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Urban focus in climate change adaptation and risk reduction

CHRISTINE WAMSLER, LUND UNIVERSITY CENTRE FOR SUSTAINABILITY STUDIES (LUCSUS)

Urban communities will face increased risks, such as floods, landslides, heat stress and fires and water scarcity, as a consequence of climate change. The latest IPCC report (AR5) has for the first time devoted a whole chapter to urban areas. The assessment stresses the need to tackle urban risk through more effective adaptation planning.

More effective urban adaptation planning needed

The latest IPCC report (AR5) highlights the urgent need to address risk in urban development and planning. It states with very high confidence that extreme precipitation, inland and coastal flooding, heat stress, drought and water scarcity pose serious risks to urban communities, economies, and ecosystems worldwide. For Sweden, climate models project significant changes in (extreme and average) precipitation and temperature. These are expected to result in increased frequency or severity of floods, landslides, fires, energy outages, water scarcity, and diseases.

While cities are not by default at greater risk than rural areas, too little emphasis on the urban context in past risk and climate change research, policy, and practice has meant lost opportunities to properly address urban risk. Cities provide important assets for dealing with increasing climate variability and extremes (such as human and financial capital, public services, and infrastructure). However, these can only be mobilized for risk reduction and adaptation planning, if they themselves are not impacted.

As today's cities grow and their interconnected systems become more complex, the risk of systemic breakdown increases. Growing interconnectedness has many causes: increased

efficiency and optimization; diversification of stakeholders responsible for maintaining critical functions (due to privatization, outsourcing, and other cost-cutting measures); and an increasingly competitive environment where buffers and margins are often minimized for short-term financial gains. Infrastructure (such as roads, telecommunication, water supply, etc.) is for instance bundled into the same space or development corridors, while urban resilience relies on redundancy and replaceable elements.

As cities are *at risk* and also *cause risk*, in-depth knowledge is required of their physical, environmental, and socio-economic features and how these features and related urban sectors interconnect with climate risk. This knowledge is indispensable for adequately addressing risk and mainstreaming risk reduction and adaptation into urban sector work.

Complementary roles of governments and individuals in effective adaptation planning

AR5 furthermore emphasizes the complementary roles of governments and citizens in enabling effective urban adaptation planning and implementation. Local government efforts are critical in managing risk information and financing, and in scaling up urban communities' and households' adaptation efforts.

Public action, such as awareness-raising, incentives and regulation, can influence people's adaptation behavior. There is increasing consensus that individual adaptive capacities and practices are critical for sustainable adaptation to climate change.

However, little is known about urban dwellers' adaptive practices, particularly in developed countries, and Sweden is no exception. Thus, research is currently analyzing how to better support and incentivize the efforts of Swedish citizens to prevent and reduce climate change impacts.

Better support for urban dwellers' adaptive practice and empowering them to take responsibility for themselves is also crucial to enable authorities to direct assistance to those most at risk (like children, the sick, and elderly). This is vital, as climate change and related hazards are predicted to considerably increase demands on Swedish institutions and the coordination and prioritization of their resources. Currently, very few Swedish citizens are actively adapting their lifestyles to changing climate or supporting adaptation efforts at city or regional level, despite most Swedes aged 16–75 believing that climate change affects the Swedish population. Meanwhile, the majority of Swedes are consciously trying to reduce greenhouse gas emissions.

Synergies between urban climate-change adaptation, mitigation, disaster risk reduction, and ecosystem management

AR5 highlights also the need to recognize synergies between climate change adaptation, mitigation, disaster risk reduction, and better ecosystem management.

There are ample experiences from urban risk reduction at all levels to learn from. However, urban adaptation through improved ecosystem management is a more recent approach, and systematic reviews and collation of concrete examples are lacking. Research is underway on how ecosystem services management and adaptation planning in Sweden can be mutually supportive and to evaluate the conditions for using ecosystem services as a tool for designing municipal adaptation strategies. The essence of this approach is to work with, not against, nature (e.g. through avoiding installing impervious surfaces, utilizing green roofs and walls, wetland preservation, river re-naturalization, and increasing open spaces or green areas to protect against flooding, reduce water run-off and cool the urban climate).



WHAT IS THE QUESTION?**Why focusing on urban climate change adaptation and risk reduction?**

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) stresses the need to tackle urban risk more effectively. Extreme precipitation, inland and coastal flooding, heat stress, drought and water scarcity pose serious risks for urban communities, economies, and ecosystems. Today, however, knowledge of urban risk and of measures to reduce and adapt to it is scarce and fragmented. AR5 highlights that effective urban adaptation requires: a better understanding of the complexity of urban risk; stronger actor involvement (including individuals); and more engagement in simultaneously addressing adaptation, mitigation, risk reduction, and ecosystem management. National-level support is required to assist local authorities in such efforts.

ABOUT THE AUTHOR

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Information about her current research can be found here

- Sustainable Urban Transformation for Climate Change Adaptation (open link to webpage)
- Urban ecosystem-based adaptation to climate change (open link to webpage)

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KLIMAT I FOKUS is a series of research briefs produced by Lund University Sustainability Forum. The purpose is to describe and explain current and central concepts in climate research. **SUSTAINABILITY FORUM** connects and supports climate-, energy- and sustainability research at Lund University, and provides a bridge between society and academia within these fields. Sustainability Forum was launched in January 2014 and is coordinated by CEC, Centre for Climate and Environmental Research. **Contact:** hallbarhetsforum@cec.lu.se



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