EPICENTERS OF CLIMATE AND SECURITY: THE NEW GEOSTRATEGIC LANDSCAPE OF THE ANTHROPOCENE

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Coastal Megacities vs. the Sea: Climate and Security in Urban Spaces

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Introduction

Cities are on the sharp end of a range of risks from criminal violence and terrorism to demographic pressures, climate and environmental change. Coastal megacities[3] are especially at risk given the specific impacts of climate change they face, including accelerated global sea-level rise, increased storm frequency and severity, and damage to critical infrastructure such as port facilities, energy installations, and rail and road linkages, all of which are amplified as urban populations become ever larger. All these risks can lead to the loss of livelihoods as well as significant loss of life itself. Furthermore, the interaction of these risks could exceed the existing coping capacity of communities and governments, contributing to an increase in insecurity and possibly violent conflict.

The ways in which cities are particularly vulnerable or resilient to climate impacts are essential for understanding how climate risks link to political and security risks. Also essential is an understanding of the opportunities presented by cities to mitigate these risks. The nexus of risk need not hinge on a dramatic climate shock to breed security problems. The failure of service delivery, economic loss (especially unemployment) from disasters or resource security, failure to effectively manage migration, and marginalization of communities, all mean that even low-level climate change can contribute to human insecurity in megacities. Below we define the scope of the problem and how to think about workable solutions, especially with regard to governance of climate risks and migration.

Climate Change, Cities and Compound Risks

The next 50 years will see an unprecedented period of urbanization.[4] Most urbanization will occur in lower-income countries, with urban centers in South Asia, the Middle East and North Africa expected to see urban population double by 2050. In 2014, the proportion of the population living in urban areas was 39 % in lower-middle-income countries and 30 % in low-income countries. By 2050, these countries are expected to reach, on average, 57 % and 48 % urban, respectively.[5]

The IPCC's latest assessment states that climate change will have profound effects on a broad spectrum of city functions, infrastructure, and services, and will interact with and may exacerbate many existing stresses.[6] These impacts can occur both *in situ* and through long-distance connections with other cities and rural sites of resource production and extraction. Climate change could potentially contribute to violent conflicts and contribute to migration from highly vulnerable sites in cities or increasingly environmentally stressed locales. Two specific issues that characterize both urban resilience and vulnerability are the highly heterogeneous nature and the mobility of communities. This poses unique challenges to policy and governance, which need to take account of potentially weak social cohesion and governance capacity when considering any intervention. However, due to the lack of research on the issue, the IPCC qualifies this by stating that there is considerable uncertainty regarding projections.[7]

The concerns raised by the IPCC add to the growing literature exploring the political instability and complex security dynamics of urban areas, and how urban planning can, in certain contexts, contribute to instability. There has also been increased attention from the security community of the growing importance of urban areas as concentrating a host of human security challenges. For example, a recent assessment by the U.S. Army found that "megacities are rapidly becoming the epicenters of human activity on the planet and, as such, they will generate most of the friction which compels future military intervention."[8]

While the U.S. Army analysis may be overly deterministic, the compound nature of climate and security risks in cities is pertinent. It must also be stressed that the new urban agenda currently lacks specific attention to capacity-building in institutionally fragile and conflict-affected contexts where existing approaches may not be fit for that purpose. Peaceful management of the nexus of food, water, and energy in urban areas will contribute to the human and economic security goals of low- and middle-income countries. Failure to do so, conversely, will act as a net drag on productivity and could, in extreme situations, lead to political instability and civil conflict.

The Rise of Megacities: Fragility vs Resilience

The growth of megacities of course is not to be viewed simplistically as a driver of fragility. Cities can offer financial, social and cultural opportunities to their inhabitants. They can also bring economic risks and a breakdown in the traditional social and cultural behavior patterns that traditionally supported less urbanized populations.

