8

Conclusion: from an 'infrastructural turn' to the platform logics of logistics

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> The history of modernity is not so much about the progress of reason as it is about the history of reason's unreason. (Mbembe, 2017: 208)

When we started this volume with a research council-funded set of projects, we invited successful members of a collective endeavour to share their results across diverse teams and research interests. The collection reflects the equally diverse answers to the sorts of questions we were trying to address. Many chapters also implicitly or explicitly ask what it means to invoke a notion of the 'African city'. Some of the reasoning that informed this curation of work we explored in the introduction. In the conclusion of the volume we want instead to suggest, if tentatively, routes out of the collection that point to different sorts of scholarship on urban futures. These might also be understood as different dispositions that emerge logically from the chapters collected here.

In the nature of academic production times we finished the volume (and rewrote this conclusion) some time after the research was completed, at a moment when the COVID-19 global pandemic in the space of three months rewrote the script of normality. What had been normal in daily life, work life, state actions and economic governance was up for grabs. As the pandemic made global connections at a speed rarely anticipated, what happened in Wuhan suddenly became profoundly relevant in Tehran, in Madrid, in Lombardy, London, New York and New Orleans as much as in Cape Town, Kampala, Lagos, Dar es Salaam or Johannesburg.

In spite of media rhetoric that COVID-19 democratised death globally, the reality was quickly seen to be very different. New demographics of vulnerability built the foundations of new social divisions. They legitimised equally new demographics of future surveillance. The elderly were most affected, the youngest and women less so, but other categories of morbidity and vulnerability were identified and at times subject to specific controls through new measures such as social distancing. But most significantly it was – as always – the poorest and the stigmatised that were most at risk. In New York City black residents were twice as likely to die of the virus.

In cities without sophisticated public health infrastructures, these disparities manifest disproportions across different demographic dividing lines. Cities coped with varying degrees of success, some with inventive solutions. There were major differences in death rates at the scale of the nation state. Counterintuitive geographies challenged conventional understandings of public health outcomes. Successful South African city organisation of community-based networks of tracking and tracing on the ground contrasted with the grim spectacle seen in the capital of global finance in New York. Between countries, differences were commonly attributed to the particular combinations of strong public health infra-structure, successful state surveillance of private mobility data and social control in places with strong state institutional capacity such as China and Korea, reflecting national political contexts and institutional forms. Clearly, what was at stake was a moment when global forces landed locally, reconfiguring the DNA of cities through multiple drivers that distinguished unevenly between urban concentrations on the planet. Such diversity reflected distinctive combinations of social and material conditions in different cities that qualify the propensity of cities to respond to sudden change, partially traced to what has been described as an 'infrastructural turn' in studies of the contemporary city.

As we suggested in the introduction, the recognition of the powers of combination of social, cultural and material forms at the heart of the putative 'infrastructural' turn in urban studies could be traced back a decade or more in anthropology and other disciplines. In the introduction we also drew genealogically on the twentieth-century research of anthro-pologist Jane Guyer that influenced Achille Mbembe's breakthrough volume *On the postcolony* (Mbembe, 2001). In the conclusion we turn to their work again heuristically, instead to consider how what is shared by some of the authors of this volume might take this 'turn' forwards. For Guyer,

in her more recent work reflecting on a long career, the particularities of (normally African) context demand an analytical imagery appropriate for the third machine age. She characterises the 'real economy' in any place at a particular time as an aggregation of 'platforms'. Her definition of the *platform economy* is both more analytically specific and more long term than in most common usages of the term. The platform for her is an infrastructural framework for diverse applications, but also 'a stage for amplification of some voices and presences over others; a focus of collective access and attention; a way of enabling specific owners and engineers to reorient it for new purposes; and a place for announcing originality' (Guyer, 2016: 4).

