Contemporary Productive Settlements

Simonetta Armondi, May 21 2012

4 questions, 1 issue

- Why do we talk about industrial areas and productive settlements?
- What are “productive” settlements in contemporary cities and territorio?
- How do they change?
- What are their materials and how can we project them?

- What we talk about when we talk about productive landscapes

- The productive sector has changed in the last twenty years and the current financial and economic crisis is reconfiguring the relationship between state and capital, production and territories, seemingly questioning some of the assumptions made about the nature and processes of globalization, especially its territoriality (Agnew 1994, Paasi 2003).

Background: a neglected topic

- The past decades have witnessed an increasing body of basic and applied research in the fields of urban planning and urban studies, on two specific foci: public residential settlements and urban neighbourhoods.

The changing spatial patterns of industrial and productive settlements

- The changing spatial patterns of industrial and productive settlements did not have a same significant and selective body of research in planning literature.
- There are crucial research on location of creative industries or in the literature on spaces of flows, but these are not enough to understand the transformations of several spaces and places.

- Taking a closer look at the contemporary Italian productive territories, we found several heterogeneous landscapes, where old and new spatial patterns in transformation coexist.
- The next number of pictures underlines the variety of territorial transformations: vacant fordist areas, persistent fordist industries, postfordist spaces, new productions.
- These are all matters with urban and regional studies have to deal with.

*Sesto San Giovanni. The **brownfield of a huge steel industry** in North Milan (Falck area).*

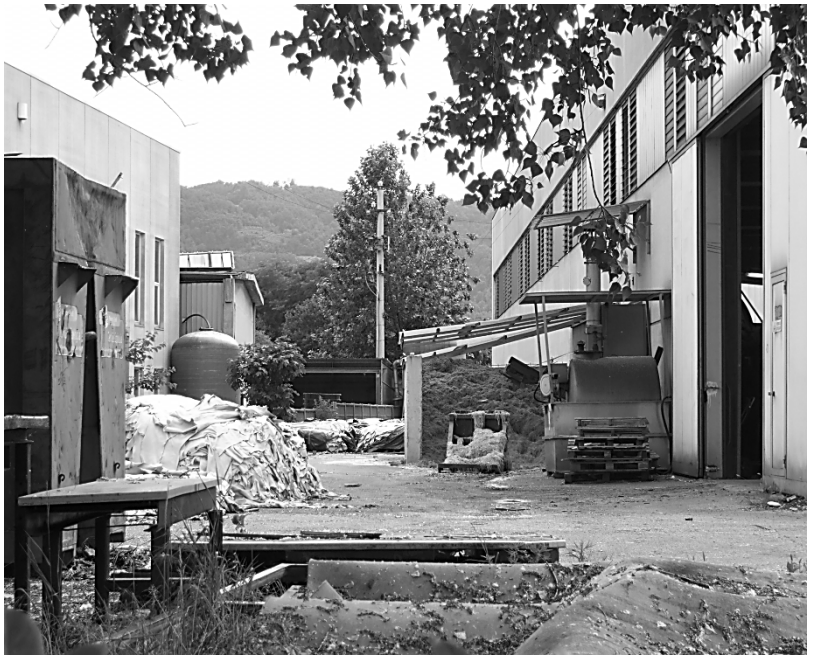
Brescia: ***active*** *steel industry.*

Via Mecenate, Milan. ***A dense mixité of small firms,*** *vacant buildings, commercial, logistic settlements, and residential units* ***inside the compact city.***

Fig. 3. San Giuliano Milanese. An old small and medium enterprises area in traditonal sector transformed in a ***big logistic platform inside the boundaries of a rural park*** *in the South East of Milan.*

Prato. The invisible ***transformation of an historical textile district*** *of Tuscan SME in a network of international Chinese clothing enterprises.*

Arzignano in Veneto Region, is the ***most important leather tanning Italian industrial district****: in 2007 the municipality made the 0,1% of GDP. The high pollution due to the leather work process has transformed the production cycle in a more sustainable way.*



*Savona/Tortona area in Milan is an **urban post industrial district**. It regards the concentration of fashion and creative cluster in an historical neighbourhood of Milan*.

New territorial matters

- To understand the previous issues and to deal with the spatial innovation and change, we have to pay attention at new matters within which contemporary cities, and territories are involved:

1. Shrinkage processes;
2. A new concept of “growth”;
3. Climate change (e.g. global warming, health urban island effect).

1. From shrinking cities to shrinking territories. A pattern of shrinkage in Italy, after the 2008-2011 economic crisis?

- Only a few years ago, shrinkage was **a taboo subject** in Europe. A shrinking city is characterized by economic decline and – as a consequence – the transformation of urban areas.

- Shrinking cities contradict the image, familiar since the Industrial Revolution, of the "boomtown", a dense, big city characterized by constant economic and demographic growth.
- Shrinking cities spur a reconsideration not only of traditional ideas of the European city, but also of the future development of urban worlds.

- In Europe there an important example in former East Germany, where the breakdown of the state-directed economy caused economic decline, industrial regression, and high unemployment rates. Due to out-migration and decreasing birth rates, the cities lost residents.
- As a consequence, too many housing and office vacancies as well as infrastructure oversupplies plagued the cities.

The Italian context

- In Italy the situation is different. We are in front of a different typology of shrinkage: the decline of the typical Italian SME's industrial districts.

- Despite intensive research, the **spatial patterns** and the landscape of productive settlements remain poorly understood.

Old and new vacant productive buildings (textile and food enterprises) in North West Milanese urban region.

Shrinkage of historical industrial district of glasses in Veneto Region (Cadore).

high density decline of steel and weaponry industrial district in Lombardy Region (Valtrompia). These images show the land consumption due to vacant warehouses, but also the abandoned mountain landscape.

- The drastic changes in cities caused by shrinkage thus present not only an economic and social, but also a cultural challenge.
- Urban shrinking can hardly be affected by city planning, and it brings numerous problems. New types of cities (territories) arise; we do not yet have ways of thinking or of using their specific character.

A NEW CONCEPT OF GROWTH

- The concept of growth has dominated thinking in modern societies; shrinkage has been viewed as an accident and exception. In future, however, a culture of shrinkage is set to develop.

- In future shrinkage will be considered as normal, a process of development as growth. It will lose its stigma and come to be seen as a scenery that has advantages as well as disadvantages and that leads to distinct forms of renewal and change.

CLIMATE CHANGE

- The exhaustion of oil wells and other fossil energy sources, as well as climate change, will decisively influence global settlement development in the 21st century.

  Climate change, with its heterogeneous effects, will be a new parameter of the development of settlements.

- While a large part of existing settlement structures will be only trivially and in part even favourably influenced by climate change, a large number of sites will be greatly impaired and in part existentially threatened by heterogeneous climate effects: among the causes will be a lack of drinking water (especially in the arid regions of the South), the danger of flooding (in coastal regions), the thawing of the permafrost (in northern zones), the loss of snow and ice in alpine tourism sites (high mountains), etc.

The externalities, the crucial effects on “commons” (water soil,air).

DROSSCAPE

- Drosscape is an American scholar’s key concept (Alan Berger, 2006). Drosscapes are the inevitable wasted landscapes within urbanized areas that eternally elude the overly controlled parameters and the scripted programming elements that designers are charged with creating in their projects.

- Drosscapes emerge out of two primary processes.

- First, as a consequence of current horizontal urbanization (urban sprawl).

- Second, as the leftovers of previous economic and production regimes, which are both catalyzed by the drastic decrease in transportation costs over the past century.

- The basic precept of Drosscape is that planned and unplanned horizontalisations around vertical American urban centers are neither intrinsically bad nor good.

68—Housing (northeast of Raleigh) near Johnston County, North Carolina Five counties in North Carolina are ranked in the top hundred fastest growing U.S. counties from 2000 to 2003. No. 95, Johnston County, grew by 14,878 people (a 12.2 percent increase) as Wake County workers migrated to reside there. North Carolina landscape is being developed at a rate of over ,000 acres per year.

- These results require new conceptualization and considered solutions can be actually addressed or devised.

