IPCC* 6th Assessment Report
Summary for Urban Policymakers

* Intergovernmental Panel on Climate Change

1 March 2023

Zero Carbon City International Forum

Prof. Debra Roberts
IPCC Working Group II Co-Chair

SUMMARY FOR URBAN POLICYMAKERS

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Federal Ministry for Economic Affairs and Climate Action

GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY

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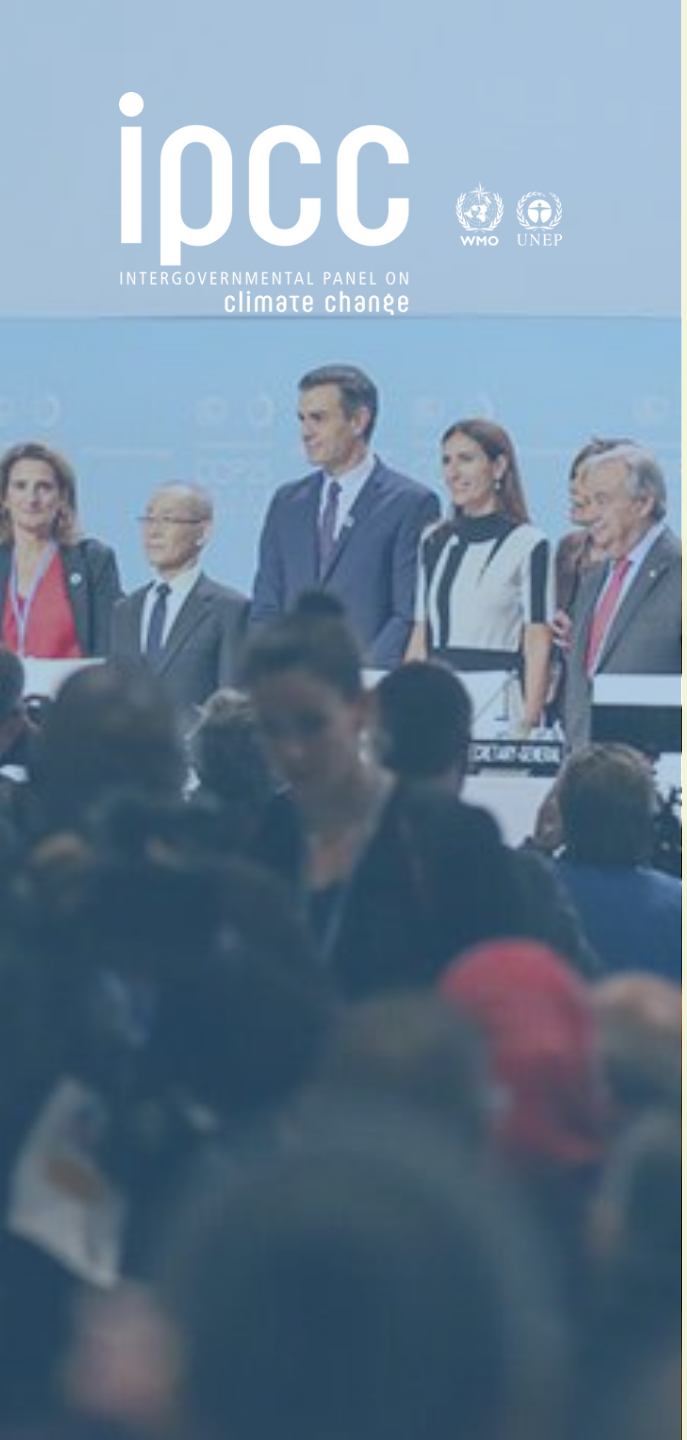


THE ROLE OF THE IPCC IS...

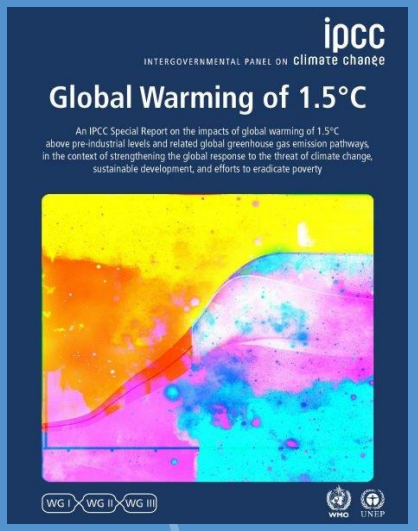
"… to **assess** on a comprehensive, objective, open and transparent basis the **scientific, technical and socio-economic information** relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation."

PRINCIPLES GOVERNING IPCC WORK, PARAGRAPH 2
SOURCE: HTTP://WWW.IPCC.CH/PDF/IPCC-PRINCIPLES/IPCC-PRINCIPLES.PDF

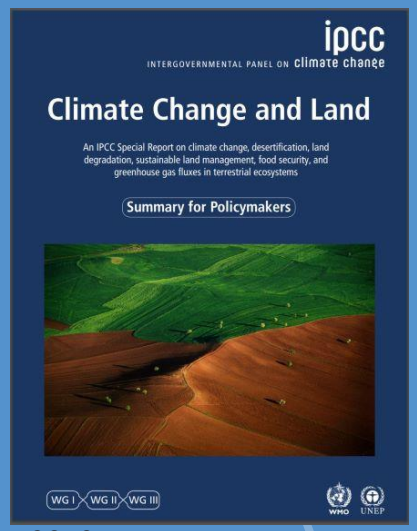
SIXTH ASSESSMENT REPORT

ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP



2018



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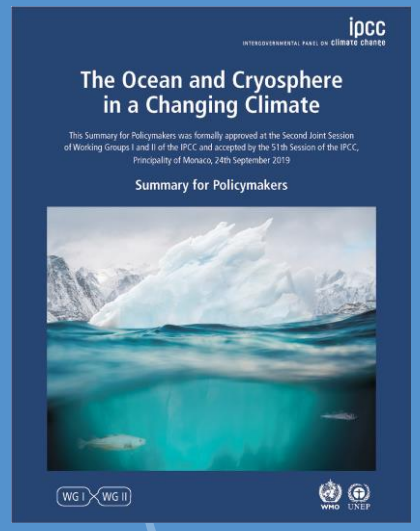
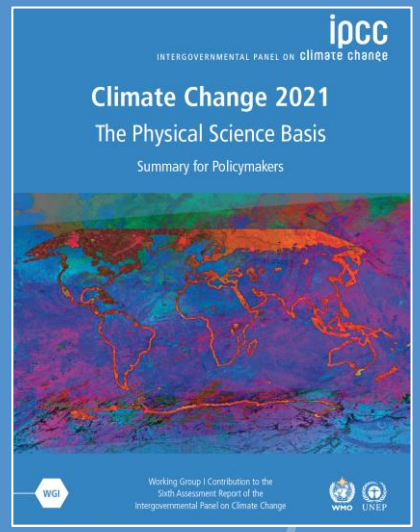
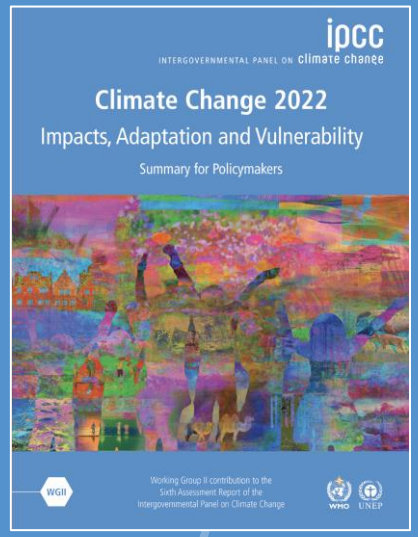


