



Four Golden Rules for a Sustainable City

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Outline

- Mott MacDonald – who we are
- The Rules
- Examples of success and failure

Who we are

Global management
engineering and development consultancy

Working in over 140 countries from 200
permanent offices

Over 14,000 staff

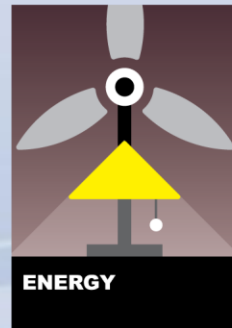
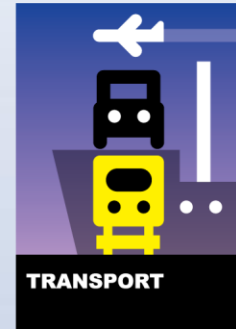
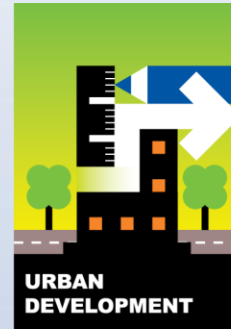
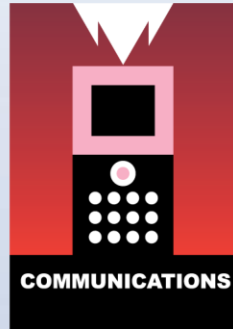
Turnover of £1 billion

Employee-owned

Ranked 13th in Sunday Times Best
Companies To Work For



Our skill sets



Our locations



The Golden Rules

Set clear stretch targets and stick to them

Too small, and the city lacks the capacity to maintain its systems; too large and it demands resources from too far away

Step changes in sustainable development cannot be driven just by better technology or engineering

Let the city achieve its goals through the economic system

Use local resources of energy and materials, but avoid creating an urban environment that is too different from its surroundings, because effort is needed to maintain that difference

Minimise the need for behavioural change

Clear stretch targets – and stick to them

Failures: CBI Policy Tracker of UK policies



Clear stretch targets – and stick to them

Success: Tianjin Ecocity, China

- Water consumption: 120 l/p/day
- Water from recycling & rainwater harvesting: 50%
- Building energy efficiency compared to current Chinese standards: 65%
- Journeys by foot, bicycle or public transport: 90%
- Energy from renewable resources: 20%
- Waste, maximum non-recycled: 0.8 kg/p/d



Draw benefit from the local climate and location

Failure: Typical modern Gulf cities

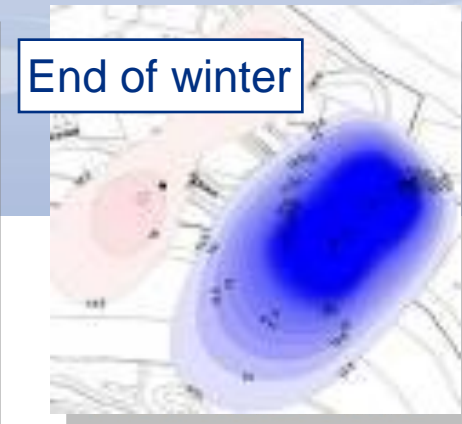
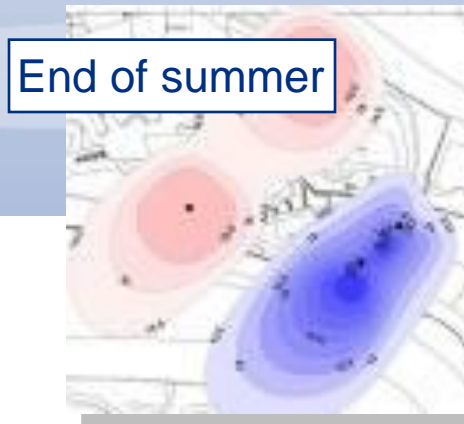
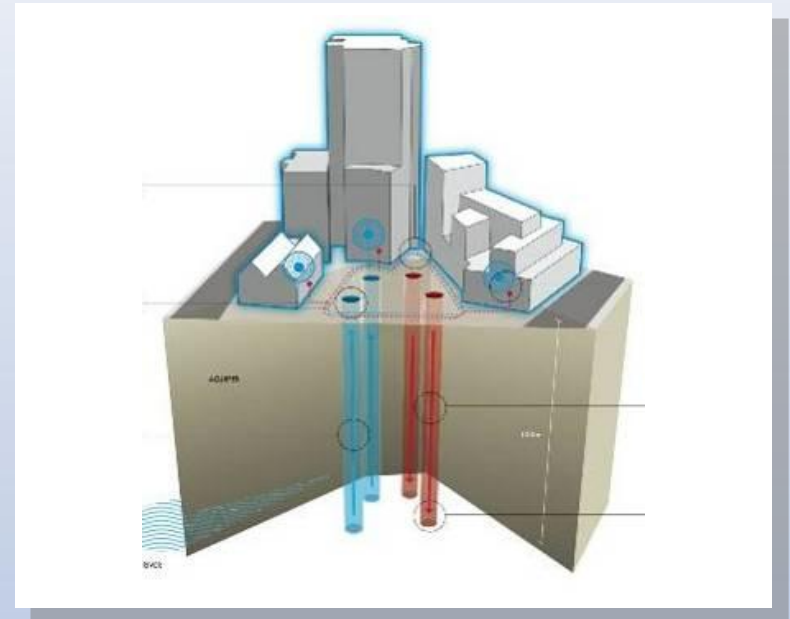
- Manhattan model for a temperate island development
- Applied to unconstrained land area in arid climate
- Urban travel distances are large: car use demanded
- Too hot to walk, cycle etc
- Natural cooling & ventilation are designed out



Draw benefit from the local climate and location

Success: City X (China) – city-scale thermal storage

- Underground thermal energy storage to create a balance between winter and summer.
- Summer: waste heat used to raise the heat of the ground below the city
- Winter: heat extracted in the winter as part of the heating energy required.
- Winter: another area cooled by using the rejected “coolth”
- Summer: “coolth” used as part of the cooling source in the summer.