- Berger (2006) introduces and explains the ways in which contemporary modes of industrial production contribute to formation of waste landscapes: *such as municipal solid waste, huge parking lots, brownfields, waste landscapes of dwelling, waste landscapes and in-between spaces of productive settlements, ecc.*

A CRUCIAL ANSWER

- How can these challenges become project tools for sustainable planning?
- Urban planning and architecture in shrinking cities face new tasks.
- A reversal view: whereas until now building has been seen as the goal of architectural/urban planning action, here it is the starting point.

FIELDS OF ACTION

- Roughly speaking, there are two fields of action developed by European and American theoretical debate and practices, in which we can observe the “reversal wiew” quoted above.

- In the field of planning regulation and urban design;

- In the field of new project tools for the contemporary work spaces.

1. PLANNING REGULATION AND URBAN DESIGN

- Industry in the City Report
- 22@ District in Barcelona: new productions

1. MIXING INDUSTRIAL AND RESIDENTIAL ZONES. A PERVASIVE MANTRA?

In response to the increasing challenges posed by industrialisation, from the beginning of the 20th century urban planning began to seek the separation of residential from industrial districts as this offered better living conditions.

NO-GO ZONE

- Within such districts, technological change led to increasingly horizontalised industrial lay-outs, which together constitute the typical characteristics of present-day industrial areas.

- However, this organisation of our manufacturing activities produced side effects, which have come to be seen as problematic in more recent decades.

- For most people, industrial areas became a kind of **no-go zone**, ghost districts after the working day and not deemed worthy of any urban design intervention.

INDUSTRY: CHANGES IN PROCESS AND ACCOMMODATION (LONDON IN THE “TOWARDS AN URBAN RENAISSANCE” AGENDA)

•For this topic a research was commissioned by the London Development Agency (LDA) and the Greater London Authority (GLA) to explore the issues and opportunities that arise out of this question. In this context, new approaches to the physical accommodation of industrial activities are required, as traditional development patterns are unsustainable.

•The question of how industrial activities should best be accommodated in the contemporary city is increasingly significant for future development.

- The primary assumption of this research was the importance of retaining productive non-residential uses alongside the creation of a good living environment.
- The study aims to demonstrate that London's strategy requirement to retain a significant industrial capacity can be resolved through innovative design solutions.

- Broadly speaking, two physical arrangements are relevant in this context:

1. pure industrial developments which seek to intensify and rationalise land use
2. mixed use developments which seek to accommodate residential development and other uses in close proximity to industry.

17 PRINCIPLES FOR INDUSTRY IN THE CITY

- The research identifyes 17 principles (apparently easy) attempt to deal with the challenges presented in the previous sections.
- Based on a wide-ranging analysis of examples of intensification and mixed use, these strategies, closely interlinked, should be seen as the essential ‘good ideas’ for building typologies, planning principles and urban design strategies.
- They show how the creation of mixed use districts or intensified industrial areas can be achieved in practice.
- Together, they can be used as a ‘toolkit’ for urban restructuring and area transformation. Depending on the circumstances of each location, different combinations of typologies, principles and strategies can be applied to achieve area-specific objectives.

1 Define a clear but flexible spatial framework

2 Promote flexible building types

3 Invest in large-scale hybrid buildings

4 Minimise environmental disruption

5 Encourage vertical stacking of industry

6 Create attractive private courtyards

7 Encourage built parking solutions

8 Promote excellent design

9 Comprehensive architectural masterplans where appropriate

10 Create public space and meeting places

11 Define atmosphere, mix and design rules

12 Make the most of existing assets

13 Make active use of transitional zones and buildings

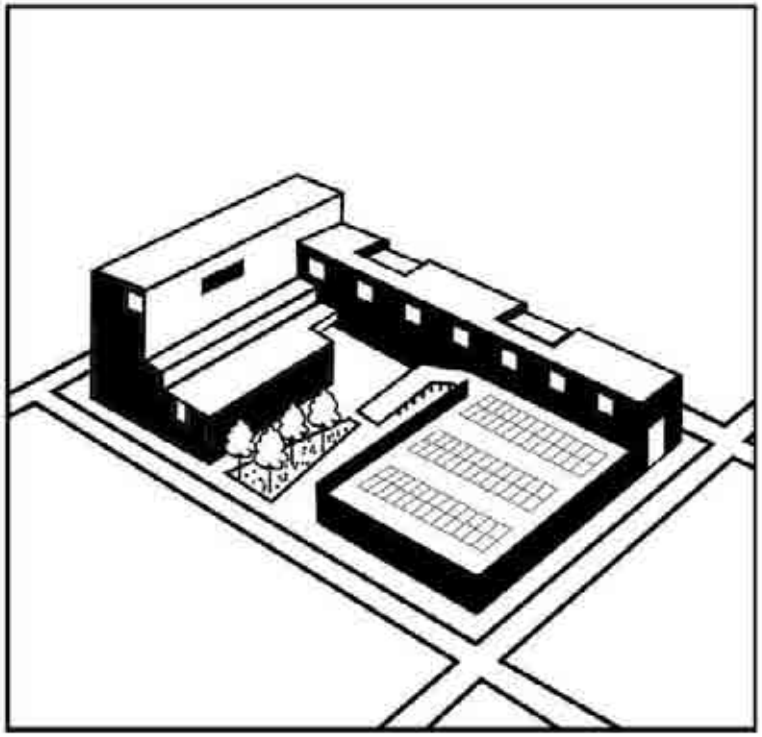
14 Create critical mass

15 Separate access routes for different uses

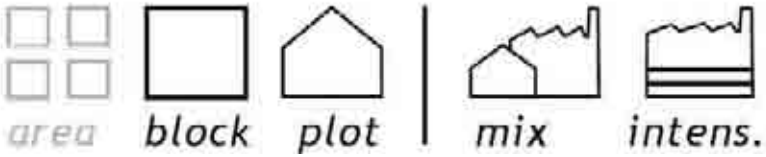
16 Control the views from residential units

17 Mix on different scales

INVEST IN LARGE-SCALE HYBRID BUILDINGS



Logo’s specify the scale of the principle, as well as wheter it focuses on intensification or mix

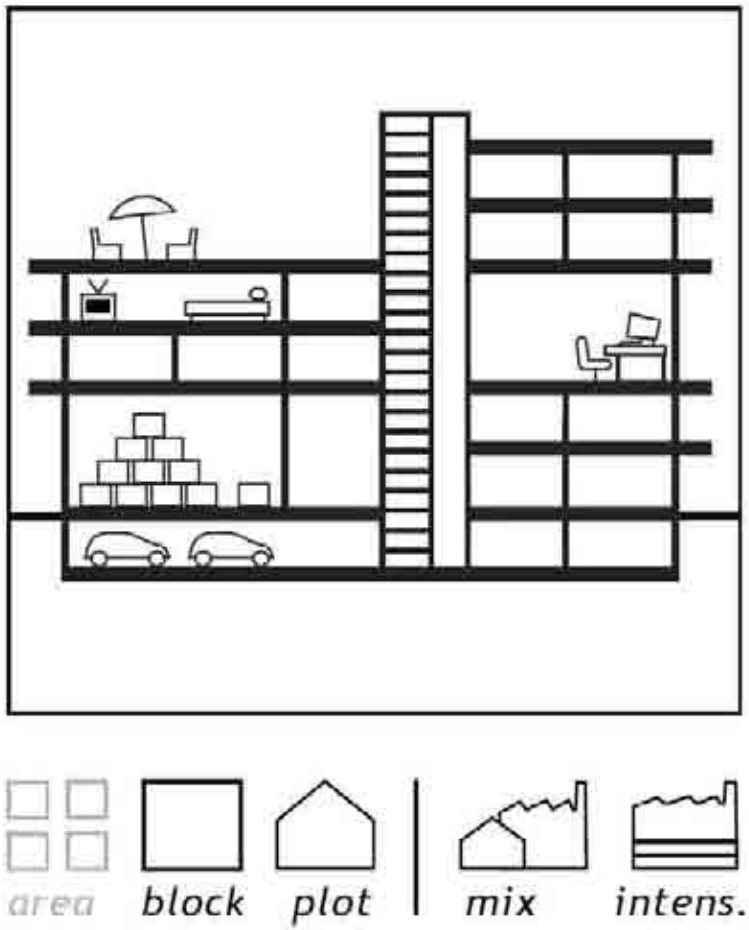


- This strategy promotes buildings that create diversity and accommodate complexity through their large-scale and hybrid nature.
- This investment can also create a landmark, renewing the image of an area. Bigness makes a statement.
- A building of this sort can accommodate a multiplicity of functions with specific demands, and could occupy an entire urban block, e.g. of 80 x 120 m. The major differences with the ‘generic’ building are the scale, the emphasis on specified functions and the provision of communal infrastructure to service the different users.
- Existing projects combining dwellings above supermarkets, with car parking, are essentially an expression of this concept.

