ECO-TOWNS
Will they be Eco-?
Can they become Towns?

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Lecture Series *What is Land For?*
Birkbeck College
Friday 14 November 2008
The Challenge:
(1) Climate Change
The Challenge:
(2) Housing Need: Kate Barker 2004

- Need for massive increase in housing completions
- Will need brownfield + greenfield
- “Political” attack by shires – “unholy alliance” with cities
### Table 1 The four growth areas – targets and achievements

<table>
<thead>
<tr>
<th>Area</th>
<th>Planned homes, 2001-2006</th>
<th>Housing starts, 2003-2006</th>
<th>Percentage of plan target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milton Keynes - South Midlands</td>
<td>153,000*</td>
<td>24,246</td>
<td>15.9</td>
</tr>
<tr>
<td>London-Stansted - Cambridge - Peterborough</td>
<td>180,000*</td>
<td>20,171</td>
<td>11.2</td>
</tr>
<tr>
<td>Thames Gateway</td>
<td>160,000+</td>
<td>29,311</td>
<td>18.3</td>
</tr>
<tr>
<td>Ashford</td>
<td>31,000#</td>
<td>1,382</td>
<td>4.5</td>
</tr>
</tbody>
</table>

* 2001-16  + 2001-21  # 2001-31
Growth Corridors, Growth Points and Eco-Towns
Eco-Towns: CLG Objectives

(i) places with a separate and distinct identity but good links to surrounding towns and cities in terms of jobs, transport and services;

(ii) the development as a whole to achieve zero carbon and to be an exemplar in at least one area of environment technology;

(iii) a good range of facilities within the town including a secondary school, shopping, business space and leisure;

(iv) between 30 and 50 per cent affordable housing with a good mix of tenures and size of homes in mixed communities; and

(v) a delivery organisation to manage the town and its development and provide support for people, businesses and community services.
Model: BEDZED, Beddington, London

- UK’s largest eco-village
- Opened March 2002
- BioRegional/Peabody Trust/Bill Dunster Associates
- 100 homes, community facilities and workspace for 100 people
- Heating requirements: ca 10% typical home
- 60% recycling aim
- Target fossil fuel car miles: 50% national average
- Hackbridge Station 5 mins
- Car Club
- Local facilities: football pitch, club house, dance studio, nursery, multi-use centre village square, recycling bins, home food delivery and allotments
- CHP???
Model: Northstowe, Cambridgeshire

- 9,500 homes on former RAF site
- 5m NW of Cambridge; £100m Guided Bus
- EP + Gallagher /Cambridgeshire Horizons
- Start early 2009
- Secondary school, six primary schools, civic hub: community health and cultural facilities
- Local business district: 5,000 jobs
- Leisure facilities; “small town” shopping
- Aim: up to 50 per cent reductions in energy and mains water use, through:
  - Microgeneration, photovoltaic panels;
  - Solar water heating (can supply up to 50 per cent hot water); and
  - Design for reduced energy and water use
UK Eco-Town: Marston Vale

Marston Vale Eco-Town
UK Eco-Town: Hanley Grange
UK Eco-Town: Middle Quinton

A sustainable location which relates well to the existing network of surrounding towns and villages.
UK Eco-Town: Pennbury-Stoughton
UK Eco-Town: Rossington
Eco-Towns Sustainability

Summary – the situation with eco-towns

Locally:
- Additional new homes (up to 10 eco-town schemes should be well underway by 2016)
- An opportunity to provide family housing and respond to local housing need
- The chance to design in environmentally-friendly technologies and infrastructure from the outset (capitalising on economies of scale and increases in land value)
- The prospect of relieving development pressure on neighbouring urban areas
- A risk that residents will travel by car to nearby settlements, particularly to work, unless adequate public transport is put in place

Nationally:
- The opportunity to minimise the impact of new development on the environment, provide inspiration for future developments and potentially a showcase for sustainable living
- An opportunity to demonstrate that new settlements – an increasingly likely option for accommodating new housing – can be sustainable
- The potential to promote more sustainable behaviours and change attitudes
- The eco-town standards may be widely adopted and applied and so raise the bar for all new development

