

WHRCF 2022: SESSION 1 PAPER

“Cities driving the shift to rights-based and circular construction practices”

*Authors: Annabel Short,
Andreia Fidalgo, Dr. Ying-Chih
Deng-Sommer, Dr. Natalie Galea*

The dominant economic model in the built environment is fundamentally unsustainable (Santamouris, 2001, Hurlimann et al. 2020). This paper examines the characteristics of the current model, then highlights ways in which cities can be instrumental in a shift towards human rights-based and sustainable construction practices. It concludes by providing cities with a rights-based framework for action.

What gets built, where, and how, has a determining influence on the realisation of human and workers’ rights, as well as on cities’ ability to mitigate and strengthen resilience to climate change. However, the current predominant “take, make and waste” economic model in the built environment poses interconnected climate change and human rights risks throughout the building lifecycle: from the extraction of materials, to land-use planning and siting decisions, to building practices themselves, and to a current emphasis on demolition and rebuild over the reuse and adaptation of existing buildings.

The built environment already contributes 37% of global energy-related global carbon emissions, through a combination of “embodied carbon” in materials, and energy consumed while a building is in use. Compounding increases in material use to date – for example developing countries and the Asia Pacific region have seen the demand for construction materials increase by ten times between 1970 and 2010 (IPBES 2019) – the built environment will be responsible for a third of the projected doubling of global material use by 2060 (Global ABC 2022). The Club of Rome and others have highlighted that “it is glaringly obvious that changes to production and consumption structures within all countries are urgent and essential for the global climate transition”, while also calling for an allocation of climate responsibility according to contribution to the crisis (Earth4All 2022).

Risks to the climate and human rights through the built environment lifecycle

Starting with the materials supply chain, sand for cement is one of the key materials. As UNEP has highlighted, sand is the World’s most used solid material. And yet weak governance structures for its mining, transportation and use lead to a range of human rights and ecological issues – from corruption and violence, to health and safety risks, to the erosion of river ecosystems and harm to the local economies that depend on them (UNEP 2022). Another material, copper, will be increasingly in demand in the green transition in buildings as it is an essential component in the electrification of buildings. And yet of the top 300 underdeveloped copper ore bodies globally, 47% are located on, or in close proximity to indigenous people’s lands; 65% are in high water risk areas; and 50% are in politically fragile jurisdictions (Valenta et al. 2021). In addition, the working conditions in producing materials for building can be exploitative. For example, in Phnom Penh, Cambodia, rural-urban migrants (many displaced due to the impacts of climate change) work in conditions of forced and child labour to produce bricks for that cities’ new apartment buildings (Brickell et al. 2018).

The economics of real estate development have contributed in many cities to over-building, and to the paradoxical proliferation of vacant apartments at a time when many city residents are challenged to find an affordable place

to live (The Shift 2022). Cities and countries that need to generate much-needed revenue for climate adaptation measures also turn to real estate development as a measure to generate that revenue. This includes initiatives to reclaim land from the sea, in countries as varied as the Maldives, Germany and Nigeria, a strategy that can bring the risk of distributional and displacement effects whereby existing inequalities are deepened (Bisaro 2019). Changes in land-use, including appropriation for construction, are also a major driver of biodiversity loss and ecosystem change (IPBES, 2019).

Turning to building practices themselves, construction is characterised by a low-price mentality, fierce competition and thin margins (IHRB 2019; Abdul-Rahman et al. 2011). This can exacerbate the risks of the exploitation of construction workers on site (for example through inadequate or unpaid wages, excessive hours, unsafe working conditions and restrictions on freedom of association); cost-cutting in the materials used; and unsafe structures (Portes Virginio et al. 2022, Walsh et al. 2022, Manjunath et al. 2021, Onarheim et al. 2021). Examples of the latter are the Grenfell fire in London, and the Rana Plaza factory collapse in Bangladesh, prior to which workers had warned that dangerous cracks were appearing in the walls of the building, before it collapsed and killed over 1,100 garment workers (Nadj 2021).

At the final stage of the built environment lifecycle, there is currently an over-emphasis on the demolition of buildings and on new build, rather than the adaptation and re-use of existing buildings. The demolition process clearly has deleterious climate impacts in terms of wasted carbon intensive materials, particularly given that currently the majority of demolition waste goes to landfill. In Europe, for example, the construction sector is responsible for 30% of the total waste generated (European Commission 2013). The demolition process can also undermine human rights. Homes are destroyed without due process or adequate compensation, or as important social infrastructure is lost. Eli Friedman has described the harmful impacts on the health, wellbeing and right to education for the children of migrant workers in China's cities as a result of the frequent demolition of their school buildings to make way for new real estate development (Friedman 2022).