INIT AMSTERDAM

- This Multi-company building occupies a central position in the inner-city .
- The size: approx. 90 by 190 metres and some 19 metres high.
- One-third of the total gross floor area of 65.000 m2 is in use on the two lowest levels as a depot for the city sanitation department.
- This ‘underworld’ has been topped by a second ground level above which there are three floors of lettable business premises, car parking and collective facilities.

PROMOTE FLEXIBLE BUILDING TYPES

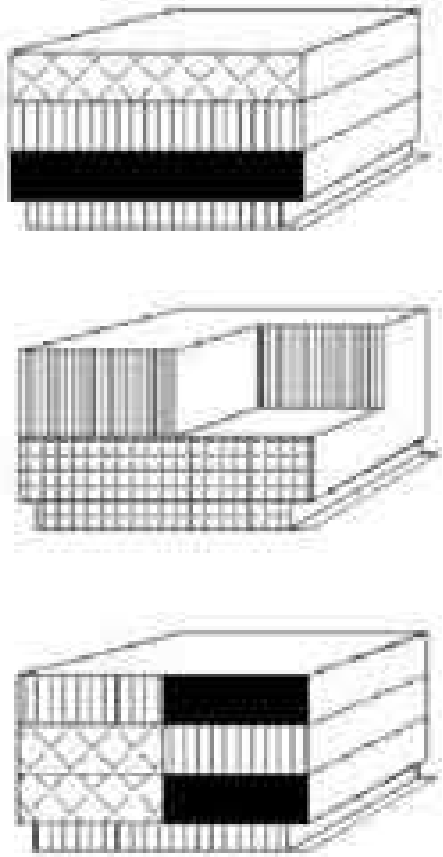


- Sustainable development requires flexible and generic building types that could be adapted by future uses and users and that can adjust to changing circumstances.

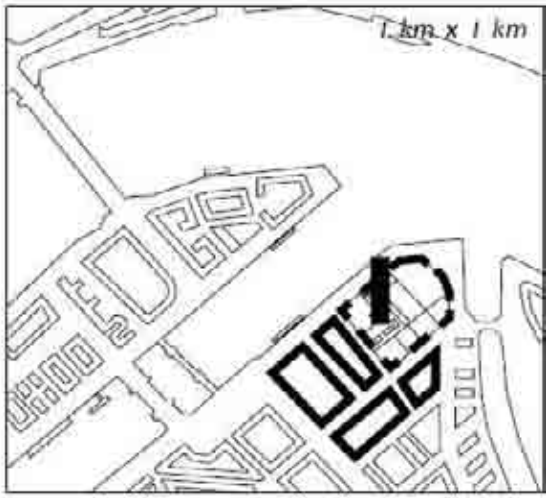
- The advantage of such buildings is already felt by many of those who use a house as an office, a former factory as an apartment, or a former bus garage as workshop.

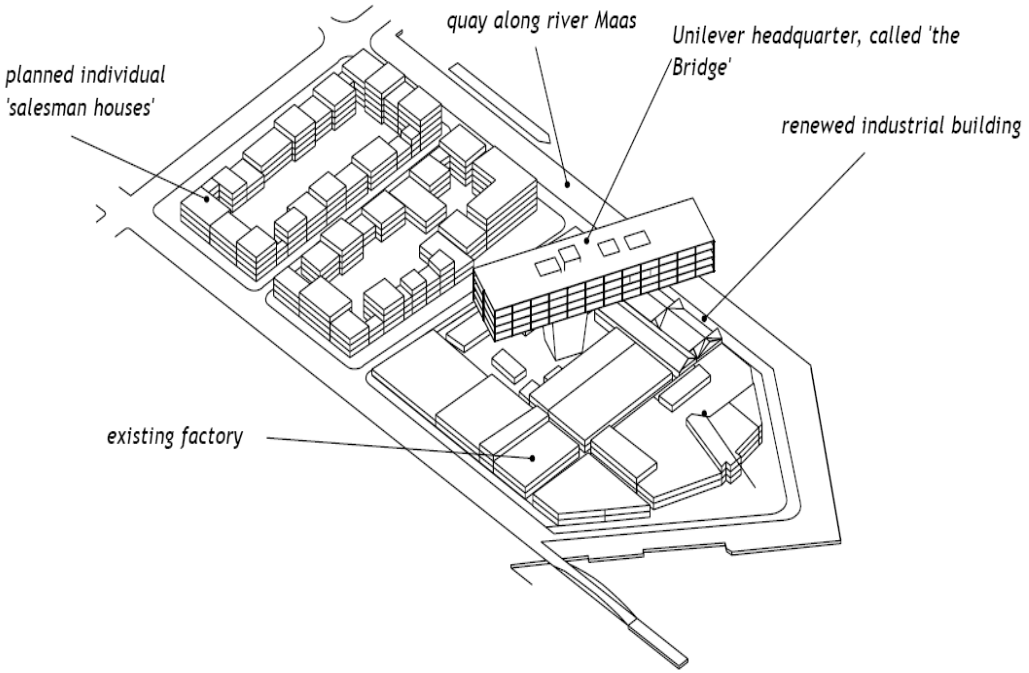
- New **flexible buildings** can be conceived in various sizes, types and forms to be used for various purposes.

- In particular, such buildings can be conceived within a **transitional strategy,** this creates the long-term possibility of introducing housing to an industrial area where it is currently unsuitable.



BRIDGE AND KOOPMANSSTAD, ROTTERDAM, THE NETHERLANDS





FUNCTION live/work units, office space
ARCHITECT JHK Architects, West 8 Landscape and Urban Planners
CLIENT Unilever Bestfoods Nederland NV / Dura Vermeer Groep

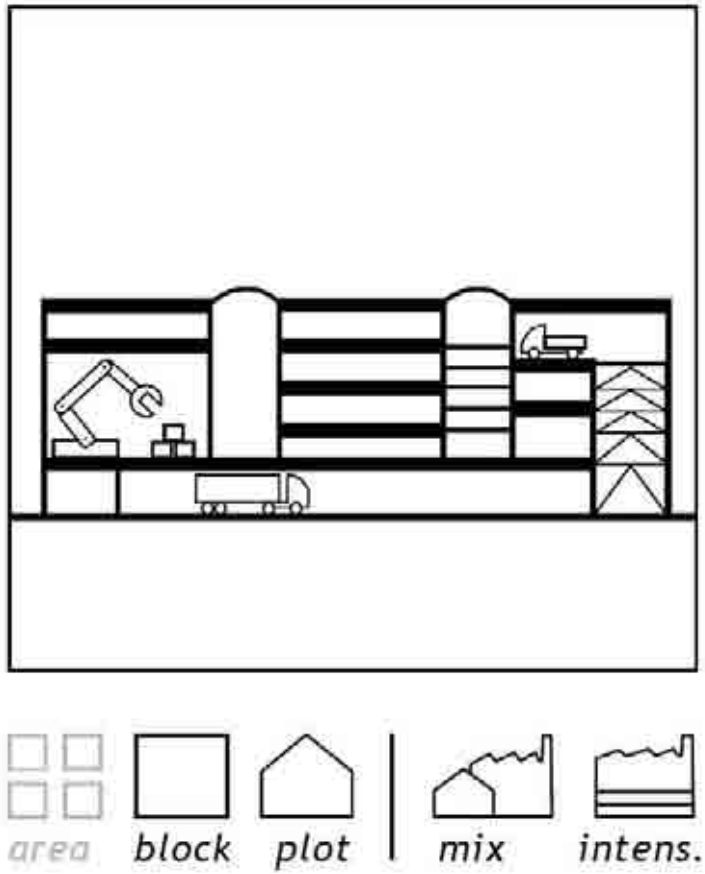
BRIDGE AND KOOPMANSSTAD, ROTTERDAM, THE NETHERLANDS

Linkage strategy for ‘weak’ functions

- An iconic bridge building for Unilever’s headquarters, floating above a factory becomes an instant landmark within the city.
- The building was built next to the site, and after finishing it was lifted above the existing buildings.
- Next to the iconic building, a development of 300 live/work units, the Koopmanshuizen or ‘salesman houses’, will allow future residents sufficient space and freedom to develop their ideal home and to chose their layout and frontage.

