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Towards a global comprehensive and transparent framework for cities and local governments enabling an effective contribution to the Paris climate agreement

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The United Nations Framework Convention on Climate Change (UNFCCC) COP 21, including the Paris Agreement, has underlined the role of non-state-actors in limiting temperature increase to 1.5 °C compared to pre-industrial levels. Worldwide, there are an increasing number of transnational networks on climate actions driven by non-state actors. The first attempt to understand the global extent of climate actions taken by non-state actors (such as regional and municipal governments and the corporate sector) was made by a UNFCCC platform launched in 2014 called the Non-State Actor Zone for Climate Actions (NAZCA). However, different reporting frameworks of core data partners contributing to the NAZCA platform represent challenges for tracking and comparing the outcomes of transnational initiatives and their global impact. In this contribution, we focus on the two initiatives most represented in the NAZCA platform: Covenant of Mayors and Compact of Mayors, which were merged into the Global Covenant of Mayors (GCoM) in 2016. We provide a comparative analysis of the reporting frameworks, constituting the starting point of the GCoM merging process. Consequently, we review recent studies investigating their performance and identity in terms of drivers, barriers and mitigation ambition with reference to the particular case of the cities' contribution to the 1.5 °C global warming target. In sum, there is a wealthy literature in investigating the role of the transnational initiatives in supporting cities and promoting the standards for emission accounting, while we are currently lacking a systematic knowledge on their global contribution. The new era of transnational network consolidation entails and reinforces the need for a global, comprehensive and transparent reporting framework for cities and local governments enabling to effectively contribute to the Paris Agreement.

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Introduction

Urban areas concentrate people and activities that are responsible for high levels of energy consumption, generating about three quarters of global carbon emissions [1]. However, this concentration allows gains in efficiency of infrastructure provision as people use less space per capita for utilities, transportation and residential living [2–4]. Therefore urban areas play a crucial role in mitigating the effects of climate change [5–7]. Worldwide, there is an increasing number of transnational initiatives on climate actions driven by non-state actors. Such international initiatives could accelerate the implementation and increase the effectiveness of national and local policies as they broaden the coalition of willing parties and strengthen the knowledge necessary for implementation [8]. Moreover, they are characterized by a broad membership, setting the foundations for emissions mitigation by proposing practical solutions of the measurement of GHGs. They can help promote the uptake of common standards, and serve as an initial building block towards meaningful climate action, but governments help is needed to shift from coordinating emissions measurement to cooperating on emissions reduction [9,10]. Furthermore, there is a need to link on-the-ground scientific expertise to the needs and requirements of local city decision-makers [11].

In 2014, combined with the Lima-Paris Action Agenda, the NAZCA platform was launched. The platform brings together the commitments to action by companies, cities, subnational regions, investors and civil society organizations to address climate change. More than 11 000 non-State climate commitments made on the road to Paris demonstrate a broad-based support to act on climate change manifesting a growing recognition that climate governance has long ceased to be the exclusive domain of national governments [12••]. Core data partners contributing to the NAZCA platform include (accessed in June 2017): Carbon Disclosure Project, the carbonn® Climate Registry, the Climate Group, Investors on Climate Change, the UN Global Compact, the Climate Bonds Initiative, Global Covenant of Mayors and the UNEP — DTU Climate Initiatives Platform.

In total, 2508 cities from 118 countries are taking action on climate change on NAZCA, representing 10.2 percent of the global population (757.7 million). The major cities

network contributing to the NAZCA platform are the European Union (EU) based initiative Covenant of Mayors and the US based initiative Compact of Mayors. The two initiatives merged in June 2016 into the new Global Covenant of Mayors for Climate & Energy (GCoM).

