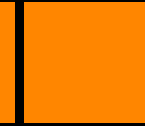


**GREEN AND SUSTAINABLE
CITIES AND BUILDINGS:
A TRANSDISCIPLINARY PERSPECTIVE**

Derya Oktay



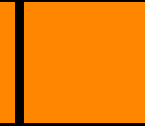
City is not a problem... It can be a solution!

Avoiding mistakes in urban planning and design at early stages could genuinely lead to sustainable cities and buildings.

Scattered developments in the periphery of the city: A threat to urban ecology, self sufficiency of the city and the urban economy.



Istanbul, Turkey



- Where are the green areas?



Ankara, Turkey

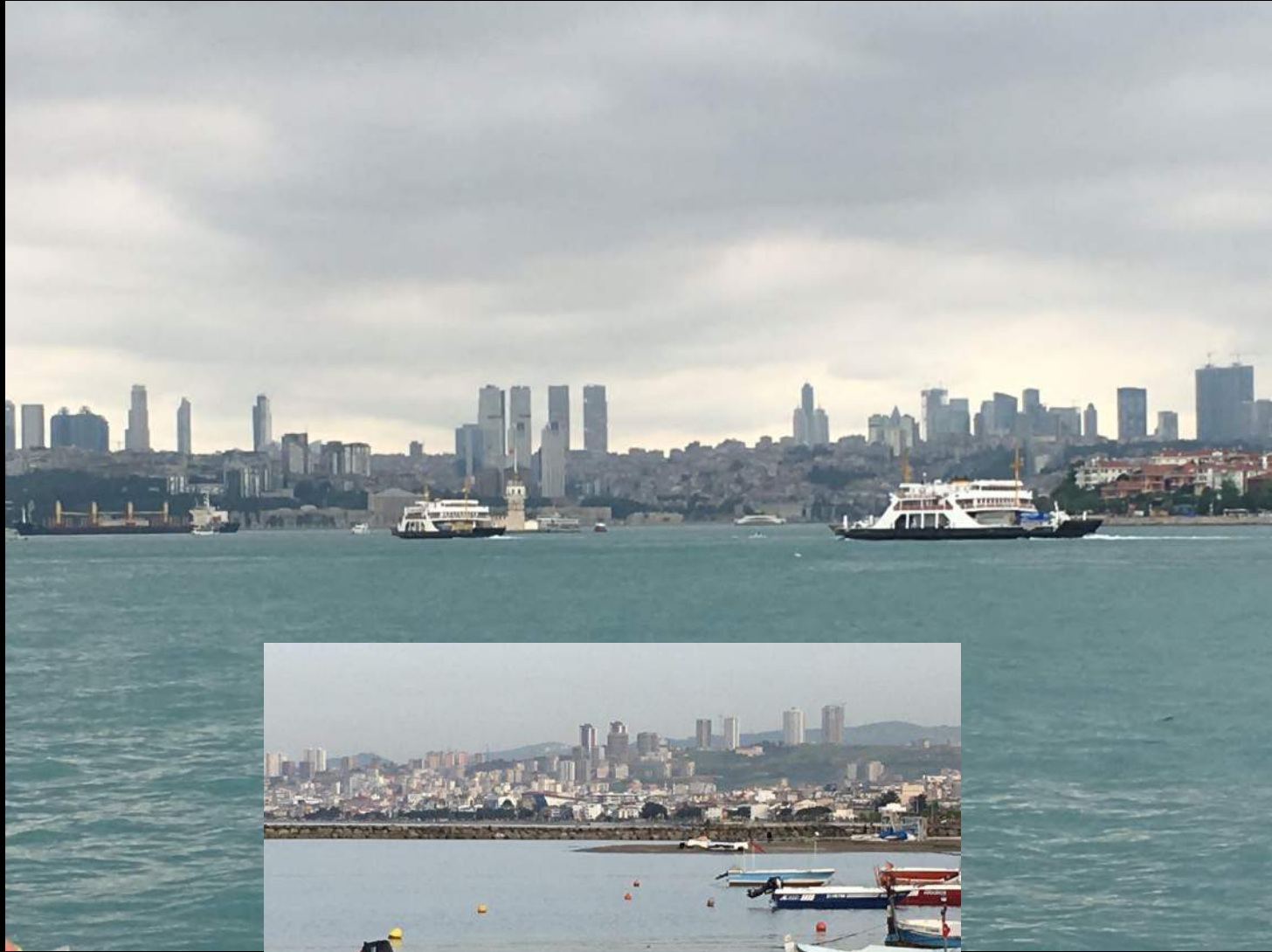
- **Low-density, car-oriented, suburban style, in some cases randomly placed developments enclosing cities: socially isolating, segregating and alienating; no sense of place; no sense of belonging, no perceived borders...**



