



Urban health challenges: Lessons from COVID-19 responses

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ABSTRACT

The COVID-19 pandemic has forced a re-examination of our societies and in particular urban health. We argue that urban health needs to address three inter-related challenge areas – the unequal impacts of climate change, changing patterns of urbanization, and the changing role of the local government – across multiple spatial scales: from individual, households to neighbourhoods, cities, and urban hinterlands. Urban health calls for nimble institutions to provide a range of responses while adapting to crisis situations, and which operate beyond any one spatial scale. We illustrate our argument by drawing on South and Southeast Asian examples where responses to the pandemic have confronted these challenges across scales. A multiscale definition of urban health offers an opportunity to challenge dominant approaches to urban health in research, policy, and practice.

1. Introduction

The World Bank (2020, 1) estimates that COVID-19 may have pushed more than 100 million people into extreme poverty worldwide, in the 'worst setback in decades'. According to their projections, the 'new poor' profile is largely urban, likely to live in congested urban settings, and often excluded from emergency measures and relief efforts. The pandemic has forced a re-examination of our societies by exacerbating inequalities and manifesting urban governance's inadequacies (UN-Habitat, 2020). Instances of collective action and place-based community responses have provided immediate and medium-term responses to the pandemic, particularly where institutional capacity was compromised (Diwakar and Udhani, 2020; Duque Franco et al., 2020; Shokoohi et al., 2020; Tuazon and Carampatana, 2020). The pandemic does represent a moment of reckoning with the challenges of a rapidly urbanizing world.

There is a growing body of work arguing for the need to foreground the diverse geographies of urban health, both in Geography and in cognate fields such as urban health, urban studies, sociology, and urban planning. Recent research has focussed on the power of place and spatial difference to influence health inequalities and conditions. For example, Fallah et al (2016) address how multi-level politics interrupted Ebola transmission in Liberia through community based initiatives. Ezeh et al (2017) discuss the historical, geographical and sociological perspectives of 'slums' and the emergent health problems of residents. Cole et al. (2017) have explored the relationship between health, urban green

space and gentrification and Crooks et al. (2020) have emphasised the interconnectedness of health and place.

There has also been a move to place health in the context of other global challenges. In a recent intervention, Fudge et al (2020, 141, 148) argue that it is vital to 're-think health policy' by shifting from a narrow definition to consider health in the context of post-pandemic economies and climate change. Indeed, COVID-19 demands a focus on the complex and interconnected forces that shape our cities. In the past year, Geographers and others have been examining and thinking about the urban implications of the pandemic: seeing COVID-19 through an urban lens (Acuto et al., 2020); tracking the economic impacts on cities (Brail, 2021); asking what cities might look like post pandemic (Batty, 2020); considering urban governance innovation in a time of COVID-19 (McGuirk et al., 2020); examining the uneven repercussions for the economy, mobility and for people (Mendéz et al., 2020; Nathan and Overman, 2020); highlighting the major challenges and considerations for addressing COVID-19 in informal settlements (Wilkinson et al., 2020); and exploring the impacts on understandings and politics of urban density (McFarlane, 2021). In these and other interventions, the interconnections between a health crisis and other concerns and issues – political, economic, social, and environmental – have been brought to the fore with intensity and urgency.

Three inter-related challenges are vital in shaping contemporary urban health conditions in cities: *climate change*, *urbanization patterns*, and *local government*. These challenges impact urban health across *multiple spatial scales*, from the household to the city and the hinterland.

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As we will show in cases from South and Southeast Asia, there are important examples from the pandemic that collectively demonstrate and inform how these three challenges might be responded to.

The pandemic illustrates the need for a new, multiscalar research agenda on urban health, to which Geographers are in a strong position to contribute. Hundreds of millions of people have struggled with maintaining their livelihoods and accessing food (ECOSOC, 2020; ILO, 2020; Klassen and Murphy, 2020). Personal savings vanished quickly, and social protection systems have not provided adequate responses. Closures and lockdowns have impacted income generation, especially for urban daily waged labourers and precarious workers - any work not considered formal has suffered disproportionately (Mendéz et al., 2020; Durizzo et al., 2020; ILO, 2020; Rusczyk et al., 2021). Measures to control population movements have 'triggered an economic emergency' unfolding at multiple scales (Gupte and Mitlin, 2021). Cascading impacts and risks from sporadic events such as the annual monsoon rains have exacerbated pandemic hardships and intensified pressure on fragmented infrastructures and services. Drivers of urban inequality such as income, gender, sexual orientation, race, and ethnicity, have worsened the pandemic's impacts and are expressed spatially across fragmented cities. In the UK, for example, lower-income Black, Asian, and Minority Ethnic groups were more exposed to infection through labour patterns and social reproduction and more likely to suffer hospitalisation and death (ICNARC, 2020; Gore, 2018; WHO, 2016).

Lockdowns have also had a severe impact on communities, particularly for workers who depend directly on the informal economy and who must choose between exposing themselves to the coronavirus or being disconnected from their only means of survival (Carenbauer, 2021). In short, the pandemic demonstrated the powerful connections between food, social and economic systems, labour patterns, poverty, race and gender (Abrams and Szefer, 2020; Klassen and Murphy, 2020). Thus, ensuring urban health requires thinking through the challenges of adequate housing, decent sanitation, safe employment and livelihoods, access and quality of public health services, greenspace, urbanization patterns, protection from environmental change, and inclusive governance (WHO, 2012). The broader urban environment and the natural landscapes that support or damage life in the city demand attention (Acuto, 2020).