The Compact of Mayors network, with 684 cities as of October 2017, representing more than 500 million inhabitants from all over the world, gathers two different reporting platforms: the carbonn® Climate Registry and Carbon Disclosure Project. The Covenant of Mayors initiative, launched by the European Commission in 2008, has more than 7600 signatories as of October 2017, covering 238 million inhabitants from European cities, Central Asian and South Mediterranean cities. The peculiarity of Covenant of Mayors, compared to other transnational initiative, is the engagement of small and medium cities (66% of CoM signatories are from local authorities with less than 10 000 inhabitants) in the effort to reduce greenhouse gas emissions.

While there are an increasing number of cities adhering to transnational initiatives, we are currently lacking a systematic assessment of their global impact. NAZCA is a first step in understanding the global extent of climate actions by regional and municipal governments and the corporate sector [13••]. Challenges remain to be addressed for future development on tracking the outcomes of the cities' initiatives [14••].

In this contribution, we focus on local government efforts to mitigate climate change, providing a comparative analysis of two reporting frameworks: Covenant of Mayors and Compact of Mayors. This analysis set the basis of the GCoM merge process on defining a harmonized reporting and monitoring framework for the two initiatives. Consequently, the findings of recent scientific studies are presented, exploiting the Covenant and Compact platforms in terms of: factors influencing the cities' participation in the networks; drivers of the emissions and target settings; tools and strategies for the redaction of the climate action plans; benchmarking the performance of cities, as well as the assessments in terms of global impact.

Towards a global harmonized framework for local climate action planning

Globally, there is a lack of an agreed reporting framework not only for emission accounting [15], but also for the measurement and verification of the urban actions in order to be representative players in climate change. Addressing these issues requires a harmonized, transparent and open reporting framework by cities' initiatives. Various standards have been proposed by city networks/organizations to enable local authorities to produce robust and comparable accounts of their GHG emissions [16].

In this contribution, a comparative analysis of Covenant of Mayors and Compact of Mayors framework is presented. In principle they share a common structure by defining a three step approach for their cities: submission of emission inventories according to their standards; setting mitigation target as well as drawing a climate action plan and lastly, monitoring the progress towards the targets. Built on this cycle, the two initiatives differ mainly on the standards for accounting the emissions in the inventory [15,17–19], on the target setting; on rules for sanctioning non-compliance, and lastly in the data validation and quality check. The comparative analysis constitutes the first step towards a global, harmonized framework for GCoM.

Principles and minimum requirements for emission accounting

The standards for accounting the cities' emissions in the inventory differ mainly in the principles and minimum requirements on the sources, the type of gases and boundary of the inventory to be reported. The Covenant of Mayors recommends using the Baseline Emission Inventory (BEI) standard developed by the Joint Research Centre, as the standard for accounting the GHG emissions at community-scale [20]. According to the principles laid out in the Covenant, the inventory is not meant to be an exhaustive inventory of all emission sources in the territory but focuses on the energy consumption side and on the sectors (buildings and transport) upon which the local authority has a potential influence. The Compact of Mayors recommends using as a standard the Global Protocol for Community-Scale GHG Emissions Inventories (GPC) which was developed by ICLEI, World Resource Institute (WRI) and C40 in 2012. The GPC methodology focuses on geographically defined emissions from both production and consumption activities resulting in more complete data reporting since it suggests the inclusion of all indirect emissions, not only deriving from energy consumption in building and transport sectors, but also from waste, aviation and marine transportation [21].

Regarding the emission sources, the categorization in the BEI of the subsectors is based on the jurisdiction of the different actors (municipal/public and private) and it does not recommend the inclusion of the GHG emissions generated by large industrial power plants (cover by the EU Emissions Trading System). The GPC follows a more coherent approach to the IPCC subdivision into sectors: Stationary Energy, Transport, Waste, Industrial Processes Product Use and Agriculture, Forestry and Other Land Use. Moreover, the GPC foresees the use of notation keys (i.e. providing explanation in case of missing or not occurring/insignificant activities) that adds transparency to the inventories.

About the type of gases, in the BEI only CO_2 reporting is mandatory, nonetheless, CoM signatories can report