







# Cities

Investing in energy and resource efficiency





# Acknowledgements

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## List of acronyms

ARPU	Average revenue per user
BAU	Business-as-usual
BedZED	Beddington Zero Energy Development
BRT	Bus rapid transit
C40	Cities Climate Leadership Group
CDM	Clean Development Mechanism
CDS	City Development Strategy
CO <sub>2</sub>	Carbon dioxide
CHP	Combined heat and power
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAR	Floor area ratios
GDP	Gross Domestic Product
GHG	Greenhouse gas
GIS	Geographic Information System
GLA	Greater London Authority
GNP	Gross National Product
HDI	Human Development Index
ILO	International Labour Organization
IOE	International Organisation of Employers
LSE	London School of Economics and Political Science
MTR	Mass Transit Railway
OECD	Organisation for Economic Co-operation and Development
PES	Payment for Ecosystem Services
R&D	Research and development
PV	Photovoltaic
UNEP	United Nations Environment Programme

# Key messages

**1. Urban development will have to fundamentally change to facilitate the transition towards a green economy.** Urban areas are now home to 50 per cent of the world's population but they account for 60-80 per cent of energy consumption and a roughly equal share of carbon emissions. Rapid urbanisation is exerting pressure on fresh water supplies, sewage, the living environment and public health, which affect the urban poor most. In many cases, urbanisation is characterised by urban sprawl and peripheralisation – which is not only socially divisive, but also increases energy demand, carbon emissions and puts pressure on ecosystems.

**2. Unique opportunities exist for cities to lead the greening of the global economy.** There are genuine opportunities for national and city leaders to reduce carbon emissions and pollution, enhance ecosystems and minimise environmental risks. Compact, relatively densely populated cities, with mixed-use urban form, are more resource-efficient than any other settlement pattern with similar levels of economic output. Integrated design strategies, innovative technologies and policies are available to improve urban transport, the construction of buildings and the development of urban energy, water and waste systems in such a way that they reduce resource and energy consumption and avoid lock-in effects.

**3. Green cities combine greater productivity and innovation capacity with lower costs and reduced environmental impact.** Relatively high densities are a central feature of green cities, bringing efficiency gains and technological innovation through the proximity of economic activities, while reducing resource and energy consumption. Urban infrastructure including streets, railways, water and sewage systems comes at considerably lower cost per unit as urban density rises. The problem of density-related congestion and associated economic costs can be addressed and offset by developing efficient public transport systems and road charges.

**4. In most countries, cities will be important sites for the emerging green economy.** This is for three main reasons. First, the proximity, density and variety intrinsic to cities deliver productivity benefits for companies and help stimulate innovation. Second, green industries are dominated by service activity – such as public transport, energy provision, installation and repair – which tends to be concentrated in urban areas where consumer markets are largest. Third, some cities will also develop high-tech green manufacturing clusters in or close to urban cores, drawing on knowledge and skill spillovers from universities and research labs.

**5. Introducing measures to green cities can increase social equity and quality of life.** Enhancing public transport systems, for example, can reduce inequality by improving access to public services and other amenities, and by helping to relieve vehicle congestion in poorer neighbourhoods. Cleaner fuel for transport and power generation can reduce both local pollution and health inequality. Reducing traffic and improving conditions for pedestrians and cyclists can help foster community cohesion, an important aspect of quality of life, which also has positive impacts on economic resilience and productivity. Evidence shows that children who live in close proximity to green space are more resistant to stress, have a lower incidence of behavioural disorders, anxiety, and depression, and have a higher measure of self-worth. Green space also stimulates social interaction and enhances human well-being.

**6. Only a coalition of actors and effective multilevel governance can ensure the success of green cities.** The most important fundamental enabling condition is a coalition of actors from the national and local state, civil society, the private sector and universities who are committed to advancing the green economy and its urban prerequisites, placing it centrally within the top strategic priorities for the city. The central task of this coalition is to promote the idea of a long-term strategic plan for the city or urban territory. Equally, it is crucial to develop strategic frameworks not just at the local and urban level, but also at regional and national levels, ensuring coordinated design and implementation of policy instruments.

**7. Numerous instruments for enabling green cities are available and tested but need to be applied in a tailored, context-specific way.** In contexts with strong local government it is possible to envisage a range of planning, regulatory, information and financing instruments applied at the local level to advance green infrastructure investments, green economic development and a multi-track approach to greater urban sustainability. In other contexts, local governments, in a more pragmatic approach, could target a few key sectors such as water, waste, energy and transport and commit those to a limited number of specific goals as a point of departure for greening urban sectors.

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