Opportunities: Actions that cities can take

In the context of the above challenges, there are many actions that municipal governments can take to shift construction in a more sustainable and rights-respecting direction. To highlight these steps is not to over-emphasise the powers that cities have. Indeed, resource constraints, limitations to cities' regulatory powers and oversight, industry lobbying, and competing local-level priorities mean that municipal governments are just one part of the ecosystem that needs to transform the way that building happens. Yet through their own building stock and the visioning, planning, regulatory and procurement powers that they do have, there are multiple ways in which cities can guide construction practices in line with human rights and bold climate ambitions.

Policy and Regulation

As the impacts of climate change intensify and as processes to mitigate and adapt to climate change are underway within cities, local governments as a starting point have a duty to ensure that fundamental human rights are respected and that the related social protections are in place, including legislative and enforcement measures to secure the right to adequate housing, workers' rights, and non-discrimination (IHRB 2021). Growing human rights due diligence and modern slavery legislation in various national jurisdictions applies to the built environment industries just as to others. In addition, specific regulations can be harnessed to move construction practices in a more sustainable direction. New York City's local law 97, for example, requires most of the city's largest buildings (over 25,000 square feet) to meet new energy efficiency and greenhouse gas emissions limits by 2024, with stricter limits coming into effect in 2030 (NYC Sustainable Buildings n.d.). On the side of materials, cities are beginning to show leadership in diverting demolition and construction waste from landfill. The city of San Antonio, United States has passed a "deconstruction ordinance" which through three phases aims to cover up to 40% of the city's demolition permits, requiring a process of deconstruction that preserves the building's component materials for re-use.

Planning

Cities and other local governments have an important role to play “advocating up” to national governments, and for example can call for national governments’ “Nationally Determined Contributions” on climate change (which set out a country’s planned steps to meet agreed climate targets), to include measures that relate to the buildings and construction sector. While in 2015, 90 countries included actions for addressing buildings-related emissions or improving energy efficiency in their NDCs, by 2020 136 countries did so, albeit with varying ambition. Eighty countries now have building energy codes, in addition to similar actions by local governments and cities themselves (Global ABC 2021).

Cities’ own territorial planning can also be harnessed in powerful ways to advance human rights – such as the right to participation, to housing, and to water and sanitation – to reduce spatial inequality, and to ensure that climate action in the built environment (both mitigation and adaptation/resilience efforts) is just. In Cartagena, Colombia, for example, the city is applying a human rights approach to guide the update of its 12-year territorial plan, and is hosting “right to the city” workshops in neighbourhoods throughout the city (IHRB 2022a). An ICLEI-convened network of industrial legacy cities, the Urban Transitions Alliance has shared lessons for ensuring social equity in the planning process for cities that are undergoing the transition away from heavy industry: with the first important step being the “acknowledgement of existing inequalities that define reality for marginalised groups, and of their historic causes”. The alliance proposes an approach grounded in the three principles of access, participation, and opportunity (ICLEI 2022b). While meaningful participation is a human right, realising opportunities for people to actively shape decision-making processes in the built environment – including those that relate to climate action – is complex and the necessary mechanisms vary according to context, as a series of 10 interviews by IHRB has found (IHRB 2022b).

Ownership: City building stock

Cities themselves are owners of large numbers of buildings, including government offices, schools, hospitals, social housing and cultural institutions. Through measures taken on their own building stock they can lead the way for wider industry change. In New Delhi, India, the municipal authority invested USD\$10 billion between 2015 and 2021 on improvements to the 1000 schools that it runs, contracting with private industry to do so. The schools had faced problems such as a lack of drinking water, pervasive smell of latrines, or snake infestations. The improvements have led to greater attendance rates, motivation and grades (Singh, DK 2022). Auckland, New Zealand has piloted deconstruction practices in several public building projects, and developed a methodology to minimise waste on construction projects for use by the wider construction industry (ICLEI 2022). In Melbourne, Australia, a campaign for a “New Normal” has the goal of “Transforming Greater Melbourne from a Consumer to a Producer by 2030” (Finding Infinity 2020). Its goals include electrifying architecture (switching from gas to electricity), retrofitting the city’s buildings, and installing solar power on every second rooftop in Melbourne: with combined climate and job-creation benefits. Protecting and evolving labour agreements can also be a means to expand opportunities in construction for women and for workers who have traditionally faced barriers to work in the construction industries (Galea et al. 2018, Galea et al. 2020).