Most urban and suburban development during the past 50 years has been relatively generic, with little sense of place, history, or social-cultural distinctiveness. NO IDENTITY...







Istanbul - Samsun

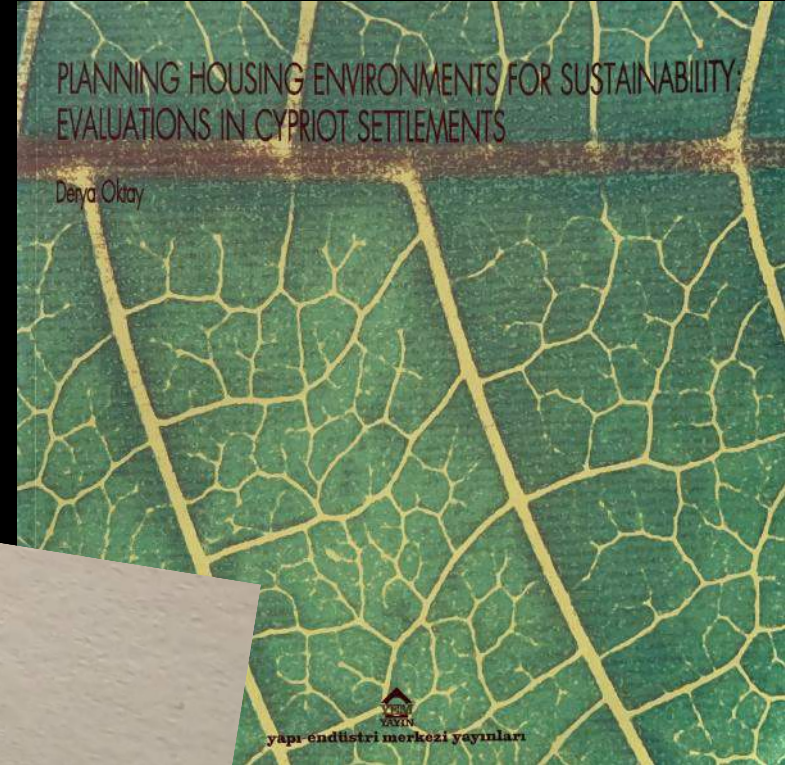


Shanghai



Seoul

The result when the human factor is neglected in planning and design



Fragmentation in the city centre
Torn out original fabric with overscaled,
inappropriate buildings. Lack of social use in the
city centre.

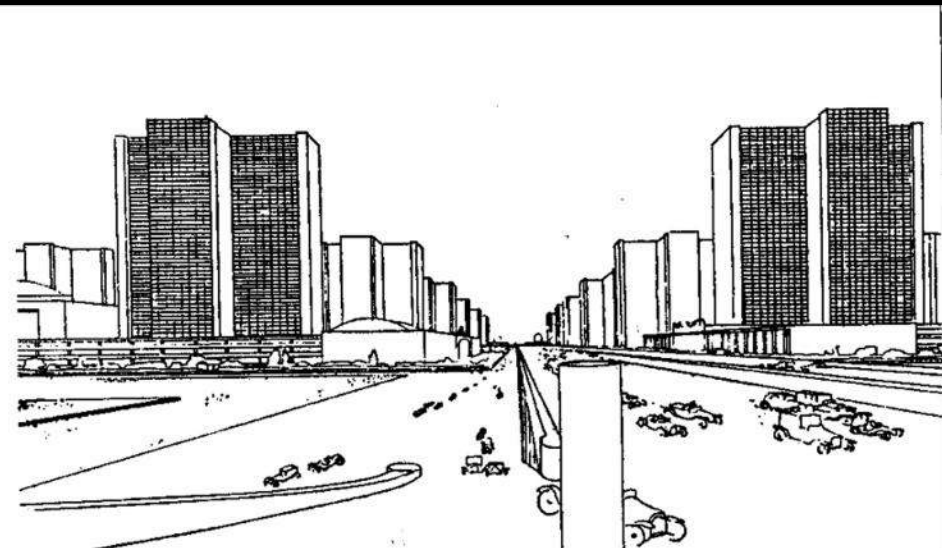
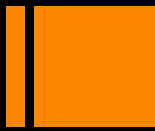