In Guyer's coinage the platform economy is not just something *becoming* but is a form that in some ways has *always been*. As invoked today it most commonly tends to be seen as the invention of disruptive tech corporates, either FAANG (Facebook, Amazon, Apple, Netflix and Google) in the US or BATX (Baidu, Alibaba, Tencent and Xiaomi) in China. But these platforms are merely a logical end point to the geographically and historically contingent architecture of markets, impure mixtures of cultural life, law and economics. The platform for Guyer is instead an architecture that connects infrastructures through the triplet of 'legacies, logics and logistics' (Guyer, 2016). In the chapters of this volume these infrastructures make visible systemic combinations of resilience, informality, city morphology, food, water, waste and power. Guyer's framing closely corresponds to these themes: the sense of the path dependencies of urban form (their legacies), the structures of scientific knowledges that make the workings of cities visible (their logics) and the forms of infrastructural combinations that lubricate their working (their logistics).

Because – as some of the authors we considered in the introduction also stress – for all the litanies of dysfunctional facets of urban life, African cities do in many ways 'work'. How they are made to work is a matter of logistics, however durable. This is why 'the platform as an image also invokes an architectural structure in the most literal sense; vulnerable to heedless neglect of the need for repair or updating; weakened by zealous hacking into its foundations and pillars, open to renovation and embellishment' (Guyer, 2016: 4). In one sense logistics emerges as a category of analysis as the combination of infrastructures, networks and urban speed. And so the logistics of the city highlight a focus of study that is both substantive and dispositional, a descriptive inquiry into why cities

work the ways that they do alongside a translational obligation for scholarship to consider how things might configure differently. This links the introduction's consideration of epistemology and disposition to a possibly emergent nuancing of urban studies by the considerations of such platform logistics.

In the introduction we used the work of Achille Mbembe to highlight what we suggested are diverse understandings of what the interdisciplinary project of urban studies might mean in an African context. We focused in particular on issues of *epistemology* and sensibilities of *disposition.*

In terms of the *epistemologies* of different natural sciences and social sciences we suggested that diverse disciplines, professions, forms of knowing the city, are based on sometimes incommensurable analytic structures. They cannot always be reconciled. They may be logically correct in their own terms but, as they land in the cities of distinct parts of Africa, the interface between one logical system and others locally disturbs complex systems differently, disrupts existing configurations of social, economic and ecosystem life in unique patterns and combinations. We argued for a recognition that different epistemologies make visible different subjects *in* the city and *perform* very differently in city halls, stock markets and community halls alike. They privilege diverse scales of time and space. This makes it important to render visible how privileging one discipline at the expense of another excludes some concerns and generates trade-offs between competing ways of making sense of urban dynamics. In this way it is important to ask, for example: What do engineering solutions not consider? What do resilience strategies create as well as prevent? What does a priority on energy transition disrupt in informal economies that sometimes sustain the majority of city residents?

In terms of *disposition* we argued for a commitment to forms of *translational* research. The chapters in this volume echo a theme about the shortcomings of different approaches to the city. They highlight what is not achieved and what is (not always but too often) excluded by certain kinds of research as well as what they address. For example, at times both neoclassical economics and critical urbanism can share an ethical complacency: the former by burying ethical dilemmas in norm-free science, the latter by complacently assuming the moral high ground. Sustainability science can exclude the impossible dilemmas of intergenerational ethics. Engineering, hydrology, architecture and planning are as situated in place as the cultures and the calculus of risk examined in Dar es Salaam in

Irmelin Joelsson's chapter here. So the sense of the dispositional that we argue for in this volume is one that maintains a respect for both the critical deconstruction of existing conditions of the city and for the careful deployment of new forms of social scientific data analytics alongside it: the logics of utility-optimising forms of economics, the array of natural scientific techniques for diagnosing pathology and pattern. The sense of the translational is no more nor less than an invocation to researchers to combine a small dose of disciplinary humility with a commitment to make sense of why particular circumstances of history and geography might occasionally undermine their innate presuppositions. Reason and the rational are invariably situated.