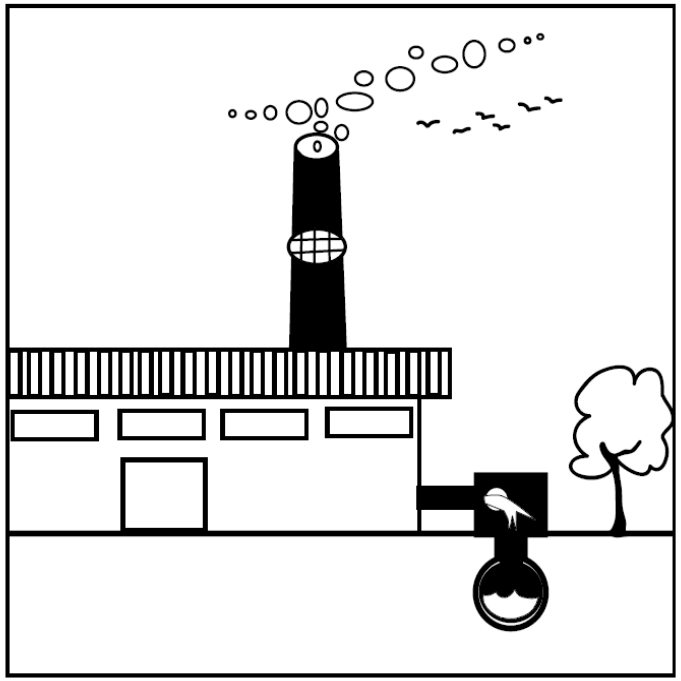
- The houses will all have a large 3.5m ground floor ceiling height to allow a future change of uses. One of the interesting aspects is also the co-operation between City and developer to link housing to commercial development.

ENCOURAGE VERTICAL STACKING OF INDUSTRY



- In the 19th century many industries were vertically organised, horizontal organisation took over throughout the 20th century, but there are signs that this trend is reversing.
- New processing methods and new building and logistics typologies can enable new forms of spatial organisation and increase the density of an area.
- The strategy differs principle 3 (large-scale hybrids) in its focus on the vertical stacking of different industrial premises or the vertical concentration of industrial processes within one firm.

MINIMISE ENVIRONMENTAL DISRUPTION



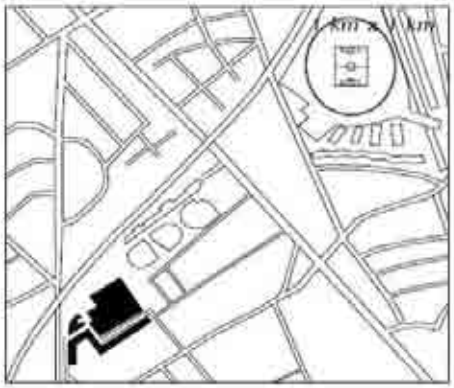
area block plot | mix intens.

- This strategy comprises a range of techniques to reducing the overspills, hindrance and environmental disruption of industries. **This reduction or mitigation is fundamental to enable the mixing of industrial and residential.**

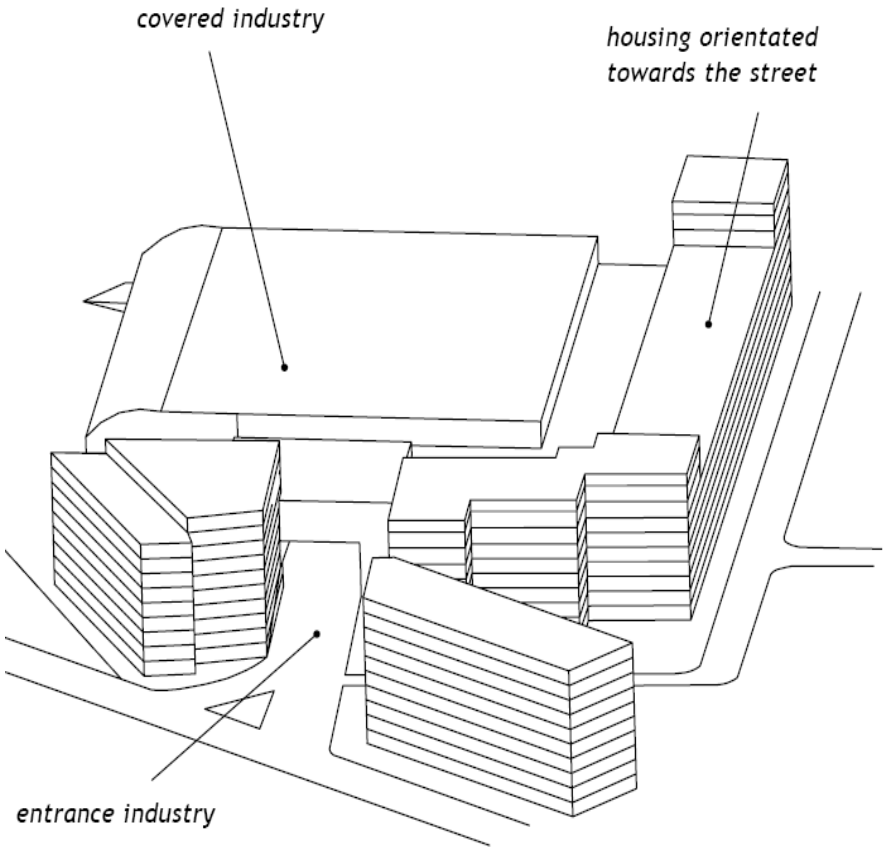
ARSENAL HOUSING AND RECYCLING CENTRE, ISLINGTON, LONDON. A CONTESTED LOCATION

- **Industry and mix**
- High-density housing and space wrapped around three sides of a municipal waste and recycling centre. A series of 4 to 10-storey buildings provide accommodation at ground floor level and residential flats above.
- The ground floor of the building fronting Caledonian Road will house business space and retail functions.
- The close proximity implied that negative environmental overspill (noise, smell) had to be dealt with through detailed design and insulation measures. Behind the buildings, a large area of public amenity space will be provided as compensation for the closed facades fronting and vehicle access to the waste and recycling centre.

ARSENAL HOUSING AND RECYCLING CENTRE, ISLINGTON, LONDON, UK



FUNCTION 250 residential units, B1, waste/recycling
ARCHITECT Sheppard Robson (residential), CZWG (waste and recycling centre)
CLIENT Countryside Properties for Newlon Housing Association (residential), LB Islington (waste and recycling centre)
DATE Ongoing
AREA 32,000 m²
FLOOR 74,700 m²
(waste and recycling centre 21,000 m², residential 53,700 m²)
F.S.I. 2.3
PARKING Basement, semi-basement/ raised ground floor



ARSENAL HOUSING AND RECYCLING CENTRE

The Key Developments

Emirates Stadium
Work is progressing well on the 60,000 capacity stadium, and is on schedule to be completed by August 2006, in time for the start of the 2006/07 season.

Arsenal Stadium, Highbury
Arsenal has recently submitted a revised planning application, which if approved, will see the construction of approximately 700 homes, a sports hall, a nursery, a health facility and a small retail unit. The construction programme at the Arsenal Stadium site is expected to commence in August 2006.

The Hornsey Street Waste & Recycling Centre (WRC)
The facility was officially opened in September 2004. It comprises the waste transfer station, the Household Reuse and Recycling Centre and the refuse vehicle depot, and replaces the old facility at Ashburton Grove.

Northern Triangle
Construction of nearly 200 homes for key workers and an IT Learning Centre began in October 2004, and is scheduled to be finished by the summer of 2006.

The North and South bridges
The construction of three pedestrian bridges linking Emirates Stadium to Drayton Park is well underway. Islington Council recently granted planning permission for a new building around the access to the northern bridge from Drayton Park. The building will contain a ticket collection point and Arsenal shop at ground level with Arsenal offices on the upper levels.

Drayton Park
Running via the site between the two bridges over 270 new homes, and a community health facility will be built. Works are underway and scheduled for completion in early 2007.