2019



2021



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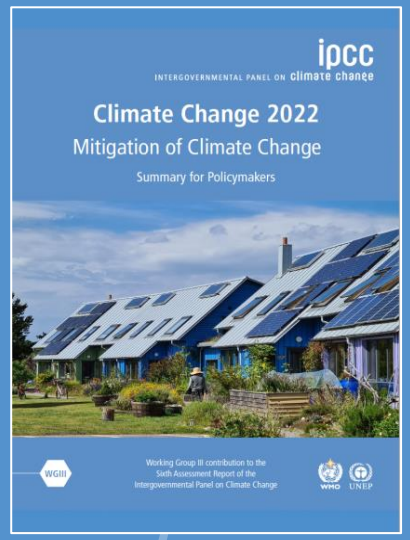
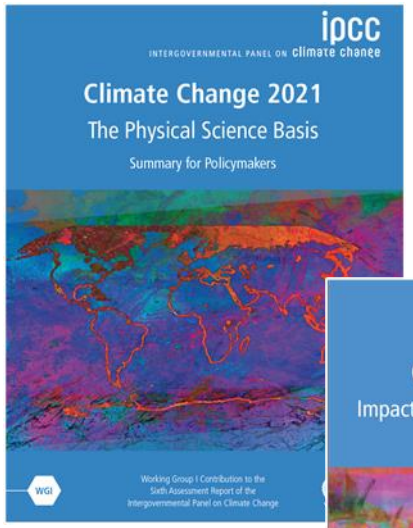


2022

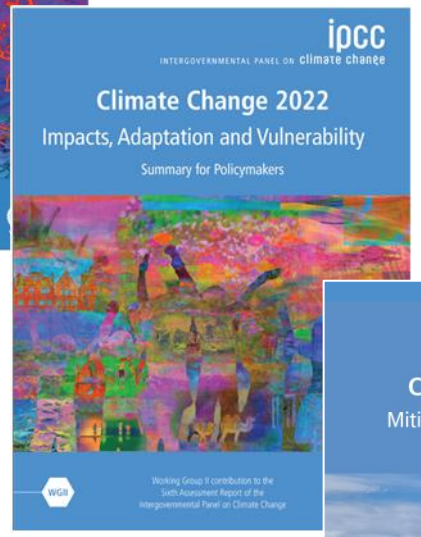
Synthesis Report (2023)

Summary for Urban Policymakers

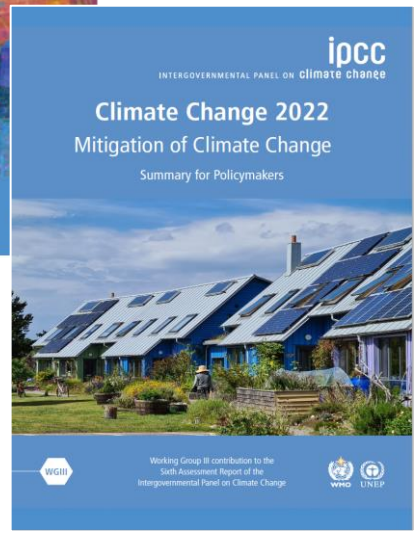
6th Assessment Report of the IPCC



IPCC AR6
Working Group I
Report



IPCC AR6
Working Group II
Report



IPCC AR6
Working Group III
Report

The Summary for Urban Policymakers (SUP) report series distills the findings of the IPCC 6th Assessment Reports for an urban context.

This unprecedented effort **brings together the IPCC scientists with cities and city networks, the business community and other key stakeholders** to ensure the most up-to-date science is **translated in the most meaningful way** to support immediate and informed action at the local level.

Summary for Urban Policymakers

6th Assessment Report of the IPCC

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6 Regional and 4 Global Convenings

SUMMARY FOR URBAN POLICYMAKERS

The Summary for Urban Policymakers of the IPCC Sixth Assessment Report (AR6)

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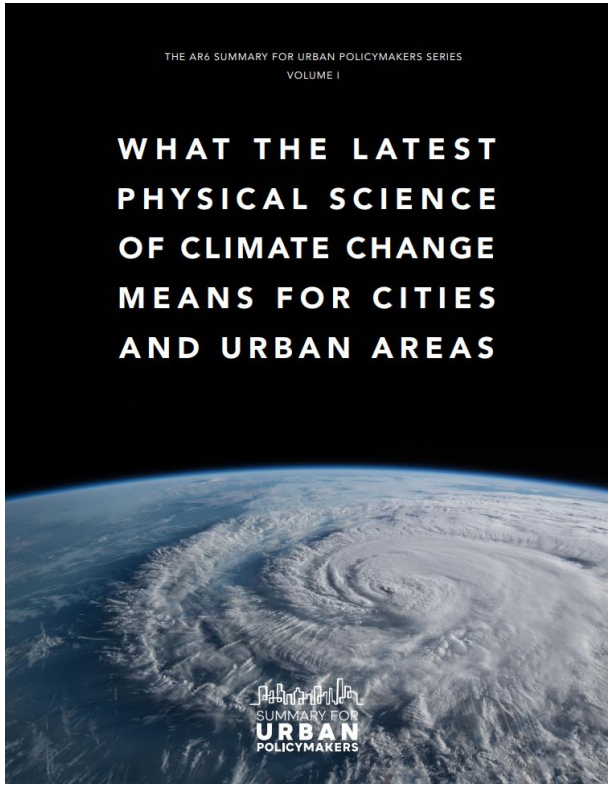
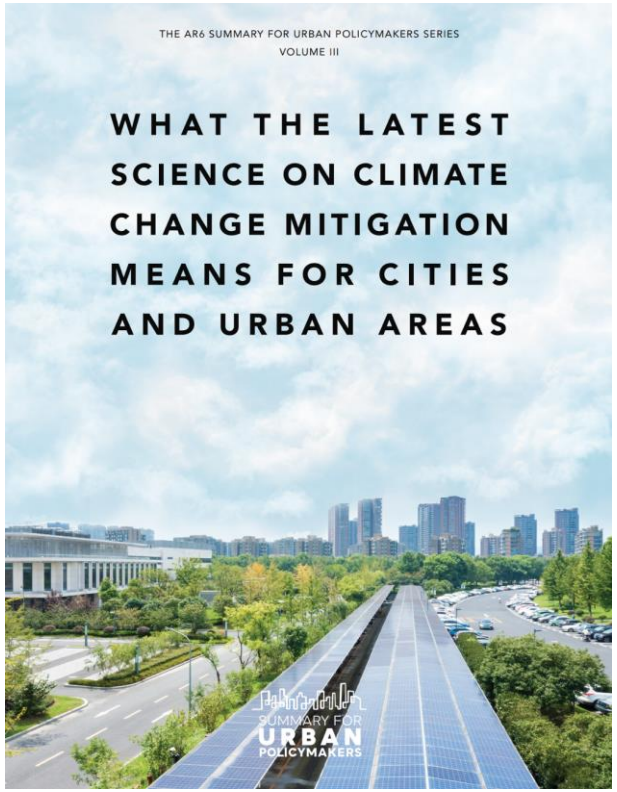
The Summary for Urban Policymakers of the IPCC Sixth Assessment Report (AR6)