Growth to equilibrium with the economic and natural environment

Failure: New Orleans



- Levees used to hold back a large delta
- Large areas of city developed well below water level
- Levee system failure
- Lack of local economic basis for restoration
- Abandon sections of the city?

Growth to equilibrium with the economic and natural environment

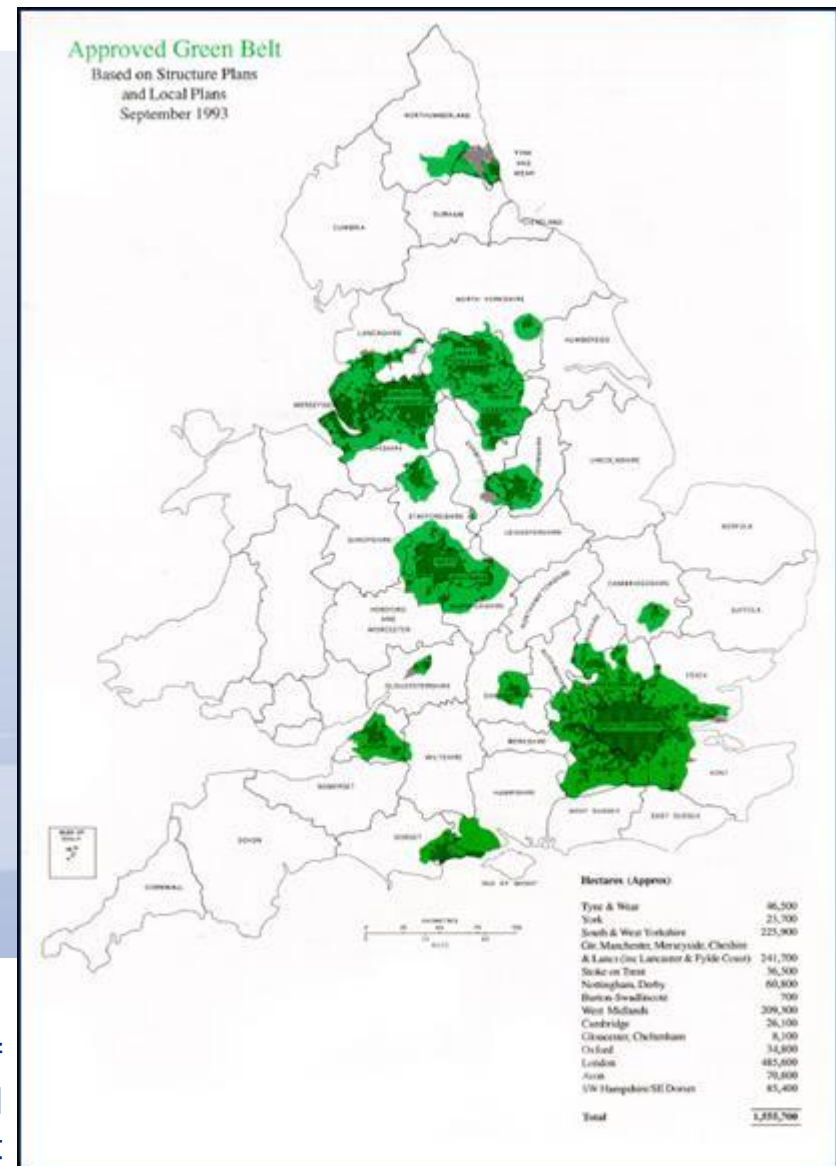
Success?: English Green Belt Policy

- 55 years old, now PPG 2

Objectives

- To check the unrestricted sprawl of large built-up areas;
- To prevent neighbouring towns from merging into one another;
- To assist in safeguarding the countryside from encroachment;
- To preserve the setting and special character of historic towns; and
- To assist in urban regeneration, by encouraging the recycling of derelict and other urban land

Source: Department of
Communities & Local
Government



Accept the need for behavioural change

Failure: Most large western cities

- The car as cultural icon
- Political sensitivity to change
- Urban sprawl
- Low-density peripheral development
- Distorted view of fiscal regime underestimates social cost of urban commuting
- Lack of public transport demand, coupled with de-regulation and “competition” undermines business model



Accept the need for behavioural change

Success: TfL “Better Bikes Route” campaign



- Emphasise positive messages
- Highlight links between health and transport
- Focus campaigns on young people to establish new behaviour patterns
- Focus campaigns at moments of life-style change (new house, new job)
- Develop business models for attractive green transport (car clubs)

The Golden Rules

**Set clear stretch targets -
and stick to them like glue**

**Design the city to draw
benefit from the local
climate and location**

**Let the city grow until it
achieves equilibrium with
the economic and natural
environment**

**Accept the need for
behavioural change**



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