Hornsey Street
The first part of the development is due to be completed in Autumn 2006. The upper floors will provide over 150 flats for key workers. The ground floor will comprise commercial space.

Planning permission was approved last year for an 8 – 12 storey building on the east of the site. This will contain a community health facility and commercial space on the lower floors with over 100 affordable housing units on the upper levels. Works began in Spring 2006 and are due to be completed by Spring 2007.

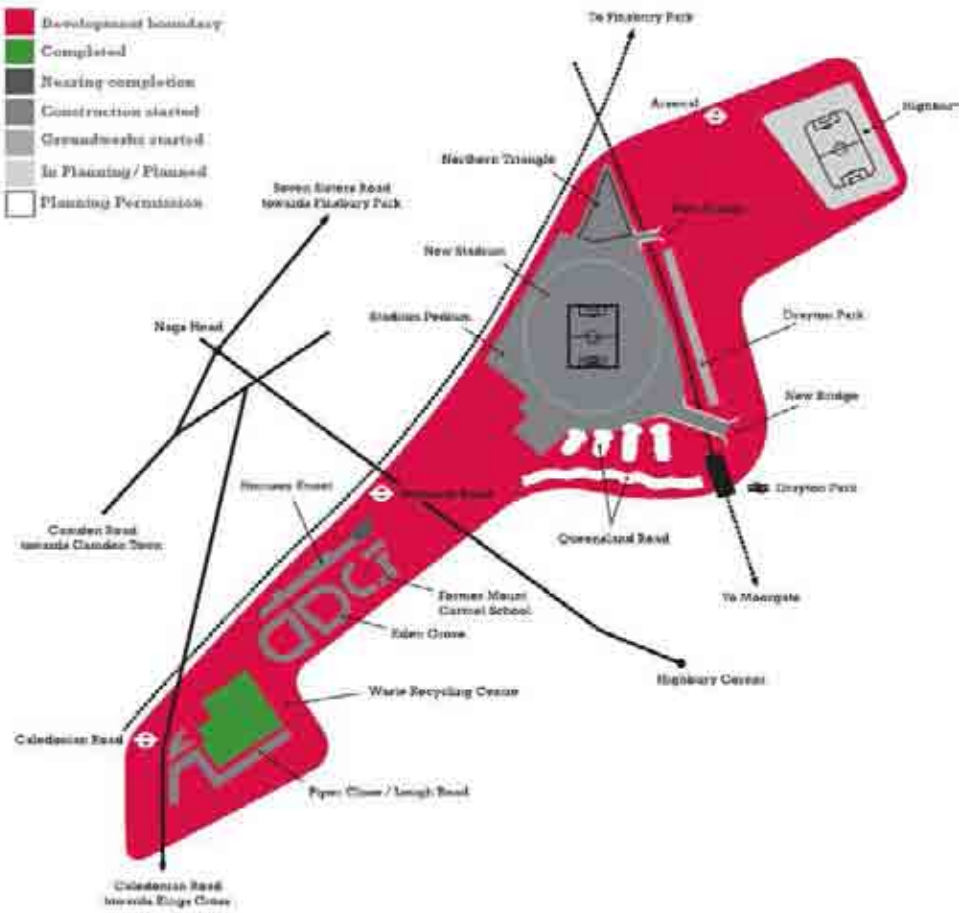
Queensland Road
There is planning permission for 288 homes, retail, commercial and office space, and a community health facility. The development of Queensland Road will take place once properties have been acquired using Compulsory Purchase Orders.

Eden Grove
Over 450 new homes and over 6,000 sq m of commercial space, are currently being built. Works began in December 2003 and are scheduled to be completed by early 2007.

Former Mount Carmel School
The old school building is being converted into nearly 40 homes plus a nursery. Works began in December 2003 and are scheduled to be completed by Autumn 2006.

Lough Road/Piper Close
The construction of over 240 affordable homes, with some commercial space, and a new area of open space, began in December 2004 and are scheduled to be completed by the end of 2007.

Overall Development Plan




Caledonian Rd / Hillmarton Rd
Esci dalla modalità Foto
Google
37 m Alt

2. Focusing on new productions:
Barcelona 22@ district

Barcelona 22@: city planning for new productive settlements

- In its ongoing process of transformation - a key factor in its ability to continue economic development and growth - Barcelona's city planning plays a major role.
- 22@ Barcelona District of Innovation and Design: a large scale regeneration project that is transforming almost 200 hectares of the city into a centre for the knowledge intensive industries.

Key word: innovation

- Innovation is frequently cited as the battleground of international competitiveness in the 21°century and cities are incre asingly viewed as the cauldrons of innovation, enriching not only their surrounding regions but the nations as a whole.

Urban change/work change

- Across the world massive renewal is taking place in our cities
- **fundamental shifts in the nature of work and the workplace** they host, and transformation of their output as well as their consumption.

- Cities compete with one another to attract not only firms and direct foreign investmens, but also **skilled knowledge workers** to develop their social capital and capacity for innovation.

- But is the attraction of top talent the crucial ingredient?

- What we find in Barcelona, therefore, is not only the regeneration of the physical infrastructure of the city but, in the 22@ District, the execution of a strategy that integrates, economic, physical and social regeneration with investment in economic and social programmes as much as in property development.

- Barcelona is an increasingly popular destination for high skilled international creative class (despite the world financial crisis) and for the «brain mobility».

- The city is now finding however that attracting this talented international community is not enough on its own to stimulate its transformation to a knowledge –intensive city.

- Barcelona authorities are increansingly recognising the need to connect this international community to the local firms and institutions.

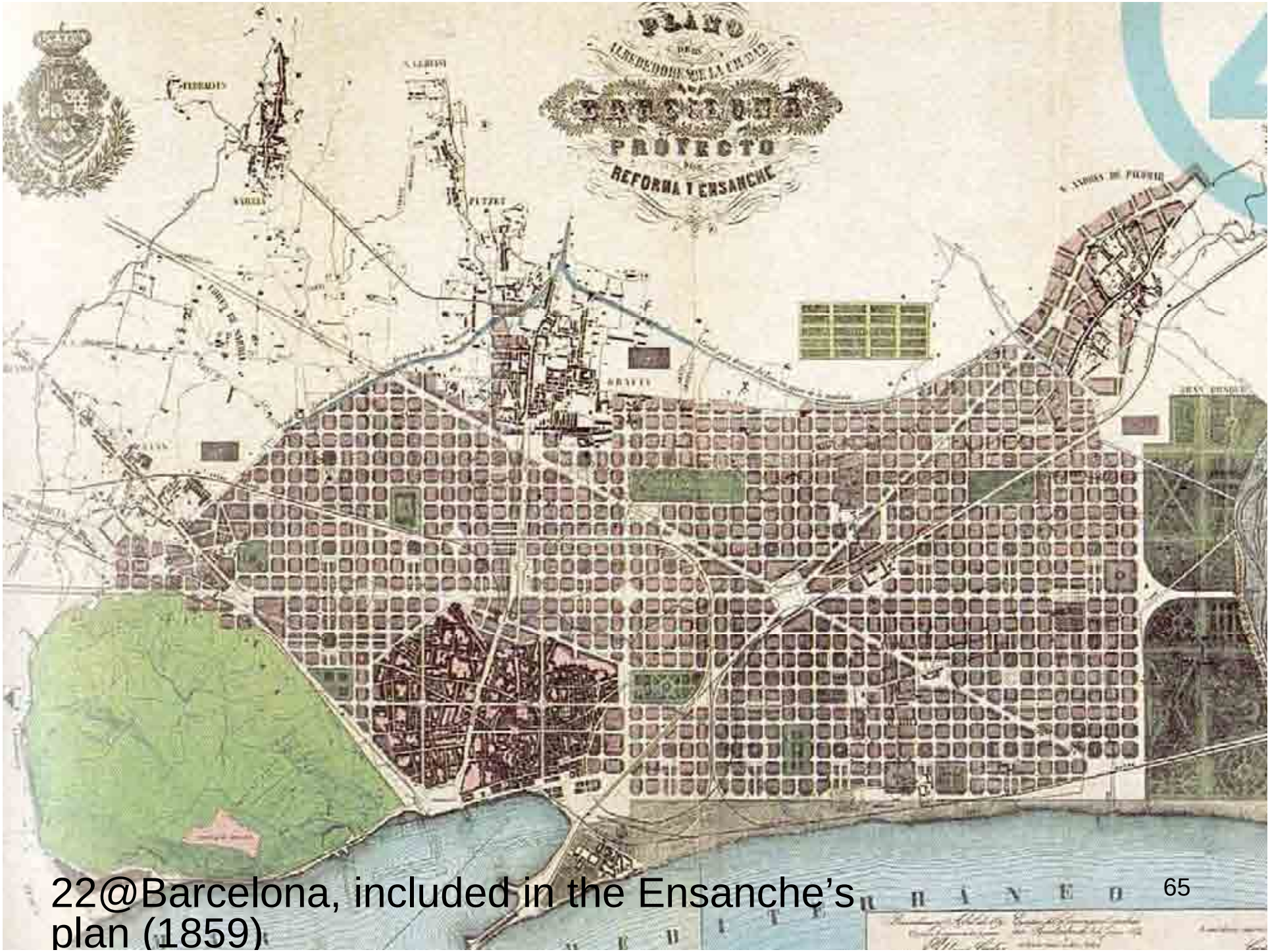
- The 22@ Barcelona District of Innovation is located in one of the poorer districts of Barcelona, Sant Martì.
- Poble nou (catalan for New Village) is a popular barrio neighbourhood in the Sant Marti district.
- In the nineteenth century, this urban district was the industrial hub of Barcelona, and was the fifth largest cotton city in the world.