Shouwbergplein, Rotterdam



Pershing Square, Los Angeles



The City for Three Million – for Paris
(1922)
Le Corbusier and Jeanneret, architects



Ataşehir, Istanbul.



The need for learning from traditional models

These incremental changes imply a more critical state in cities of traditional societies where transformations in the urban level are still visible.

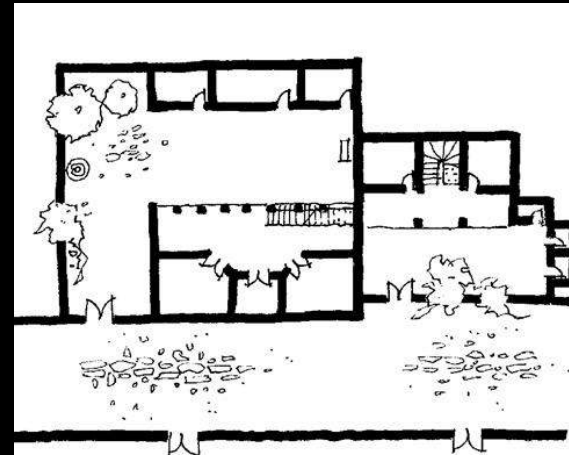
The traditional cities are excellent examples to learn from regarding various dimensions of sustainable urbanism. The traditional Turkish (Ottoman) city is one of these excellent models for green and sustainable developments.

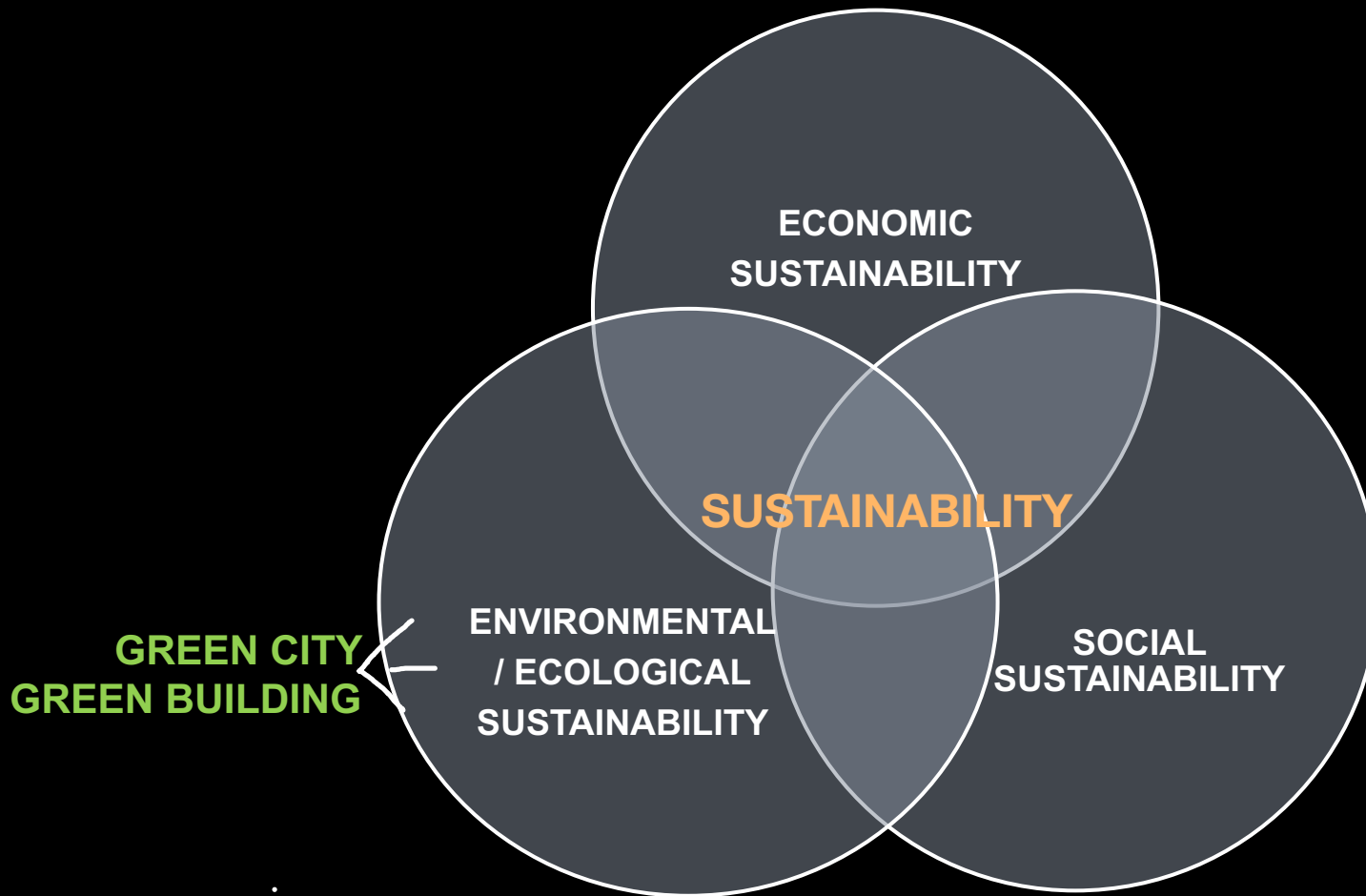
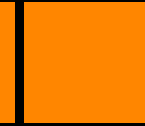
Traditional Turkish (Ottoman) city

