

CAN WE FUTURE PROOF OUR CITIES?



Future Proofing Cities

THE PLANET IS NOT INANIMATE. IT IS A LIVING ORGANISM. THE EARTH, ITS ROCKS, OCEANS, ATMOSPHERE AND ALL LIVING THINGS ARE ONE GREAT ORGANISM. A COHERENT HOLISTIC SYSTEM OF LIFE, SELF-REGULATING, SELF-CHANGING.

JAMES LOVELOCK, GAIA





SUSTAINABLE DEVELOPMENT

‘Sustainable development is not an option that will go away – sustainable development is the only way forward’

Rhodri Morgan Previous First Minister for Wales

URBAN POPULATIONS: SOME FACTS

15-50%

1800 – 2 cities with a population of over 1 million – London and Peking

By 1990 – the world's largest 100 cities accommodated 540 million

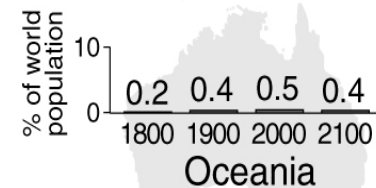
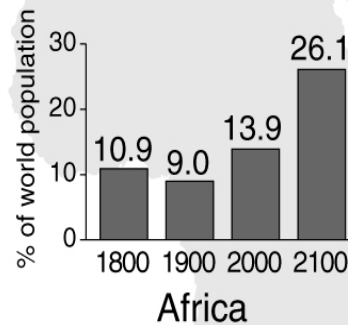
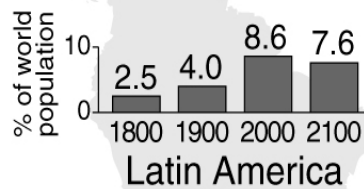
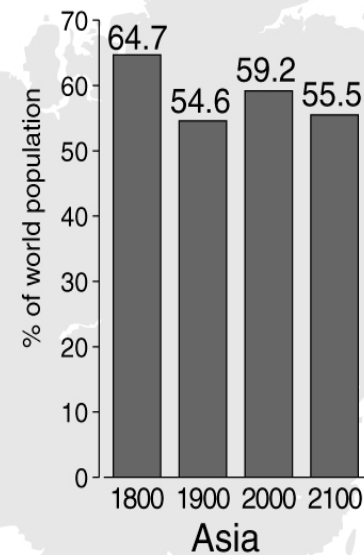
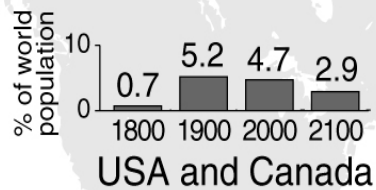


2015- world's urban population
3.94 billion

Europe – population > 739 million
74% urban

UK urban population > 53 million





Global Distribution of Population



- Cities consume more than three-quarters of the world's energy and at least three-quarters of global pollution



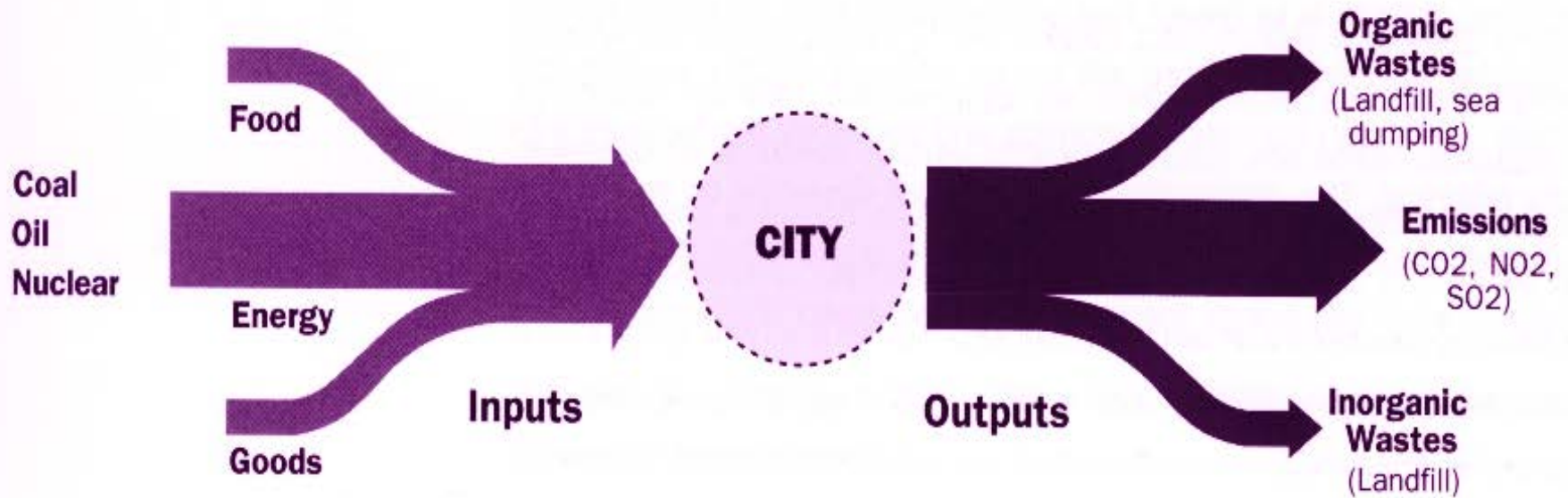
- At least 600 million people already live in life-threatening urban environments