One translator of his writing suggests that Mbembe offers an alternative 'cartography (of reason) in two senses: a map of terrain sedimented by centuries of history, and an invitation to find ourselves within this terrain so that we might choose a path through it – and perhaps even beyond it' (Dubois, 2017: ix). In his more recent work, *Critique of black reason*, Mbembe argues that it is *contact* between two worlds (Western and African) that has produced two narratives: the Western consciousness of blackness and the black consciousness of blackness (Mbembe, 2017: 27–9). He draws heavily on the work of Franz Fanon to situate his configuration of 'Black Reason' and the genealogy of such contact zones. Fanon's studies were in turn themselves rooted in a space that crossed medicine, psychiatry and political philosophy, and Mbembe suggests that Fanon's interdisciplinary reasoning demands a positioning of writing on Africa that is clearly *located*, a form of 'situated thinking, born of lived experience that was always in progress, unstable and changing' (Mbembe, 2017: 161). And so it is in this vein that David Theo Goldberg summarises in his reading of Mbembe's work that 'black reason is itself constituted ambiguously, partly from the outside, partly self-constituting' (Goldberg, 2018: 208).

This raises a dilemma that is directly relevant to the contributors of this volume. Mbembe's metaphor of contact is productive. *Contact* is experiential, cultural, ephemeral, based on difference of practices, pronouncements and discourses. It is *inside* the city where contact, contamination, creolisation take place. But it is also *outside* the city in transnational domains of teaching and practising, across diverse urban professions and a spectrum of urban sciences where different ideas flow. And it is outside the city that longer-term processes of global change and inter-national [*sic*] governance are realised.

It is in the contemporary urban arena that international knowledges that aspire to universal science come into contact with different morphological forms of the built environment and diverse conjunctural configurations of governance and rule. International finance flows across boundaries. Contact takes place in the recent past and the geographical present, evidenced in short-term historical legacies and diverse urban path dependencies. Professionals brought up in Africa, educated in the US and working for multinational European corporations may be at the helm of generic infrastructural regimes in specific city sites. In the search for universal reason scholars similarly seek excellence in medicine, engineering, waste disposal, hydrology and flood protection. And so it should be. It is after all better if a building stands up and a bridge does not fall down. Academics also cross boundaries. The taxonomy of African (or for that matter Chinese, Indian, Latin American) academics is likewise not straightforward when universities have built three decades of claims of elitism on the premise of liberalised international recruitments that configure common rooms of (limited) diversity and a transnational credentialising of area-based research expertise. To repeat an argument in the introduction of this volume, this is not making a case to surrender knowledge foundations of the natural sciences to any form of cultural relativism. It is instead making a case to make visible the routes through which both academic expertise and scientific practice travel and land.

Like Mbembe's characterisation of black reason, the 'African city' is constituted ambiguously, partly from the outside, partly self-constituting. Any understanding of it demands an analytical gaze that sees inside the urban but also places the city in global and relational context. A tension of critical distance. So in the conclusion it is some of these forms of contact that we considered it appropriate to consider, the dimensions of what might lie outside the definition of the African city that structure what goes on inside the categories of urbanism that are captured by the descriptor. We identify four such *contact zones* (Pratt, 1992) here, but they are offered more as exemplary rather than exclusive regimes of exchange through which these chapters might insert themselves into further stories of global urban transformation.

It is perhaps these contact zones that define some of the themes that emerge from this volume and suggest some, not all, possible avenues for further study in the field. They relate in turn to the sometimes fragile forms of global governance and international city networks, claims made

in the name of the Anthropocene understanding of the urban system at the planetary scale, the dynamics of climate change and the contours of global political economy. All of them constitute what we might understand as urban 'platforms'.

The contact zones of city networks internationally

It is clear that a growing number of international networks generate forms of exchange between cities. Michele Acuto and Steve Rayner (2016) identified a database of 170 city networks in 2015 to represent the range of formal organisations of cities in national and international affairs. These networks cover a wide range of alliances, consortia and coalitions, constituting the basis for formal and informal modes of exchange, learning and conversation. They range from the C40 network of the world's megacities committed to addressing climate change or grassroots networks such as Slum Dwellers International (SDI) to more formal structures, such as the United Cities and Local Government, more curatorial institutions working under the aegis of the United Nations (UN) such as UN-Habitat and its regular World Urban Forum or semi-formal groupings like the U20, set up to provide an urban voice to shadow the meetings of the G20 (Acuto and Rayner, 2016).