Problems common to megacities, particularly in developing countries, include inadequate land for development, unclear land tenure rights and legislation, underdeveloped infrastructure, water shortages, poor sanitation, air pollution and traffic congestion. Coastal megacities experience these as well as other special problems related to their coastal location. These include coastal erosion, sea water intrusion to freshwater supply, loss of habitats for birds, fish and other wildlife, the depletion of fishery resources as a food supply, and public health problems related to seafood contamination. Land subsidence can occur due to construction and water extraction, and the deterioration of marine environments as an area for amenity due to marine pollution - which also poses a threat to fisheries and tourism. Natural disasters, including extreme weather, sea–level rise and its impact on critical maritime transportation infrastructure, and conflicting uses of increasingly fragile coastal areas, also pose a threat.

These challenges run headlong into a governance context where resources and expertise are already stretched. Given demographic trends of both urbanization and urban growth, these megacities are likely to come under increasing pressure, and only very few of them are equipped with the governance mechanisms to deal with the risks they are highly likely to encounter. Many of these cities will experience risks that induce fragility – thus limiting their capacity to fulfill their core functions, such as ensuring the physical security and safety of the population, maintaining infrastructure, delivering basic services such as water, sanitation and electricity, and safeguarding rights.[9] Balancing rapid economic growth, the preservation of coastal environments for sustainable development and managing relations and service provision between residents and incomers are core governance challenges facing coastal municipal authorities.

It must be noted, however, that megacities and large cities are not necessarily the most susceptible to fragility. Indeed, it is the smaller second cities that are growing most quickly and which lack the investment, institutional mechanisms and infrastructure to manage this growth. However, certain coastal megacities such as Karachi and Lagos face a particular set of risks given their pre-existing levels of fragility, meriting special attention from a security perspective.

Understanding migration

Understanding the role of migration to megacities is essential to understanding how climate risks can become political and security risks. Peaceful urban governance is difficult if large-scale urban migration isn't anticipated, planned for and managed. Of particular importance is understanding current and future patterns of migration from rural to urban areas and the reasons behind these trends in human mobility. Climate change adds another impetus for the growth of large urban areas, particularly in low-income countries. Emerging research indicates that we will see increased rural-urban movement within countries, more labor migration, and more frequent or longer-lasting circular migration patterns, particularly as the agriculture sector becomes more volatile due to projected climate impacts. With more people moving to cities, and with many cities already facing increased vulnerability to climate and disaster risks as well experiencing existing social, economic and political fragility, these dynamics will be a major determinant of urban resilience.

Climate impacts vary considerably in their potential to instigate migration. Climate change can affect migration directly or indirectly, but causality is never singular. Direct impacts, including quick-onset hazards such as flash floods and slow-onset hazards such as drought, can lead to short-term or distress migration. Indirect impacts, such as climatic shocks to markets (food, construction materials, energy supply) will have implications on people's decisions to move. Both are complex, nuanced and vary according to the particular context. Moreover, individual, community and national vulnerabilities shape responses as much as disaster effects do. Focusing on how people are vulnerable as a function of political, economic and social forces can enable a deeper understanding of post-disaster human security.

Many challenges and opportunities posed by migration into cities relate to informality. Some notable challenges exist around adequate policies to deal with undocumented migrants, how to balance the needs of urban and rural livelihood security, access to capital for poor, informal settlers, and the ways to engage non-state actors in urban governance. Informal social capital networks can also be a significant component of resilience through the social cohesion and safety nets these networks can provide.

It is unlikely that climate stresses will lead to large-scale migration, conflict or instability in megacities in the short-run, but there are already signs of increased crime and political grievances in these urban hubs that could intensify and escalate in the face of a sudden shock. As outlined above, early signs of social discontent linked to climate change are visible in Karachi and Lagos, although interwoven with economic, social, and political grievances. Whether these complaints evolve over time into scenarios more ripe for conflict or can be resolved without recourse to violence will hinge on the effectiveness of government actions to reduce vulnerability and alleviate the sense of injustice already felt by climate-affected communities. This is the case not just in megacities, but also in the regions from which people migrate.