Poble Nou

- During the nineteenth century, Poble Nou was Spain's primary site for the textile industry, and subsequently, became known as the Catalan Manchester. This neighborhood was recently renamed "District 22@".

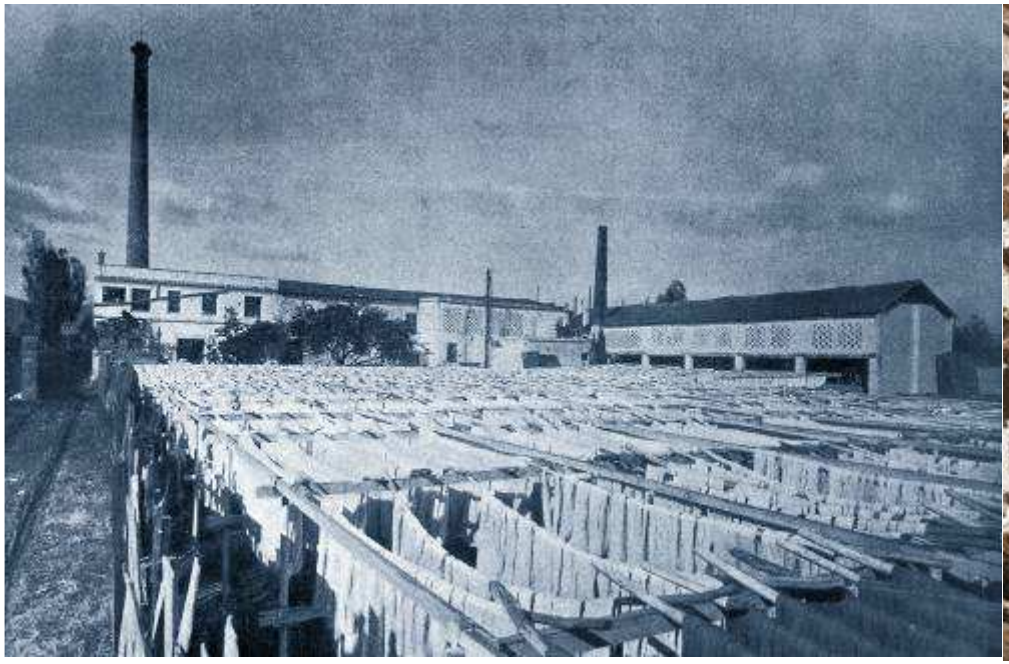
- It is worth mentioning that the 22 is the code that signifies urban areas engaged in heavy industry in the Metropolitan General Plan. 22@ expresses new avenues of activity responsible for the transformation of the area. The 22@ district is divided into sectors, which in turn are divided into sub-sectors.

Where: Barcelona's Metropolitan Area



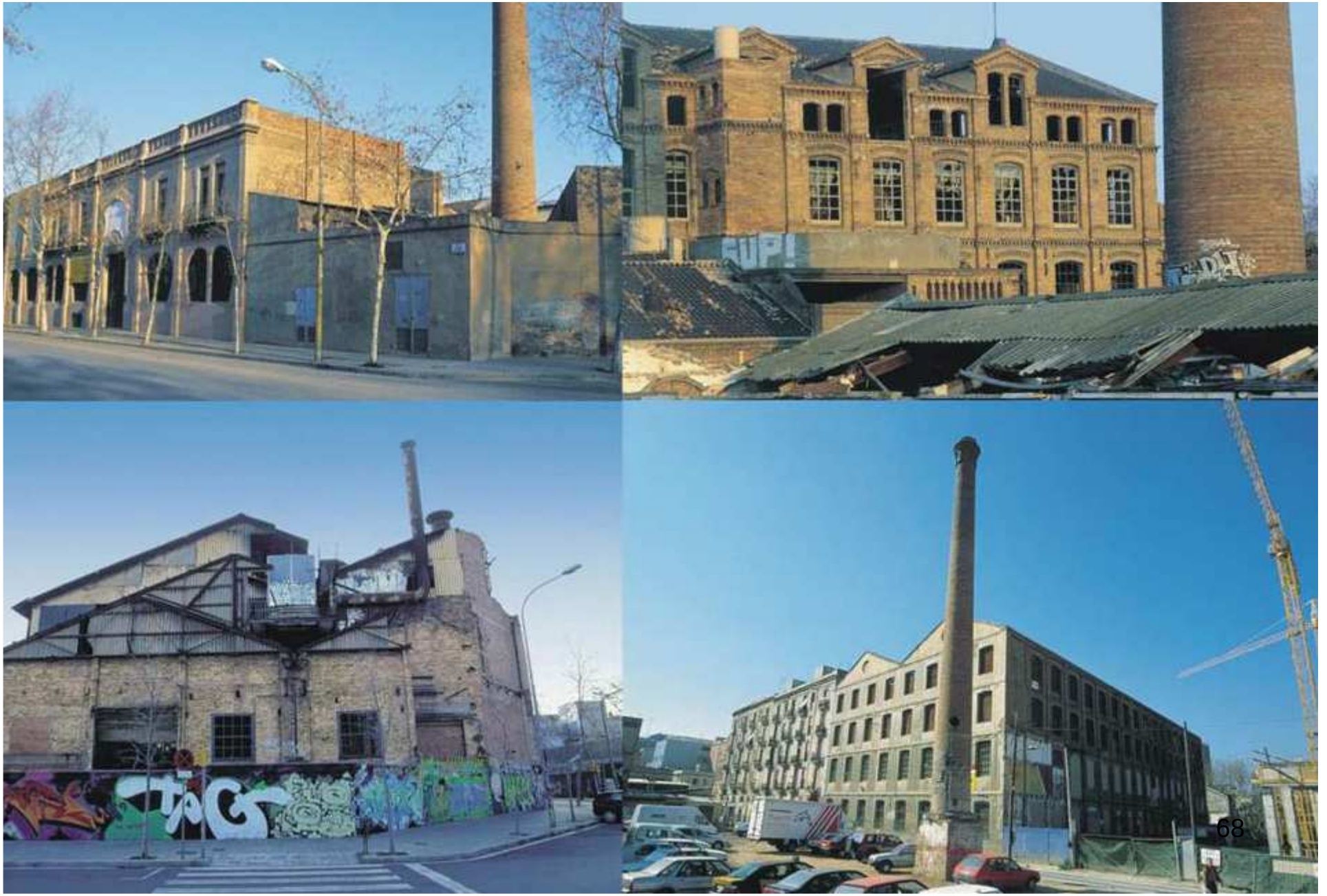
22@Barcelona, included in the Ensanche's plan (1859)

1860 -1960: the “Catalan Manchester”



- With the demise of the cotton industry a the beginning of the twentieth century the district was run down and had high unemployment compared with the rest of the city.

