What the Latest Science on Impacts, Adaptation and Vulnerability means for Cities and Urban Areas (VII)

SUMMARY FOR URBAN POLICYMAKERS

ABOUT SUP AR6 SUMMARY SERIES

The Summary for Urban Policymakers (SUP) convenes IPCC report authors (in their individual capacities) with local government officials, national governments and business communities to present findings from the IPCC climate reports in accessible and targeted summaries that can help inform and catalyze urgent action at the city and regional scales.

Volume II, *What the Latest Science on Impacts, Adaptation and Vulnerability means for Cities and Urban Areas,* focuses on managing climate risks and adaptation at the face of climate impacts.

KEY MESSAGES

- Everything is connected in an urban world. In a world with over 4 billion urban residents; cities and towns, the economy, and human societies are strongly coupled with the climate system and ecosystems. A change in one system impacts the others.
- Rapid urbanisation, changing land use, demographic shifts, growing inequality and unsustainable consumption have driven greenhouse gas emissions, ecosystem degradation and biodiversity loss. In all parts of the world, these trends pose an existential challenge to our societies, economies and urban areas. We need systemic and accelerated climate action by everyone to address this. Urban areas provide an important opportunity to accelerate the global climate change response.
- The risks and impacts of climate change are clear. Even at current global warming levels, urban areas are experiencing significant impacts from climate change. Some major cities have experienced mean local warming of beyond 1.5°C. Urban adaptation policies and plans must prepare for average global temperature rise exceeding 1.5°C.
- Climate risk is exacerbated in urban areas by the concentration of people, inadequate buildings, poor infrastructure, and inadequate basic services; and the intersection of these with urban poverty, vulnerability, inequality and uneven adaptive capacities.
- Climate impacts are felt disproportionately in socio-economically marginalised communities. Urban areas are home to regional ecosystems and biodiversity which are experiencing increasing climate impacts from heatwaves, droughts, and floods.
- The nature of climate-related risks is changing in an urbanising world. They are becoming increasingly systemic, simultaneous, and affect multiple locations across different timescales, leading to cascading and compounding impacts.
- Urban adaptation is happening, but significant gaps remain. Over 100 cities of varying sizes and locations have developed climate adaptation plans; ~170 nations include adaptation in their policies and planning processes. Even if all planned adaptation was implemented, most risks faced by urban areas would not be addressed.
- Urban adaptation options reduce risk but unevenly and inadequately. There are limits to adaptation in and around urban areas, particularly as warming increases. Any further delay in concerted global action on urban adaptation will miss the rapidly closing window to secure a livable future for all.
- System Transitions are the key to successful climate action. To address systemic risks to coupled human, natural and climate systems, we need to move beyond sectoral and sequential action in all world regions. This can be achieved by enabling five simultaneous systems transitions: Urban and Infrastructure systems; Land, coastal, ocean and freshwater ecosystems; Energy; and Industrial systems; all of which are accelerated by societal choices and transitions. Together, these transitions advance sustainable development alongside adaptation and mitigation.
- The Urban and Infrastructure System Transition can be accelerated by implementing feasible adaptation options, many with strong synergies with mitigation, such as:
  - Urban and regional planning that promote compact urbanisation and protect ecosystems;
  - Upgrading informal settlements by investing in accessible climate-resilient infrastructure;
  - Locally relevant ecosystem-based adaptation options and nature-based solutions that can reduce risk, mitigate GHGs, and deliver multiple health and development benefits; and
  - Developing social infrastructure and services such as health, education, social safety nets, climate services, and disaster management.

- The feasibility and accelerated implementation of adaptation options that contribute to system transitions, are enabled by inclusive governance, strong institutional capacity, and political commitment; adequate finance; technology and innovation; lifestyle and behaviour change; monitoring and evaluation mechanisms; and attention to culture and heritage.
- Societal choices can place cities on adaptation pathways and accelerate mitigation to shift development pathways towards sustainability. It is critical to link adaptation with mitigation and sustainable development, through adaptation pathways which are sequences of adaptation options. These pathways are driven by continuous societal choices and decision-making towards climate resilient development.
- Climate Resilient Development combines climate adaptation strategies, mitigation actions, and pathways to support sustainable development for everyone. Current climate adaptation is often short-term and associated with specific projects or discrete actions. Adaptation expands into Climate Resilient Development when it connects to sustainable development and mitigation, takes a longer time horizon, and involves multiple stakeholders to accelerate transformational change.
- Cities and urban areas offer critical spaces to realize Climate Resilient Development by implementing adaptation and mitigation simultaneously with significant potential co-benefits for sustainable development. For example, nature-based solutions can provide resilience to multiple climate hazards, sequester carbon dioxide, and enhance livelihoods. However, these are constrained if not distributed equitably or if they displace existing livelihoods.
- Implementing Climate Resilient Development is imperative. In the coming years and decades, cities, regions and countries should undertake activities that simultaneously promote climate adaptation, mitigation, sustainable development and biodiversity conservation.
- Cities hold the key to Climate Resilient Development. Cities and urban areas have a central role to play in the Systems Transitions and future transformations needed to adapt and mitigate the climate crisis. Our Climate is our Future.