- Compact settlements and buildings which are sensitive to natural environment and people
- The city centre defined by the mosque, the hammam, the coffee house, and arasta...



- There was a step-by-step transition between public and private areas
- The district (mahalle), street and buildings were well integrated
- There was a direct relationship with nature
- There was a harmony with tradition and customs





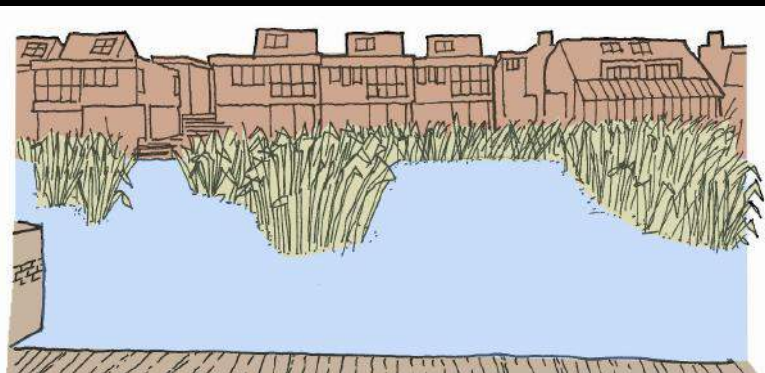
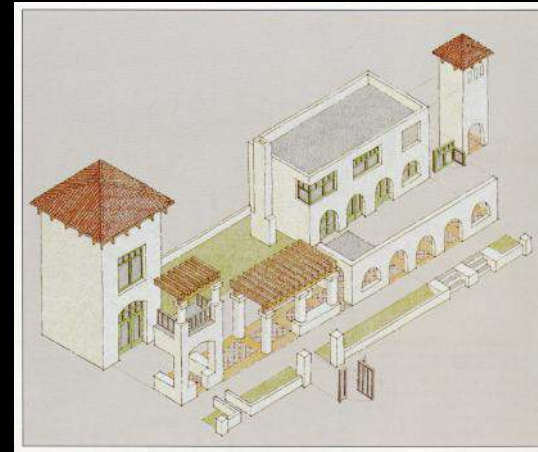
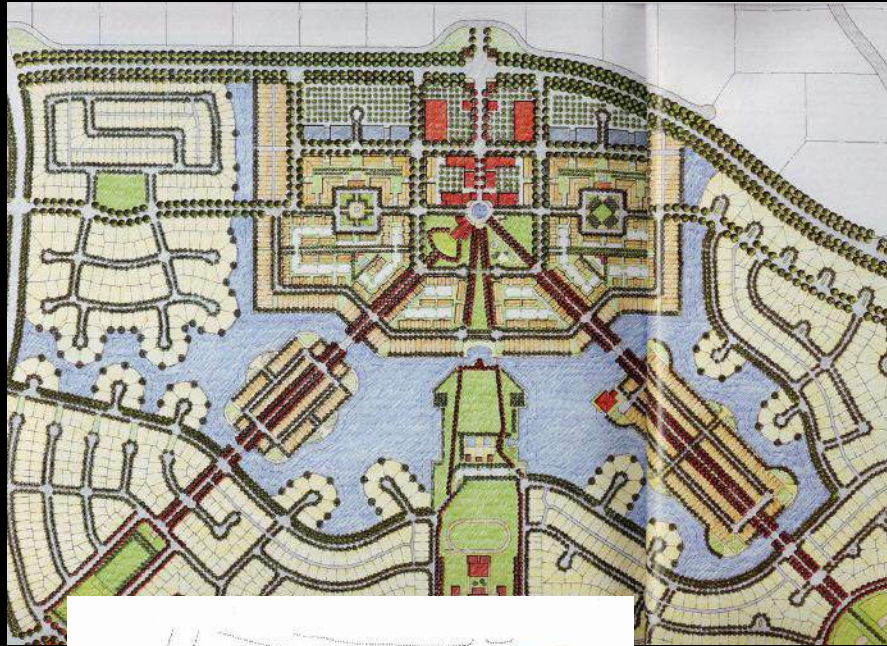
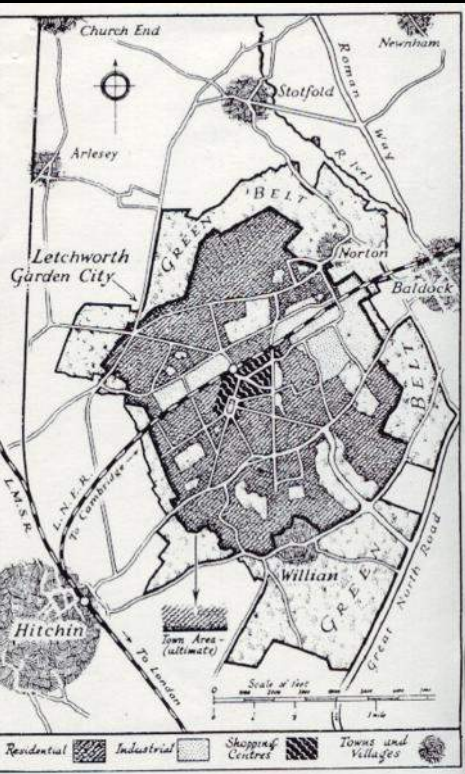
The codes of sustainability

- **Design with local characteristics (identity / character / sense of place)**
- **Climatic design / Renewable energy sources**
- **Human-centered design (Pedestrian priority / Equity / Justice)**
- **Self sufficiency**

***** A transdisciplinary approach requires these codes to be respected in all scales from the single building to the city.**

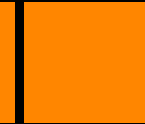
The first 'planned' green cities/settlements

(Garden City – Ebenezer Howard, Letchworth Garden City, 1898; Laguna West - Peter Calthrope, 1993; Ecolonia - Lucien Kroll, 1994; ...)