This expansive focus on health and cities has been developing for some time (Fudge et al., 2020; UN-Habitat and World Health Organization, 2020; Fudge and Fawkes, 2017; World Health Organisation, 2016, 2020; Lang and Rayner, 2012). The WHO's contribution to Habitat III¹ extended health beyond a narrow provision of health care services into urban planning, finance, and governance. Four years later, UN-Habitat and WHO (2020) published a sourcebook to integrate health into urban and territorial planning. The report links health inequalities to sectorial and siloed policy processes (on multi-lateral, national, and local levels) and a lack of adequate infrastructure for water and sanitation services that explain outbreaks of infectious diseases. Global actors struggle to work with sub-national actors, a challenge intensified by the unequal power and resource relations and different decision-making capacities (Cociña et al., 2019). Learning from research in Kampala and Nairobi, Gore (2018) argues that institutional change depends on domestic civil society organizations and their sustained engagement with citizens, and local and national bureaucrats.

A research agenda for urban health needs to focus on the growing inequalities of the pandemic and post-pandemic context and how they intersect with the three spatial challenges mentioned above and examined below (UNDP, 2019, 2020; UNU, 2020). This paper attempts to advance geographical research on urban health by offering a framework to develop such a research agenda. First, we examine the dynamics of

urban health in relation to each of the challenges and their impact at different scales. Second, we provide a comparative review of three cases from South Asia and Southeast Asia to showcase how different actors can intervene in delivering urban health. While the response to the need for action across spatial scales is often to call for increased coordination between scales, our examples show that multi-level coordination is not a panacea. The priority lies instead with maintaining and building on nimble institutions that can provide a range of responses and adapt their systems to conditions across space and time. The paper concludes with a call for broad and dynamic coalitions capable to address the structural drivers of health inequalities.

2. Urban health challenges: climate, urbanization and local government

Climate change is accelerating the frequency of crises, from heat waves to flooding, coastal erosion, cyclones, and droughts (IPCC, 2021). The associated risks are expressed both in cities and through environmental changes in nearby rural hinterlands and with differential impacts on households and individuals. For example, exposure to disasters tends to be higher in lower-income neighborhoods, while their populations may have fewer resources to cope with sudden hardship (OECD, nd). Investments in infrastructures to address climate risks in urban areas generate climate-related inequalities (Long and Rice, 2019).

Urbanization is a complex and multi-faceted phenomenon, often reduced to spatial growth for analytical purposes. The shape and form of such spatial growth influence urban health (UN-Habitat and the World Health Organization, 2020). The relationship between urbanisation and urban health is complex. For example, in East Africa, even low levels of urbanization are sufficient to facilitate access to health services so that a reduction of child stunting is measurable (Ameje and De Weerd, 2020). However, urbanisation may also exacerbate health problems, for example, when air pollution increases cause widespread respiratory problems (UN-Habitat, 2020).

Over the past few decades, we have seen *local government* budgets either reduced or intentionally kept low in the face of deepening urban challenges. Lack of resources and institutional support limits local public agencies' capacity to plan for and respond to health crises and in their work coordinating and collaborating with other actors whether they are in civil society, social movements, or the private sector. Local governments often lack the financial resources, time, and capacity to work with and support neighbourhoods and households, particularly in rapidly growing urban areas.

(a) Challenge 1: The unequal impacts of climate change

The concentration of people, assets, and resources in cities makes urban areas particularly vulnerable to climate impacts (Satterthwaite et al., 2020). Cascading impacts of independent hazardous events - a heatwave or a flood, for instance - permanently affect infrastructures and public services, extending the impacts of climate change in time and space (Pescaroli and Alexander, 2018). While climate change impacts urban health, urban health also shapes vulnerabilities to climate change and people's resilience (Leal Filho et al., 2019).

Urban inequality is related to the spatial distribution of vulnerability factors, including limited economic capacities and inadequate housing (e.g. Doyle et al., 2019). While this is true everywhere, it is particularly salient in informal settlements, where lack of access to infrastructure and social services further exacerbates people's vulnerability (Dodman et al., 2019). Lack of urban health reveals vulnerability to climate change. At the same time, climate change impacts are likely to directly impact people's lives and their possibility of accessing urban services, further deepening vulnerabilities.

This vicious circle has been visible during the COVID-19 pandemic. The COVID-19 pandemic has put further pressure on the anticipated impacts of climate change. UNEP's Adaptation Gap report (UNEP, 2021, xii) argues that the response to COVID-19 may compromise adaptation efforts because "in the short term, the acute need to manage the direct

¹ The 16th United Nations Conference on Housing and Sustainable Urban Development, Habitat III had a mandate to produce a new agenda for the next 20 years of urban development.

public health impacts of the virus and the subsequent economic fallout has seen adaptation fall down the political agenda at all levels of governance and resources earmarked for adaptation planning, finance and implementation have been reallocated to combat the pandemic”.