Federal Ministry for Economic Affairs and Climate Action

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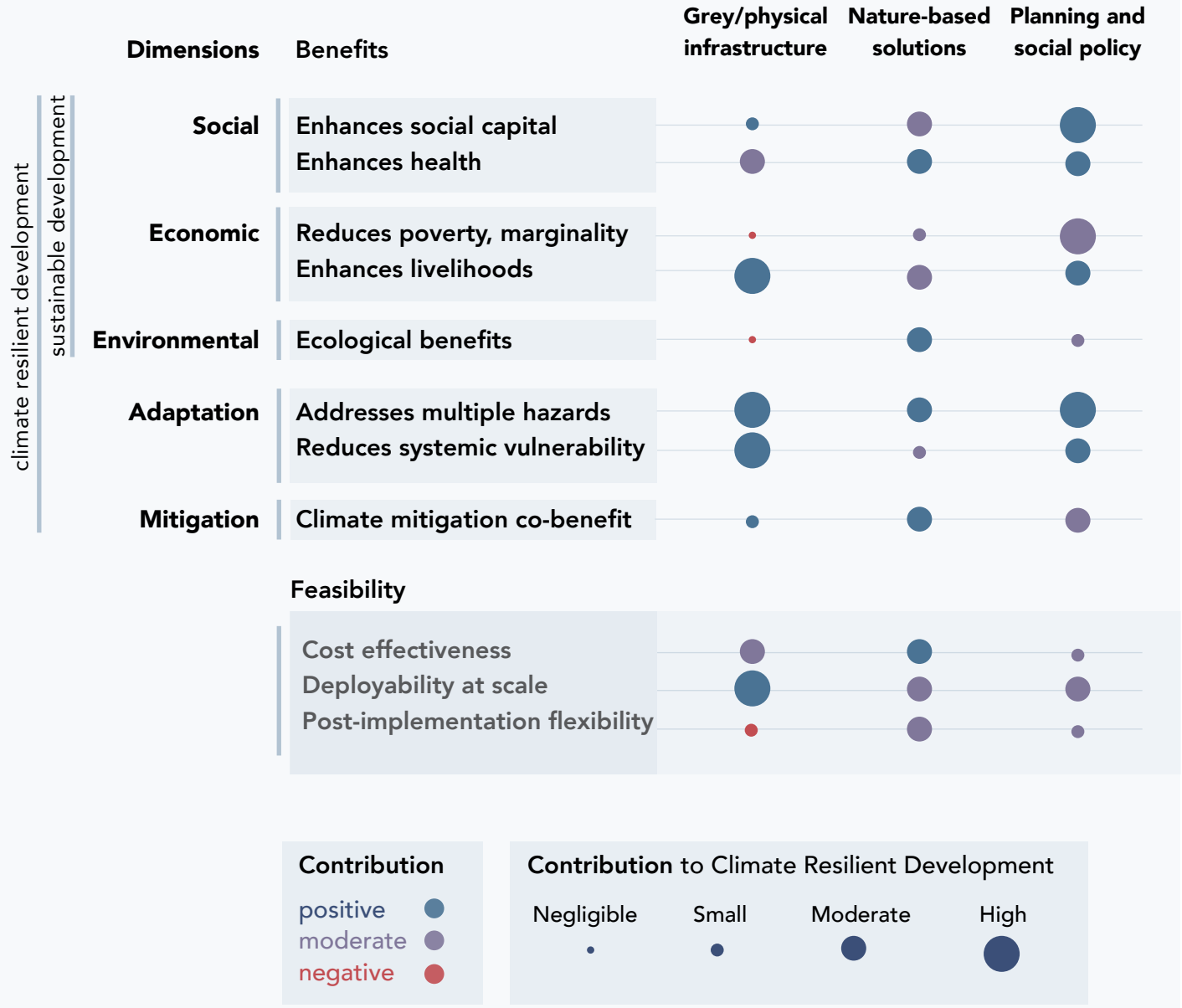
Figure 7: Contributions of urban adaptation options to Climate Resilient Development and their feasibility



Grey/physical Infrastructure	Dikes, seawalls; water storage, greywater use; slope revetments; air conditioning; passive cooling; upgrading trasnport, energy, water & sanitation infrastructure; information & communication technologies; urban design & building regulations
Nature-based solutions	Urban agriculture; street trees; green roofs; parks and open spaces; community gardens; rain gardens; bioswales; retention ponds; riverbanks; floodplains and watershed restorations
Planning and social policy	Land use planning; social safety nets; emergency and disaster risk management; health services; climate education; heritage conservation

Source: Derived from IPCC AR6 WGII Chapter 6, Figure TS.9(d)