Volume I



Volume II

Volume III



Highlights of the Summary for Urban Policymakers Initiative

SUMMARY FOR URBAN POLICYMAKERS
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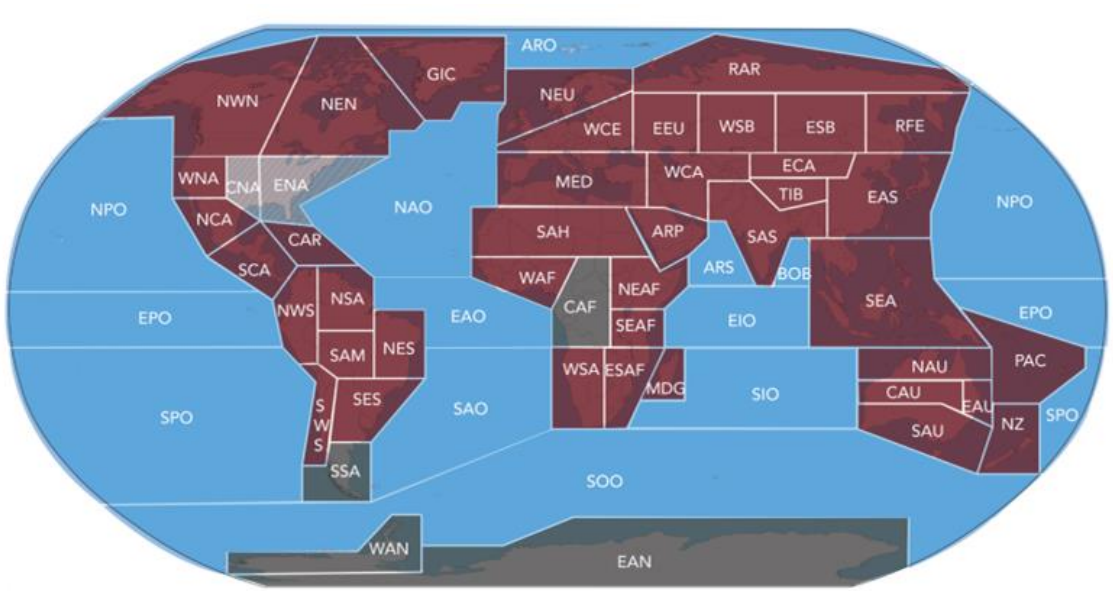
Everything is connected in an urban world. **In a world with over 4 billion urban residents; cities and towns, the economy, and human societies are strongly coupled with the climate system and ecosystems.** **A change in one system impacts the others.**

Image credits: Patricia Jekki / Unsplash

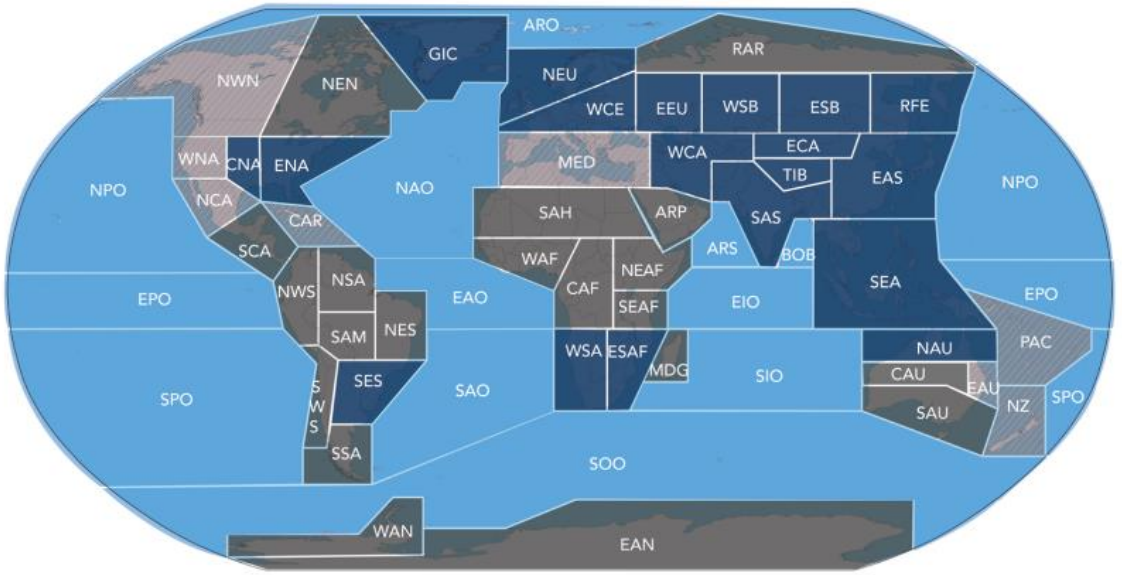
The climate change crisis is here. **Human-induced climate change is increasingly affecting every region and system of the world, including through more intense weather and climate extremes.**

Figure 1: Climate change is already affecting every inhabited region across the globe. Human influence contributes to many observed changes (since the 1950s) in weather and climate extremes.