Goteborg



Delft

The need for integration movement systems



Image credit: Jaime Lerner Associated Architects

<http://www.quora.com/What-are-the-best-public-transportation-systems-in-the-world-and-why>



Boarding tubes with ticket machines inside



Bus lanes separated from cars



Curitiba

Green belts as definers of the cities and neighbourhoods



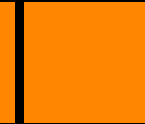
Palmanova



Jerusalem (2005)



Super Block,
Barcelona





Mix-use and vitality in the city centre



Pedestrian friendly urban spaces

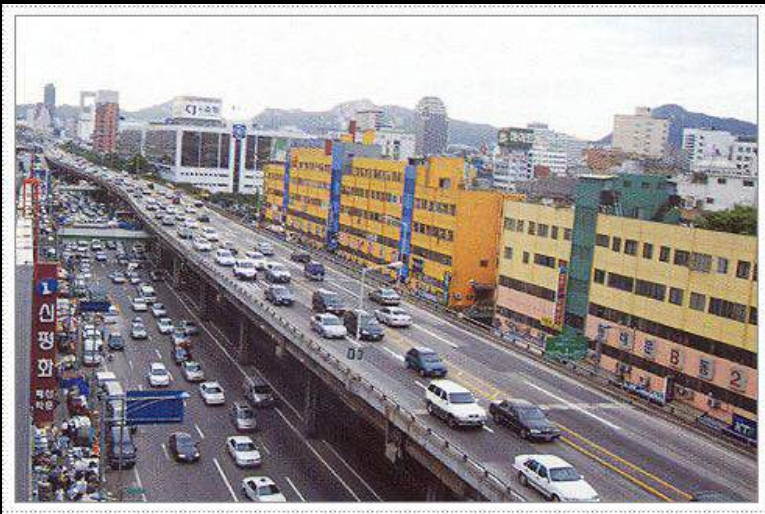


Sustainable regeneration



Transformation of the motorway to a boulevard with a series of green plazas, Boston





Sustainable regeneration

Cheonggyecheon River Urban Renewal Project, Seoul, S Korea



Boston Commons (underground car parking) - Boston

Sustainable regeneration: High Line, NY





Social sustainability

- Social interaction / ties
- Participation
- Sense of place
- Continuity
- Safety
- Sense of community



Economic sustainability

Growth and innovation supporting creativity



Green environment vs Towers

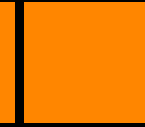


A sustainable urban regeneration: Galataport





The Need for Genuine Green (Ecological and Sustainable) Architecture



What is Green Architecture / Sustainable building?

Green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by efficiently using energy, water, and other resources, protecting occupant health and improving employee productivity, and reducing waste, pollution and environmental degradation.



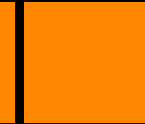
‘Green building’ does not mean a building decorated with greenery all over! A building is green if there is an ecological sensitivity in its situation, sun-orientation, passive solar design, choice of materials, etc.

