

Voices

Transformative Adaptation in Cities

Cities are projected to hold two-thirds of the world's population by 2050 under a period of intensifying climate change. Ensuring sustainable, climate-resilient, and equitable cities will require moving beyond incremental adaptation to transformative adaptation. What does transformative adaptation mean for cities, and how can it be achieved, particularly in cities with low adaptive capacity?



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Making Adaptation Work for Cities

Sustainable and just climate action is predicated on simultaneous transitions in four systems by 2050: energy; industry; land, oceans, and ecosystems; and urban and infrastructural systems. Urban and infrastructural systems are pivotal because they sit astride the intersection of the other three. Cities will also host about two-thirds of the world's people, three-quarters of global economic activity, and much of its risk, as coronavirus disease 2019 (COVID-19) reminds us each day.

The implementation of sustainable development and climate adaptation and mitigation must work in concert to help contain climate impacts on the lives, health, and food and water security of hundreds of millions of people and the ecosystems that support them. Converging actions are more easily financed and resourced than standalone interventions, especially in regions with weak institutional capacities and large numbers of poor, vulnerable, and disempowered citizens.

Such transformational adaptation measures will need to not only respond to local urban contexts, vulnerabilities, histories, and cultures but also converge at regional and national levels to enable the synergies of scale and scope that low-carbon urbanization offers. This will require at least four enabling conditions.

First, effective partnerships between national and local governments that devolve mandates, mobilize finances, and build institutional capacity to accelerate implementation. Second, city-level partnerships between citizens, firms, local governments, and universities to operationalize this. Third, access to knowledge of feasible adaptation options and technologies that help overcome multiple barriers to innovation. Fourth, deep changes in lifestyles and consumption patterns that reduce vulnerability, inequality, and the growth of emissions that are driving climate change.



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Just and Transformative Urban Adaptation

Just and transformative adaptation requires cities to question race and class relations, address drivers of socio-spatial vulnerability, and fundamentally alter economic growth paradigms.

First, urban planners must recognize enduring legacies of social and racial injustice in order to avoid making interventions a private and privileged environmental good with exclusionary and maladaptive effects. Adaptation plans and initiatives must, at a minimum, treat groups equally regardless of socioeconomic status or, better yet, actively prioritize beneficial outcomes for disadvantaged and vulnerable groups. Moving further, there is a need for cities to critically assess whether planning projects that purport to be climate resilient—and therefore implicitly sustainable and beneficial for all—fall into the same planning “traps” that have historically privileged or protected advantaged groups at the expense of disadvantaged groups, as in federal “urban renewal” policies that displaced local communities throughout US cities such as Boston or Chicago in the 1950s–1960s and as in urban revitalization and gentrification processes today in places like New Orleans or Philadelphia. Planners hold a historic responsibility to facilitate open, multilevel dialogues on evaluating climate risks against adaptation options, tradeoffs, and strategies for how to realign the built environment

with climate needs while considering social vulnerabilities. Last, transformative adaptation must place justice at the center of plans and initiatives and avoid marketing “resilient” projects that merely re-package development as usual and avoid creating climate gentrification. Here, planners and municipal officials must manage private interests so that investors can provide the needed resources to prepare cities in response to climate impacts rather than dictate the objectives and beneficiaries of funding flagship economic zones or business corridors. In sum, transformative adaptation cannot be achieved without a deep consideration of equity and the way in which planning perpetuates yet must address enduring urban inequalities.



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Climate Change and Adaptation in Cities

Cities are critical for climate adaptation. Although cities generate substantial greenhouse gas emissions, they also host over half of the world’s population, as well as significant built assets and economic activities. As such, many urban communities are vulnerable to the impacts of climate change—especially those living in informal settlements, which often lack access to clean water and sanitation, electricity, and other urban services and are exposed to high risk from extreme weather conditions.

Many cities are making efforts toward developing and implementing climate change adaptation plans. There is, however, an action and knowledge gap regarding the most appropriate urban adaptation solutions and how they can be implemented to support long-term, transformative improvements. The action gap is largely due to the fact that the adaptive capacity of cities differs greatly. The knowledge gap persists because many cities (particularly in developing countries) do not have prompt access to information on the measures they might be able to deploy to increase their resilience.

Transformative adaptation could serve to address these knowledge and action gaps in the following ways: (1) by providing improved access to information and using it to foster the knowledge of stakeholders (e.g., city administration officials, members of non-governmental organizations, and companies) that play a role in implementing adaptation efforts, (2) by catalyzing policy-practice and science dialogues prior to undertaking concrete projects, (3) by encouraging collaborative action among stakeholders to reach synergies, and (4) by closing knowledge gaps among the various stakeholders, allowing them to better cope with the many effects of climate change, especially the adverse ones.



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Re-examine Knowledge and Institutional Needs

Thousands of cities are preparing for climate change. Adaptation policies, plans, and strategies are being set forth. There is little evidence, however, regarding their implementation or effectiveness to ensure urban sustainability under intensifying climate change. Although there are some exceptions (including Los Angeles, Porto, Rotterdam, Athens, Istanbul, and Copenhagen), urban adaptation plans in general are not adequately informed by assessments of future climate risks. One problem is that knowledge on climate change impacts and associated risks is not being produced in a way that is readily usable in local decision-making processes. Even with detailed projections of temperature or sea-level rise, local decision makers often lack information on how much risk an adaptation policy will be able to reduce. Consequently, in most cases, urban adaptation remains incremental. As this seems to be true for cities of both high and low adaptive capacity, there might be more universal barriers to transformative adaptation. To move beyond these barriers, we must re-examine what kinds of information are needed to facilitate transformative, long-term adaptation processes. This will require integrating more diverse and locally meaningful climatic, social, and economic information and accepting uncertainty through adaptation actions with proven co-benefits both in the shorter and longer terms. Equally important, transformative adaptation also requires institutional innovation to re-examine the ways such adaptation knowledge can be effectively used and integrated into urban decision-making processes.