Some argue that cities are closer to realities on the ground than nation states: cities are forced to reconcile pragmatically the multiple demands and interests that structure governance of the here and now as much as high principles of the organisation of economy and demography. This argument generates a genre of writing that valorises the transformative power of cities individually to shape their own futures, even when faced with nation states either in denial about scientific truths or uncertain how to act in the face of issues that may be contentious in public opinion. In the US, city recognition of the demands of climate change were more realistic and more urgent than those found in the corridors of Donald Trump's Washington. The same is true for cities that form the Amazon Region, across nine different Latin American countries, whose climate policies may have more similarities with one another than their own nation states. The reality of irregular or 'illegal' migrants on the streets of urban Europe prompt actions that are obliged to consider public health in the light of people rendered invisible at the scale of the nation state but present in the hospital wards of the city.

The study of the proliferation of such city links across boundaries and the contact zones created in their wake has begun to be codified and researched. But there is perhaps limited demonstrable evidence of the extent to which they represent 'flat' networks of finite points of contact showcasing 'best practice' and mayoral missions or more embedded multidimensional forms of exchange between the complicated landscapes of urban governance internationally (Acuto and Rayner, 2016). It is also less clear how effective these networks are in providing meaningful flows of practice horizontally or leverage vertically within structures of global governance that are not themselves in the rudest of health. But they do represent arenas in which it becomes progressively less persuasive to speak entirely in the language of national or international exceptionalisms of urban transformation.

If one argument of this volume is that the 'local' matters in histories of the present and how forms of scientific expertise 'land', then it is also the case that city networks are arenas that provide contact zones between the designers, rulers, campaigners, civil society and private interests alike in a fashion that crosses borders. But such contacts and exchanges imply forms of communication that are themselves dependent on what political theorists would normally describe as the public sphere or spheres. Publics as well as public spheres do not exist in a social vacuum and their constitution needs to be situated similarly in terms of their geography and history. So any consideration of the efficacy of such city networks in Africa might need to make sense not just of the traffic of communication they facilitate but also the ways in which such communication surfaces in the arenas where community voices, political power and private interests meet across the continent.

Wale Adebanwi (2017) has argued recently that such publics in an African setting might be understood by revisiting the work of 1970s sociologist Peter Ekeh and placing his writing in dialogue with Foucauldian understanding of regimes of governmentality. Of significance here, Adebanwi argues that the conventional reading of the bourgeois public sphere needs to be rearticulated through a history of Africa's 'two publics', the civic and 'primordial' domains formed through colonialism that remain a facet of political life in the present. The case is strong and in some ways echoes the argument Mahmood Mamdani made two decades ago, also discussed in the introduction. But most straightforwardly the diverse existence of the forums of urban public debate, pedagogy and professional practice

nationally as much as in Africa itself might be deemed worthy of further research consideration in framing continental city futures.

The contact zones of the Anthropocene

To the extent that the configurations of the African city are particular and unique, some of the drivers of urban form and city futures also share influences that operate at a planetary scale. Most obviously a burgeoning field of interest across social and natural science has focused on how the long history of humanity is worthy of recognition in geological time in its duration and analytical scrutiny in consideration of the many, sometimes catastrophic, impacts humanity has delivered to the globe (Lewis and Maslin, 2015). In this definition of the 'Anthropocene', the move of humanity to cities has been a clear marker, structuring its dynamics of environmental degradation and depletion.

In a productive sense this may foreground the ethical dimensions of the global contact zone of the Anthropocene for the African city, where 'ethical discourse … must account for the indebtedness and responsibility of human life to the "inhuman" and also "non-vital" forces of the earth' (Skrimshire, 2019: 64). After all, the city belongs to those who have yet to be born and those who are yet to arrive, not least in Africa itself. But thinking ethically, juxtaposing human and geological times of the Anthropocene generates its own problems, not least the surfacing of the rational foundations of diverse traditions of philosophical thought (De Landa, 1997). Stefan Skrimshire has argued that the rooting of such discussions cannot ignore the historical genealogies and influence of European thought in particular, arguing for the continued relevance of post-secular processes that acknowledge that many of the ethical debates about city futures owe more to the longue durée of Christian legacies and other faith-based traditions (Gray, 2002). It also defines a territory where different forms of scientific knowledge engage with multiple forms of moral philosophy.