Addressing the Governance Gap

There is a significant overlap between these global urbanization trends and a wider governmental difficulty in dealing with climate change impacts. This becomes clearer when comparing the three graphics below:
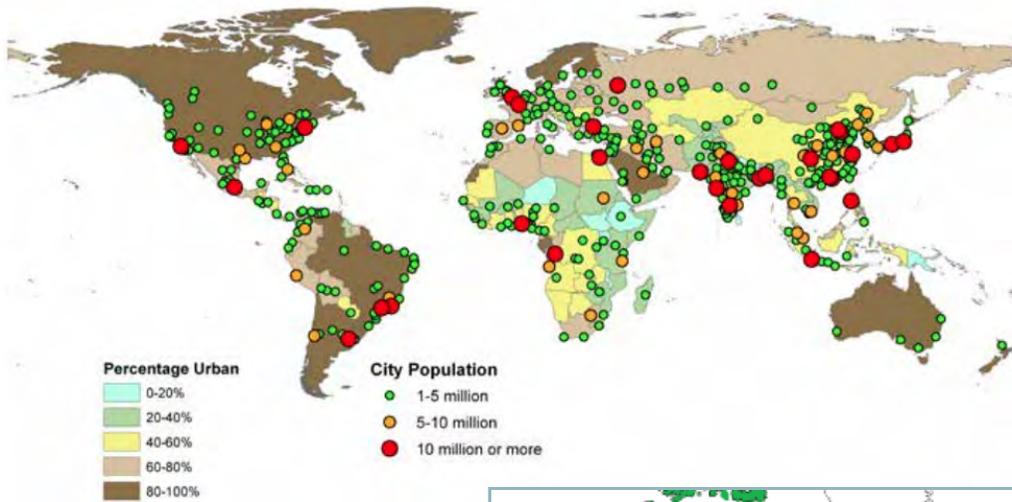

FIGURE 1:
GLOBAL PATTERNS OF URBANIZATION, 2015

CREDIT: https://www.weforum.org/agenda/2016/07/this-map-shows-the-incredible-growth-of-megacities/

