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Urbanisation in Accra and cities of sand

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The global sand market is fundamental to the infrastructure needs of many of the world's most vulnerable urban inhabitants, both causing environmental devastation and providing livelihoods for people living in challenging economies. To address this tension, writes LSE researcher Kate Dawson, we must attune ourselves to the grounded realities of particular cities with unmet housing needs.

The invisible foundation

Sand is at the 'core of our daily lives' – says journalist Vince Beiser in his recent **expose of sand** and civilisation. Constituting roads, buildings,

fracking technologies, computer chips, glass and even new land itself, sand is, according to the **UNEP**, 'the unrecognised foundational material of our economies'.

This ubiquity has generated global demand, with sand and gravel constituting the largest volume of solid material extracted worldwide, reshaping the socio-natural geography of our shared earth. Current estimates suggest we are consuming almost twice as much sand and gravel as we were a decade ago, a demand largely attributed to the growth of cities. Indeed, in the '**new urban worlds**' of the South-East, sand and gravel constitute the bulk of an expanding concrete fabric, a consumption pattern set to rise as the world's cities continue to grow.

The environmental impacts of extracting sand are reflected in growing concerns in popular media and policy circles. For instance, the 2013 documentary '**Sand Wars**' exposed the violent political economy and environmental devastation of the 'new gold rush,' while news items draw attention to the local specificity of sand extraction dynamics. **Reports** of sand 'mafias' and **ecological destruction** in India continue to surface, where after China the country ranks second in the world as the largest sand consumer. Like a significant majority of unearthed sand, India's sand is destined for its cities, where it will be mixed with cement to form the concrete structures of the nation's expanding urban fabric.

A recent short documentary by a Cambodian filmmaker, '**Lost World**', exposed Singapore's reliance on South East Asian countries for sand imports, ordained to become new land at the edges of the city – a city with a landmass that has grown by 20% in the last 40 years. Despite bans on exports from Indonesia and other nations, sand continues to reach the shores of Singapore, through both legal and illegal channels and, in doing so, poses a threat to the socio-ecological fabric of significant parts of Southeast Asia.

While a growing number of reports capture the widespread extraction and consumption of sand – and indeed the socio-ecological consequences of these practices – very few analyses provide deep ethnographic engagements with these processes. I argue that grappling with this global issue will require deeper knowledge of the place-based relationships between sand and urbanisation. Below I outline some of these findings and present a set of questions that bespeak sand's fraught position in the urbanisation process.

'Sand is life'

My doctoral research explored the socio-natural politics of the extraction and consumption of sand in Accra, Ghana – a growing city on a **rapidly urbanising continent**. Over the course of a year, I followed a sand extraction company as it moved from sandpit to sandpit at the edges of the city. The research concentrated on the extraction and consumption of 'pit' sand, which was unearthed from farmland at the city's edges. The quality of this sand is considered better than marine sand, which corrodes steel rebar and essentially compromises the integrity of buildings, but less robust than riverine sand, which is dredged from riverbeds and used for high-end buildings in the capital.

According to unpublished research at the Minerals Commission – the regulatory body for the management of Ghana's mineral resources – present estimates suggest that approximately 700-1000 trucks of sand are extracted per day, Monday to Saturday, in the Greater Accra region. This amounts to the equivalent of nearly 6 million cubic metres per year, enough sand to fill Dubai's Burj Khalifa almost six times. Sand, I was told, is used for the construction of roads, houses, commercial units and foundations, constituting the city's material skeleton. And sand *winning* – the name given to the process of extracting sand from land – was

presented as an unstoppable force. In an interview with an official at the Minerals Commission, it was explained to me, 'you can't stop sand winning. One out of every ten people needs sand every day. They're thinking of how to build.'

So integral is sand to the city and nation that a researcher at the Mineral Commission announced current efforts to calculate the percentage of sand as part Ghana's national GDP, adding that 'sand is life; it's next to water.'

Yet this extraction presented significant challenges. Indeed, **environmental studies** of sand winning in **Ghana** more broadly have pointed to its **damaging effects to land and people** as sand is extracted from rivers in the northern regions and from the beaches of the **nation's coastline**. This alarm was magnified during reportage of illegal sand mining – or the process of extracting sand without a license from the central government.

