariat, 2019.

II. How the Paris ecosystem emerged

The advent of this governance ecosystem constitutes a notable innovation in the history of the global climate regime. By bringing both state parties and non-party stakeholders together within the context of a sprawling and more or less shared framework – largely operating in accordance with a single catalytic logic – it goes considerably beyond earlier "models", particularly the Kyoto Protocol (McGee & Steffek, 2016; Held & Roger, 2018). Its core components were conceived, for the most part, during the same period of time: in the run-up to, at and immediately after the twenty-first Conference of the Parties (COP) in Paris in 2015; although in important respects its structures are still taking shape. Naturally, therefore, their histories are intertwined and, European actors – states, the EU and cities – have played critical parts in each. A full account of the emergence of this new governance ecosystem is beyond the scope of this piece. A range of other accounts have pointed to important drivers of this shift, including the role of civil society groups, great power politics, coalition building, prior institutional legacies and the emergence of new policy ideas.[3] However, it is useful to highlight several key points that bear upon the main themes explored in this volume.

First, key elements of the new Paris ecosystem appeared in reaction to the failures associated with the first major model of climate governance embraced by the global community – Kyoto. The Kyoto Protocol was a highly ambitious, legally binding and innovative international agreement. European states were – and largely remain – its strongest supporters. But in the years after it was signed it encountered a range of major challenges, both technical and political in nature (Rosen, 2015; Harrison and Sundstrom, 2010). Almost from the start, states recognised that a successor agreement was needed. But negotiating an expanded agreement that could improve upon the same regulatory model proved difficult, largely due to opposition from both developing and emerging economies and the United States (Harrison et al., 2010; Held et al., 2013). In the end, the effort was futile. Failure in the UN negotiations initially led to the Copenhagen Accord, which operated according to a very different, voluntary, or "bottom-up" logic. At first, most viewed this as a failure. And in many respects it was. But by putting to rest the Kyoto model, this "failure" played a critical role in paving the way for the Paris Agreement.

The rapid growth of transnational governance initiatives paralleled these developments in an interesting way. In the period after the signing of the Kyoto Protocol, non-state and sub-state actors became much more directly involved in the governance of climate change. A range of new initiatives appeared that connected subnational governments, businesses and individuals across borders. These included innovative city-led initiatives like C40 Cities and corporate- and NGO-led ones like the Carbon Disclosure Project and the Greenhouse Gas Protocol. These constituted novel governance "experiments" that largely operated outside of the state system and their numbers exploded in the period between Kyoto and Copenhagen, as well as afterwards (Hoffmann, 2011). The story behind their rise is a complex one. Some were established through a process of delegation and were clearly the product of decisions by states and international organisations (Green, 2013; Green

3. For a comprehensive discussion, see Allan, 2019; Allan et al., 2019.

& Colgan 2013). Some of this was also a reaction to new policies at the national level (Andonova et al., 2017). But in many (and perhaps most) other instances the emergence of transnational initiatives was a reaction to perceived failures at the intergovernmental level. As state preferences conflicted over Kyoto and a "governance gap" appeared that widened as the negotiations wore on, space was created for non-state and sub-state actors to demonstrate leadership and experiment with new approaches (Hoffmann, 2011; Green, 2013). In the case of cities, this logic is clear: one of the operative mottos of their movement has been that while "nations talk, cities act".

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Second, while repeated governance failures may have put old models to rest and stimulated new approaches and initiatives involving a diverse array of actors, these were not considered sufficient on their own. States had to rethink both. The Copenhagen Accord and the groundswell of transnational arrangements that had appeared were innovative and certainly more feasible by comparison. Together, they constituted a politically viable path forward for the climate regime in a way that a Kyoto-style global deal clearly was not. At the same time, however, neither offered a perfect substitute on its own. Something like the Copenhagen Accord could be swiftly agreed upon, but state pledges did not "add up" and there was no mechanism in place to ensure that states followed through on their promises. Similarly, while transnational initiatives could involve many actors and make valuable contributions to climate action, they suffered from design flaws, inadequate scale and insufficient geographical scope (Michaelowa et al., 2017; Roger et al., 2018). State policymakers were therefore encouraged to search for ways of embracing the basic frameworks that were proving viable – politically – while correcting and compensating for these various problems. Non-state and sub-state actors, in turn, also increasingly reached up for assistance.