<table>
<thead>
<tr>
<th>Topic</th>
<th>Standard</th>
<th>Does this represent an improvement on business-as-usual?</th>
</tr>
</thead>
</table>
| Zero carbon in Eco-Towns     | The definition of Zero Carbon in eco-towns is that over a year the net carbon dioxide emissions from all energy use within the buildings on the development are zero or below. Fleming applications should demonstrate how this will be achieved. The health and social care needs of residents, and the resulting energy demand, should be taken into account when demonstrating how this standard will be met. This standard will take effect in accordance with a phased programme to be submitted with the planning application. It includes embodied carbon and emissions from transport but includes all buildings – not just houses but also commercial and public sector buildings which are built as part of the eco-town development. The calculation of net emissions will take account of:
  a) emissions associated with the use of locally produced energy,
  b) emissions associated with production of energy imported from centralised energy networks, taking account of the carbon intensity of these imports as set out in the Government’s Standard Assessment Procedure, and
  c) emissions displaced by exports of locally produced energy to centralised energy networks. Where that energy is produced from a plan (1) whose primary purpose is to support the needs of the eco-town and (2) has a production capacity reasonably related to the overall energy requirement of the eco-town. This standard attempts to ensure that energy emissions related to the built environment in eco-towns are zero or below. Standards applicable to individual homes are set out in paragraph 4.9 (see below). | Yes |
## Eco-Towns: Sustainability

### Non-Technical Summary

<table>
<thead>
<tr>
<th>Shortlisted Location</th>
<th>Banding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bennbury</td>
<td>B</td>
</tr>
<tr>
<td>Middle Quinton</td>
<td>B</td>
</tr>
<tr>
<td>Whitehill Barton</td>
<td>B</td>
</tr>
<tr>
<td>Weston Otmoor</td>
<td>C</td>
</tr>
<tr>
<td>– Skipton</td>
<td>B</td>
</tr>
<tr>
<td>– North West Bicester</td>
<td>B</td>
</tr>
<tr>
<td>Ford</td>
<td>B</td>
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<tr>
<td>St Austell (China Clay Community)</td>
<td>B</td>
</tr>
<tr>
<td>Rossington</td>
<td>B</td>
</tr>
<tr>
<td>Hanley Grange</td>
<td>B</td>
</tr>
<tr>
<td>– Alcanbury</td>
<td>B</td>
</tr>
<tr>
<td>– Waterbeach</td>
<td>B</td>
</tr>
<tr>
<td>Marston Vale</td>
<td>B</td>
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<tr>
<td>North East Elsham</td>
<td>B</td>
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<tr>
<td>Rushcliffe – Former RAF Newton/Bingham</td>
<td>B</td>
</tr>
<tr>
<td>Rushcliffe – Kingston</td>
<td>B</td>
</tr>
<tr>
<td>Rushcliffe – Coggrave Place</td>
<td>C</td>
</tr>
<tr>
<td>Greater Norwich – RAF Coltishall</td>
<td>C</td>
</tr>
<tr>
<td>Greater Norwich – Rackheath</td>
<td>A</td>
</tr>
<tr>
<td>Carborough</td>
<td>B</td>
</tr>
<tr>
<td>Manby</td>
<td>A</td>
</tr>
<tr>
<td>Leeds Region – Burn Airfield</td>
<td>C</td>
</tr>
<tr>
<td>Leeds Region – Church Fenton</td>
<td>B</td>
</tr>
<tr>
<td>Leeds Region – Goyoigne Wood</td>
<td>B</td>
</tr>
<tr>
<td>Leeds Region – Willow Green</td>
<td>B</td>
</tr>
</tbody>
</table>

**Legend**

- **A**: Generally suitable for an eco-town
- **B**: Location might be suitable for an eco-town subject to meeting specific planning and design objectives
- **C**: Location only likely to be suitable for an eco-town with substantial and exceptional innovation
Eco-Towns: Back to Howard’s Vision?
Social City: “Towns against a Background of Open Country”
Models from Mainland Europe: Freiburg
Freiburg: Vauban
Vauban: Principles

- Balance: working and living areas, social groups
- Small lots; preference to private builders and co-ops
- Conservation of trees, biotopes of bordering creek
- Priority: pedestrians, cyclists, public transport; privileges to car-free living
- Co-generation plant and short-distance heating system
- All buildings: improved low energy standard (65 kWh/m2a) now standard in whole Germany, but 6 years earlier
- Passive house standard (15 kWh/m2 a) in special areas
- Extensive use of ecological building material and solar energy
- Infiltration of rainwater into ground, ecological sanitation
- District Centre: shops for daily needs; Neighbourhood Centre
- Primary school and kindergartens
- Public green spaces, designed with local residents
- Diverse building forms; family- and children-friendly
Vauban
Vauban ctd.
Vauban ctd.