Stimulus packages following the pandemic could enhance resilience if they reach infrastructures and protection systems that reduce people’s vulnerability. However, recent research suggests that investments in climate protection and mitigation actions can further impact urban inequality, securitising some people’s lives at others’ expense. Climate adaptation projects may lead to a process of gentrification, whereby protected urban spaces increase in prize, pushing out disadvantaged populations (Keenan et al., 2018, Anguelovski et al., 2019). Interventions to securitise some areas of the city tend to create privilege, securing spaces at the expense of more disadvantaged areas (Long et al., 2020).

On the one hand, both adaptation and mitigation actions tend to have health co-benefits. Emissions control, for example, may improve air quality and reduce respiratory health risks. However, it is difficult to make a direct attribution between those actions and their health impacts. The struggle for this attribution is being fought in the courts, as several cases in the UK and the European Union have attempted to link poor air quality to children’s health (UN-Habitat, 2020). This difficulty in mapping climate change impacts onto urban health speaks of the complexity of health issues embedded in complex territorial arrangements that exceed analyses of individual health or individual social conditions. Instead, climate change brings urban health in dialogue to ideas of the health of the territory- neighborhoods and cities and the wider hinterland where they are situated. Climate change concerns emerge within longstanding narratives that have specific manifestations in local contexts (Kirby, 2021). But the potential gains on urban health from climate action are immense. Addressing climate change requires challenging relationships across global supply chains, reducing resource extraction processes at all levels. Global concerns about dirty industries add to concerns from local population about the impact of those industries on their health (Sovacool et al., 2020).

(b) Challenge 2: Changing patterns of urbanization

The geographical lesson of the pandemic is that disease and health do not fit into territorial boxes. Urbanization increasingly occurs at the edges of cities, sometimes beyond cities’ administrative boundaries, responding to the associated health challenges and opportunities that will demand regional governance approaches. The pandemic has demonstrated the centrality of urban peripheries to the outbreak of disease. Connolly et al (2020) have argued that ‘extended urbanization’, including peripheral urban developments, has increased vulnerabilities to the spread of infectious disease. Recent years have seen global disease outbreaks in rapidly urbanising China and Africa, including SARS and Ebola, which moved from urbanising hinterlands to cities including Hong Kong, Toronto, Freetown and Monrovia (and see Ali and Keil, 2008). Connolly et al. (ibid, 14) draw attention to the socio-material transformations taking place on urban edges and the prevalence of zoonotic diseases through the “expansion of urban settlements in previously forested or agricultural areas”. Accelerated urbanization and mobilities have been accompanied by “more extensive zoonotic risks”.

As Roger Keil (2020, no page) suggests, a novel disease such as COVID-19 emerges through “the tentacles of urban society” to “reach to far flung mining camps, logging operations, agricultural regions and the like that make urban life possible elsewhere”. The hinterland of the city is constitutive of crises in the city, just as the city is part of the solution to regional and national challenges such as disease outbreaks. Whether it is illness and disease, migration, environmental services, or demographic change, the urban periphery must be part of regional and national responses. As the world becomes increasingly urban, the dominant trend is for cities to expand rather than densify. Sprawl is outpacing densification across the world, forming new peripheries, creating new environmental conditions and social vulnerabilities, and posing challenges to policy and planning strategies that focus on the city alone.

The expansion of cities and the urbanization of poverty occurs mainly through peripheral development, for example through the gradual settlement of autoconstruction by new and typically lower-income migrants, programmes of massive suburbanization, through expansionary real estate speculation on the urban edge, or in the formation of marginal refugee camps that then become more permanent fixtures (Guney et al., 2019; Caldeira, 2017; Holston, 2009; Holston and Caldeira, 2008). Angel et al. (2018) find that from 1990 to 2014 cities have, on average, doubled their geographical areas in ways that planners did not anticipate or prepare for (United Nations, no date; Keil, 2018). The World Resources Institute (2019) has identified three interconnected drivers: developers speculating on land on the urban fringe as a way of extending real estate economies into new terrain; a lack of specificity in state or city policy and regulations on where new housing or other developments should be located; and a generally weak set of property rights amongst residents and landowners on urban peripheries. As Neil Brenner and Christian Schmid (2015) have argued, the city may well be pivotal for urbanization, but it is not the only spatial form through which it proceeds, nor is it always the most important for urbanization (and see Brenner and Katsikis, 2020).

Dynamic urbanization patterns present challenges to how health is governed and compound urban inequalities and climate change impacts and increase the chance of future pandemics (Connolly et al., 2020). Without the right institutional capacity and mandate across scales – from the household to the region – the health challenges for growing hinterland urbanisms will not be adequately met. Part of the consequence for urban health across urban regions is that they become increasingly spatially unequal. Lower-income groups are increasingly forced into slithers of land on the edge of the city as the costs of land and housing increase elsewhere, where infrastructure, services and health care are often weaker or absent. Some estimates suggest that as many as a third of urbanites end up in some form of lower-income neighbourhood, increasingly located on the suburban peripheries of cities (Murali et al., 2018). Add to that both the lack of political will and – sometimes – the economic inability of local and national states to respond to this process. The result is horizontally denser neighbourhoods with fewer and fewer adequate services and provisions deepening health vulnerabilities and inequalities.

