City Networks: The Key to Translating Global Mitigation Targets to Individual Change

The climate crisis is the greatest challenge of our time. Despite variance in attitude and perceptions of climate change on an individual level, most scientific principles are generally agreed upon at a global level. The IPCC Special Report on the Global Warming Target of 1.5°C is an example of a unified acceptance of global targets for climate change mitigation. (IPCC, 2022) These global targets are critically important as guidelines for local, regional, and national policy decisions. However, there is wide variance in climate impacts for different locales as well as political will, financial ability, and governing authority of different regions to adhere to globally agreed upon mitigation strategies. In addition to these barriers, there are physical differences between cities, regions, and nations which present further challenges to collective action. A city in Northern Europe with significant sources of freshwater and carbon sequestering vegetation will have different impacts and challenges to climate change mitigation than a suburban district in the Southwest United States. The likely climate adaptation scenarios between these cities will also be drastically different. A mountainous region will be more concerned with snowpack from not only a local business perspective, but also as an impact on global climate change. Whereas a desertous region will be primarily concerned with water availability and potential for solar energy generation; again, a local concern buttressed with global impact. As regions vary, it is therefore necessary to identify the strengths and potential impacts on a localized basis in order to efficiently and effectively deliver results and work towards the global targets of 1.5°C warming. (Fuhr et al, 2018) Due to the nature of the climate crisis, global, national and local efforts are required to enact meaningful change. Each level of governance also has strengths and weaknesses in relation to climate mitigation goals. However, research suggests

that cities and highly localized mitigation efforts could be the linchpin to meaningful action. While it would be beneficial for every city to develop climate mitigation plans or enact climate policy measures, not every city has the desire or resources to do so. Likewise, uncoordinated efforts among individual cities can lead to duplication of effort and inefficient allocation of resources. This paper intends to review research on the unique position of cities in relation to the climate crisis, make connections between governance structures, and provide analysis of city networks as a method for coordinating climate mitigation efforts globally. Ultimately, research suggests that city networks and coordinated information sharing can become greater tools for attaining global climate targets.

While the climate crisis is a global challenge, the impacts are felt at the local, individual level. To achieve the global mitigation targets of 1.5°C, action will be required at every level of government and "the day-to-day activities of individuals, families, firms, communities, and governments at multiple levels must change substantially." (Ostrom, 2010) This polycentric approach to climate governance is necessary for all actors to follow the guide rails of climate targets. Each entity must be allowed to "play to their strengths." Small towns are able to build plans and experiment with ideas which may work exceedingly well for their area but not for others. Meanwhile, regional governments track progress and coordinate efforts between subregions. National governments provide funding and technical support, as well as acting as authority for laggards. In addition, national values and imaginaries can be reflected at the local level despite wide differences in demographic and political attributes of an individual city. (Levenda et al, 2019) Finally, the transnational and global governance structures are most effective as thought leaders and data aggregators. However, people do not live on a national level. Humans live in cities and towns and rural areas. Cities hold an interesting, and

extraordinarily effective, position in this chain. The share of the global population has consistently trended towards urbanization. This is particularly true in industrialized nations but is also consistent globally. As evidenced in Figure 1, while the total population living in cities is significantly higher in the United States and the European Union member states, the overall trend is towards urbanization even in less industrialized nations. (Ritche & Roser, 2018)



Figure 1. Urbanization Trends in Selected Countries and World Average

There is much academic (and political) discourse on the difference in urban and rural populations, specifically the variance of political will, financial resources, governing authority, and motivation for mitigation efforts between them. However, as the rural population declines, cities become increasingly important. In addition, as shown in Fig. 1 and the below Figure 2, urbanization is greater in nations and countries which have had, and continue to have, an outsized negative impact on climate change. That is to say, the development of indsustrialized nations like the United States or the European Union has created most of the measurable causes of climate change. While this touches on themes of climate justice in regards to nations most affected by climate change, it also highlights a distinct intersection- countries that have

contributed the most to climate change also have the highest rates of urbanization. Therefore, targeted efforts in cities within industrialized nations are of the utmost importance to mitigate harm to "developing" areas that are at most risk of climate change impacts. Essentially, sustainability and mitigation efforts enacted in cities are specifically correlated to; 1) climate change mitigation at the global level, 2) climate justice at the national and transnational level, 3) climate impacts at the regional and subregional level, and 4) livability and survival at the individual level. Because cities are where individuals live, there is also great opportunity for city governance to incorporate and activate individuals towards action. City governments have unique influence on citizen's lives and, if this influence is wielded appropriately and with proactive transparency, can elicit greater public participation. City governments can bring more people "into the fold" and actively promote climate-friendly behavior at the individual level. (Kim, 2017)