As a professor in the philosophy of science, Isabelle Stengers' work over recent decades working across both natural sciences and philosophy has pioneered a critical analysis of the ways in which such scientific knowledges can be simultaneously both analytically powerful and instrumentally appropriated. Among other areas, her writing has examined how scientific findings are established and verified and in particular how technical facts translate into political problems rather than as straightforward trade-offs between technical solutions (Stengers, 2003). Building on this corpus of

work considering the ways in which science comes into the world, Stengers also has a cautionary take on what she critiques as the 'intrusion of Gaia' (Stengers, 2015: 41). Her work *In catastrophic times* outlines how the 'cold panic' induced by looming ecological crises such as climate change is actively produced by the so-called 'guardians' of the status quo. Crisis is for her too often translated into new regimes of governance that privilege some interests over others while claiming legitimacy in the name of all.

For Stengers the ethical dilemmas of the indifference of Gaia to humanity's fate can only be addressed by living with the ecological damage done by humanity and to engage with it on a temporality that is plausible. Her powerful analyses at the interface of natural science and philosophy work across the borders of both. She considers how the early history of the twenty-first century demonstrates the manner in which the appropriation of the catastrophic serves particular interests. It amplifies securitisation and division in New Orleans and across the US in the aftermath of Hurricane Katrina. Science in the face of catastrophe can be manipulated by urban actors, logically today perhaps in the wake of the COVID-19 global pandemic. It has the propensity to camouflage specific interests in the guise of public goods.

In a sense the issue is again dispositional. Carelessly considered, the stinging analysis of how the ecological crises are manipulated by particular interests at particular times is one of many hallmarks of Stengers' work. But more recently, historical examples of how ecological crisis can be manipulated by 'guardians' of specific interests leads to the assertion by Stengers (2015: 74) that 'the state must not be trusted'. One problem with such an assertion is that such a disposition opens the way for an equivalence (not made by Stengers herself) between culpability and interest. There might just be enough guilt to go round. So while her work is extremely powerful, we may yet need research that interrogates the distribution of interests but does not sacrifice the imperatives to organise around how states generate institutional capacity and scientific expertise internationally, nationally and at the city scale to intervene in the social and economic domains as well as the regimes of ecosystems. In a post-COVID-19 world the appeals to strip the state or the city of their capacity to intervene in social, economic and ecosystem domains in situations of pressing need may appear less appealing than in recent decades, even if we might remain cautious about who controls the levers of their powers.

For example, waste 'brings into sharp resolution the interplay between geological processes stretching through deep time, and humanity's short-run

but significant activity' (Hird, 2017). Waste connects here and there, past and present. Shipped between places, produced in one place to service the demands of another, it creates its own contact zones. Hird suggests that its 'placelessness' exemplifies Stengers' critique of the limits of logics of (localised, placed) citizenship. But if we do not trust the state naively we would be foolish to understate its propensity to act, to regulate and to intervene. It is this context that the chapter by Henrik Ernstson and colleagues in this volume needs to be considered alongside their critique of the vein of thinking and writing through the lens of the Anthropocene, or what they elsewhere describe as the 'Anthropo-obScene' (Swyngedouw and Ernstson, 2018). They catalogue what they describe as a series of views through this lens that they call 'Anthropo-obScenes' ranging from geo-engineering and earth system science to more-than-human and object-oriented ontologies that 'place' things and beings, human and non-human, suggesting that such framing is unhelpful. For Erik Swyngedouw and Henrik Ernstson, such thinking is hermetic, it has no outside that allows engagement from alternative points of view. Hence their argument in this volume that waste in contemporary Africa needs to be understood socially, economically, ecologically and politically at the same time. They start from an alternative lens while not undermining Stengers' consideration of the relationship between interests and scientific knowledges, a recurrent theme that describes one of the key contact zones we are trying to analyse in this collection and that may be generative of pragmatic, locally engaged urban research that is aware of its planetary setting. It also begins to foreground a sense less of 'not trusting the state' in urban contexts than surfacing the terms of engagement between government and people, the transactional flows between 'states' and 'publics' in shaping city futures in Africa and elsewhere.

