

COMMENT OPEN



COVID-19 recovery and the global urban poor

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COVID-19 has magnified the deficiencies of how we manage our cities while giving us a unique chance to re-envision these, particularly in the global South. We argue that pandemic-resilient cities require rental-housing stocks and highly accessible urban environments, financed by land value capture.

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The pneumonic flu that surfaced in Wuhan city's wet market in 2019 (ref. ¹) is now a global calamity spreading from China (first 50,000 cases reported on: February 13), to Europe (15 March) and then USA (March 25). The pandemic's hotspot has since shifted to the global South, notably in Brazil (April 25), India, Mexico and Pakistan (May 7, 19 and 22), and South Africa and Colombia (June 9 and 15), exposing and challenging the shortcomings of their civic infrastructure and coping capacities. The COVID-19 impacts are especially detrimental in urban centres in large cities that house some of the densest communities on the planet. Mounting evidence indicates that higher rates of household crowding, poverty and economic segregation abets respiratory transmission rates in cities². But while the outbreak and the immediate policy response has been well documented in hotspots like Wuhan, Milan, New York and London, the social and governance challenges in the global South that hosts world's largest and most rapidly growing cities, differ vastly and have received relatively little attention. For instance, strict containment measures in South Africa are credited with helping develop herd immunity to inadvertently spread COVID-19 in dense urban areas³.

Under prevailing living conditions, the poor are challenged in adhering to the restrictive measures of social isolation or the lockdown⁴, and the ones most impacted. The pandemic is expected to cause huge socio-economic impacts and push 420–580 million people into poverty⁵. The UNDP estimates that COVID-19 crises disproportionately threaten to hit developing countries with income losses expected to exceed \$220 billion⁶. Improving the liveability and health prospects of urban dwellers living in poverty should hence become a priority of national governments and international cooperation. In the 19th century pandemics like plague and cholera outbreaks in populous cities like London, Paris and New York generated progressive policies largely driven by strict public health acts, town planning laws and extensive reconstruction of the city's infrastructure and built environment⁷, would the COVID-19 recovery follow the same for 21st century cities in the global South? COVID-19 has magnified the deficiencies of how we manage our cities, but has also given us a unique chance to rethink, replan and redesign⁸. We argue that a more effective approach can be that the global South cities consider lessons (both positive and negative) from previous post-pandemic recovery events and devise more innovative, resilient and transformative solutions. These transformative solutions would draw on the key principles advocated by Goal 11 of the Sustainable Development Goals and build on the practices/strategies presented in the paper (Fig. 1), while

accommodating local visions, innovations and equity considerations of urbanization.

RE-ENVISIONING THE POST-COVID CITY FOCUSING ON LIVING CONDITIONS

Cramped neighbourhoods exist irrespective of national circumstances—in high-income cities like London (Newham and Mitcham), New York (Brownville, East New York, Windsor Terrace, Sunset Park) and in the middle- and low-income societies like Rio de Janeiro's favelas (Rocinha, Chapeu Mangueira), Dharavi slum in Mumbai, Khayelitsha in Cape Town, Neza in Mexico and Orangi Town in Karachi; although being more prevalent in the developing societies. With an estimated 30% of the urban population in low- and middle-income countries and 65% in low-income countries living in slums⁹, cities in the global South are least prepared to prevent, endure and recover from a pandemic. For instance, a typical 10 × 10 feet non-ventilated room in Dharavi is shared by 10–12 residents who work and sleep in shifts, akin to the factory workers of the industrialization era. A myriad of public health factors like lack of clean drinking water, sanitation facilities, food insecurity and lack of immunisation expose residents in urban slums to significant risk¹⁰, in addition to the risk of COVID-19 transmission. At the same time, Indian society is increasingly being affected by leading chronic diseases with cardiovascular diseases, diabetes mellitus, obstructive pulmonary disease and cancer accounting for 40% of all hospital stays¹¹. The lack of sufficient open public places, parks and unhealthy living environment makes slum population highly vulnerable to both communicable and non-communicable diseases, with conditions further exacerbated during the lockdown.

