THE AR6 SUMMARY FOR URBAN POLICYMAKERS SERIES VOLUME II

The **Summary for Urban Policymakers** of the IPCC's Sixth Assessment Report

What the Latest Science on Impacts, Adaptation and Vulnerability Means for Cities and Urban Areas

WHAT THE LATEST SCIENCE ON IMPACTS, ADAPTATION AND VULNERABILITY MEANS FOR CITIES AND URBAN AREAS

KEY MESSAGES





Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)





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.



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Figure Source: A re-interpretation of data underlying the Figure SPM.1, Summary for Policymakers, IPCC AR6 WGII 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.

Mumbai. India













Tehran, Iran

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.















Climate risk is exacerbated in urban areas by the interaction of climate hazards; exposure due to densely populated cities, inadequate buildings and basic services, and poor infrastructure; and underlying vulnerability, urban poverty, inequality and uneven adaptive capacities.

Figure 2: Risk is a function of hazards, exposures, vulnerabilities, and adaptive capacities; all of which are mediated by mitigation and adaptation responses. Figure illustrates an example of heat risk.





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Mozambique

Climate impacts are felt disproportionately in socio-economically marginalised communities.













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.



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Figure 3: Climate impacts cascade through infrastructure across sectors



Figure 4: Climate impacts cascade through infrastructure across sectors

Region	Exposed population Income class	Heatwaves	Rain and river flooding	Food insecurity
Africa	Highest 20% Lowest 20%			
Central & South Asia	Highest 20% Lowest 20%	-		
North & East Asia	Highest 20% Lowest 20%	-		-
Australasia	Highest 20% Lowest 20%	-		
Central & South America	Highest 20% Lowest 20%		_	-
Europe	Highest 20% Lowest 20%			
North America	Highest 20% Lowest 20%		-	
Small Islands	Highest 20% Lowest 20%	-	-	

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, it would be insufficient to address all risks faced by urban areas.





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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 liveable future for all.







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Seoul, South Korea

Figure 5: Multidimensional feasibility of select adaptation options organized by System Transitions and Representative Key Risks (RKRs)

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.

Representative Key Risks (RKRs)	System Transitions	Adaptation options	Potential feasibility	Mitigation synergies
Critical infrastructure, networks and services	Urban and infrastructure systems	Urban green infrastructure Sustainable land use and planning Sustainable urban water management	•	•
Coastal socio- ecological systems	Land and	Coastal defence, hardening Integrated coastal zone management	:	•
Terrestrial and ocean ecosystem services	ecosystems	Sustainable fisheries, aquaculture Agroforestry Biodiversity management	•	•
Critical infrastructure networks and services	Energy systems	Resilient power systems Energy reliability	•	•
Human health		Health and health systems adaptation	•	
Other cross-cutting risks	Cross-sectoral	Disaster risk management Early Warning Systems Social safety nets	•	/
Feasibility	Synergy	/ insufficient evidence		
• • • • • • • • • • • • • • • • • • •	• • Low Medium	not assessed High		

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Urban and Infrastructure System Transition

The Urban and Infrastructure System Transition can be accelerated by implementing feasible adaptation options, many with strong synergies with mitigation:

- 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
- Developing social infrastructure and services such as health, education, social safety nets, climate services, and disaster management.













Enabling conditions accelerate system transitions.

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 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.



Figure 5: Coastal Cities & Settlements: Indicative Adaptation Pathways for Sea Level Rise



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Figure Source: Derived from IPCC AR6 WGII, Cross-Chapter Paper 2, Figure CCP2.4

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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.

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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.



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resilient development

climate



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.

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Image credits: Abir Abdullah / Climate Visuals Countdown









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 to the climate crisis. Our Climate is our Future.













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