(c) Challenge 3: The changing role of local government

Strong and resourced local and regional governments have had relative success with managing COVID-19. For instance, in Kerala, India, years of investment have led to a stronger public health infrastructure and expanded numbers of medical staff – especially doctors and nurses – and community resources for sanitation and hygiene, compared to many other Indian states. This strategy has served the state well both in relation to the Nipah virus and COVID-19 (Vijayan, 2020). During the COVID-19 crisis, municipal departments and civil society groups had to work better together. For Razanakombana Rakotonavalona Allyre, Director of Water, Sanitation and Hygiene for the Urban Commune of Antananarivo (CUA) in Madagascar, the crisis “helped us to strengthen the collaboration between departments within CUA”, particularly around hygiene provisions and communications (Water and Sanitation for the Urban Poor, 2020, no page). Allyre’s observation matters. There is a large body of research arguing that the urban sanitation challenge falls off political – and economic – agendas because ministries, municipalities, departments and wards do not work well enough together to tackle it in a sustained, coherent way, nor do they always have the mechanisms in place to work well with nongovernmental and community groups or businesses (eg McGranahan, 2015; Srivastava et al., 2019). There is evidence that the most effective responses to the pandemic emerged when local governments worked with and supported local groups and initiatives.

Sometimes, this is because state responsibility sits at different levels – some parts of the equation, such as community toilets, with the municipality, others such as drainage with the regional or national state – while different groups within relevant departments, ranging from water

engineers to social welfare officers, may not be coordinating their efforts when they need to be. International agencies have argued that sectoral and siloed policy processes on water and sanitation has directly led to exacerbated health conditions (UN-Habitat and WHO, 2020). In Mali, for example, one report complained that the stakeholders involved in urban sanitation included at one point “five central Government ministries (that have great difficulty in coordinating their policies and actions), local authorities, utilities/service providers (both public and private, large and small-scale), households and other civil society actors” (Kariuki, 2003, 79).

The point here is not only that fundamental health challenges such as disease and sanitation require coordinated and well-resourced local government, but that the intersection of events demands greater levels of preparedness. For example, there has been a global increase in internally and externally displaced refugees (UNHCR, 2020). In 2000, there were 31 million forcibly displaced people worldwide, in 2010 the number increased to 41 million people and by the end of 2019, there were over 79 million forcibly displaced people worldwide. In Jordan, over a million refugees fled the war in Syria and local governments struggled to provide for the new arrivals, with inadequate amounts of water, the amount of solid waste being generated doubling, a shortage of waste disposal staff and equipment, and quickly improvising systems struggling to cope (Mosello et al., 2016). In Brazil, to which large numbers have sought refuge in the past decade or so, from Haitians following the 2010 earthquake to economic refugees from Venezuela, refugee support centres have helped run immunization programs or support during pregnancy, as well as training programmes for municipal staff on how to best support refugees.

Responsive and prepared local governments are not, of course, questions of institutional structures and economics alone. Local governments are also political entities, and their politics shift through electoral cycles and issues of the day. For example, in Mumbai the Shiv Sena, a regional party with a long history of ethno-religious chauvinism and anti-Muslim politicking and which has governed the city since 1995, plays a vital role in the geographies of state patronage (De Wit and Berner, 2009; McFarlane et al., 2014). Lisa Björkman (2015) describes how in 2009, after six people died in a cholera outbreak in the low-income informal neighbourhood of Rafiq Nagar, the water department decided along with the local municipal councillor to cut the plastic water pipes in the area, on the basis that plastic pipes are more vulnerable to being broken and therefore to transmitting contaminated water. In practice, local government is a distributed and changing assemblage of institutional logics, plans, routines, workarounds, and improvisations, in which ‘order’ is generated through multiple authorities - public, private, social, cultural, etc - jostling with one another, sometimes collaborating and at other times clashing or working in different directions. This is the argument developed by Warren Magnusson (2011) in *Politics of Urbanism: Seeing Like a City*. For Magnusson, there is a need to recognise the often slow, sometimes painful, usually uncertain and unpredictable nature of effecting change by, through or with local government. To ‘see like a city’, Magnusson (2011, 120) argues, “is to accept a certain disorderliness, unpredictability, and multiplicity as inevitable, and to pose the problem of politics in relation to that complexity”.

The politics and resources that shape local governments mean that progress in urban health fluctuates over the years, and the capacity of local governments to build effective alliances – to work with the ‘mess’ Magnusson describes – further complicates that progress. Nonetheless, a well-resourced and staffed local government with embedded programmes of preparedness and transparent, monitored budgets, policies, and practices is a vital prerequisite to making and sustaining health policy. The mundane questions of department organisation, bureaucratic process, public accountability, transparent spending, alliance-building, and collaboration become more, not less, important for urban health in cities where the state is deeply politicised.