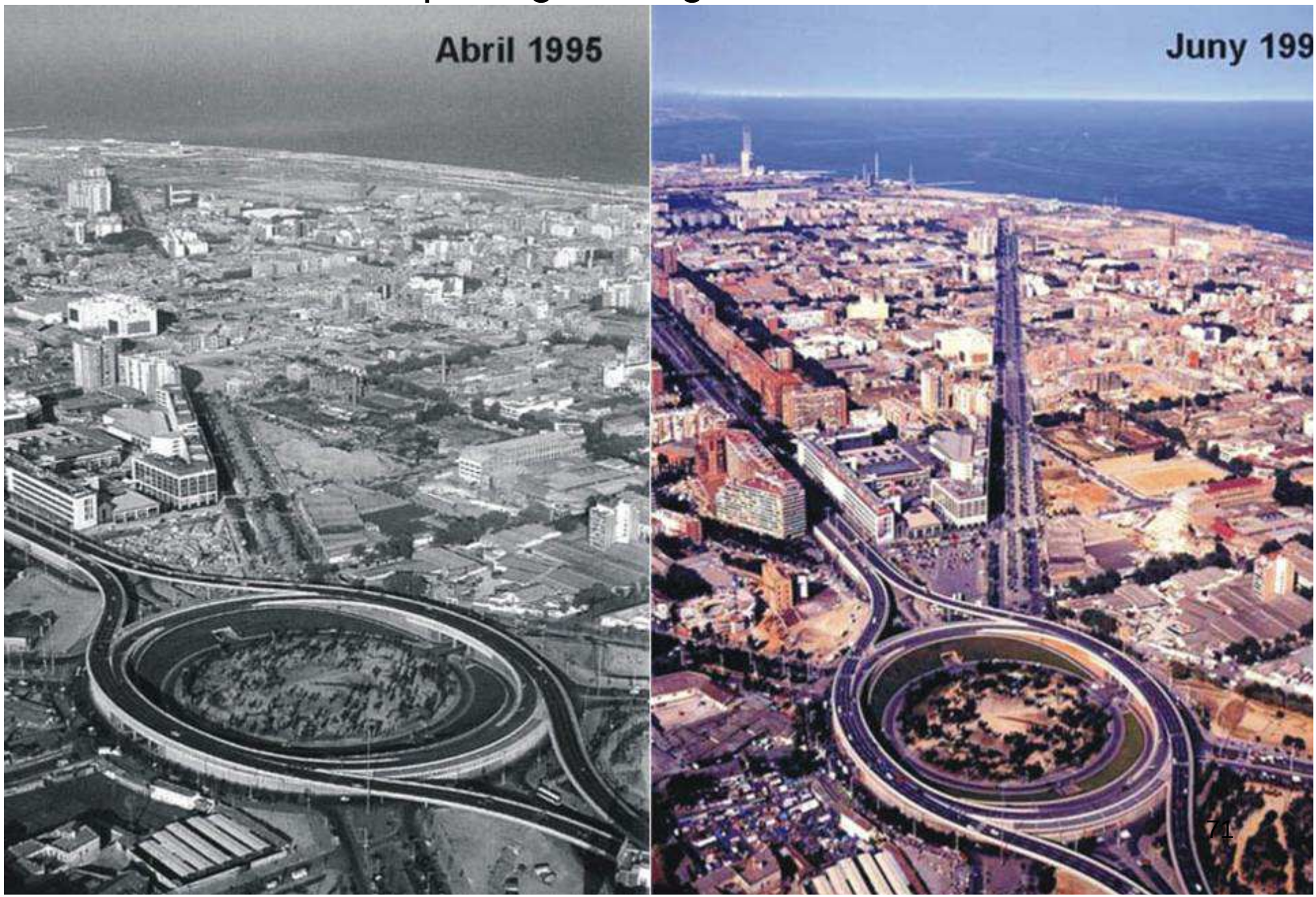
1960 -1990: obsolescence and degradation



- The transformation of Poble Nou is a part of a larger strategic plan developed for the eastern side of Barcelona. This plan includes:
- A new high speed inter-modal railway station (la Sagrera);
- A new regional-international hub (Plaza de las Glories),
- New urban multi-functional spaces (Media Tic building, Agbar Tower).

1986 -1992: the opening of the waterfront

1995 -1999: the opening of Diagonal Avenue



2000. Regeneration plan for 22@ District

- In the year 2000 a regeneration plan was approved to transform Poblenou into the new knowledge hub of the city.

- The regeneration programme is designed to transform the physical infrastructure, aims to create **five industry clusters** that could bring together local and international industry, universities, public and private sector research centres and tecnology transfer programmes, including incubators for new firms, and financial support for start ups.

The crucial issue

- Unusually for many such regeneration schemes the 22@ Barcelona includes provision for housing and social amenities.

- In general, the city has taken a strategic approach to the development of this district, balancing the creation of new employment, mixed residential development including social housing, live-work spaces, relocation of universities, and the development of leisure facilities, new green spaces, and infrastructures, rapid transportation systems both within the district as well as between it and the rest of the city.

Urbanism: the several scales of 22@Barcelona

- Territory: 198,26 Ha (115 city blocks)
- New gross floor space: 4.000.000 mq
- Productive Activities: 3.200.000 mq
- Housing, facilities and services: 800.000 mq
- Increase in green spaces: 114.000 mq
- Increase in facilities: 145.000 mq
- Investment in infrastructures: 180 million €

The urban planning process (2000-2011)

2000	2001	2003	2004	2004/2006	2008/2011
Industrial land, little used or in complete disuse, 100% privately owned, and part yet to be urbanised	Urban planning	Urban management	Infratructures Corporate projects, clusters	Construction	Compact city, with publicly owned land, fully urbanised and offering excellent infrastructure, providing many more jobs in the field of knowledge intensive activities

Special infrastructures plan

- New mobility plan

- Public space renewal

- New energy network

- Selective pneumatic waste collection

- New heating and cooling system

- Underground galleries

Why an innovation district?

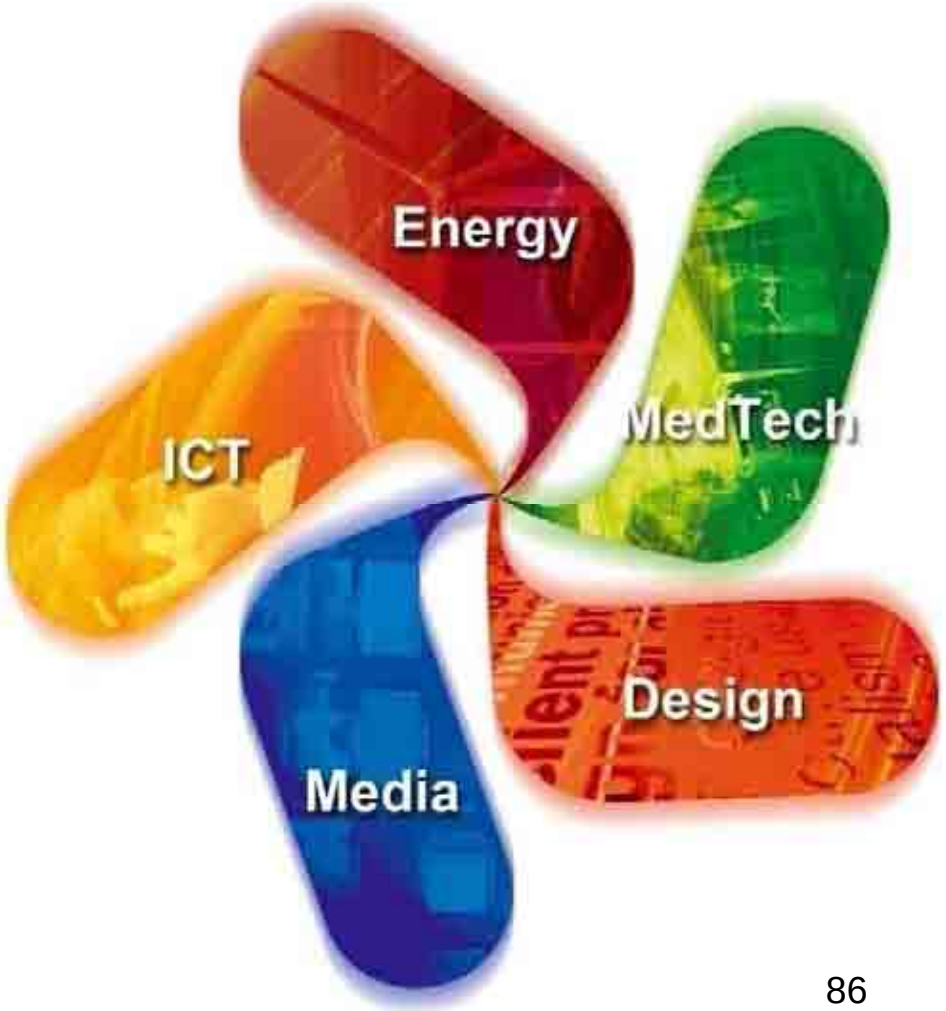
- Barcelona, an more generally Catalonia has been leading exponent of industry clusters since 1980’s.
- In the 22@ District takes this new level with a focus on five industry clusters: ICT, Media, Bio-medical, Design and Energy.
- Each cluster involves a dedicated locality within 22@ District.
- Relocation of leading firms within those industries
- Research centres
- University departments and their tecnology transfert offices
- Dedicated spaces for SMEs
- Provision of space for start ups, incubators for new ventures.

