A disaster for development

Disaster risk is threatening to undermine efforts to implement the UN's Sustainable Development Goals

Prof. Dilanthi Amaratunga, Prof. Richard Haigh and Martin Conlon

RICS's UN Global Compact Communication on Engagement report *Fostering the implementation of the Sustainable Development Goals in land, construction, real estate and infrastructure* was published in 2018, and shows how it is encouraging implementation of the UN Sustainable Development Goals (SDGs). It is doing so by developing standards and promoting their adoption, supporting cutting-edge research, increasing capacity for sustainable built environments, and enabling community action (*rics.org/unsusdev*).

Nevertheless, disaster risk is threatening to undermine these and other efforts to achieve the SDGs. Economic losses from natural hazards have been increasing in recent decades, and this has primarily been attributed to population and economic growth in disaster-prone areas. But losses from natural hazards are expected to increase due to a continued rise in economic exposure, increasing hazard frequency and intensity, and changing patterns of exposure due to climate change. If development and economic growth do not take account of the risks they are not sustainable, and this will undermine efforts to build more resilient communities.

A 2018 study from the UN Office for Disaster Risk Reduction found that, between 1998 and 2017, climate-related and geophysical disasters killed 1.3m people and left a further 4.4bn injured, homeless, displaced or in need of emergency assistance (*bit.ly/UNDRR-98-17*). It also revealed that, in the same period, countries hit by disasters experienced direct economic losses valued at $2.9tr, of which climate-related disasters costed $2.2tr or 77 per cent of the total. This is up from 68 per cent, or $895bn, of total losses of $1.3tr reported between 1978 and 1997. Overall, reported losses from extreme weather events rose by 151 per cent between these two 20-year periods.

The figures and trends are alarming enough, but many losses are difficult to quantify, so the actual impact is much worse. Reported economic losses mainly reflect monetised direct damages to certain assets, and the loss of human life or damage to cultural heritage or ecosystem services are not factored into the calculations.

For example, the replacement or market value of a significant site and its buildings would not take account of the social and cultural meaning, or the services provided to its community. Further impacts might include the longer-term social and

economic effects on productivity, education or health.

It is also important to recognise that the impacts of such hazards are also not evenly distributed. For disasters since 2000, the UN study revealed that in low-income countries an average of 130 people died per million living in disaster-affected areas, compared to just 18 in high-income countries. That means that people exposed to natural hazards in the poorest nations were more than seven times more likely to die than equivalent populations in the richest nations.

While absolute economic losses tend to be concentrated in high-income countries, economic losses are much higher among low- and lower-middle-income countries as a proportion of GDP. This is having devastating consequences for their future development and undermining their efforts to achieve the SDGs, in particular the eradication of poverty.

Alongside the global ambition for sustainable development and greenhouse gas emission reductions expressed by the UN, RICS and other bodies, there is widespread recognition that we need to accelerate the implementation of the UN's Sendai Framework for Disaster Risk Reduction 2015–30. This global plan aims to reduce disaster losses by lowering risk levels, avoiding the creation of new risks and managing those that cannot be eliminated. Sendai Framework target (c) seeks to 'reduce direct disaster economic loss in relation to global gross domestic product by 2030' (*bit.ly/UNSendai*).

The land, construction and real-estate sectors represent more than half of global wealth, and are also prominent in terms of their impact on the health and well-being of people and the environment. When parts of the built environment are damaged or destroyed, society's ability to function – economically and socially – is severely disrupted. But the protective characteristics of the built environment also offer an important way of reducing risks, thereby preventing a disaster.

The US-based Multi-hazard Mitigation Council concluded in a 2017 study that every $1 the government spends to make existing buildings more resistant to wildfires, earthquakes, floods and hurricanes, $6 is saved in property losses, business interruption and health problems. It also found that for every $1 spent to exceed building codes and make structures more hazard-resistant, $4 would be saved, and that over the next 75 years, these measures could prevent 600 deaths, 1m injuries and 4,000 cases of post-traumatic stress disorder (*bit.ly/MMCnathazmit*).

But what level of mitigation is required? In the past year we have seen extreme flooding across Europe, wildfires on unprecedented scales in Australia, California and Brazil, prolonged drought and heavy rains in Central America, and many other weather-related phenomena. Extreme weather events displaced a record 7m people from their homes during the first six months of 2019, a figure that made the year likely to be one of the most disastrous in almost two decades even before Hurricane Dorian made landfall in the Bahamas.

There are also indications that the climate is shifting rapidly in many parts of the globe. In the Intergovernmental Panel on Climate Change's various reports, scientists predict that the long-term effects of climate change will include a decrease in sea ice and an increase in permafrost thawing, an increase in heat waves and heavy precipitation, and decreased water resources in semi-arid regions. When planning for future building stock and attempting to mitigate disaster risk, it will be important not to rely solely on historical data, but to take these predictions into account as well.

Disaster risk reduction is an intrinsic part of sustainable development. Indeed, in 2017, the UN secretary-general's special representative for disaster risk reduction Robert Glasser asserted that 'it's inconceivable that we'll achieve the SDGs if we don't get a handle on reducing disaster risk, including climate risk'.

Targets under SDG 11 on cities and under SDG 9 on building resilient infrastructure reaffirm the relationship between disaster risk reduction and sustainable development. Building and rebuilding better through proper design, construction and retrofitting to withstand hazards will also contribute to achieving SDG 9.

It will be important to capitalise on links with related aspects of construction such as green building, security and safety, identifying synergies and exploiting efficiencies. But constructing a barrier against the elements does not imply that a building will perform well in energy and water conservation, or be secure from accidental or deliberate damage; likewise, a green or secure building may not withstand extreme weather events. Communities concerned with building their resilience may also have a greater interest in buildings that use renewable energy, make less of a drain on available resources and help manage stormwater run-off.

If we are to take advantage of such potential synergies and efficiencies, and in doing so address the complex challenges associated with disaster risk, the role of the built environment professional will need to change. This signals the importance of rethinking types of knowledge and competency that will be needed across the land, construction and real-estate sectors so they can contribute towards the aims of the Sendai Framework and other global agreements on sustainability, climate change and development.

The study *Mainstreaming disaster resilience in the construction process: Professional education for a resilient built environment,* published by the University of Huddersfield in 2017, has identified the key knowledge gaps on disaster risk reduction among land, construction and real-estate professionals (*bit.ly/Maindisres*). RICS is working with the university's researchers to examine ways to embed this knowledge in the professional development of members.

Prof. Dilanthi Amaratunga FRICS and Prof. Richard Haigh are co-directors of the Global Disaster Resilience Centre at the University of Huddersfield d.amaratunga@hud.ac.uk r.haigh@hud.ac.uk

Martin Conlon is a director at Assent Building Control and former chairman of the RICS Building Control Professional Group Board martinconlon2@btinternet.com

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Editors: Barney Hatt (Building surveying and Building control)
T: +44 (0)20 7695 1628 E: bhatt@rics.org
Steph Fairbairn (Building conservation)
T: +44 (0)20 7334 3726 E: sfairbairn@rics.org

Advisory groups
Building conservation: John Edwards (Edwards Hart Consultants), Alan Forster (Heriot-Watt University), Frank Keohane (Paul Arnold Architects), John Klahn (RICS), Meriel O'Dowd (The Churches Conservation Trust), Craig Ross (RICS), Gabriella Smith (Heritage House Consulting)

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Editorial & production manager: Toni Gill
Sub-editor: Matthew Griffiths
Advertising:
Will Nash T: +44 (0)20 7871 5734
E: will@wearesunday.com
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