Despite my research indicating the often ambiguous lines between 'illegal' and 'legal' sand mining, in **media reportage** illegal sand mining gained considerable traction as a 'menace' to be eradicated. Often compared with gold *galamsey* or termed sand *galamsey* itself, the media expressed concern at the nationwide **degradation of farmland**, loss of crops without compensation, **pollution of water bodies** and the violent means through which some **illegal sand winners** acquire land for extraction. Indeed, in a 2017 **plea to parliament**, Mr Frank Annoh-Dompreh appealed:

'[a]lmost every corner of this country has some negative story to tell about sand winning in recent times. Forests have been pulled down, coastal soils massively scooped and savannah areas degraded through sand winning ... Crops are often vandalised to allow for easy collection of sand. Farmers go through many harrowing situations.'

This alarm fits with the growing global discourse surrounding the extraction of sand. While this is certainly an important issue to bring to visibility, our understanding of this complex phenomenon demands we ask difficult kinds of questions and ground our findings in particular places.

Questions for the present

In Accra, pit sand is a material desired for the construction of concrete homes in a city with unmet housing needs. These are often self-built homes, constructed over a protracted period when income permits. In **recent research**, Choplin argues that these desires for a concrete home span the West African urban coastal corridor, where both the emerging middle class and millions of poorer people 'dream of a house with four concrete walls and a sheet metal roof'. In this way, Choplin positions the cement block as 'the new gold bullion for the poor'. How can we reconcile the need for housing in rapidly expanding cities with the needs of the environment?

This is a question further complicated by the questionable quality of building blocks that constitute this concrete urbanism. Indeed, throughout my research it was suggested that while factories were growing in number, they were more likely to be producing low quality blocks, made of mostly sand and bound together with limited cement inputs. These factories would be selling blocks at a lower price, often closer to the very edges of the peri-urban and were seen to be responding to a desire for quick, cheap and plentiful blocks. This may also be more likely following increases in the price of cement, where, seeking to maintain profit levels, block factories may opt for even lower cement to sand ratios, while individuals with limited funds may too seek to reduce cement input. In 2019, **cement prices** increased twice in just two months – the outcome of

an increase in the cost of raw materials, following the depreciation of the cedi.

The anxieties related to the quality of blocks in Accra speak to a growing set of fears regarding concrete cities the world over. In **Beiser's analysis**, 'perhaps the most frightening aspect of our dependence on concrete is that the structures we build with it won't last'. Indeed, far from a more permanent building material, concrete 'fails and fractures in dozens of ways ... we have built a disposable world using a short-lived material ... We have built our world out of sand in the form of concrete – and it is starting to crumble'.

In cities like Accra, where incomes are low, self-building is the norm and regulations are difficult to implement, what kinds of cities are taking form? Who will pay for ongoing maintenance of these structures, given home builders often leverage a substantial part of their incomes on building in the first instance? What kinds of risks will be posed and to whom by present and future climate events, such as flooding?

The extraction and consumption of sand also sustained livelihoods in an economy where many struggle to find work. Whether legal or illegal, extracting sand provided much needed cash for not just those selling sand, but also those selling food and other goods at the extraction zones, as well as the extensive economies in the transportation of sand around the city. The need for immediate income often outweighed the potential costs to the environment and the loss of another's farmland. How can we manage both the illegal and regulated aspects of the sand economy in countries where incomes are volatile and often hard to come by?

Granular details

The extraction of sand is undergirded by desires for concrete development. But these do not always take shape in spectacular forms at the edges of ambitiously expanding cities, like Singapore. Indeed, much of this demand is driven by the infrastructure needs of some of the world's most vulnerable urban inhabitants. Equally, the shifting of sands is not always international, but is rather contained to the boundaries of particular cities, where it offers incomes and livelihoods for urban dwellers eking out a living in challenging economies. In this way, in order to grapple with the sand crisis, we need to think about asking different questions and grounding these in the realities of diverse cities. Any chance of success will require intimate engagements with this global material.

Photo: beating gravel. Credit: William Haun (CC BY-NC 2.0).

About the author



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