FACTORS LEADING TO URBAN GROWTH

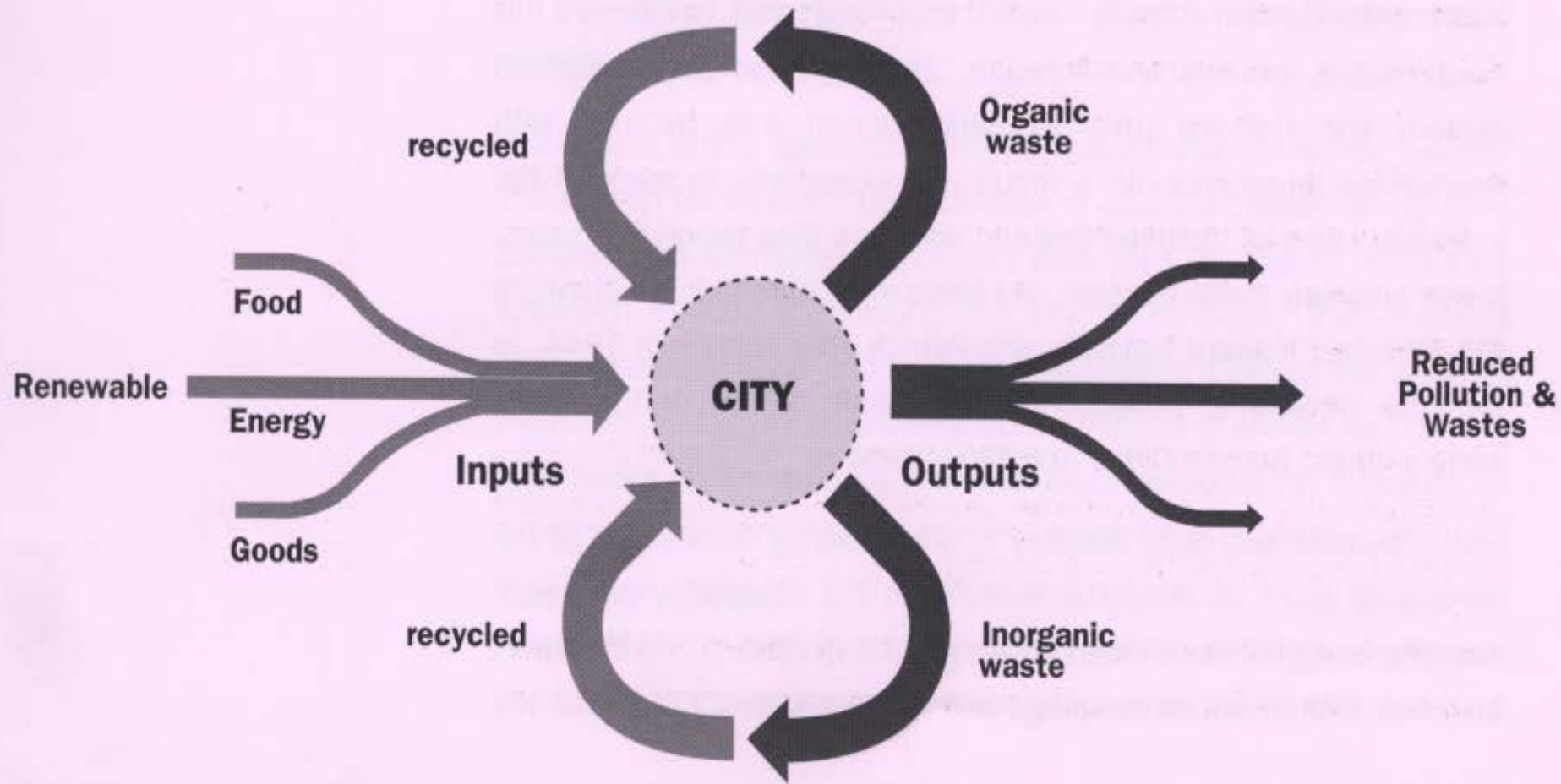
- National economic development
- Economic globalisation
- Expansion of urban-centred transport systems