Ecological Sensitivity integrated with creativity



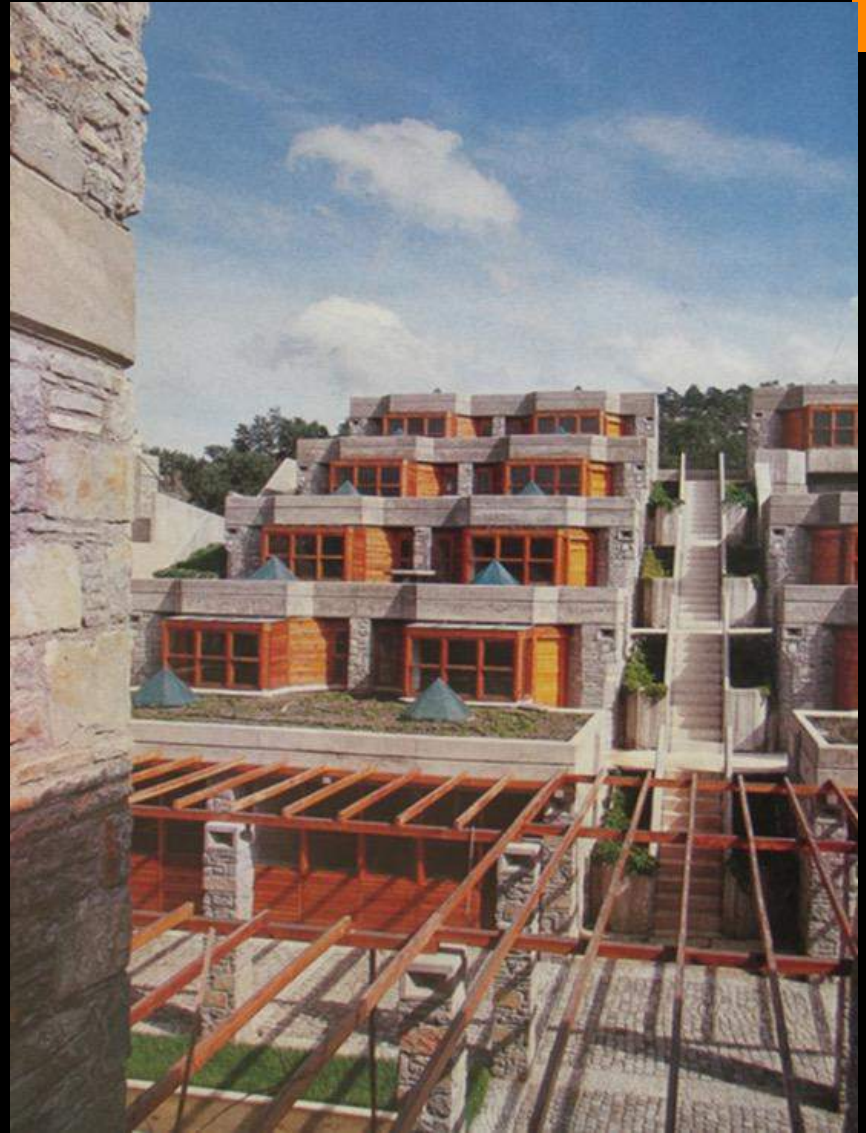