FIGURE 2: POTENTIAL VULNERABILITY TO CLIMATE CHANGE

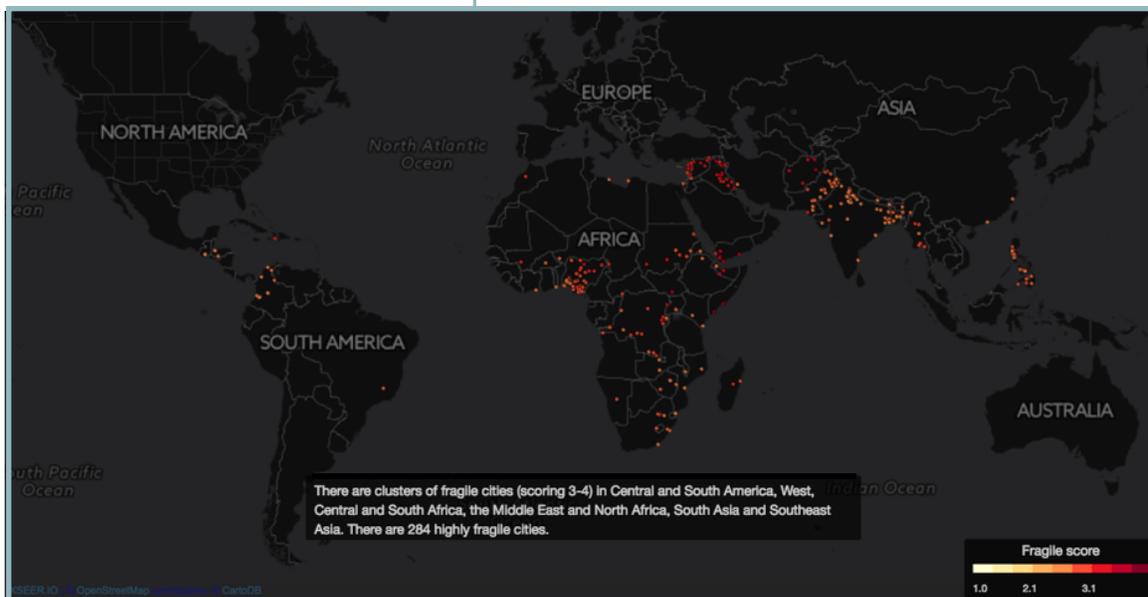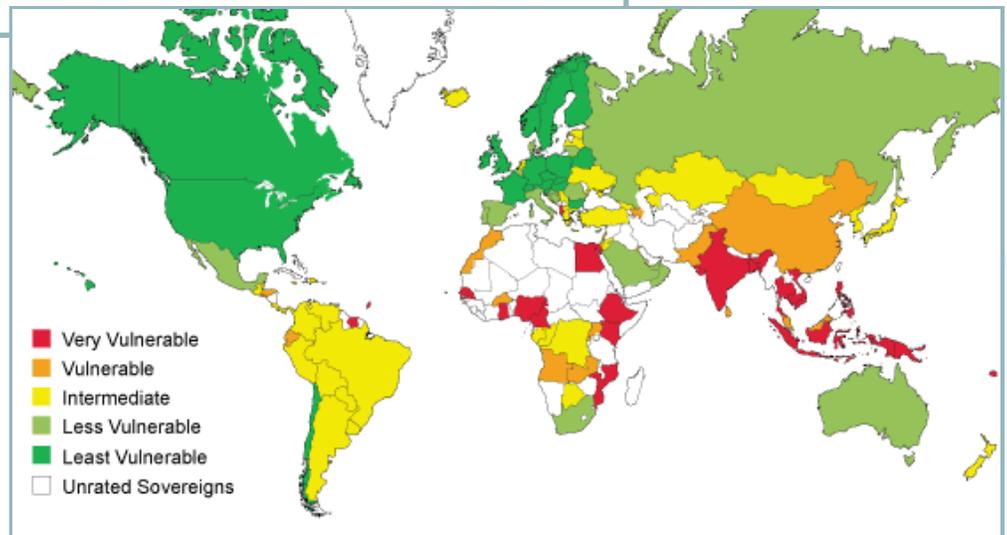**CREDIT:** Standard & Poor's 2014

FIGURE 3: CITY-LEVEL VULNERABILITY TO CLIMATE CHANGE

The first maps the growth and distribution of urban areas. The second maps the credit rating agency Standard and Poor's assessment of state-level climate vulnerability, based on three criteria (share of the population living in coastal areas below five meters of altitude; share of agriculture in national GDP[10]; and the vulnerability index compiled by Notre Dame University Global Adaptation Index [ND-GAIN], which measures the human and financial capital of national governments to adapt to climate impacts). The third penetrates more concretely to city-level measurements of vulnerability. In many cases, the three vulnerabilities overlap significantly, so that many large cities are burdened with local vulnerabilities (often because they are in conflict areas), which are compounded by national-level vulnerabilities, making any federal government response to future disaster risk sub-optimal.

Cities are not standing still in the face of these challenges. There are many examples where cities are stepping up to solve major global challenges. City leaders are forging networks within and across international boundaries to address shared problems, including climate change. However, national governments and multilateral entities such as the World Bank and United Nations are not organized to work with city-level governance mechanisms. They are still organized around servicing nation states.

Some cities have good connections to central governments and other city networks, and are thriving while others are failing to keep up with the challenge of climate change and demographic pressures. In a number of cases, the social contract binding urban authorities and citizens has unraveled. When expectations of urban residents and municipal leaders are not matched, cities become fragile. It is possible to empirically measure the extent of fragility by examining the quantity and quality of basic urban service provision and access – whether to public security, basic health, transportation or electricity.[11] And where the social contract is weakened, the risk of social unrest or conflict increases.