- Migration from rural areas, seeking better employment and services



The Metabolism of Cities: Linear Metabolism



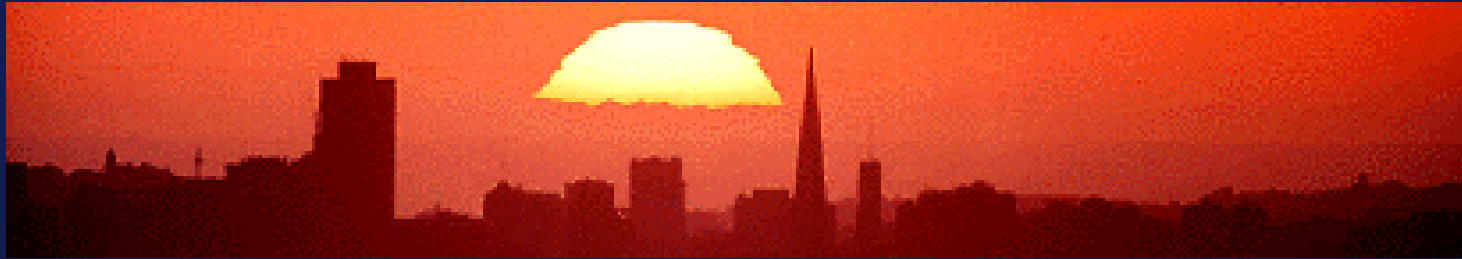
The Metabolism of Cities: Circular Metabolism

THE CHALLENGE...



How do we balance human activity with current resources?