The contact zones of the climate crisis

But perhaps the most pressing contact zone of the Anthropocene for African urban futures is the domain of global climate change, realised globally but with profoundly spatialised differences of outcome. This is already witnessed in evidenced and imminent sea-level change, global warming and associated processes driving agricultural systems, population mobilities and the propensity to flood massive demographic concentrations in many African cities but also in locations as diverse as the eastern seaboard of China and large areas of Bangladesh. For the UN the continent of Africa is particularly vulnerable to such climate change in key domains

of water supply, coastal ecosystems, food security and public health (ACPC, 2013).

Cities globally may often witness the most severe forms of 'lock-in' challenges as optimal long-term locations for urban settlements on floodplains and coasts become rapidly susceptible to extreme weather events. More positively, Harriet Bulkeley et al. (2014) have argued that the diversity of city forms allows room for a more positive sense of the possibilities of developing new interventions in the urban fabric to address issues of climate change adaptations. Cities in the global north have become locked in to environmentally wasteful norms and practice. In principle this opens up scope for more ecologically sustainable urban transformations. At a mundane level there is no need to mix brown and white water and supply potable water through domestic toilets as in most of Europe. There is no need – as in much of the Americas and the developed north – for buildings to depend on such high demands for air conditioning and cooling systems that ignore nature-based and architectural alternatives that might be cheaper and more ecologically friendly.

But principle and practice can be at a distance from one another, in turn highlighting the multi-scalar lenses necessary for the urban responses to such profound environmental reshaping of the planet, the capacity of nations and cities to adapt to rapid change. This is sometimes highlighted through discourses of adaptation and of resilience, as Mark Pelling and colleagues explore in this volume. And as their chapter demonstrates, it is possible to learn resilience transnationally while acknowledging urban differences between and within nation states, at the same time being careful how resilience interventions can serve to amplify rather than mitigate divisions of economy and society.

Dipesh Chakrabarty (2008) has argued that global demographics are the 'elephant in the room' in the age of climate change, an elephant that undermines humanistic reason. National debate and single actions are limited in the face of rapidly evolving developmental trends internationally. For Chakrabarty this demands a sensibility that recognises transnational senses of obligation and a metric of intergenerational ethics. It surfaces the moral debts that exist across borders of time and space at a time when the approximately 3 billion combined populations of China and India, let alone the additional forecast demographics of Africa, require much in the way of carbon-fuelled emissions and development to catch up with the economies most responsible for global warming over centuries. Whichever way the calculation plays out, African cities may be the source

of innovative adaptation and localised solutions but their power will always be dependent on alliances that stretch beyond metropolitan and national boundaries.

Chakrabarty has questioned the implicit logic of an increasingly global debate on climate change. He suggests that the International Panel on Climate Change (IPCC) focus on greenhouse gases and the technological wit to retrofit global systems for a carbon-zero future privileges knowledge centres in the global north. Their positionality is contrasted with an alternative disposition that suggests that climate change should be seen as 'part of a complex family of interconnected problems, all adding up to the larger issue of a growing human footprint on the planet that has, over the last couple of centuries and especially since the end of the Second World War, seen a definite ecological overshoot on the part of humanity' (Chakrabarty, 2017: 29).

> In part, the latter perspective leads in a direction similar to Stengers because it also became clear who set the terms of the discourse. It was the scientists of nations that played a historical role in precipitating the problem of global warming through their emission of polluting greenhouse gases – for example, the United States, the United Kingdom, Australia and other developed countries – who played two critical roles: as scientists, they discovered and defined the phenomenon of anthropogenic climate change, and as public intellectuals they took care to disseminate their knowledge so that the matter could be debated in public life in an informed manner. (Chakrabarty, 2017: 35)

But when highlighting the geographies and forms of expertise that are made visible in the domain of climate change, and the work of the IPCC in particular, Chakrabarty may be at least in part missing the point. In this vein Nicholas Beuret (2017) cites the argument from a prominent NGO worker present at a recent IPCC round of talks that were heading for impasse. They asserted:

> the best deal would be no deal as any deal would just make the problem worse … any international agreement between governments would in all likelihood make the problem worse by enshrining the particular economic processes that produce climate change, making them legitimate and giving them the veneer of being solutions to a problem rather than its cause. An international agreement would make things 'more fucked', rather than less. (Beuret, 2017: 259)

And while Chakrabarty's scepticism about the geographies of scientific expertise may or may not be well justified, there is always a danger that

the flaws of the geopolitical present might prompt an unintended politics of the global future of similar nihilism. In contrast perhaps, several of the chapters in this volume attempt to think through what local interventions might be possible; how African cities might make their own sustainable futures, if not in global conditions of their own making. In thinking about risk, resilience, energy poverty, dwelling and waste, various chapters ask what sorts of interventions might be most likely to realise more sustainable urban transitions.