The Paris ecosystem is the product of this collective search and the EU and European cities have played a critical part in this effort. In the intergovernmental negotiations, the EU has been a leader. It has demonstrated a high level of commitment through its own climate policies, built progressive coalitions in the UNFCCC, and pushed hard for greater ambition at the global level. One of its most important contributions was, for instance, helping to form the critical coalition at the Durban COP in 2011. This grouping, which comprised the EU, the Least Developed Countries (LDC) Group and the Alliance of Small Island States (AOSIS), along with other states from Africa and Latin America, forged the key agreement in favour of a legally binding outcome that would eventually lead toward the Paris Agreement. Throughout the subsequent negotiations, the EU continued to build bridges with others across the North–South divide. The "Durban Alliance" it helped to form ended up being an essential stepping stone to the High Ambition Coalition, which proved decisive for finalising the Paris Agreement.

In this way, the EU played an essential role in settling the outlines of the intergovernmental layer of the Paris ecosystem. But Europe has also been critical for the transnational layer. European actors, especially cities, have been at the forefront of transnational climate governance, leading initiatives like the C40 (created in 2005), which was largely the brainchild of Ken Livingstone, then mayor of London. Even more crucially,

European governments and the EU have been at the forefront of efforts to "orchestrate" transnational climate governance. In the period after Kyoto, governments and international organisations began to realise both the potential and drawbacks of transnational arrangements. This increasingly led them to take on a much more ambitious role, engaging in efforts to broaden, deepen and strengthen the initiatives that were appearing (Hale and Roger, 2014). While this is not solely a European phenomenon, the EU, European states and European cities have been at the leading edge of such efforts. The EU was, for instance, instrumental in establishing the Covenant of Mayors initiative in 2008, which is today one of the largest and most successful examples of transnational climate governance (Bendlin, 2017; Kern, 2019; Ruiz Campillo, this volume). These activities have served as a model for the kind of orchestration now occurring under the UNFCCC, knitting together the efforts of transnational actors into a wider climate regime – with Paris at its core.

The EGD is poised to offer many lessons – some technical, others political – for those seeking to do the same elsewhere.

Europe is now playing a key role in setting an example within this new system. As noted above, the Paris model is premised on voluntary contributions and the hope of stimulating an upward spiral of ambition. However, generating such an effect will heavily depend on actions taken right at the start. If ambition is lacking at this stage, especially among the big emitters, this would put little pressure on others to follow. The EGD is, however, an ambitious move in the right direction for three reasons. First, the targets being proposed for Europe are quite ambitious and should inspire others to act similarly. Second, by thinking about climate action as an encompassing growth strategy involving a wholesale transformation of economies, the EGD is poised to offer many lessons – some technical, others political – for those seeking to do the same elsewhere. Thus, while its targets may inspire greater commitments by others, its actual efforts to meet them can help with the implementation side of the equation. Third, various activities of the EU and its Green Deal can more directly push others in a more positive direction. Through its ambitious commitments to provide support for NDCs around the world, by putting climate action at the heart of its diplomacy and alliance-building, and by leveraging trade policy and the "Brussels effect" to scale-up standards throughout the world, it can lower implementation costs in critical partner states and increase the costs of inaction (Bradford, 2020). Europe's Green Deal can, therefore, offer a crucial stepping stone to greater ambition at the global level.

III. How to move forward: Challenges and opportunities

There are nevertheless a range of outstanding issues – for Europe, for European cities and for the world as a whole. The new governance ecosystem that has emerged after Paris is of considerable significance not only because of its novel design and the processes that underpinned its creation; it is also important because it has finally moved the international community from a negotiation "mode" to an implementation mode. Negotiations within the UNFCCC continue, of course, but are now mainly concerned with the task of improving a system that already exists. They are about remaking and fine-tuning international institutions, rather than fashioning them from whole cloth. In many ways, this is a no less challenging task. There will be vehement

disagreements over how to proceed, as was seen at COP 25 in Madrid, which largely foundered over the role that market mechanisms will play in this new arrangement. However, as Europe and the world move forward in this implementation phase through initiatives like the EGD, among many others at the domestic and international levels, negotiators inside the UN will have to think about global climate governance in new terms. The activities of those engaged in transnational governance and activism on climate change will have to shift as well. No doubt, a host of new challenges and opportunities will present themselves. I focus now on a few that are likely to be particularly relevant to Europe and European cities.

Perhaps the most important challenge for the immediate future will be getting the Paris rulebook right and ensuring that the pledge-and-review system is effective at scaling up the ambition of states over time. As we develop experience with this system, problems will surely become evident. It will be essential to focus on these as they appear and to make regular adjustments to the system to ensure that goals are being met. In doing so, those involved in analysing and (re)designing the system will have to give special consideration to the decentralised political dynamics that will make it work. The redesign of international arrangements should be done with an eye on providing maximum leverage and genuinely participatory opportunities for the non-state and subnational actors that can pressure states to upgrade and comply with their promises. An important aspect of this will involve understanding the different opportunity structures facing actors located in different national and regional systems. It should go without saying that not all states possess the kinds of open political systems that tend to prevail in Europe. In these places, therefore, national-level dynamics surrounding NDCs and the review process will be different, and negotiators should seek to ensure that the system is sensitive to this fact.