Die Vertreibung aus dem Garten Eden können wir nicht rückgängig machen ...

... aber ein irdisches Paradies können wir Ihnen bieten - in den Penthäusern auf dem Sonnenschiff.
Vauban ctd.
Freiburg: Rieselfeld
Rieselfeld, ctd.
Rieselfeld, ctd.
Sustainable Urbanism:
Stockholm, Hammarby Sjöstad

Hammarby Sjöstad's own eco-cycle

**Energy**
- Combustible waste is converted into district heating and electricity.
- Biofuel from nature is converted into district heating and electricity.
- Heat from treated wastewater is converted into district heating and district cooling.
- Solar cells convert solar energy into electricity.
- Solar panels utilise solar energy to heat water.
- Electricity must be a "Good Environmental Choice" product, or equivalent.

**Water & Sewage**
- Water consumption is reduced through the use of eco-friendly installations, low-flush toilets and air mixer taps.
- A pilot wastewater treatment plant has been built specifically for the area in order to evaluate new sewage treatment techniques.
- Digestion is used to extract biogas from the sewage sludge.
- The digested biosolids can be used for fertilisation.
- Rainwater from yards and roofs is drained into Hammarby Sjö, rather than into the wastewater treatment plant.
- Rainwater from streets is treated locally using settling basins and then drained into Hammarby Sjö, rather than being drained into the wastewater treatment plant.

**Waste**
- An automated waste disposal system with various deposit chutes, a block-based system of recycling rooms and an area-based environmental station system help the residents sort their waste.
- Organic waste is converted/digested into biosolids and used as fertiliser.
- Combustible waste is converted into district heating and electricity.
- All recyclable material is sent for recycling: newspapers, glass, cardboard, metal, etc.
- Hazardous waste is incinerated or recycled.
Sustainable Urbanism: Stockholm, Hammarby Sjöstad
Models from Mainland Europe: Malmö, Västra Hamnen
UK: Growth Areas, Growth Constraints
Good Practice Examples: The Hamptons, Upton, Ingress Park
Thames Gateway: Eastern Quarry to Ebbsfleet Valley
Kent Thamesside: Ebbsfleet Valley, Fastrack

**Kate Thameside sites and transport plan**

1. Beal Gateway
   - Primary vehicular access to Eastern Quarry from the west
2. Croydon Gorge
   - Landscaped gorge is one of the most dramatic landforms in the area. Connects Eastern Quarry to the River Thames
3. Market Centre
   - At the heart of the Eastern Quarry, the Market Centre sits on the lake edge, connected to Ebbsfleet Parkway and the Leisure Peninsula
4. Residential Villages
   - Five parkland landforms defined by parks and lakes, providing 1,000-1,500 homes on sloping landform hills and valleys
5. Ebbsfleet Park
   - The 74-acre park is one of the primary recreation spaces
6. CTRL Domestic Station
   - Serving destinations in east Kent
7. Nonthert Rise
   - Bounded by the North Kent Line, North Kent Chord and the CTRL line, the site will provide CTRL parking and commercial development
8. Future Crossrail Station
   - Anticipated site for the proposed Crossrail station
9. Ebbsfleet Station
   - On the North Kent Line, serving Medway Towns and London
10. Ebbsfleet International and Domestic Station
11. Ebbsfleet Centre
   - Greater density of office, residential, retail, leisure and civic amenities will make this the heart of the Ebbsfleet Valley
12. Channel Tunnel Rail Link
   - The Eurostar to St Pancras Station. Journey times: to London, 1.5h; to Paris, 2 hours
13. Springside
   - Phase I of development within the Ebbsfleet Valley, providing commercial and residential scheme
14. New A2 junction
   - Connections to the A2 create a strategic highway access to the site
15. Substation
   - Part of the substation site is still reserved for the electrical distribution system
16. Ebbsfleet Parkway
   - Landscaped gateway from Bluewater to Ebbsfleet, connecting neighbourhood centres with Fastrack
17. Leisure Peninsula
   - On the site of the existing Washmill, the area will provide the main leisure facilities
18. Lakes
   - Seventy acres of lakes will provide recreation and wildlife habitats along the south cliff line
19. A2 – Bean Road Interchange
20. Bluewater Gateway
   - Tunnel link to Bluewater providing connectivity for Fastrack, pedestrians and cyclists

Source: Land Securities
Summing Up: Final Questions

- Objectives/Standards?
- Costs: who pays?
- Agency: public/ private? combination?
- Location: Garden Cities v. Urban Extensions?