When prioritising the sorts of intervention most effectively championed by philanthropic organisations and funding, the Rockefeller Foundation has powerfully analysed the importance of energy poverty as a major barrier that might be susceptible to fundable interventions that can generate a step change in economic fortunes. It has identified sustainable energy transitions as a focus to define the most effective interventions in some parts of the world (Rockefeller Foundation, 2019). And certainly while energy poverty is critical to systemic 'underdevelopment', it is also the case that landing Western systems out of context can produce catastrophic failures. Notoriously, the US Agency for International Development (USAID), hardly the most radical voice, condemned attempts to fund a standard power plant and grid system in Haiti in the wake of the 2010 earthquake which wasted US$30 million or more through failing to understand a context of weak state structures and poor private-sector capacity, resulting in 'misjudged demand, stalled reforms and deficient oversight' (USAID, 2018).

Set against such high-profile failures, the Rockefeller Foundation advocates for local community-based solutions and ownership of small-scale micro-grids, recognising the challenges and disasters of trying to create twentieth-century utility infrastructures in sites where both private and public providers are institutionally weak, financially challenged and vulnerable to capture of public goods by private interests. Its investment in India in particular is scaling up, but some challenge how the new interventions will hit the ground in informal settlements where 'generator wallahs' provide power to invisible majorities in some urban spaces and a subsistence living for themselves in contexts where informal realities may outweigh the logics of formal and ostensibly rational city protocols and public goods.[1]

Similarly, in South Africa, where municipal revenues are in part tied to energy provision, the local context may provide paradoxical problems while still recognising the imperative for sustainable energy transitions. Informal settlements may not be able to manage the solar panels that

could potentially provide immediate power, while municipalities are incentivised to power cities on grid rather than off grid through a distributed network by the architectures of city governance that tie their ability to intervene in just urban transitions to revenues on the ground.

In this spirit, as the chapter by Federico Caprotti and colleagues explores in this volume, the influence of global institutions in rethinking the carbon consequences and practical development of energy systems can be seen on the ground but also invokes the local configurations of human needs. Infrastructural systems are socio-technical systems. An appropriate understanding of both the social construction of need and the technological construction of digital platforms and how new technologies land in place will caution against a straightforward celebration of an African platform urbanism (Caprotti, 2018). Again the domains of climate change knowledges, practices and politics stretch beyond the inside of the South African city but simultaneously valorise the contributions of this volume to a wider debate.

The contact zones of economy and finance

As various chapters in the volume describe and imply, the development of cities across Africa is structured by both local and international capital (Goodfellow, 2018). Modes of investment create forms of contact between global norms, local interests and fiscal architectures that become financial infrastructures in their own right that interface with the built form of the city. Within urban studies there has been both a long-standing recognition of how the city is made 'in the image of capital' and a more recent strand of work on the manner in which built forms such as housing and major infrastructural interventions become a focus of contemporary city life through the increasing 'financialisation' of urban development. Financialisation is generally understood as the increasingly sophisticated ways in which major investments can be managed through the appropriate stewardship of debt financing, whether by the state or by markets, structuring investment as a return on a calculable risk. This can at times be too easily equated with the forms of economic governance reforms characterised most often in terms of the histories of neoliberalism (Davies, 2014). Some authors have made the point that this is too simplistic, that implicit in the financialisation of urban transformation are both new temporalities (Grafe and Hilbrandt, 2019) and new demographies (Loftus and March, 2017). As Aeron Davis and Catherine Walsh argue, it is analytically

important to distinguish financialisation from the neoliberal because the former involves sometimes overlapping but fundamentally different ways of 'knowing' the city, making sense of city futures. Financialisation for them requires specific epistemologies involving the creation of money in financial markets, the transactional focus of finance, the centrality of financial markets to economic management, the orthodoxy of shareholder value, and the intensely micro-economic approach to financial calculation (Davis and Walsh, 2017).