The COVID-19 induced job losses, enduring lockdowns in slums and forced eviction of migrant workers by private home owners followed by their mass exodus to the villages has crippled economies. The major challenges and issues that sustain slums and informal settlements in the global South are multifarious and complex. These include non-clarity of land titles and legal disputes, land-mafia and political patronage, high land values, construction costs and conservative building bye-laws discouraging the economic viability for redevelopment¹². The lack of sufficient financial resources, administrative capacities and political will of municipalities further aggravates the situation. The conventional housing for low-income groups in developing

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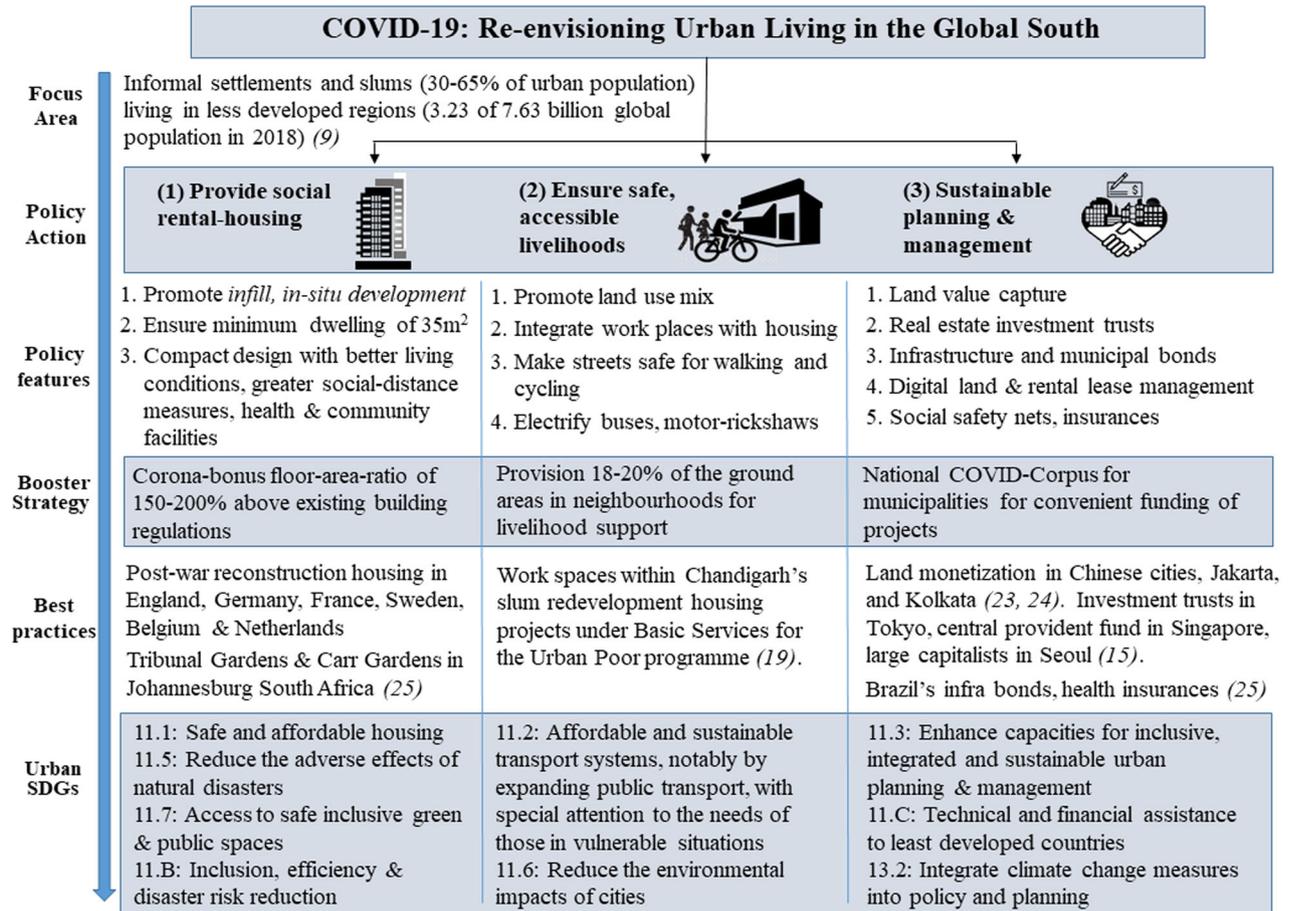


