

Embedding Climate Change in Urban Planning and Design

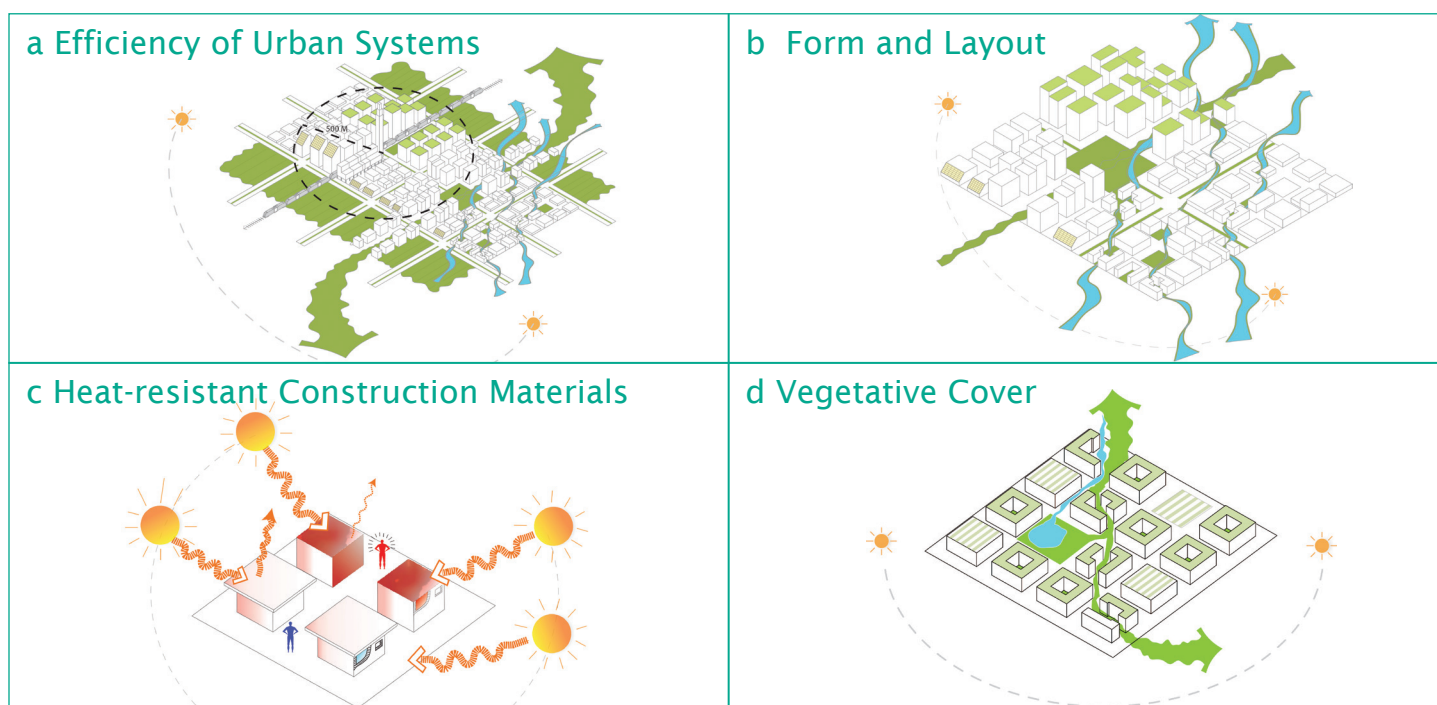


Figure 5: Main strategies used by urban planners and designers to facilitate integrated mitigation and adaptation in cities: (a) reducing waste heat and greenhouse gas emissions through energy efficiency, transit access, and walkability; (b) modifying form and layout of buildings and urban districts; (c) use of heat-resistant construction materials and reflective surface coatings; and (d) increasing vegetative cover. Source: Urban Climate Lab, Graduate Program in Urban & Regional Design, New York Institute of Technology, 2015.

Urban planning and urban design have a critical role to play in the global response to climate change. Actions that simultaneously reduce greenhouse gas emissions and build resilience to climate risks should be prioritized at all urban scales—metropolitan region, city, district/neighborhood, block, and building. This needs to be done in ways that are responsive to and appropriate for local conditions.

- Selecting construction materials and reflective coatings can improve building performance by managing heat exchange at the surface.
- Increasing the vegetative cover in a city can simultaneously lower outdoor temperatures, building cooling demand, runoff, and pollution, while sequestering carbon.

MAJOR FINDINGS

Urban planners and designers have a portfolio of climate change strategies that guide decisions on urban form and function (Figure 5).

- Urban waste heat and greenhouse gas emissions from infrastructure—including buildings, transportation, and industry – can be reduced through improvements in the efficiency of urban systems.
- Modifying the form and layout of buildings and urban districts can provide cooling and ventilation that reduce energy use and allow citizens to cope with higher temperatures and more intense runoff.

KEY MESSAGES

Climate change mitigation and adaptation strategies should form a core element in urban planning and design taking into account local conditions. Decisions on urban form have long-term (>50 years) consequences and affect the city's capacity to reduce greenhouse gas emissions and to respond to climate hazards. Investing in mitigation strategies that yield concurrent adaptive benefits should be prioritized.

Urban planning and design should incorporate long-range strategies for climate change that reach across physical scales, jurisdictions, and electoral timeframes. These activities need to deliver a higher quality of life for urban citizens as the key performance outcome.