Increase | Low agreement in type of change for the region as a whole | Limited data/or literature

(a) Observed change in **hot extremes**



Increase | Low agreement in type of change for the region as a whole | Limited data/or literature

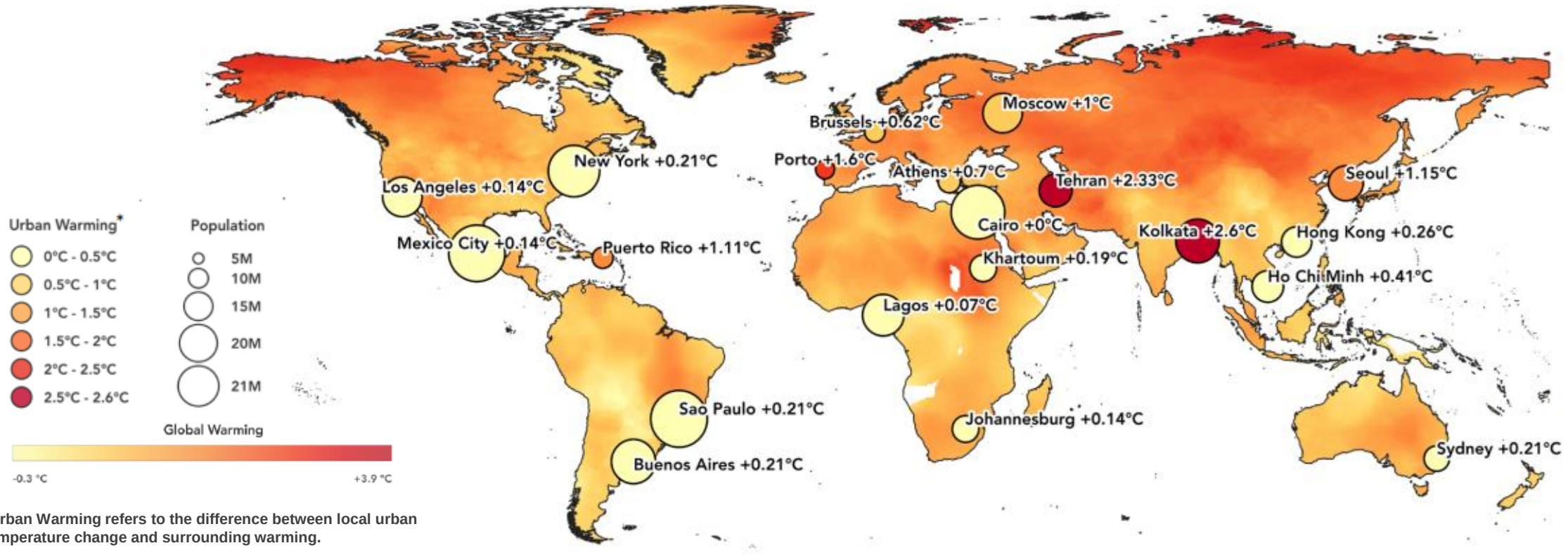
(b) Observed change in **heavy precipitation**

Figure Source: Derived from the IPCC AR6 WGI Summary for Policymakers Figure SPM.3

Emissions driven by current policies will cause global warming to exceed 2°C by around 2050. Even with strong emissions reductions, the increase of cumulative CO_2 emissions will result in global warming exceeding 1.5°C in the next 20 years.

Image credits: Joerg Boethling / Alamy

Figure 1: Past trends in global surface air temperature (1958-2018) with cities reporting significant temperature increases.

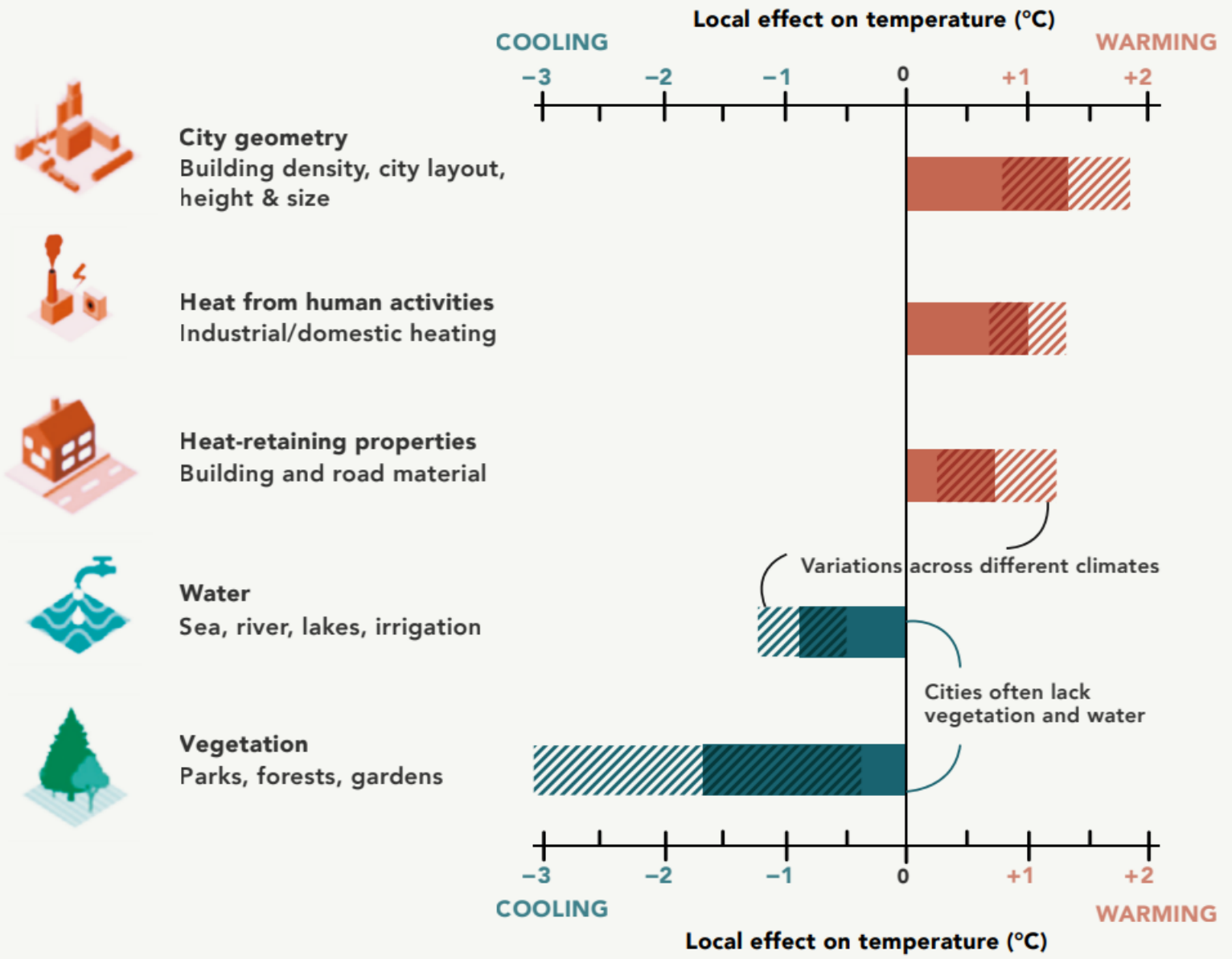


***Urban Warming refers to the difference between local urban temperature change and surrounding warming.**

Source: Change in the annual mean surface air temperature over the period 1958-2018 based on the local linear trend retrieved from CRU TS (°C per 68 years). This map has been amended from IPCC 2021, Climate Change 2021: The Physical Science Basis, Chapter 10: Linking Global to Regional Climate Change; United Nations, Department of Economic and Social Affairs, Population Division (2018); World Urbanization Prospects: The 2018 Revision, Online Edition.