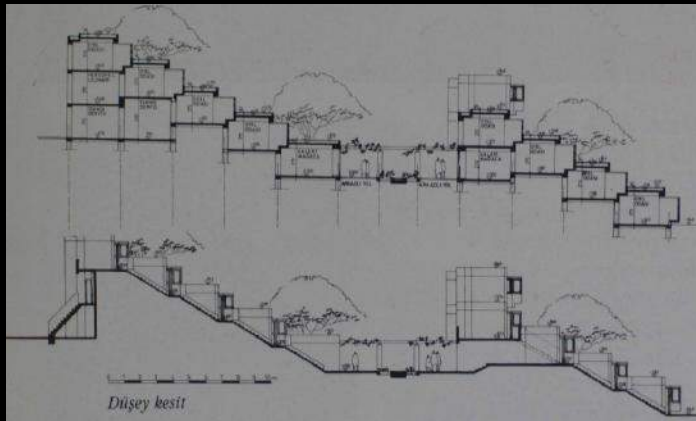
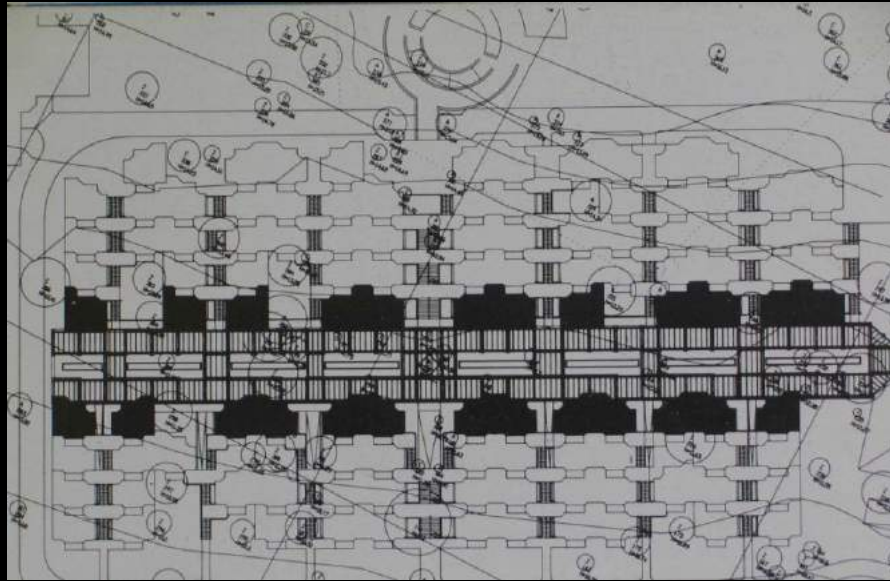
Old and new residences in the UK





