Using reconstruction to place climate change adaptation within disaster risk reduction

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Abstract

Disaster risk reduction (DRR) and climate change adaptation (CCA) have both evolved significantly over the last generation, interacting with, drawing upon, and contributing to development and sustainability while, effectively, becoming sectors themselves. That sectoralisation and professionalisation has led to a degree of separation and sometimes turf quarrels. This paper provides one way forward for better integrating DRR and CCA, to be applied in the context of post-disaster reconstruction. The method is conceptual, using a critical review of the literature in the context of illustrative case studies to argue for a solution to the DRR-CCA separation.

The context for exploring and developing a theoretical approach is that few differences between DRR and CCA emerge from the definitions or in practice, especially when case studies reveal the similarities and parallels. DRR is defined by UNISDR (United Nations Office for Disaster Risk Reduction) as "The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters". CCA is defined by IPCC (Intergovernmental Panel on Climate Change) as "The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate harm or exploit beneficial opportunities. In natural systems, human intervention may facilitate adjustment to expected climate and its effects". CCA examines climate only, is somewhat responsive to expectations of the climate's impacts, and addresses the long-term. DRR includes all hazards including climate, is responsive to expectations of a hazard's impacts while tackling vulnerability to all hazards, and embraces all time scales. As such, DRR does what CCA does and much more. CCA is a subset of DRR.

Yet CCA and DRR are often considered to be separate processes. One consequence of the artificial differentiation is that it sometimes becomes challenging to implement CCA in the context of post-disaster reconstruction because CCA is not considered to be a significant concern after a disaster. Yet in an urban setting, reconstruction can yield lock-in: lasting consequences which cannot be overcome without major changes to infrastructure and/or societal behaviour. That lock-in can constrain choices for many risk reduction measures over ensuing decades,

suggesting the importance of ensuring that CCA is recognised as part of, and is incorporated into, DRR. That includes placing CCA as part of DRR within urban reconstruction measures which start in the immediate aftermath of a disaster.

Changes in Toronto due to Hurricane Hazel in 1954 and flood risk reduction measures in London are used as examples Illustrating lock-in which, respectively, supports and inhibits DRR including CCA through influencing vulnerability in different ways. The principle is illustrated that, due to lock-in, CCA cannot be separated from DRR, but instead CCA becomes a subset within DRR. When this principle is examined in wider contexts, the high level of transferability to other locations becomes apparent, although the principle might be applied in practice with contextual elements.

The main practical implication is maintaining all time scales within reconstruction so that design and planning decisions acknowledge lock-in, either avoiding it due to disadvantages or accepting it due to advantages. Maintaining all time scales ensures that all components of DRR are considered, including CCA, rather than adopting only those relevant to a specific time scale. The main theoretical implication of this approach is being explicit about the need to place CCA within DRR while not neglecting wider sustainability topics which are wider than DRR.

Keywords: adaptation, climate change, disaster risk reduction, lock-in, reconstruction

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