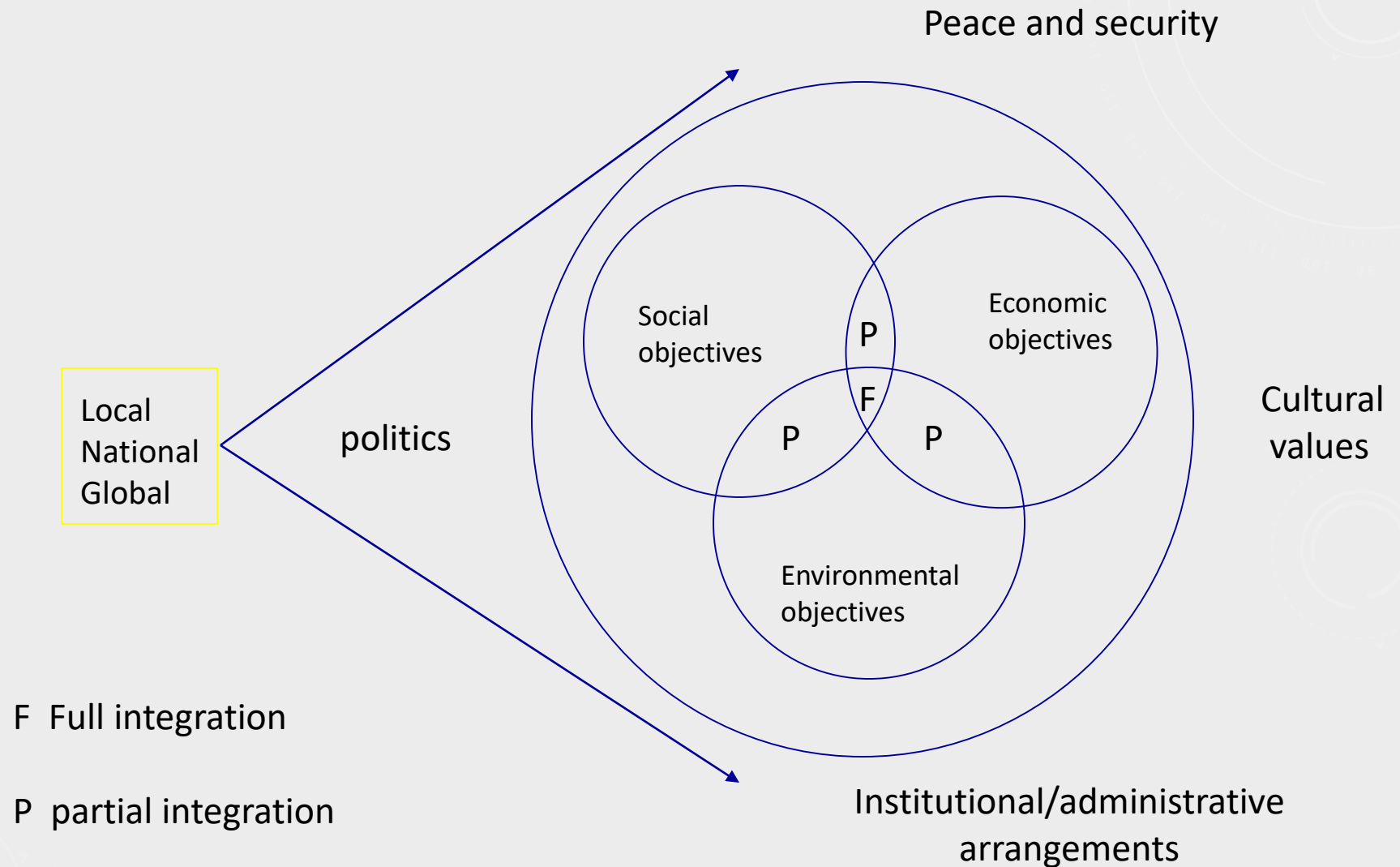
DEFINITIONS: SUSTAINABLE CITIES



- 'a means by which environmental impacts can be reduced and allows society to live more lightly on the land'
- 'cities that meet the goals of sustainable development'
- 'communities and lifestyles that incorporate ecology and more ecologically responsible forms of living and settlement'
- 'another term for green urbanism'



The Systems of Sustainable Development



DEVELOPMENT

The view from DEFRA...

‘Development which attracts a lot of people should be concentrated in or on the edge of existing towns or suburban centres, ...



...or be within areas which are or can be well served by public transport. Higher density housing should be encouraged within easy walking distance of these centres.’

ENGINEERING FOR SUSTAINABILITY

- Environmentally conscious building
- Infrastructure design
- Materials and products
- Efficient water management
- Energy efficiency



FUTURE CONSTRUCTION

- Aim to minimise environmental impact through energy and resource efficiency
- Minimising non-renewable resource consumption
- Enhancing natural environment
- Eliminating or minimising use of toxins



FUTURE CONSTRUCTION

- Increase density
- Make homes affordable
- Provide open spaces
- Minimise environmental impact
- Provide an amenable surroundings



BUILDING RESEARCH ESTABLISHMENT'S ENVIRONMENTAL ASSESSMENT METHOD (BREEAM)



- Reduce need for transport during demolition
- Exploit natural aspects of site
- Demolish and rebuild only when it is not economical or practical to re-use, adapt or extend existing structure

- Design to minimise running costs
- Use local traditions in materials and design
- Ensure function and comfort above design statement
- Build for longevity
- Avoid non-renewable materials where possible





ENVIRONMENTAL ARCHITECTURE

- Healthy interior environment
- Energy efficiency
- Ecologically benign materials
- Environmental form
- Good design



SUSTAINABLE FUTURES

- Only some 7% of the UK's land area is urban!
- By 2020 it is anticipated that this figure will have risen to less than 10%.
- Problem or opportunity?



Urban Population as a Percentage of total Population (Selected Countries)

	2030	2020	2000	1980	1950
Australia	91.9	90.6	87.2	85.8	77
China	60.3	53.2	35.8	19.6	13
France	82.9	80.2	75.8	73.3	55.2
Greenland	88.4	86.5	81.6	76.1	49
Pakistan	49.8	42.7	33.1	28.1	17.5
Thailand	45.8	38.9	31.1	26.8	16.5
United Kingdom	92.2	91.1	89.4	87.9	79

Future proofing cities



What is the challenge?