Fig. 1 A schema of game-changing opportunities that can re-envision post-COVID-19 can focus on 30-65% of the 3.23 billion urban population living in the global South. The reenvisioning includes a series of policy actions aimed at: (1) provision of social housing, (2) ensuring safe and accessible livelihoods and (3) sustainable planning and management of cities.

countries typically focus only on fixed tenure (through hire purchase of saleable units) as the key element in housing improvement, side-lining the opportunity of enhancing living conditions by infrastructure improvement. There is an urgent need to invest in the infrastructure required to make low-income housing safer, especially dwellings in informal settlements¹³. As COVID-19 recovery, the governments in several developing nations are increasingly announcing financial stimuli, including development of social housing for the urban poor. For example, in response to COVID-19, the Government of India's newly launched sub-scheme under the Pradhan Mantri Awas Yojana (PMAY-Urban) programme introduces Affordable Rental-Housing Complexes (ARHC) in urban areas, one of the largest such schemes for urban migrants/poor in the world. It promotes redevelopment, additional floor-area ratio (FAR), participation of concessionaires in implementation and financial incentives (see Supplementary Information). While its focus on the housing conditions of the urban poor is bringing in crucial resources, the envisaged ARHC lack specification required to substantially improve the situation. Nonetheless, such responses prove how COVID-19 not only makes urban informality and inequality issues most visible, but also serves as a crystallization point for systematic policy action towards sustainable societies^{13,14}. We inquire what specific programmes would further help government to provide safe and good housing for the billions of urban poor and migrants, and reason how economic recovery can translate into improved built environments and equitable living conditions, through three distinct but cohesive actions (Fig. 1).

PROVIDE SOCIAL RENTAL HOUSING

Post-war reconstruction and economic development in Europe, Japan, Singapore and South Korea has seen social-rented housing stock materialize largely through public sector investments and asset creation¹⁵. The provision of social rental housing on vacant lands and in situ dilapidated slums has the potential to significantly alter post-COVID-19 living conditions of risk-prone urban poor in proliferating cities, while simultaneously meeting long-term global sustainability targets in health, education, water, sanitation, hygiene, modern energy and resilience against climate-related disasters, as our research suggests (Fig. 1). It offers a win-win situation for local governments in creating lasting public assets, healthy living spaces and construction jobs so that the migrant labour sees a secure, safe and resilient future in event of next crises.

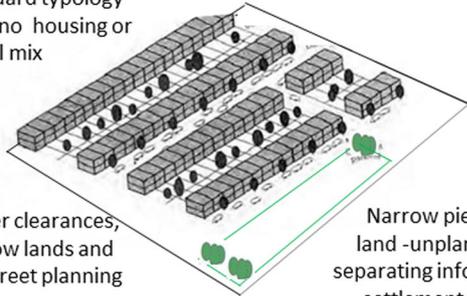
A key strategy is 'infill development' unlocking major land banks, particularly in the urban core, to maximize infrastructure utilization, transport accessibility and social mix within communities. Land development and construction requires fostering of strategic coalitions with other actors be it state agencies as Central Provident Fund in case of Singapore or large private investors in case of Seoul¹⁵. Second, for asset creation and operations, the government should create a special purpose agency to plan, implement projects and pool funds from public finance institutions and private parties, including commercial banks, insurance companies, corporations, etc.

Designing and providing high-density, multi-storey and durable housing in close proximity to job centres is another

TYPICAL STATE HOUSING FOR THE POOR

Low-height, row-pattern, lack of adequate social facilities and parks to make it affordable

Standard typology with no housing or social mix



Lesser clearances, narrow lands and on-street planning

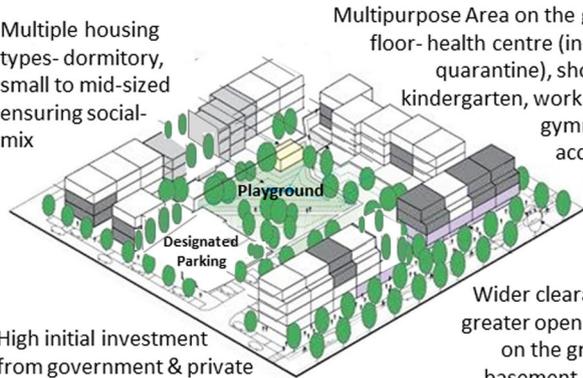
Narrow piece of land -unplanned, separating informal settlement from formal colonies