The pandemic has catalysed long-standing demands for a new

approach and focus on local government capacity to heed health and well-being needs and aspirations. One example is the new municipalism movement, a politically diverse body of thinking, collaborations, and interventions, with examples in cities as different as Barcelona, Preston, Rojava, Jackson and Cleveland, and which owes some of its varied content to histories of municipal socialism and international municipalism (Thompson, 2020). As Zárate (2020, no page) has pointed out, social movements, communities and activists “have been building practices and narratives” for this agenda for decades, including through the World Social Forums and the 2005 World Charter for the Right to the City. The New Municipalist movement advocates “concrete possibilities for recasting the local state, away from technocratic and corporatist mantras”: “The fulfilment of the social function of land and property; the defence of the commons (natural, urban and cultural); the recognition and support of social, diverse and transformative economies; the radicalization of local democracy and the feminization of politics are some of the most prominent principles guiding a multitude of actions and advocacy efforts” (Zárate, 2020, no page).

(d) Responding to the three global challenges of urban health

These three challenges operate together to damage and erode urban health, and across five scales: *individual, household, neighbourhood, city, and hinterland* (Fig. 1). As we argue, such a multiscale framework must operate at regional levels in which municipalities, global agencies, and civil society can design, implement, and maintain sustainable urban health approaches. The three challenge areas create sharp limits on the capacity of the state to act, work to reshape environmental conditions and entrench hazards, increase the vulnerability of the most marginalised groups, and expand the geographical scope of risks beyond the reach of local authorities. Social relations of race, ethnicity, gender, and class and labor conditions in and beyond the city determine the shape of urban health at neighbourhood, household, and individual scales. But, what does an expanded definition of urban health mean in practice? We seek to inquiry this through a comparative analysis of three case studies that have generated literature on COVID-19 responses.

3. Delivering feasible responses to current urban health challenges

This section explores three case studies – the regional state in Kerala, local government in Bangladesh, and community responses in the Philippines – as examples of responses to the pandemic. The cases show the complexities of addressing the pandemic in the context of extreme vulnerability and inequality while also responding to climate, urbanization, and local government challenges.

(a) Regional governance and urban health: examples from the state of Kerala, India

Strong and well-resourced local and regional governments have had relative success with managing COVID-19. For instance, in Kerala, India, years of investment have led to a stronger public health infrastructure and expanded numbers of medical staff and community resources for sanitation and hygiene compared to many other Indian states. In 2016, for example, the government upgraded hospital infrastructure and added almost 6000 posts (Sandanadan, 2020). The state-wide health network, built up over decades, could respond quickly and teach across social groups (Shaji, 2020; Vijayan, 2020). Committed investment and coordination served the state well during the 2018 Nipah virus outbreak, which originates in bats. Nipah has a far higher mortality rate than COVID-19 and killed 17 people in the state. Kerala’s management of the outbreak was described as a “success story” by the World Health Organisation. Early detection and prompt isolation of cases, alongside a quickly established test and trace system, worked to contain infection (Nidheesh, 2019; Thomas et al., 2019).

There were lessons to learn. The WHO conducted a review of Kerala’s handling of the Nipah outbreak and found that while there was a high degree of coordination and capacity amongst the state, there had been shortfalls in public awareness, technical skills, data sharing, and



Fig. 1. Elements of an agenda for urban health (Own elaboration with design support from Erika Conchis).

incident management (WHO, 2019). Kerala's Health Minister, KK Shailaja, said that lessons from the Nipah outbreak helped the state prepare for COVID-19, including convincing them to launch an early public awareness drive (Shaji, 2020). In June 2020, Shailaja was noted for her health leadership in the COVID-19 response on UN Public Service Day. The state's closely connected network of local governments and public health actors worked with civil society agencies to ensure sanitation provisions and awareness, including youth organisations, gender associations, and prison groups and opened fourteen call centres to check on the mental health of those who were quarantining.

The urban challenge for health in Kerala is not one of disease prevention and management alone, of course, but of integrating that with the other drivers we have discussed above, including climate hazards and inequalities within and beyond the state's cities. Flooding, for example, can lead to or exacerbate disease outbreaks, and coastal areas of Kerala are at risk of being submerged in the next decade. Indeed, just as the government was responding to the 2018 Nipah outbreak there were significant floods in Kerala, killing more than 400 people and displacing over five million through flooding and landslides (Hunt and Menon, 2020). Many of the risks have been generated through transformations on the rural periphery of cities and towns, including deforestation from plantation agriculture, dams, mining, damage to rivers and wetlands, quarrying and road building (Basak et al., 2018). Hans Nicolai Adam (2018, no page) has argued that unregulated development activities in the booming tourism industry, particularly in high lands across Kerala and in the periphery of urban agglomerations have also contributed.

Adam (*ibid*) argues that “vulnerable people, who live in the most exposed locales and stem from poorer sections of society that

disproportionately bore the brunt from the flooding”. Urbanization in Kerala exacerbates disease risks, climate hazards, and social inequalities through rapacious development and economic extraction that leaves poorer residents most exposed. Kerala suggests that a well-resourced, autonomous local government can provide effective responses to crises in the short term. Still, these measures have to be accompanied with long term responses that grapple with the changing spatial conditions of urban health.

(b) The crucial role of local governments: Mongla and Noapara, Bangladesh

Well-organised local authorities in Bangladesh with functioning relationships with key government stakeholders such as hospitals, the police and military, and with transportation hubs (riverboats, buses) and civil society (NGOs and INGOs) have mobilised to address COVID-19 pandemic and other simultaneous crises such as Cyclone Amphan. Local governments face constricted funding, limited human resources and constrained political power to fulfil their responsibilities (Birkmann et al., 2016). In Mongla (population 106,000) and Noapara (population 170,000), the local authorities had functioning protocols to address rapid onset disasters implemented with other stakeholders such as the central government, and the Red Crescent and its volunteers. They enforced government mandates during the COVID-19 lockdown in March-May 2020 and during Cyclone Amphan in May 2020.