Can we identify the cause?

feedback

Solution!

Provide an assessment



URBAN DESIGN

- Towns and cities have always been dynamic, changing social and economic conditions
- Inner city ghettos and disenfranchised citizens
- Urban renaissance





URBAN DESIGN ACCORDING TO FRANCIS TIBBAULD

- Places more important than buildings
- Learn from past
- Uses and activities must be mixed
- Human scale imperative
- Freedom of pedestrians important
- Accessibility for all
- Clear and legible
- Robust built environment
- Control scale and rate of change in cities
- All the above needs to come together to form a rich, attractive and enjoyable public realm

URBAN DESIGN

Urban design is thus derived from, but transcends, the disciplines of planning and transport, architecture, development economics, landscape design and engineering.



Key attributes when designing cities for the future!

CITIES LIKE FORESTS PERHAPS?

- Greening the city
- Air cleansers
- Psychological well-being
- Restoring, replenishing and nurturing urban ecology



FUTURE CITIES.....?

(Excerpt 'Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change', G8 Summit, Hokkaido, Japan 9 July 2008)

Climate change is one of the great global challenges of our time... our ability ultimately [is] to achieve a

long-term global goal [that] will depend on affordable, new, more advanced, and innovative technologies, infrastructure, and practices that transform the way we live, produce and use energy, and manage land.





...AND FROM LOVELOCK...

Meanwhile climate change progresses remorselessly, now driven by feedbacks from the Earth as well as our increases in emissions and land use. There is no tipping point; we are sliding down a bumpy slope that grows ever steeper to the future hot world.

(James Lovelock from 'A Final Warning: The Vanishing Face of Gaia' 2009)



Looking back...



Paris was one of the first modern cities to introduce trees

...today



... and tomorrow?





Central Park, New York

Future Proofing Cities...

We no longer live in a civilisation.....but in a mobilisation of natural resources, people and products

So what now, what are the challenges for our future cities?