Less initial investment from government, payback from sale-purchase

POST-COVID SOCIAL RENTAL HOUSING

High density reinforced concrete structure to make it durable and resilient

Multiple housing types- dormitory, small to mid-sized ensuring social-mix



Multipurpose Area on the ground floor- health centre (including quarantine), shopping, kindergarten, workspaces, gymnasium accessible by foot

High initial investment from government & private participation, payback from long-term lease, monthly rents

Wider clearances, greater open space on the ground, basement or stilt parking

	Typical State Housing for the Poor	Post-Covid Social Rental Housing (including distancing measures, work-places, social facilities)
Population: (persons/ Hectare)	4000	4500
Density: (Dwelling Units/ Hectare)	800	900
Floor Area Ratio (FAR): (per cent of site area)	150%	400%
Height:	Ground + 2/3 storey	Ground + 6/7 storey
Ground Coverage (built-up): (per cent of site area)	65-70% (nil to 4% multipurpose areas)	45% (including 20% multipurpose areas on ground)
Open areas: (per cent of site area)	30-35% (mostly as roads)	55% (including open- parks, playgrounds, parking: road area capped at 15%)
Reference slum densities: (persons/ Hectare): 1033 (Khayelitsha, Cape Town) – 3935 (Dharavi, Mumbai)		

Fig. 2 Space-modelling can provide high-density, multi-storey and durable housing in close proximity to job centres. Our visualization and estimation for a post-COVID-based social rental-housing model (right) versus the conventional state-housing models (left) for a population of 16,000 housed on a four hectare (ten acre) site demonstrates more safer and accessible neighbourhoods and an enhanced quality of life.

vital consideration. Our space-modelling estimates demonstrate that on a typical housing neighbourhood of four hectare (ten acres), it is possible to house ~16,000 people in quantitatively and qualitatively improved built-up areas and open spaces on the ground, while planning for the same population densities (Fig. 2, showing re-envisioned urban model against typical state housing). This entails (a) increase in minimum dwelling space for a family from 25 sqm to 35 sqm to mitigate crowding, and (b) an immediate booster in floor space as Corona-bonus FAR of 1.5–2.0 over and above FAR of 1.3–1.5 applicable to typical residential areas in developing countries. The building standards can adopt designs promoting natural ventilation¹⁶, allowances for adequate communal space and social distancing measures during communicable diseases, in addition to modern sanitation and electricity. The additional area can provide for socio-economic facilities, including primary schools, kindergartens, parks, public spaces and most importantly health centres (with epidemic preparedness, monitoring and early warning systems). This can be aligned with other state measures that help the poorest people to be living healthy. A good model for this is the Brazilian Unified Health System (SUS), which built-in immediate expansion of income redistribution in an effective way, among them the Bolsa Família. This scheme granted expansion and emergency payments for the unemployed or those previously performing their duties in informal jobs.

ENSURE SAFE AND ACCESSIBLE NEIGHBOURHOODS

As a second major action, cities should now reconsider how people think and go about their work. Under the ‘modern town planning’ rubric, most cities follow a strict land-use planning as a regulatory instrument to segregate commercial and industrial activities from residential places, forcing people to traverse long distances over motorized transport. Women are often subjected to the ‘double-burden’ of domestic work and external paid work in the global South and particularly face unequal access to mobility, so integrating work places with housing can help in addressing issues of mobility and livelihood maintenance for vulnerable groups, especially during extreme situations. Urbanists advocate for integrated neighbourhood design, where most destinations are reached by walking or cycling, and where other parts of town are connected via rail-based transit¹⁷. The COVID-19 containments give an opportunity for greater digital connectedness, less vehicular mobility and neighbourhood relocalization of distributive infrastructure¹⁸. While people travelling long distances for jobs cannot be completely eliminated, there is scope for generating more appropriate livelihoods within living quarters. The impact assessment of a slum redevelopment in Chandigarh as a part of the national government’s Basic Services for the Urban Poor Programme (2005–2012) demonstrated how providing designated spaces for sustainable livelihoods within the housing projects helped reduce poverty¹⁹.