Another major area where work needs to be done involves refining the orchestration activities being undertaken by institutions within the Paris ecosystem. The degree to which these activities have been institutionalised at the international level is remarkable compared to earlier periods. However, significant work remains to ensure that initiatives are being scaled up and underpin genuine action. Non-state actors can have a big impact, but often fail to achieve it; greenwashing is also unfortunately prevalent. However, our understanding of what works has improved significantly, both in terms of what successful climate action looks like and what kinds of orchestration activities work best (van der Ven, 2015). International institutions need to take these lessons on board, while at the same time being sensitive to the diversity of initiatives that are needed. Within the Paris ecosystem, in fact, transnational arrangements can play a variety of useful roles, which is particularly true when we look across governance fields. While mitigation has received a great deal of attention, adaptation, for instance, has been less of a focus (Chan & Amling, 2019). In part, this is because they take different forms. The EGD can lead in this area by promoting experimentation with different regionally focused approaches that can then inform efforts at the international level.

Non-party stakeholders in Europe and beyond will also have to think further about activities within the Paris ecosystem. Thus far, these

actors have achieved some success in their advocacy efforts in international negotiations. This success has rested on the development of coalitions and strategies that are explicitly oriented toward the new UNFCCC arena. To succeed in the period after Paris, however, they will have to reorient much of their work toward the domestic level, or the domestic-international interface, as framed by the pledge-and-review mechanisms established by Paris. As Jen Iris Allan has explained, the new framework established by Paris entails a new opportunity structure (Allan, 2018). Older approaches, oriented primarily to negotiation, will no longer suffice. New approaches oriented toward implementation – that is, toward shaping domestic action and compliance within the context of the Paris ecosystem, as outlined above – will be necessary. For NGOs and other European actors, for instance, this will mean navigating regional governance structures and improving the implementation of and compliance with the EGD. This may require new varieties of expertise and coalitions to be developed that have different understandings of the system, can leverage action within it and offer new ideas about how to develop its foundations.

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Finally, another aspect of this involves the impact of transnational initiatives on states' commitments and on the UNFCCC itself. We know, of course, that these arrangements can play an important role in bridging the gap between what states are (or are not) doing through their NDCs and what is needed to meet the objectives of the Paris Agreement. This is a critical contribution, and the main one that coordinating efforts have been geared toward thus far. However, it is also possible that these initiatives could have other types of impacts. On the one hand, they may help to amplify the commitments states make by "reverberating" at the national level and encouraging greater ambition, perhaps through technical expertise and demonstration effects (Hermwille, 2018; Hermwille et al., 2017). On the other, it is possible that they might reverberate at the international level as well. New ways of approaching the problem of decarbonisation developed through experimentation within transnational initiatives can inform new programmes and activities being undertaken by the UNFCCC or other institutions. Cities in Europe can play a critical role here due to the autonomy they frequently possess. Hence, their initiatives may have an impact beyond their bridging role. Maximising these impacts may be more effectively accomplished, however, if they are recognised by non-state and subnational actors and if their activities are explicitly oriented toward generating them. This is something that the EU could also promote and prioritise within the context of its Green Deal.

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The European Union is widely considered a global leader in climate action. Yet, until the launch of the European Green Deal (EGD) in December 2019, it had no comprehensive policy framework to tackle climate change and the transition towards more sustainable development. Promoted as the EU's post-2020 growth strategy, the EGD is often reduced to an economic policy. But its ambitions for systemic change, the climate risks at stake and the challenges of the COVID-19 crisis make it more than that. The health emergency has highlighted our vulnerability to multiplying crises that are increasingly unpredictable, as well as the need to build more sustainable and resilient societies and economies. If the European Commission delivers on its promise of channelling the COVID-19 recovery package and the 2021–2027 Multiannual Financial Framework towards the EGD goals of a green and socially just transition, it would constitute a unique opportunity for an economic and social reset that will better prepare Europe for managing and adapting to future crises – climate and beyond.

Closer cooperation between EU institutions and cities will be key to making the proposed reset a reality. Not only because cities are home to around 75% of the EU's population and responsible for a large part of its energy consumption and greenhouse gas emissions, but also because they are leaders in climate innovation and the places where citizens engage in climate action. This volume explores how the EU is stepping up urban governance programmes and cooperation with cities to make the most of its Green Deal and the window of opportunity for systemic change. By unpacking the core premises of the EGD and the most relevant goals for cities, the volume examines how the EGD will support the climate and energy transition already underway in urban areas; and, in turn, how local climate action can contribute to and accelerate Europe's path towards carbon-neutrality by 2050.