Conclusions and Solutions

Despite the growing importance of megacities in international security and politics, as well as the threat posed by flooding and sea-level rise, relatively little attention has been paid to the potential for environmentally induced instability in coastal megacities. Current trends, including rapid population growth, land use patterns and increasing climate impacts, suggest the costs of inaction in these urban areas are rising.

 The new urban paradigm is made precarious by a nexus of population growth without land-use enforcement and basic public services, intensifying climate impacts, and divisive politics. This has the potential to undermine their aspirations to be regional economic hubs and could, over time, lead to conflict.

Regarding risk management and future urban planning in megacities, it is essential to understand the particular dynamic and risks relating to climate change. Climate change will present a profound challenge to urban areas. Facing that challenge will require resources and political will as well as innovations in governance. The present international system is built to conduct relations on a state-to-state basis. That orientation is slowly beginning to change, as new transnational approaches to climate change governance have demonstrated. But there is still a lot of distance to travel for the integration of informal as well as formal subnational governance actors as stakeholders in the international system.

There are reasons for cautious optimism: many cities have the power, the expertise and the resourcefulness to continue to take meaningful climate action. More than ever before, they are at the forefront of the issue of climate change as leaders, innovators and practitioners. However, in already fragile contexts, this dynamism and scope for engagement to address climate risks is hindered by weak capacity, lack of political will and the perception that climate change is not a priority.

In terms of practical responses, physical efforts to address climate impacts such as sea-level rise need to be coupled with attention to socio-economic factors such as social networks, livelihoods and efforts to enhance governance. It is also critical to ensure support for rural as well as urban informal livelihoods. Rural areas are where many of the most vulnerable earn their living and where economic stress and the push to migrate to urban centers is first felt. Any strategy must ultimately encompass grievances such as inequality, marginalisation and the disenfranchisement of youth – especially men.

But to ensure that policy responses genuinely address the complex risks posed to megacities by climate change, we urgently need a better understanding the links between migration, urban resilience, climate change and fragility. This issue is a major lacuna within the research community and, as such, is largely overlooked in policy and programing. While there is increased focus on the perceived negative implications of migration on national security, the relationship between climate change, migration, cities and conflict needs to be understood if attempts to promote sustainable urban development are to build resilience to climate change and conflict in an increasingly mobile and urban world.

NOTES

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2 Climate and Diplomacy Fellow, The Center for Climate and Security.

3 A megacity is defined by the UN as a city with a population over ten million people

4 United Nations Population Division, World Urbanization Prospects (2014 Revision), https://esa.un.org/unpd/wup/, accessed November 14, 2016.

5 Ibid.

6 Revi, A., D.E. Satterthwaite, F. Aragón-Durand, J. Corfee-Morlot, R.B.R. Kiunsi, M. Pelling, D.C. Roberts, and W. Solecki, 2014: Urban areas. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press (New York, 2016), accessed September 21, 2016, 556.

7 Nevertheless, those concerned with international security should not wait for the absolute certainty of projections to be confirmed before adopting policies needed to mitigate those impacts. If climate change even has a ten percent chance of making living in a city more expensive and more dangerous, then it is worth investing time and capital in preventing it.

8 Chief of Staff of the Army, Strategic Studies Group, Megacities Concept Team, "Megacities and the United States Army
Preparing for a Complex and Uncertain Future", accessed September 21, 2016.

9 Conceptualising City Fragility and Resilience, de Boer et al, UNU Centre for Policy Research, Working Paper 5, 2016

10 Standard and Poor's 2014 https://www.globalcreditportal.com/ratingsdirect/renderArticle.do?articleId=1318252&SctArtId=236925&from=CM&nsl_code=LIME&sourceObjectId=8606813&sourceRevId=1&fee_ind=N&exp_date=20240514-20:34:43

11 Conceptualising City Fragility and Resilience, de Boer et al, UNU Centre for Policy Research, Working Paper 5, 2016