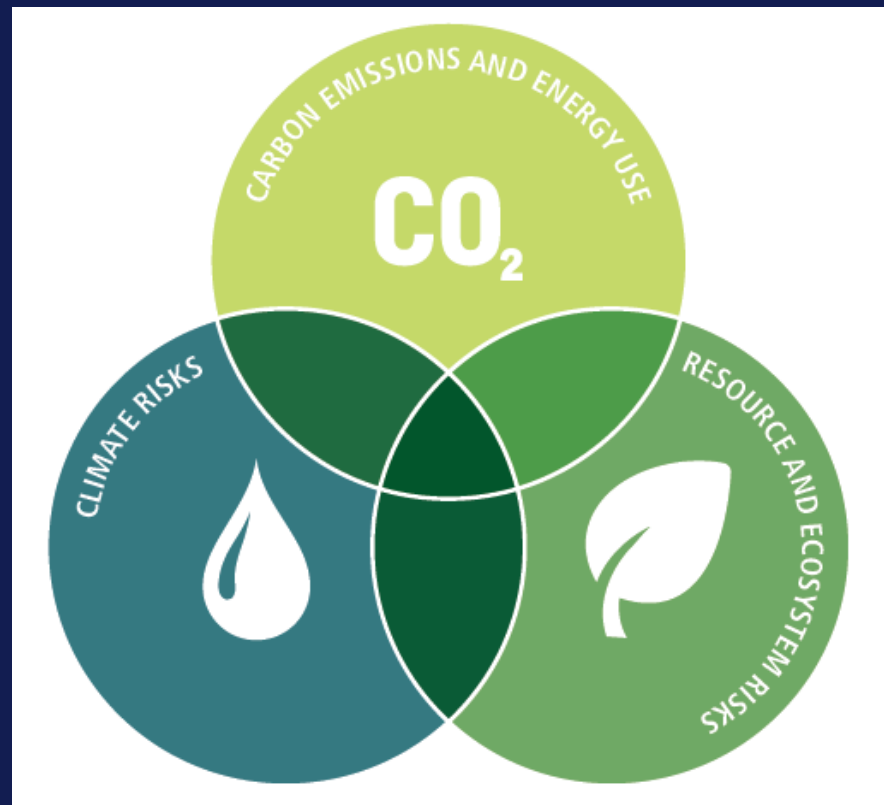
Energy

Food and water

Climate

Natural environment

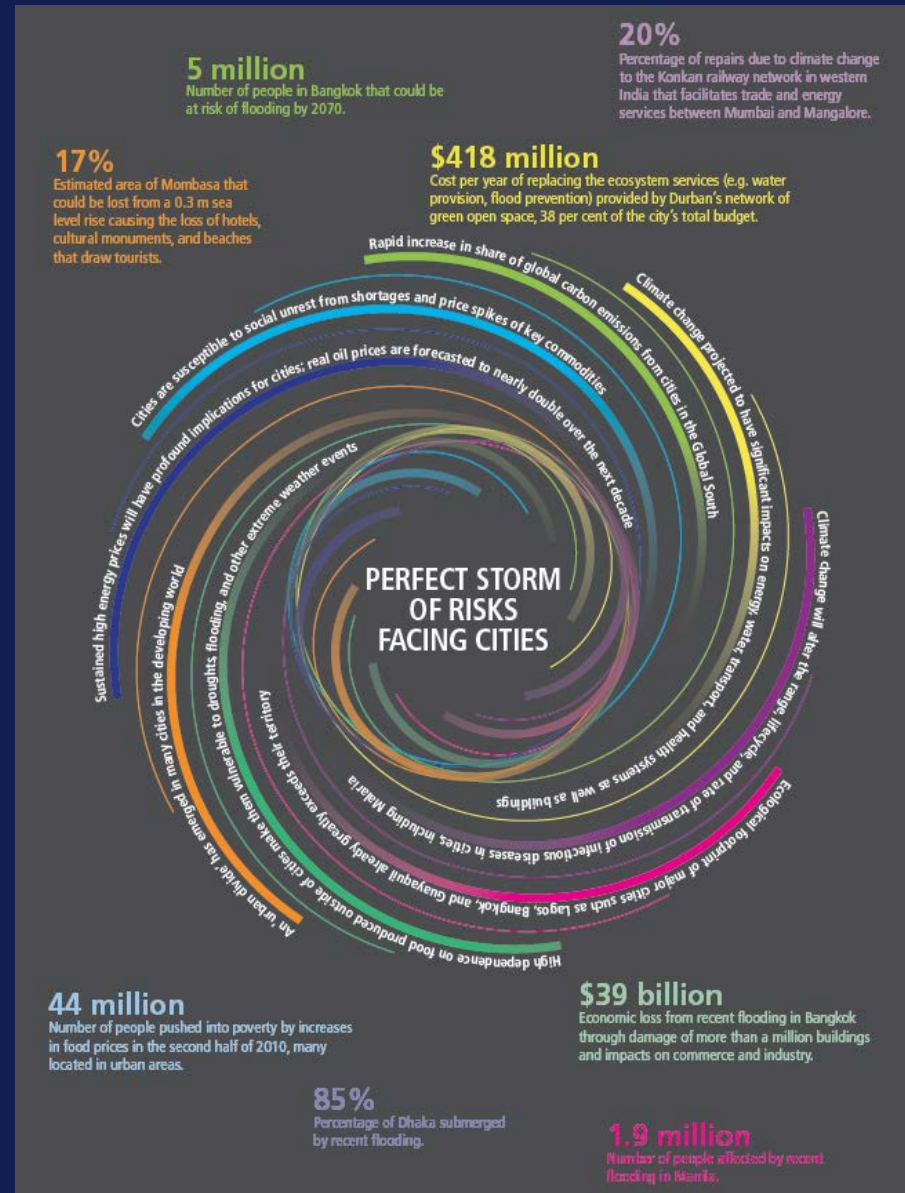
Risk



FUTURE PROOFING CITIES

Agenda for change

- Developing future proofed urban strategies
- Unlocking and aligning finance – including climate finance – for future proofing
- Undertaking urban risk diagnostics
- Strengthening the capacity of urban governance, planning, and delivery systems
- Improving the data and evidence underpinning city decision making
- Additional research and improved guidance
- Identifying risks to existing and planned investment portfolios



FUTURE PROOFING CITIES

Drawing from one challenge as identified in the Atkins Report, offer key areas of concern preventing cities from achieving a sustainable future.