Public procurement

Cities have the opportunity to influence markets through their own purchasing power. In Europe the Procura+ European Sustainable Procurement Network brings together local authorities and regions that connect, exchange and act on sustainable and innovation procurement. Through the CIRCuIT initiative, 31 partners throughout the built environment chain in Copenhagen, Hamburg, the Helsinki Region and Greater London are working to implement circular construction practices (CIRCuIT). In Australia, NSW and Victoria in conjunction with industry have established a construction culture standard that promotes a cap on working hours and working days for construction workers that is looking to be embedded into state procurement practices (ACA 2021, Lingard et

al. 2021). With construction and infrastructure taking centre stage in many countries' economic recovery efforts following the COVID-19 pandemic, local and national government procurement measures that have strong climate, human rights and labour rights provisions will be important. Sustainable and rights-respecting procurement for construction and infrastructure can mitigate economic, social and environmental risks, and can also unlock economic and social value across the full lifecycle of a project (IHRB 2022).

As highlighted above, cities face head-winds in implementing all of these measures, which take the form of resource constraints, political short term-ism, corruption, and more. Clear and unifying Frameworks for action can guide cities in taking a longer-term, inclusive and ambitious perspective, advancing climate action in the built environment in line with human rights.

One such Framework is the Framework for Dignity in the Built Environment, a joint initiative of the Institute for Human Rights and Business (IHRB), Raoul Wallenberg Institute of Human Rights and Humanitarian Law; Rafto Foundation for Human Rights; and Melbourne University's School of Design (IHRB 2020). Rather than a new set of standards, the Framework translates internationally-agreed human rights standards and the Sustainable Development Goals into practice in the context of the built environment lifecycle: through Land; Planning and Finance; Design; Construction; Management & Use; to Demolition and Redevelopment. The Framework is designed with two core principles in mind: that action and the investment of time at the very earliest stage of a building or urban planning project to mitigate risks and maximise opportunities through the whole lifecycle brings economic and social benefits over the medium and long term; and that while no single actor can shift the direction of the built environment alone, all have roles to play and specific leverage points that they can harness. These actors include national and local governments; investors; building owners and developers; architects; construction and engineering companies, and technology companies. In addition to recommendations by actor, the Framework provides an aspirational vision for each stage of the lifecycle, guiding questions for action, cross-references to international standards and examples of innovation.

The Circular City Actions Framework has been developed by ICLEI, Circle Economy, Metabolic and the Ellen MacArthur Foundation to introduce cities to the range of strategies and actions available to them as they work towards circular development at the local level (ICLEI 2021). A circular city is one that promotes a just transition from a linear to a circular economy across the urban space, through multiple city functions and departments and in collaboration with residents, businesses and the research community. In practice, this means shifting away from the linear economy's "take, make, waste" model and moving to an economic system where the value and utility of infrastructure, products, components, materials and nutrients is maintained for as long as possible. In a circular city, material loops are closed, meaning that existing materials are repeatedly cycled instead of becoming waste; resource extraction is also minimised. Through this transition, cities seek to improve resource access, lower emissions, protect and enhance biodiversity, and reduce social inequities in line with the Sustainable Development Goals.

While the tools exist and momentum is growing, significant progress towards rights-based and sustainable construction practices will depend on many factors. These include practical methods of measuring, monitoring and communicating the benefits of action; expanding diverse and bankable sustainable business models - linking local innovation up to reliable sources of finance; and deep collaboration between cities on the challenges and opportunities they face. Yet cities that apply a rights-based framework to their built environment lifecycle can forge a path towards a more sustainable, inclusive and resilient future.