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Equity and Change from Below

Increasing heatwaves, droughts, and other climate impacts will disproportionately affect historically disadvantaged communities. As cities around the world continue to grow, resource and capacity gaps attributed to different capital speculation and deregulation efforts over recent decades will constrain governments' abilities to both manage this growing population and address future climate impacts.

In the past, climate adaptation planning has been complicit in reinforcing social inequalities. Notable examples of this include housing displacement from urban greening policies and privatization of water and sanitation services leading to increasing prices. The social costs of these plans are most often borne by those who are historically disadvantaged, including women, children, racial and/or ethnic minorities, informal communities, and migrants. Progressive social movements are therefore key actors in support of transformative adaptation in cities. Not only can they bring systemic urban inequalities to the forefront of public consciousness, but social movements can also help to mobilize collective efforts "from below," underscoring how alternative sources of knowledge, expertise, and practice can be critical drivers of change.

As we pivot toward more transformative adaptation in support of sustainable, resilient, and equitable cities, governments can be effective agents of change if they recognize the interests of historically disadvantaged communities and work with social movements to dismantle the political economic structures reinforcing urban inequalities in the first place.



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Prioritize the Most Vulnerable

I commend the thousands of mayors, tribal leaders, county executives, and others who pledged action on climate change despite the imminent withdrawal of the US from the Paris Agreement. I also applaud Congress for appropriating resources to invest in resilient communities through the Building Resilience Infrastructure and Communities (BRIC) grant, for example. To me, the actions of these decision makers are evidence of mindsets necessary for transformative adaptation and recognition that return on investment for mitigating climate risk is higher than for recovery and restoration after a climate triggered disaster. Now we need transformative planning to reduce the impacts of disasters on the most vulnerable people in cities.

Years before Hurricane Katrina, professional emergency managers were aware of the disproportionate impact of disasters on people who don't have the resources to prepare for, survive and recover from disasters on their own. Fifteen years after Katrina, emergency managers collectively are still not competent in the design and implementation of planning programs that engage especially vulnerable populations in assessing their needs and identifying strategies to address those needs in ways that are equitable and compatible with science. I think this is due not to a lack of commitment by many emergency managers alone but to a lack of priority by the elected officials and administrators they report to as well. Nevertheless, cities can only be as adaptive as their most vulnerable citizens are. Now that the "movers and shakers" are coming around to the need for climate adaptation and resilience, let's turn our attention to the "moved and shaken."



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Future Vulnerability Matters

Knowledge on future urban risk trends is essential to guide decision making for urban climate risk reduction and adaptation. Yet, assessments of future urban risks are oftentimes imbalanced, leading to flawed risk assumptions. A lot of attention has over the past years been given to assessing future trends in climate hazards affecting cities, such as sea-level rise, typhoons, or heat stress. Without question, such assessments on future hazards have been and continue to be of high relevance and importance. However, they urgently need to be complemented by future scenarios of cities' socio-economic change and its effect on future exposure and vulnerability. This includes rather obvious things such as urban sprawl into hazard-exposed areas, demographic shifts, or poverty trends. But it also comprises more subtle changes, the signals of which are starting to emerge in many cities around the world, e.g., in terms of social cohesion or the readiness to invest into a social contract for equitable adaptation. Not accounting for such changes leads to an incomplete and eventually misleading knowledge base for adaptation considerations, particularly in terms of assumed adaptive capacities, resulting adaptation gaps, and the distribution of adaptation responsibilities within cities. Closing this gap matters. Working toward transformative adaptation in and of cities is not only about fundamental systemic shifts in fields such as the built environment or hydraulic regime. For transformative adaptation to be successful in reducing risk in the long run, it needs to engage with the social institutions that perpetuate exclusion, marginalization, and other drivers of exposure and vulnerability within cities. Understanding their likely future dynamics and implications is an important yet too often neglected entry point into a meaningful engagement with transformative urban adaptation.



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Pursuing Transformative Goals

Transformative adaptation requires a fundamental reassessment of adaptation goals and underlying worldviews that make sense of humanity's relations with the climate system. The speed and magnitude of climate change exposes limits to current adaptation strategies and expected outcomes. Without reevaluation, hazard events will occur more frequent and impactful disasters.

Rapid coastal urbanization increases hydroclimatic risks, including flooding and tidal surges. Traditional adaptations, such as seawalls or levees, seek rigid control of a nature that is separate from, and inimical to, ourselves: a problematic approach. Benefit-cost analyses prioritize protection of economic investments, further entrenching inequitable vulnerabilities. Additionally, they perpetuate belief in predictable and controllable adaptation outcomes. Yet research and lived experience demonstrate that we are endogenous to a natural world in which adaptation outcomes are uncertain and emergent. Coastal cities are experimenting with nature-based solutions. Done well, this requires a profound shift in our relationship to nature, one in which we embrace dynamic, emergent complexities. It reorients adaptation goals towards flexibility and agility.

To respond at scale, rethinking of values must happen at a societal level, generating difficult questions about what we are willing to give up and acknowledging trade-offs between control and uncertainty, robustness, and resilience. The example speaks to coastal risks, but the message is broader. The value of many adaptive capacities is relative to specific goals. But transformation entails reimagined goals and the capacities to pursue them.