The local authorities played a coordination role during the pandemic and provided guidance about proper hygiene to combat the virus. They provided timely and immediate food relief packages in May 2020 to low-income residents in both cities. Nongovernmental organisations, the military, and the *upazila* (the second-lowest tier of regional administration in Bangladesh) distributed food packages during the lockdown

(Rusczyk et al., 2021).

Cyclone Amphan struck during the 2020 lockdown and residents had to be evacuated (Gettleman and Yasir, 2020). Amidst the disaster, the difficulties in maintaining any social distancing caused additional distress to residents and all involved in addressing the cyclone. Several houses in Mongla municipality (BBC, 2020) were destroyed. The rapid temporary relocation of the local food market in both cities and the response to the Cyclone Amphan demonstrate an effort of collaboration between local authorities and multiple agencies who could bridge capacities for a timely and appropriate response. No human casualty was reported in either city. The evidence suggests that the two cities were able to act promptly under dire circumstances.

The urban challenge for health in smaller, regional cities such as Mongla and Noapara requires preventing and managing disease amongst other pressing concerns such as the increasingly harsh impacts of climate change, (intense cyclones, storm surges, salinity intrusion, devastation to the Sundarbans), urbanization (including loss of agricultural land in the neighbouring peri urban and rural areas due to manufacturing and construction of housing and lastly, loss of livelihoods in the countryside and increasing number of day labourers in cities) and the complexity of relationships in the local level of government. In particular, addressing existing inequalities in large and small cities in Bangladesh was key to a viable response to the Covid-19 pandemic (Rashid et al., 2020; Rusczyk et al., 2021). Socially inclusive, economically equitable and environmentally sustainable development requires closer attention to where people live in the world – including small urbanising cities where most residents are struggling. There is a need for careful attention to international, national and local strategies to support people as they rebuild their lives, and to create safety nets appropriate for urban households and communities in different settings.

(c) Intermediaries in local action: the role of community action groups in the Philippines

Lockdowns have compounded the hardship of the disease, throwing the lives of people in complete disarray. While the coronavirus will directly impact people's lives, the collateral impacts of the pandemic and the responses to the pandemic may mean the devastation of people's means of living and the rupture of any possibility to achieve resilience (Shadmi et al., 2020). In informal settlements, particularly, top-down interventions tend to ignore the socially robust knowledge that people living in those settlements hold (Corburn et al., 2020). Alongside that knowledge, crucial capacities can only be mobilised at the community level. Reaching the urban poor living in informal settlements has become dependent on informal channels, through informal associations and community-based organisations that can access the most disadvantaged populations. Sometimes those organisations have managed to deliver support where local governments or national governments have utterly failed.

Looking at community organizations' activities in South Asia and Southeast Asia, the Asian Coalition for Housing Rights (ACHR) has developed an inventory of community-based responses to deal with the pandemic (Table 1). These interventions include fine-grained actions that follow well-detailed knowledge about people and the impacts of the pandemic on their lives, and that deliver immediate measures to palliate the worst impacts of the crisis while providing support for the long-term survival of the local economy.

In the Philippines, the lockdown happened under Enhanced Community Quarantine (ECQ), involving lockdown, curfew, and severe restrictions. On March 24th, 2020, the Philippines President Duterte signed the Republic Act 11,469 or the Bayanihan to Heal as One Act (BAHO) with a replacement enacted in September. BAHO provided additional support to medical facilities and hospitals and established a financial assistance program targeting people who work under "no work no pay" conditions (Vallejo and Ong, 2020). However, in April 2020 the government announced that cash assistance programmes would stop due to lack of funds (Humanitarian Country Team in the Philippines, 2021). Reports of violations of basic civil liberties have accompanied the

Table 1

Summary of community groups responses to the COVID-19 pandemic (adapted from ACHR, 2020).

Areas of work	Examples of community action to deal with COVID-19 reported by the Asian Coalition of Housing Rights
Mapping, surveying and monitoring	Using community surveys and monitoring to track the impacts of the virus on the poor, to identify vulnerable families and individuals within the community and to determine who needs what assistance. Monitoring the impacts of government regulations and interventions, and coordinating with local government agencies to make sure those government interventions like emergency food packet distribution reach everyone, especially those most in need
Facilitating communication	Distributing accurate information about the virus and how to keep safe and prevent its spread
Delivering immediate humanitarian support	Starting food banks and buying staple foods in bulk, to distribute or to keep in storage to bolster community-level food security Setting up community kitchens and distributing meals and groceries to vulnerable and virus-infected households
Providing protection materials to deal with the pandemic Supporting isolated and quarantined communities	Stitching face masks and personal protective equipment and producing hand-sanitizers Keeping in touch with locked-down and quarantined communities and sharing virus news by phone, video chat and instant messaging applications like Line, Messenger and WhatsApp Promoting community-level quarantine in crowded settlements where household-level quarantine is impossible
Maintaining the informal economy	Developing systems for exchanging basic goods and necessities between communities or networks when the usual supply systems close down or are off limits during lockdowns
Providing direct support to vulnerable people	Raising funds to support specific vulnerable communities and providing cash assistance to needy families Using community savings and credit groups to help families survive and meet their families' urgent food and medicine needs, with loans and savings withdrawals, or reducing expenses by suspending loan repayments or reducing interest on loans

enforcement of BAHO, particularly concerning the implementation of a strict curfew whereby only one member per family could leave the house for essential supplies (Ibid). There are reports of more than 100,000 people arrested for violating curfew and lockdown restrictions (Recio et al., 2020).