Some large cities in Asia & small Arctic cities are experienced increased local temperatures above 2°C.

Figure 2: Cities are usually warmer than their surrounding areas due to factors that trap and release heat and a lack of natural cooling influences such as water and vegetation.



The combination of future urbanisation and frequent extreme climate events, such as heatwaves, will exacerbate heat stress in cities.

Figure Source: Derived from the IPCC AR6 WGI Chapter 10, FAQ10.2

Dharga Town, Sri Lanka

Heavy rainfall events are more intense and more frequent in a warming world, and runoff is amplified by urbanisation. Heavy rain events can flood buildings, roadways, subway tunnels, and farmlands.

Image credits: Hafiz Issadeen

Tacloban, Philippines

The combination of extreme sea level, increased by both sea level rise and storm surge, and extreme rainfall/river flow events will increase coastal flooding with the potential risk for widespread mortality and damage.

Image credits: Erik de Castro / Reuters

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

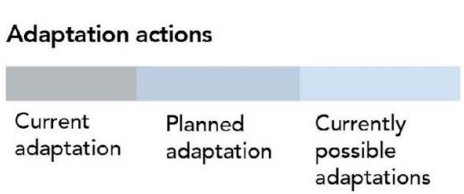
Mozambique

Image credits: Denis Onyodi - IFRC/DRK/Climate Centre / Flickr

Figure 4: Climate impacts cascade through infrastructure across sectors

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.



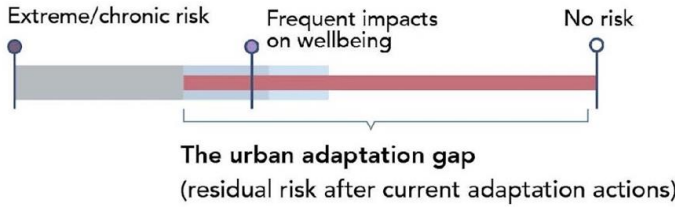
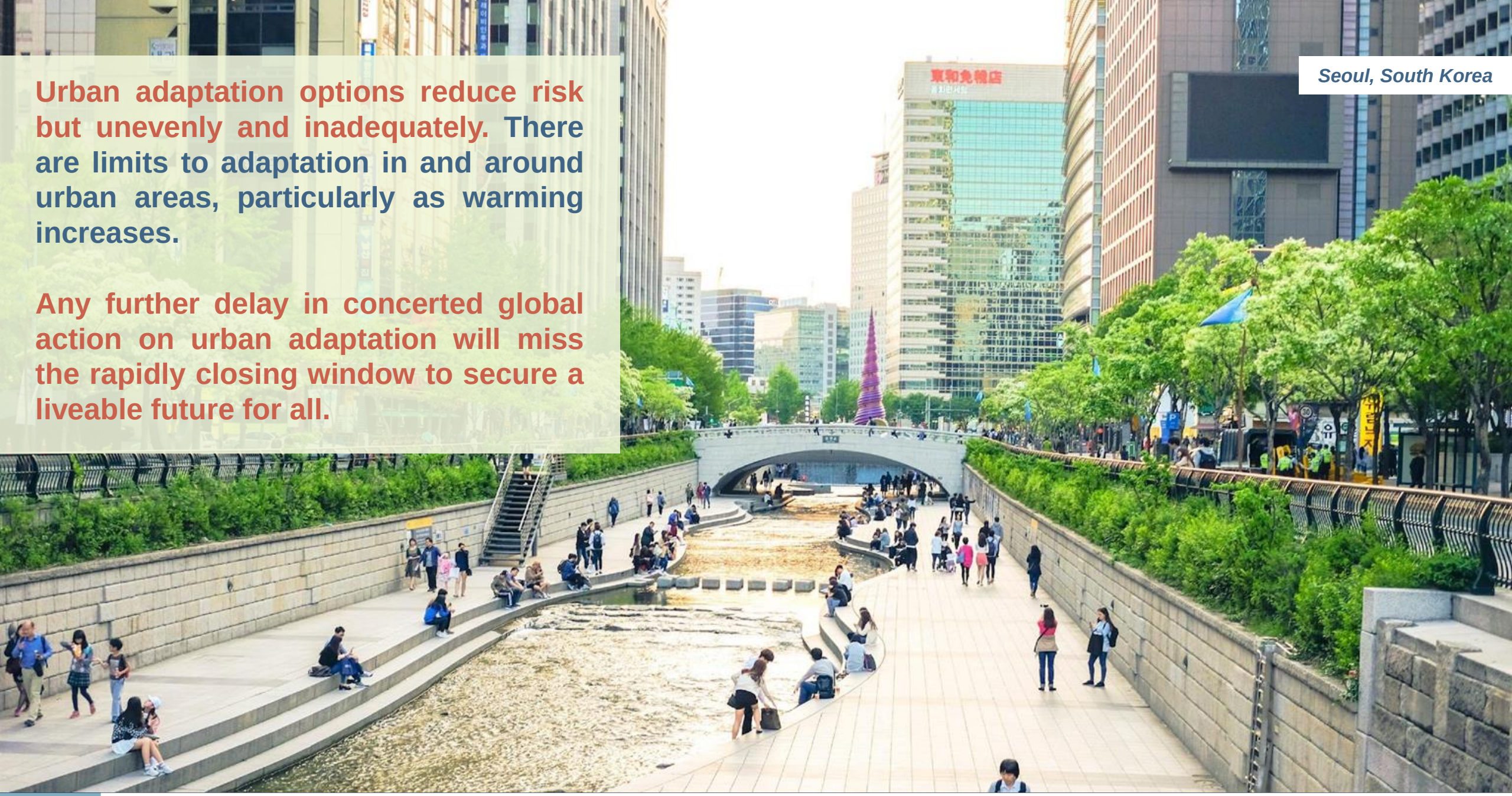


Figure Source: Derived from IPCC AR6 WGII, Chapter 6, Figure 6.4

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.