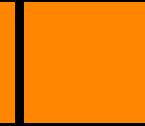
Oba Holiday Village (Cengiz Bektaş)







TU Delft Library



BedZED

Beddington Zero Energy Development

- **The only full-scale attempt to create a zero-carbon neighbourhood in the UK: BedZED in London.**
- **The unique aim of BedZED: to use only energy from renewable sources generated on site.**



Compact development / Brownfield site

Walkable environment
Street space prioritizing pedestrians and cyclists



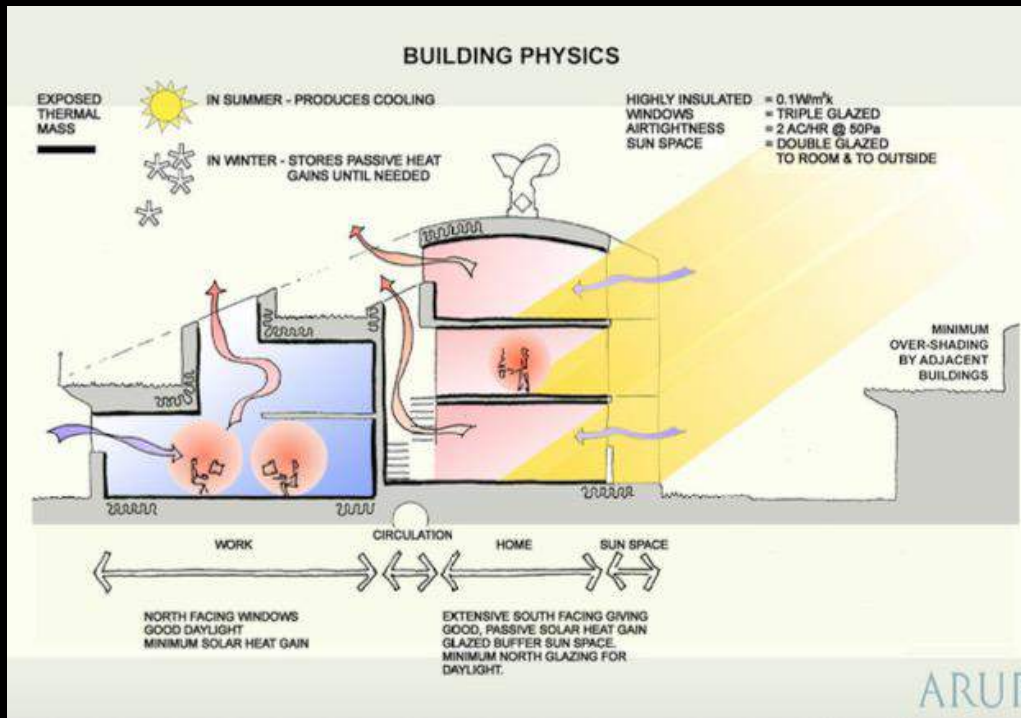
Energy saving ideas

- **3-storey walk-up type townhouses**
- **South-facing blocks / cross-ventilation through the windows opening on different sides**
- **All units with their own outdoor space in the form of balconies and small gardens at ground, first or second floor level.**



Innovative features

- Its own combined heat and power system burning wood chips
- A 'living machine' sewage system
- A pool of electric cars
- Photo-voltaic panels on the conservatories of every flat.



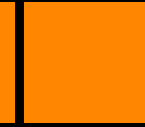
Special ventilation system



Sustainable travel and transport

- **Public transport with less than 10 minutes-walk / Incentives for bike use / Reduced car parking and road space**
- **City car Club to provide a car-sharing scheme which includes an electric vehicle.**





What do we need?

A radical shift towards a transdisciplinary strategy for sustainable urbanism integrating ecological sustainability and socio-economic sustainability at all scales, without forgetting that

a city can never be considered 'green and sustainable' without green and sustainable buildings!



Toda!_____

Derya Oktay

<https://www.researchgate.net/profile/Derya-Oktay>

LinkedIn: <https://www.linkedin.com/in/deryaoktay/>

deryaoktay@maltepe.edu.tr

de.oktay@gmail.com