In Metro Manila, lockdown closures left millions of people scrambling to survive without jobs and access to food. Moreover, the country is highly dependent on remittances which have also been compromised during the pandemic (Murakami et al., 2020). The impacts of the pandemic have been compounded with those of Typhoon Goni which made landfall in October 2020 (Humanitarian Aid, 2020). ACHR reported the assessment of Ruby Papeleras from the Philippines Homeless People's Federation in Metro Manila (ACHR, 2020)

"The government has a Social Amelioration Program to provide food packs and cash support of US\$150 to qualified families, but the top-down distribution of this aid has been riddled with problems. It's interesting to see that in cities and barangays where we have done citywide community mapping, the DWSD [Department of Social Welfare and Development] has worked with the community organizations, which already had all the information ready, and could respond to the urgent needs in good time and get the assistance to those who really need it."

The influence of the national government has not only not supported but has also compromised local responses to the crisis, particularly breaking the solidarity structures that support the work of community groups. The Duterte government has been characterized by a medical populist approach to the pandemic (Lasco, 2020) that relied on pitting the population against dangerous others, such as, for example, by blaming the poor for being disobedient or undisciplined. Misinformation and conspiracy theories have further undermined public understanding of the crisis (Amit et al., 2021). Apart from justifying authorities' abuses, these discourses have translated into discrimination within communities, where very vulnerable people are expelled (ACHR, 2020), and in a strong stigma that affects everyone, especially health professionals (Kahambing and Edilo, 2020). In this context, community-based responses to the crisis have been essential for people's survival.

4. Delivering urban health responses in the context of three global challenges

These three cases show that no single actor has all the necessary tools and capacities to address urban health, nor is there one site at which urban health can be assured, whether the individual or the city scale. Instead, actors with a long trajectory of providing appropriate responses to urban health crises - the state government in Kerala, local governments in Bangladesh, community groups in the Philippines - build on long trajectories and experiences to deliver immediate responses. None of these responses stands as a model for urban health. Instead, their comparison shows the variety of strategies to intervene in practice. The three challenges of climate change, urbanization, and local governance deepen existing pressures and create new ones for which accumulated resources and capacities may no longer be sufficient. Table 2 provides examples of how the three challenges play out at different scales of urban health.

A key question here lies with the extent to which we can harness existing institutions to respond to the current global challenges while at the same time acknowledging and challenging the urban legacies that reproduce inequality and discrimination. The observations in Table 2 call for an analysis of different institutions' capacities to deliver effective urban health responses (Fig. 2). On the one hand, urban health calls for place-based, sometimes ad-hoc responses to urban health that reach citizens. On the other hand, urban health calls for coordinated, large-scale public health programmes in urban areas (vaccination programmes are an example).

Often the response to this dilemma is to call for increased coordination between institutions, often at the expense of excluding civil society, community, and private actors. However, multi-level coordination is not a panacea. As the example of Bangladesh above shows, local governments require some autonomy to deliver crisis response effectively. Regional governments focusing on coordinating local action may not allocate resources appropriately. As urbanization processes further confound the remit and scope of local institutions, these challenges will intensify. Rather than searching for an ideal model for the coordination of urban health scales and institutions, more effective responses build on and from institutional legacies and existing capacities. Identifying those is not straightforward because existing institutions can be as much part of the problem as they provide solutions, for example, if they are controlled by political parties and cultures that exclude the knowledge and experience of residents or community groups or operate within technocratic cultures of practice. Inherited institutions often provide the best tools even as they become less effective in changing circumstances or become political battlegrounds over their nature and future.

On the other hand, the challenges raised by climate change - including the enduring risks of pandemics like COVID-19 - mean that institutions need to balance short-term responses to crises and long-term responses that challenge the structural drivers of health inequalities. The experiences described above show that long-term programmes of response may support more effective short-term ones. For example,

Table 2

Interactions between the three challenges at different scales of urban health (Own elaboration).