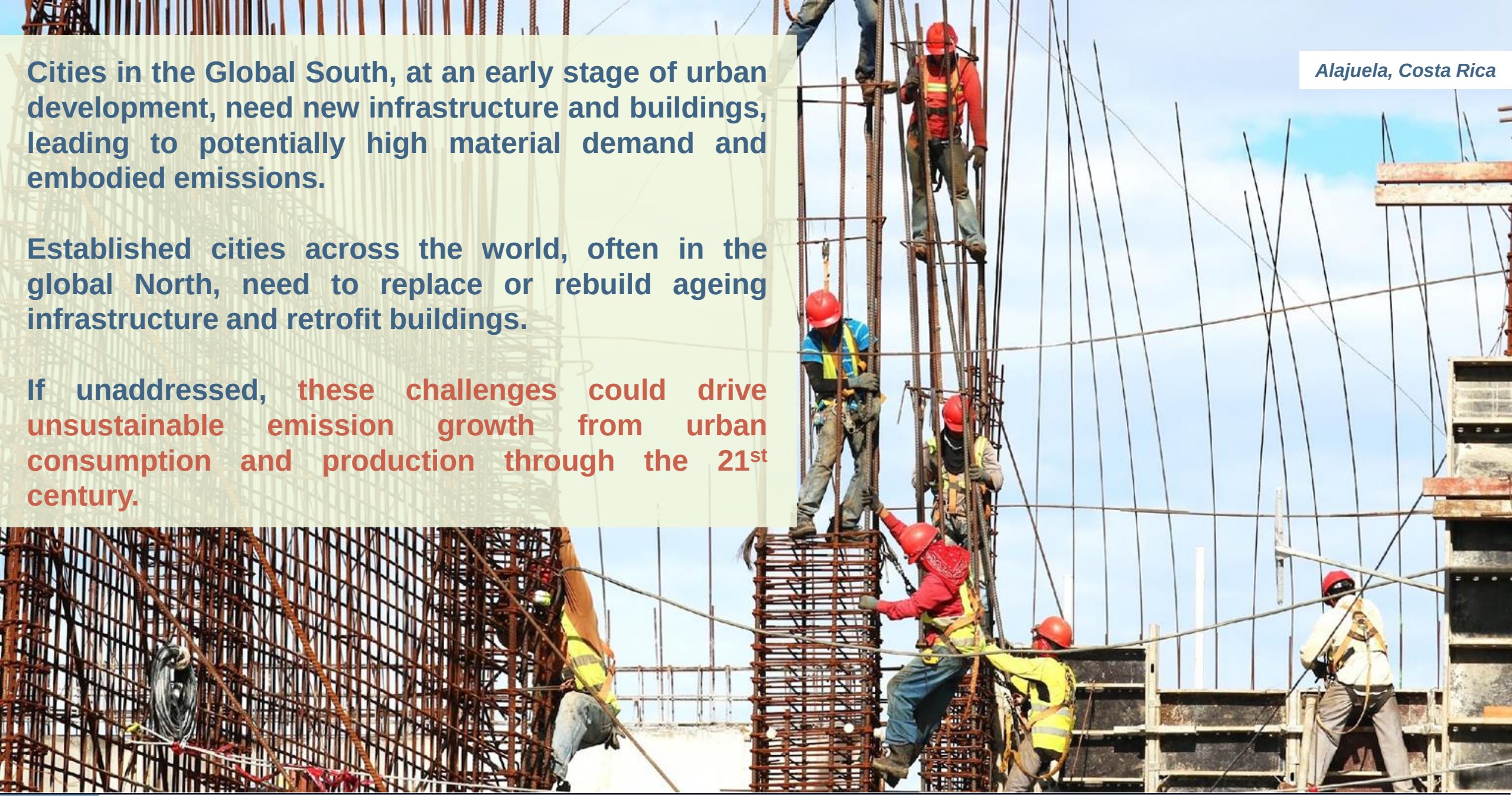
Seoul, South Korea

Image credits: Sandi Benedicta / Unsplash

Urban climate change mitigation has a crucial role in determining the future of the global climate.

How cities and urban areas are planned, designed, built, retrofitted, managed and powered will influence urban GHG emissions.

Image credits: Mohit Kumar / Unsplash



Alajuela, Costa Rica

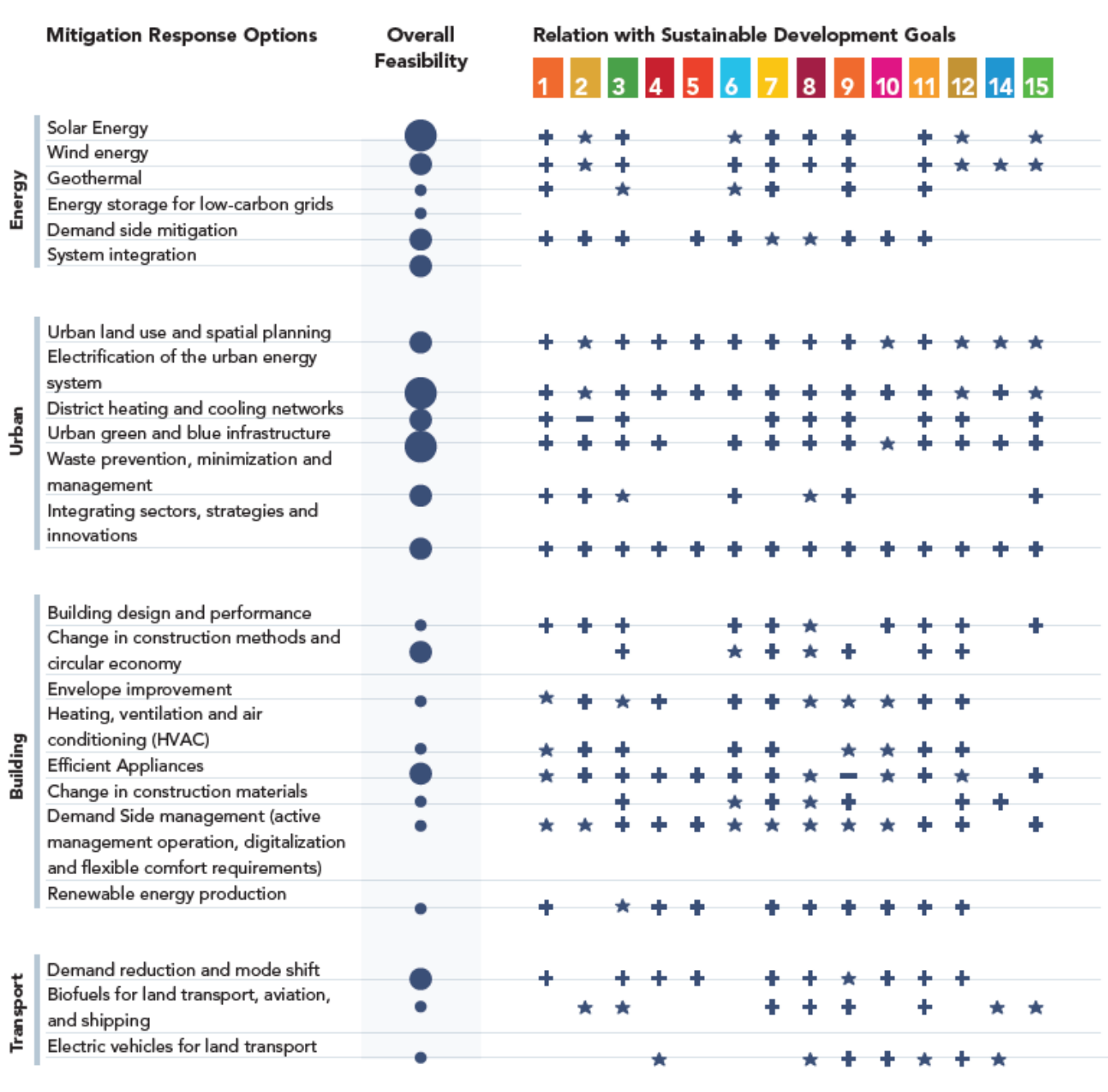
Cities in the Global South, at an early stage of urban development, need new infrastructure and buildings, leading to potentially high material demand and embodied emissions.