The post-pandemic urban re-envisioning mandates amendments to prevailing land-use and building norms in developing cities—by provisioning 18–20% of the ground areas in the proposed neighbourhood model (Fig. 2) for self-enterprises and multipurpose commercial activities like local vending, shops, storages, workshops, meeting spaces and common areas. These workspaces can be made available through annual lease or on need basis to professionals, entrepreneurs, craftsmen and self-employed workers. It will provide the necessary economic resilience to the vulnerable populations like the urban poor, women and jobless youth, as well as a sustainable alternative against forced mobility, in both normal and emergency circumstances. An expansion of such mixed-use neighbourhood model in the entire city aligns with polycentric urban models that reduce mobility needs and are more sustainable, carbon friendly, equitable and resilient to external forces. Currently being posited as ‘15 min city’ models in the global North²⁰, promotion of active mobility over shorter distances would offer multiple health benefits, for instance by a 10% increase in bicycling lowers chronic conditions like diabetes and cardiovascular diseases for 0.3 million people, while also abating emissions²¹. Since air pollution induced respiratory and cardiovascular illness is a COVID-19 morbidity too, electrifying buses and motor-rickshaws aligns with existing policy and financial commitments aimed at economic efficiency, climate mitigation and cleaner environment in the post-pandemic developing world.

SUSTAINABLE URBAN PLANNING AND MANAGEMENT

As third action, municipal governments in the global South hence need to explore innovative and sustainable models of urban planning, finance and management of civic systems like housing, water supply, municipal waste, transport, hospitals, schools and commercial facilities. The Shack/Slum Dwellers International is a network of community-based organizations of the urban poor in 33 countries in Africa, Asia and Latin America. Its case studies essentially underline infill and in situ slum redevelopment adhering to the principles of ownership, mutual transparency and accountability, mutual learning with flexibility as articulated in the Busan document for South–South Cooperation in this area²². Evidence from Chinese cities²³, Jakarta, Chongqing and Kolkata²⁴, and Tokyo shows that with increasing land prices, only those cities that curb speculative tendencies and capitalize on multiple funding mechanisms through land value capture (monetization), real estate investment trusts and infrastructure bonds are able to create more social and spatial equity in the housing markets. Redeveloping strict land-use planning prototypes into a more multifunctional, diverse, lively, walkable and energy-efficient neighbourhoods urban models, would not just make burgeoning cities healthy, resilient and equitable, but also unlock their latent land values, which municipalities should capture for further infrastructure improvements. Governments can create a national COVID-Corpus for municipalities, converging multiple reserves to provide seed-funding to recovery and preparedness projects that were either unforeseen or unfeasible in the normal course. A case in point is to integrate the corpus with existing disaster-relief funds, environmental cess and low-carbon finance for projects improving urban sustainability and resilience. These funds usually managed by national governments (hence under greater scrutiny) can potentially lead to more equitable distribution of benefits across all sections of society and spatial locations within their jurisdictions.

The post-pandemic efforts can improve mechanisms for strengthening technical and institutional capabilities, employing superior technologies that embolden infrastructure services in dilapidated urban cores, accessible health and social facilities, regular monitoring and enforcement of space and building standards for ventilation, preventing crowding and insanitary conditions in homes. Municipalities should employ digital

technology for effective and transparent land and rental lease management. It can enlist and locate vacant houses, register applicants, automatically grant lease, manage contracts and payments. To reduce housing redundancy, an additional property tax or income tax can be introduced for citizens keeping an unoccupied second house, a norm prevalent in many advanced economies. With greater financial sustainability, municipalities can bolster social safety nets and insurances for low-wage and informal workforce during crisis²⁵.

Through an integrated delivery of good quality social rental housing, safe and accessible livelihood opportunities (that limit city-wide mobility) and sustainable municipal finance, the COVID-19 recovery serves an opportunity to better prepare cities in managing people and civic services during other calamities; floods, fires, smog episodes, industrial disasters and power outages too. In addition, there are environmental, social and governance co-benefits in the form of enhanced safety, work–life balance, economic productivity, systems efficiency and reduced recurring municipal expenditures on public health, sanitation and mobility. The proactive response to COVID-19, like the post-pandemic 19th century urban redevelopments in the developed countries, will be a litmus test for cities in the global South proving that diseases have a defining role in resurrecting and sustaining them.

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AUTHOR CONTRIBUTIONS

The M.S. was involved in conceptualization, visualization and estimations for the re-envisioned urban model, reporting results, devising recommendations and writing the manuscript. The F.C. was involved in theoretical contextualization, structuring of arguments, policy advice and editing the manuscript.

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