	Climate change	Patterns of urbanization	The local government
Individual	Influencing existing coping responses, capacities and resources	Changing conditions of habitation, migration and livelihood strategies	Redefinition of relations between citizens and the local government
Household	Influencing the collective resources and access to services	Inadequacy of habitational structures and existing resources	Influencing community relations, resources, migration and livelihoods
Neighbourhood	Reliance on structures of community organisation, sharing groups, solidarity and cooperation that can support responses to existing and emerging risks	Changing collective needs, new services and demands but also erosion of former socio-ecological relations making some systems unviable	Contrast between the capacity of the local government to respond to local needs and the changing demands of people, with community groups taking the initiative to challenge existing structures of governance and resources
City	Dependent on having access to decision making, protection infrastructures, and other urban commons crucial to manage	Loss of capacity of cities to govern spaces and territories and respond to the changing needs of the population	Multiple forms of governance influencing the possibilities to intervene and delivering public health promptly and in changing contexts
Hinterland	Shaping economic and innovation networks, dependence relations, changing resources	Destruction of ecological resources and new relations of interdependence across scales	Separation from the hinterland may reduce the capacity of local governments to respond to ongoing crises

community groups that are already organised in saving groups and have working relationships with local institutions had strong capacities to provide an immediate response to the pandemic. At the same time, changing events are likely to demand short-term responses that may take precedence over long ones, as shown in Bangladesh's cases. The accelerating challenges described above could force a shift away from long-term to short-term responses.

In Fig. 2, we suggest that the priority should be maintaining nimble institutions that can provide a range of responses and adapt their systems in crises - able to move from short-term to long-term timescales, and navigate different spatial scales of response. For example, in the case of the pandemic, this called for short-term responses that built on long-term capacities to address the drivers of health inequality, as we see in Kerala. Nevertheless, future crises may demand other types of responses from existing institutions that need to learn to work in new ways and often trespass institutional boundaries: a new agenda for urban health will have to be revisable and flexible as the three challenges unfold and interact.

5. Conclusion

Public health has long shaped urban governance. Epidemics in the



Fig. 2. Dynamics of different urban health responses in the case studies (Own elaboration).

late 19th century and early 20th century fostered urban reforms, urban extension plans, and other attempts to influence urbanization patterns (Castán Broto and Sudhira, 2019). This pandemic has exacerbated the ongoing challenges of climate change, urbanization and the transformation of local government. First, the pandemic has highlighted how structural drivers of inequality shape vulnerability to risk: as dealing with climate change gains prominence in urban agendas, it is essential to foreground the impacts of inequality on urban resilience. Second, the pandemic has revealed how urbanization is transforming social relationships in space, as processes of urban change condition the spread of risks but also, the possible responses available to it. As urbanization has reshaped spatial relations, it has also created new spatial inequalities. Third, the retreat of the local government has reshaped urban governance with direct impacts on public services, including health protection services, with consequences for the populations who are most dependent on municipal services. These three processes influence the unfolding of the pandemic and social responses to it, while they are also themselves shaped by the pandemic and the new urban governance possibilities opened by it. They call for a reimagining of the landscape of service provision in urban areas, centring on urban health while recognising it as an inherently political struggle.

Over the 20th century, attempts to deliver public services have encountered scepticism, as ideas have shifted, contestation processes around infrastructures and services have proliferated, and people have found that the imposition of infrastructure systems was often detrimental to people's lives (see for example Graham and McFarlane, 2014). Efforts to deliver urban health today must engage with the political nature of public services and a multi-faceted set of urban challenges (Ottersen et al., 2014). Health systems are often inadequate, unreliable, and mismanaged. At the same time, they are profoundly interconnected with other infrastructure systems as they depend, for example, on ready access to electricity and clean water (Castán Broto and Kishner, 2020).

Saravanan (2018), writing about the Indian context, positions health as a political struggle where 'individuals contest and negotiate macro-institutions in their everyday micro-politics to secure their health'. Health depends on political will and state budgeting, but also on micro-political interactions that emerge in response to the three challenges outlined above: climate, urbanization and the local government, and how they relate to inequalities across spatial scales.

The pandemic places the spotlight on the scope of risks that influence

the urban which yet are beyond the remit of influence of local authorities. How the various scales influence each other in time and space need to be identified and understood, as do the interaction of long-term structural health inequalities – from sanitation to land, labour, gender and education – with specific events from an epidemic to a flood. While urban inequality is not new, the pandemic is providing an opportunity for renewed commitments and action on how inequalities become expressed simultaneously across multiple issues and spaces in and beyond the city (Carenbauer, 2021; Brail, 2021). Urban health can not be provided as a one-off but through an ongoing process of creative re-engagement across actors in scales in as level a playing field as possible.

An expanded definition of urban health means, in practice, that our thinking, planning and responses to urban health challenges are beyond the remit of any one scale. To deliver urban health in this new context, health institutions need to adapt to changing situations across time and spatial scales. We are not suggesting any particular response as a model for expanding the definition of urban health. Rather, we suggest evaluating current capacities to deliver action in dynamic contexts, as advanced in theories of adaptive governance (Waters and Adger, 2017). Changing definitions of urban health will require substantial policy and practice changes, starting with a shift in urban health discourses mobilised by international organisations and academics. It will also require dialogue between health and urban professionals. We recommend a broader and deeper focus on approaches integrating the three challenges (climate change, urbanization and local government), greater interdisciplinary collaboration across these areas, a focus on existing and potential institutional capacity in the face of changing conditions, and a flexible mandate for action to connect effectively across scales from the individual, household and neighbourhood to the city and hinterland.

CRediT authorship contribution statement

Hanna A. Rusczyk: Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – original draft, Writing – review and editing. **Vanessa Castán Broto:** Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – original draft, Writing – review and editing. **Colin McFarlane:** Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – original draft, Writing – review and editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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