Established cities across the world, often in the global North, need to replace or rebuild ageing infrastructure and retrofit buildings.

If unaddressed, these challenges could drive unsustainable emission growth from urban consumption and production through the 21st century.

Image credits: Victor Deweerdt / Unsplash

There are multiple feasible mitigation options and synergies between mitigation action and sustainable development across key urban sectors and approaches.



Synergies
Trade-offs
Synergies and trade-offs
Blanks represent no assessment

Overall Feasibility: High, Medium, Low

Figure Source: Derived from IPCC AR6 WGIII, Summary for Policymakers, SPM.8

Enhanced mitigation action can deliver local adaptation benefits, like reduced flood risk, limiting urban heat island impact, and enhanced health because of reduced air pollution.

Image credits: Ryutaro Tsukata / Pexels

Enhanced mitigation can create new green job opportunities, raise incomes and reduce inequalities within and between countries.

Image credits: Paul Starkey / Ashden

Five simultaneous System Transitions are the key to successful climate action.

- Urban & Infrastructure systems
- Energy systems
- Industrial systems
- Land, coastal, ocean & freshwater ecosystems
- Societal choices and transitions

Image credits: Ahmad Saeed / Pexels

Enabling Conditions promote or advance systems transitions and ultimately Transformation

They play a critical role in enabling widespread, effective and accelerated implementation.

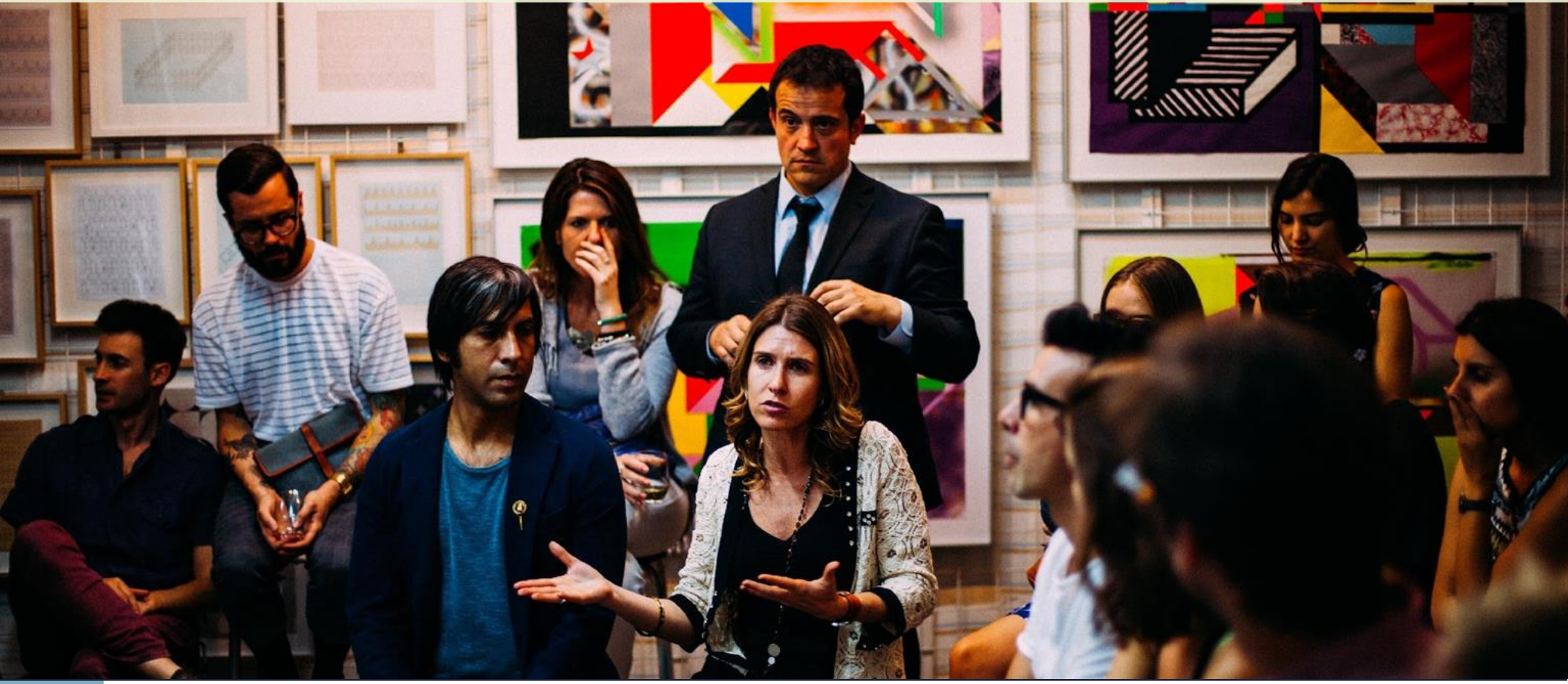


Image credits: Antenna / Unsplash

Enabling conditions accelerate system transitions. These include:

- **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**

Image credits: tribesh kayastha / Unsplash

Cities and urban areas offer critical spaces in the near term to realize Climate Resilient Development by implementing adaptation and mitigation simultaneously with sustainable development.