What this might mean in the contact zones of the African context is uncertain. As we described in the introduction, a significant World Bank report has argued that what holds back the 'African lions' of urban development is the insufficiently open markets (Lall et al., 2017). But markets have different architectures (Hall and Soskice, 2001), and how such markets might be regulated begins to define a contact zone between international investment and the African context. As the cautionary chapter by Joelsson demonstrates, it should be straightforward to use the financialisation of a long-awaited bridge in Dar es Salaam to generate a reasonable return on capital investment from China, support from the World Bank and technical engineering knowledge from Egypt. But the contact zones of finance and city generate new disruptions between economy, emergent state welfare and local articulations of risk management. In this sense, perhaps, emerging contact zones of international finance and African urbanism demand a close scrutiny of how economic expertise and new financial instruments, flows and infrastructures also land in place.

Implications for the everyday reader, for city hall, for scholarship

This message of the chapters of this volume, its introduction and conclusion share an appeal not to discount the knowledge of 'experts'. But it is also an assertion that such knowledges are invariably going to privilege some logical structures and causal chains over others. In the most basic rules of complex urban systems, the interdependencies of these forms of knowledges and practices sit at the interfaces of different city systems – in the way that electrification reconfigures markets, waste disposal reconfigures hydrology, behavioural norms and forms reconfigure the public health interventions of new systems of governance by surveillance.

These interfaces surface ethical dilemmas. They do not provide straightforward answers. Their architecture defines their structure as urban

'platforms'. If it is the role of critical scholarship to make visible the inequities of emergent forms of urban life, it is also the imperative of the social sciences to make clear what is social about the adoption of different diagnostic forms of expertise and the trade-offs that are at stake when comparing different city logics. At times urban studies has been stronger on the former than the latter. So as the African studies specialist Elísio Macamo advocates in understanding specifically *urban* studies in Africa:

> We don't study the urban for the sake of the urban. We study it in order to know how to study it. … Scholarship is not defined solely by the conclusions we can draw about our study objects. It is also, and perhaps more fundamentally, defined by the ability to reflect on the best way to organize our ways of knowing. (Macamo, 2018: 8)

As we submitted this volume to a UK publisher, politicians at the heart of the COVID-19 global pandemic repeated *ad nauseam* every night on mass media that their actions 'followed' the science. They were obliged to reconsider the critique of 'experts' that was central to the global rise of populist leaders such as Bolsonaro, Modi, Putin, Johnson and Trump in the 2010s. In part this might be seen as a responsible alternative to the nostrum that 'you can have your own opinions but not your own facts', so strongly critiqued in the piece by Nobel economist Paul Krugman which we quoted in the introduction. But it also worked transparently as rhetoric, an early attempt to shift the blame for uneven numbers of the dying between cities and between nations away from the domain of the political, a strategy of what some might describe as the 'post-political'. If it was the scientists who got it wrong in anticipating the scale of the pandemic, then perhaps logically it was scientific reason rather than weak political will or entrenched social divisions that was at fault for the variations in mortality. But perhaps inevitably it also inadvertently politicised the science as divisions arose between different scientific disciplines measuring epidemiology against virology against World Health Organization policy. In this volume, in the wake of such 'post-truth politics' across the globe, we have gently suggested not simply that the science should be 'politicised' for African cities in the face of the exponential urban growth across the continent. Instead we argue for an understanding of how science lands in place in the shaping of infrastructural urban futures; how the platforms of urban life are lubricated by the logistics of knowledge flows and governance practices. The difference is more a matter of disposition. Because, as Mbembe suggests in an African context, 'the history of modernity is

not so much about the progress of reason as it is about the history of reason's unreason' (Goldberg, 2018: 208).

Note

1 This insight was generated in an ethnographic project by Bhawani Busawala as part of the PEAK Urban programme (www.peak-urban.org). See also Oda and Tsujita (2015: 11).

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