Figure 2. Urban v. Rural Population Trends in the EU

Cities are therefore critical to enacting change across the globe. However, cities have clear strengths and weaknesses, which need to be fostered by regional, national, and transnational structures. There is a clear throughline from city mitigation effort to global target

attainment. Transnational and global structures have a far reach and are able to aggregate and utilize data at a "bird's eye" perspective to make recommendations. For example, the IPCC targets would not be able to be created at the local level, but these targets provide guidelines for cities. National governments are fraught with challenges from a political standpoint, as government systems and their makeup can shift frequently. However, they can provide funding and support to regions which can be less fickle. They are also able to develop public-private partnerships through national economic policy and tax incentives which are generally less apt to be reversed. (Neij, 2021) City level governance, similarly, is often messy and limited by numerous issues. Cities typically only have authority over municipal-owned infrastructure and resources, limiting their ability to compel actions for private infrastructure. Cities also are limited in developing laws or regulations which conflict with their national policies. Perhaps most importantly, most cities do not operate with surplus budgets and are therefore limited by their financial ability to enact changes. Cities are in a unique position of immense strength- a growing percentage of the global population, ability to impact global targets in specialized ways conducive to their local environment, and ability to influence individual behavior changes- but they are also facing numerous disadvantages.

Because of the "messiness" of city governance, many local governments are forced to become creative in their efforts. As Neij and Heiskanen state, "As a response to the messiness of urban governance, many cities develop (innovative) experiments, in parallel to, or as part of, their urban climate policy in order to transform conventional practices." (Neij, 2021) When cities are creating innovative and effective policy, this can often be mirrored in areas with similar makeup. I.e. a coastal city in the US may be able to share important and relevant information with a similar coastal city in Asia. However, cities themselves rarely have the ability to share this

information easily. Thus it becomes imperative to replicate successes and translate the lessons learned between cities on a global scale in order to maximize efficiency and spur others to action. Hence, global data aggregation is crucial.

There are current examples of effective city networks which are actively promoting local climate policies among city governments. The European Union Covenant of Mayors has shown to be successful in promoting the adoption of Local Climate Plans to signatory cities, despite the national policies of the city's home country. Reckien et al (2018) provide an in-depth review of 885 cities that have developed climate plans across the EU. Their research suggests that cities within nations that have robust national climate policies are significantly more likely to adopt LCPs. However, there is clear evidence that cities without compulsory national climate policies have adopted very similar LCPs to cities with compulsory national policy. This is almost certainly due to exposure of LCP composition through the CoM. With the success of transnational city networks like the CoM, this model should be replicated and expanded. Essentially, as global and transnational governance structures are best suited for information sharing and data aggregation and cities are most effective at eliciting individual action and specialized climate mitigation plans, it is evident that city networks are critical to achieving global climate targets.

Cities are getting bigger. Effective city governments are also able to change individual behaviors of their citizens and increase participation in climate mitigation. They are also effective at creating innovative policy measures despite numerous barriers. Nations are able to provide funding and support to cities, regardless of their ability to develop durable national climate policy. At a global level, transnational networks are excellent data aggregators and can help share information through established networks. Therefore, city networks, such as the CoM,

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need to be replicated and expanded at the global level. With effective utilization of resources, city networks can share innovation and success, truly impacting both global climate targets and individual lives.

Citations

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Appendix

Both graphs, shown below, are sourced from <u>www.ourworldindata.org</u>. This organization seeks to provide visual representation of data concerning global statistics. In this essay, I use the population data trends to reinforce my argument that the global population is trending towards urbanization.



				Urban	population
300 million		 			
250 million					
200 million					
50 million	*****	 			
			 	Rural	
00 million					opulation
100 million 50 million					opulation