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

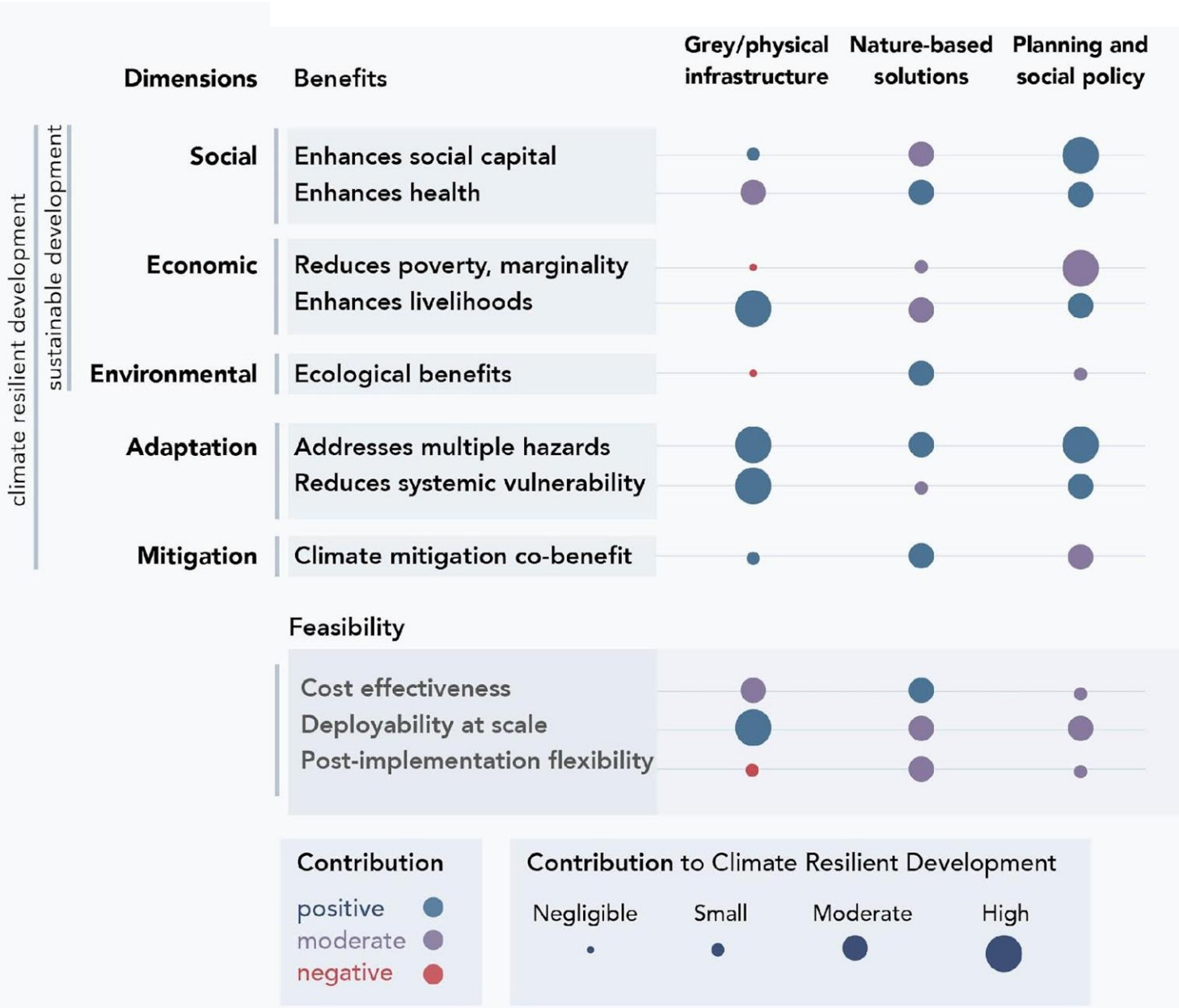


Figure Source: Derived from IPCC AR6 WGII, Chapter 6, Figure TS.9(d)

Cities can implement aggressive and ambitious climate policies, implement sustainable development, mitigation and adaptation actions simultaneously to move towards Climate Resilient Development, improve and enhance human and planetary health.

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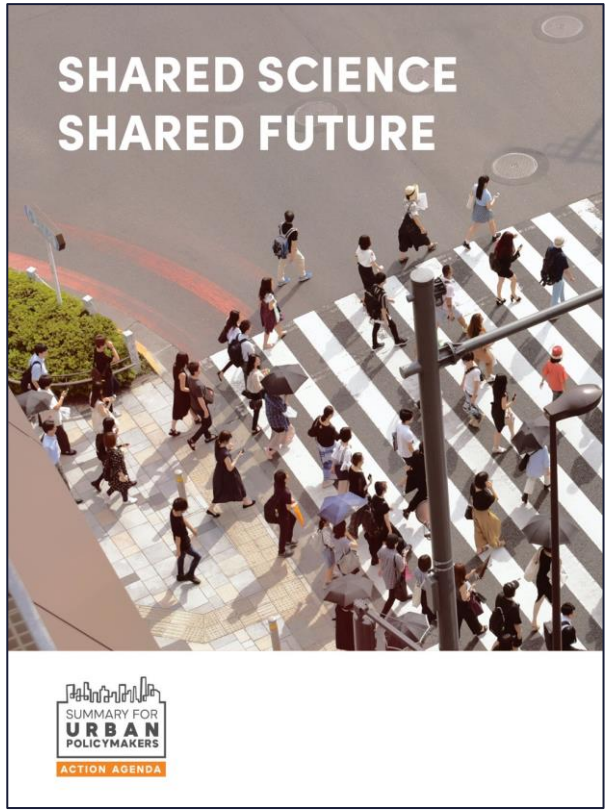
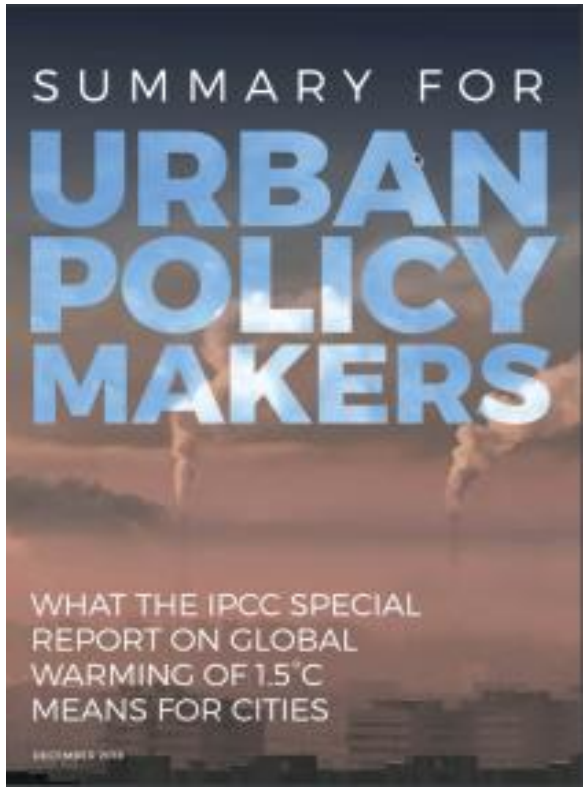
Action Agenda



2022

SUP SR1.5



2018

For more information: https://supforclimate.com/ and www.ipcc.ch