References

- Abdul-Rahman, H., Wang, C., & Saimon, M. A. (2011). Clients' perspectives of professional ethics for civil engineers. *Journal of the South African Institution of Civil Engineering*, 53(2), 2-6.
- ACA (2021), A Culture Standard for the Construction Industry. Australian Contractors Association. Available at: https://cultureinconstruction.com.au/wp-content/uploads/2021/10/A-Culture-Standard-for-the-Construction-Industry_Consultation-Paper_October-2021.pdf
- Bisaro, A. (2019). Coastal adaptation through urban land reclamation: Exploring the distributional effects. *DIE ERDE – Journal of the Geographical Society of Berlin*, 150(3), 131-144.
- Brickell K., Parsons L., Natarajan, N., and Chann, S. (2018) *Blood Bricks: Untold Stories of Modern Slavery and Climate Change from Cambodia*. Royal Holloway University of London
- Circular Construction in Regenerative Cities (CIRCuit), n.d. About the Project. Project running from 2019 to 2023, Funded by the European Commission's Horizon 2020 programme. <https://www.circuit-project.eu/about-circuit> (Accessed 04 October 2022)
- Earth4All. 2022. Deep Dive Paper 6: A just transition: How can we fairly assign climate responsibility?
- European Commission (2013). Eurostat statistics for waste flow generation.
- Finding Infinity, 2020: Transforming Greater Melbourne from a consumer to a producer by 2030
- Friedman, E. 2022. *The Urbanization of People: The politics of development, labor markets and schooling in the Chinese City*, Columbia University Press
- Galea, N., Powell, A., Rogan, A., Chappell, L. and Loosemore, M. (2018) *Demolishing Gender Structures Research Report*. Sydney, UNSW Australia.
- Galea, N., Powell, A., Chappell, L., & Loosemore, M. (2020), The gendered dimensions of informal institutions in the Australian construction industry. *Gender, Work and Organizations*. 27 (6), 1214-1231 Available at: <https://doi.org/10.1111/gwao.12458>
- Global ABC. 2021. 2021 Global Status Report for Buildings and Construction
- Hurlimann, Anna & Moosavi, Sareh & Browne, Geoffrey. (2020). Urban planning policy must do more to integrate climate change adaptation and mitigation actions. *Land Use Policy*. 101. 105188. 10.1016/j.landusepol.2020.105188.
- ICLEI, 2021. Circular City Action Framework
- ICLEI, 2022. Framing Equitable Transitions
- ICLEI, 2022. City-Level Circular Economy Interventions To Protect And Enhance Biodiversity
- IHRB, 2019. *Dignity by Design: Human Rights and the Built Environment Lifecycle*
- IHRB, 2020. *Framework for Dignity in the Built Environment*
- IHRB, 2021. *Better Building(s): Financing Rights-based Decarbonisation in Europe*

IHRB, 2022. Advancing Human Rights in the Built Environment in Cartagena, and Insights for Other Cities

IHRB, 2022. Community-led and participatory approaches to climate action in the built environment

IPBES, 2019. The global assessment report on biodiversity and ecosystem services

Lingard, H., Nette, A., Harley, J., Pirzadeh, P., Clarke, J., Yazidjoglou, A., Strazdins, L., and Sargent, G. (2021) Triple Wins: Work Hour Cultures for Health, Safety and Gender Equality in Construction, RMIT, Melbourne. Available at: <https://www.constructors.com.au/wp-content/uploads/2022/06/RMIT-report.pdf>

Manjunath, S., Kumar, S., & Minu, A. (2021). Literacy and Livelihood of Women Migrant Construction Workers: An Analytical Study. *Journal of International Women's Studies*, 22(6), 76-83.

Nadj, D. (2021). Deregulation, the absence of the law and the Grenfell tower fire. *Queen Mary Hum. Rights Law Rev.* <https://www.qmul.ac.uk/law/humanrights/media/humanrights/docs/Nadj-final.pdf>. Accessed, 14.

NYC Sustainable Buildings (n.d.). Local Law 97

Onarheim, K. H., Phua, K. H., Babar, Z. R., Flouris, A. D., & Hargreaves, S. (2021). Health and social needs of migrant construction workers for big sporting events. *bmj*, 374.

Portes Virginio, F., Stewart, P., & Garvey, B. (2022). Unpacking super-exploitation in the 21st century: the struggles of Haitian workers in Brazil. *Work, Employment and Society*, 09500170211060748.

The Shift (2022). The Shift Directives - From Financialized to Human Rights-based Housing / and Mapping Financialization: Solutions and Abuses

Santamouris, M. (Ed.). (2001). Energy and Climate in the Urban Built Environment (1st ed.). Routledge. <https://doi.org/10.4324/9781315073774>

Singh, KD. (2022, August 16). Clean Toilets, Inspired Teachers. How India's Capital is Fixing its Schools, *New York Times*.

UNEP. 2022. Sand and Sustainability: 10 Recommendations to Avert a Crisis

Valenta, R. K., Kemp, D., Owen, J. R., Corder, G. D., & Lèbre, É. (2019). Re-thinking complex orebodies: Consequences for the future world supply of copper. *Journal of Cleaner Production*, 220, 816-826.

Walsh, D., Pajón, L., Lawson, K., Hafeez, K., Heath, M., & Court, N. (2022). Increased Risks of Labor Exploitation in the UK following Brexit and the Covid-19 Pandemic: Perspectives of the Agri-food and Construction Sectors. *Journal of Human Trafficking*, 1-16.