

Notes

Methodology

1. Our starting point is to find a way of measuring the size of a city in its totality, its actual existence as a dynamic urban agglomeration of activities. Thus we are NOT concerned with just city government and its policies on climate or other matters. These are important but are only a small part of the activities that constitute a city. Nor are we concerned simply with the size of the city in terms of its population: it is what these urban dwellers are doing that is our concern. Equally economic measures of the importance of the city (such as GaWC's global network connectivity) are obvious only a very partial description of a city's overall social dynamic. We need a measure that captures political, economic, cultural, and multiple other social activities that together create a city.
2. This is a very tall order. However in our cyber world it becomes possible to a degree if we focus on the Internet listings for a city through search engines. To be sure the formal city governance activities are prominent within a city's presence on the Internet but it also includes so much more relating to business of many types, other organizations displaying their activities in a city, and all manner of other things about the city that appear on the Internet. In short, myriad upon myriad city activities are reported for a city and the total of these Internet mentions is our measure of a City's size: we term it the *Gross Internet Estimate* (GIE) for a city.
3. Clearly, despite the huge amounts of city mentions on the Internet, there is much more activity that is not captured in a city's GIE. However we do consider this measure to be a credible approximation of the relative sizes of the agglomeration of activities across cities in 2021. Thus GIE is used as the first component in our new exercise in comparing cities worldwide. In our data GIE ranges from 4,450,000 to 3,090,000,000 across 231 cities.
4. We bring climate change into the analysis using the same logic. For every city we find the total number of times its name is found in conjunction with the generic phrase "climate change". Again this phrase will appear within a city's Internet presence in many different ways from city government policies to other city activities such as specific businesses or education pages. Thus for each city we are able to calculate the percentage of GIE that features "climate change". These range from 0.11% to 12.30%.
5. We choose to present these results as follows. The situation we are describing has been designated an EMERGENCY. Any type of emergency entails two types of response: first dealing with specific effects of the actual danger, and second attending to the wider everyday needs of returning to being a functioning society – in city terms this is to continue to generate work, livelihoods enabling urban

dwellers to build lives. We treat these two responses as equally important; this is what distinguishes an emergency situation from normal societal vigilance of danger. Thus we convert the percentage of GIE that features “climate change” to a shortfall by deducting 50%, the emergency expectation. This is the *Climate Emergency Shortfall* (CES) for each city, the measure that we use to rank a city’s readiness in response to the global climate emergency. Thus, from the percentages given above, we find that the shortfall ranges from a massive (– 49.89%) to a not very impressive (– 37.70%).

Interpretation

1. The obvious first point is that overall these results are very bad in terms of dealing with the climate emergency; being forced to use the lowest end of the Greek alphabet says this clearly. Rankings are always relative but here there is no evidence of ‘success’; no city ranking, including being No. 1, is a matter to celebrate.

2. This is not a simple indictment of city governments. The construction of the metric deals with the city as a whole not just its political organs. It is all activities that constitute a city that is indicted. In many emergencies the aim is to ‘bounce back’ as soon as possible to return to a previous ‘normal’. In this case such a process would be self-defeating: the need is to ‘bounce forward’ to a different ‘normal’. In other words the climate emergency demands reinvention of the city. Our current ‘normal’ is effectively a ‘global Los Angeles’ combining mega-consumption, car dependence, corporate real estate and gross inequalities – huge consumption sinkholes that are ‘heat islands’ in plain sight. Reinventing a ‘new normal’ needs to go beyond necessary mitigation and sustainability to embrace stewardship, cities in nature.¹ This needs both myriad bottom up initiatives and top down organization for coherent implementation.

3. Is there a pattern to the results? Initial inspection suggests not because there are many cases of quite different cities with very similar climate emergency shortfall (CES) measures. This apparent randomness indicates reaction to the climate emergency is not currently leading to any noticeable reinvention of the city. But there is some order in the results, albeit minor. There is a correlation of +0.26 between CES and membership of the C40 group of cities, the major top-down global city organization with well-developed climate policies. Although low this correlation is statistically significant. Similarly there is a correlation of +0.23 between CES and cities that have declared a climate emergency as a result of a worldwide bottom-up initiative – again statistically significant. However the size of these correlations means that they have no utility as predictive tools. For instance, of the seven Chi+ cities only two are in C40 and only one has declared a climate emergency.

¹ As argued in Taylor, P.J., G. O’Brien & P. O’Keefe (2020) Cities Demanding the Earth: a New Understanding of the Climate Emergency (Bristol: University of Bristol Press)

4. The criterion of 50% activities devoted to the climate emergency can be interpreted through analogy with E. O. Wilson's 'half-world' proposal². Taking an ecological approach he argues that to save the planet from 'unfettered consumption' requires humans relinquishing control of one half the world's surface to enable ecological natural diversity to develop without our interference. With most of humanity now urban dwellers and their numbers rising rapidly, it is entirely sensible to extend Wilson's area-based remedial proposal to the functional human ecology that is cities and their interrelations. Thus it is a simple move from 'half world' to 'half city' as a fundamental shift that is needed in reaction to the climate emergency.

5. And finally it has to be emphasized that these results should be interpreted literally. For instance Rio de Janeiro is ranked 100 (Psi-) and is nearly 47% away from reaching the 'half city' goal whereas Manama ranked 200 (Omega-) has more than 49% to go. Put simply it appears that climate change features very little in the myriad activities that constitute these two major urban agglomerations. And it not about such cities aspiring to climb the rankings and join the Chi+ category: as previously noted these leading cities in the world rankings also have huge shortfalls. In this climate emergency all cities need to wholly multiply their climate policies and behaviours. Thus this new "The World according to GaWC" should be considered truly shocking. TO SHOCK is a deed to stimulate radical change, in this case a push towards continuously searching out and applying myriad possibilities for reinventing cities as something other than global consumption sinks.

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² Wilson, E. O (2016) Half-Earth: Our Planet's Fight for Life (New York: W.W. Norton, Totnes, UK: Liveright)