- What makes 22@ District unique is the proximity not only of the four clusters to the city, but also one to another.

Economics: urban clusters

Cluster strategies Trasversal programs	MEDIA	ENERGY	MEDTECH	ICT	DESIGN
CLUSTER POLICY					
ENTERPRENEURSHIP					
SERVICES FOR COMPANIES					
INTERNATIONALIZATIO N					
COMMUNITY FOR PROFESSIONALS					
RELATION BETWEEN CLUSTERS					
MARKETING					

- The strategy for economic development of Barcelona recognises that innovation occurs not only within each of these industry clusters, but also through interaction and collaboration between them.



- The physical proximity of the firms and institutions, and the physical proximity and engagement between the skilled knowledge workers within them, is expected to deliver greater innovation and faster exploitation of that innovation both locally and internationally.

New companies and new jobs at 22@Barcelona

- **New companies installed in the district since 2000**
- Companies already located or in process to be installed: 1.502

- 44,6% newly created

- **New jobs in 22@Barcelona since 2000**
- Employees of companies already located or in process to be installed: 44.600

- **+ 72,5%**

10 universities: 25,000 students

4 residences: more than 800 beds

12 R&D& technological centers

- The challenge (highly ambitious) the city recognised was how to make this not only a hub of innovation **locally**, for Catalonia and Spain, but how to do this **internationally**, and what role the international community that was already present might play.

2. SUSTAINABLE PLANNING TOOLS

SUSTAINABLE PLANNING TOOLS

- Most existing eco-industrial projects have incorporated one or more sustainable, or “green,” design features into their landscaping and facilities.
- Rather than focusing on one particular practice, this point of view therefore considers ways in which several approaches can be combined for **greater resource efficiency.** It integrates a number of tools and strategies focusing on the design of production processes, products, and physical space (buildings and landscape), in a way that increases resource efficiency, **lowers cost**.
- In general, the primary objectives of sustainable planning tools are to **reduce healt urban island**, maximize water and energy resource efficiency, minimize waste, and maximize use of recycled and environmentally benign materials.
- Focus on intermediate open spaces: technologies or «beautification” are not the only aims.

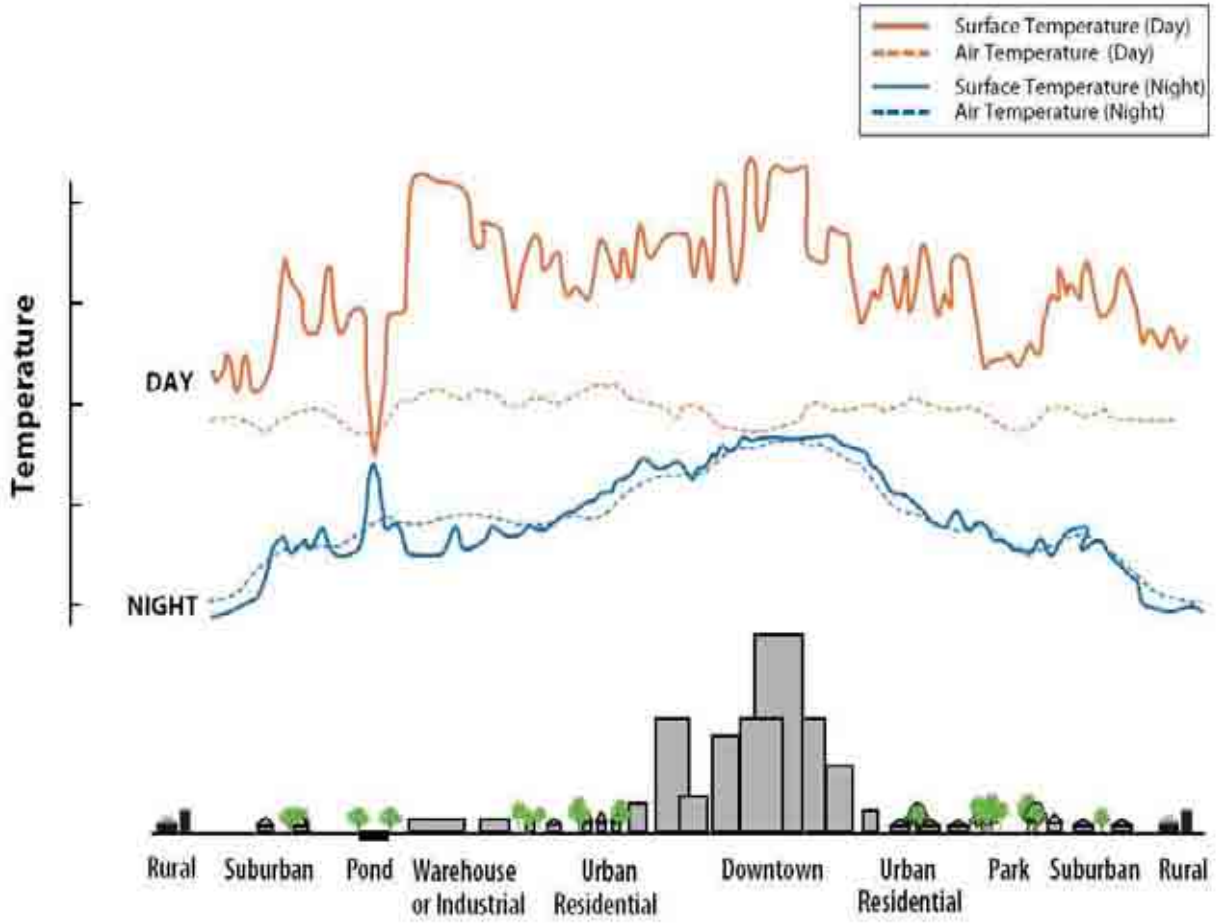
Features include:

- Increased energy efficiency through facility design or rehabilitation and renewable energy technologies.
- Cogeneration**,** or collecting and using otherwise "wasted" heat from the electrical generating process.
- Energy cascading, which involves using residual heat in liquids or steam from a primary process to provide heating or cooling to a later process, similarly optimizes energy resources of a system. For example, excess steam from a power plant or refinery may be used in a food processing plant, aquaculture enterprise, or greenhouse.
- Flexible building design for multiple use, allowing, for example, conversion from industrial/commercial to residential.
- Water resource efficiency is maximized through water cascading, where one manufacturer uses process water from another plant. Park infrastructure may include mains for several grades of water (depending on the needs of the companies) and provisions for collecting and using storm-water run off.

WHAT ARE URBAN HEAT ISLANDS?

- Many urban and suburban areas experience elevated temperatures compared to their outlying rural surroundings; this difference in temperature is what constitutes an urban heat island.
- The annual mean air temperature of a city with one million or more people can be 1.8 to 5.4℉ (1 to 3℃) warmer than its sur roundings.
- Even smaller cities and towns will produce heat islands, though the effect often decreases as city size decreases.
- There are two types: *surface* and *atmospheric* urban heat islands. These two heat island types differ in the ways they are formed, the techniques used to identify and measure them, their impacts, and to some degree, the methods available to mitigate them.

VARIATIONS OF SURFACE AND ATMOSPHERIC TEMPERATURES



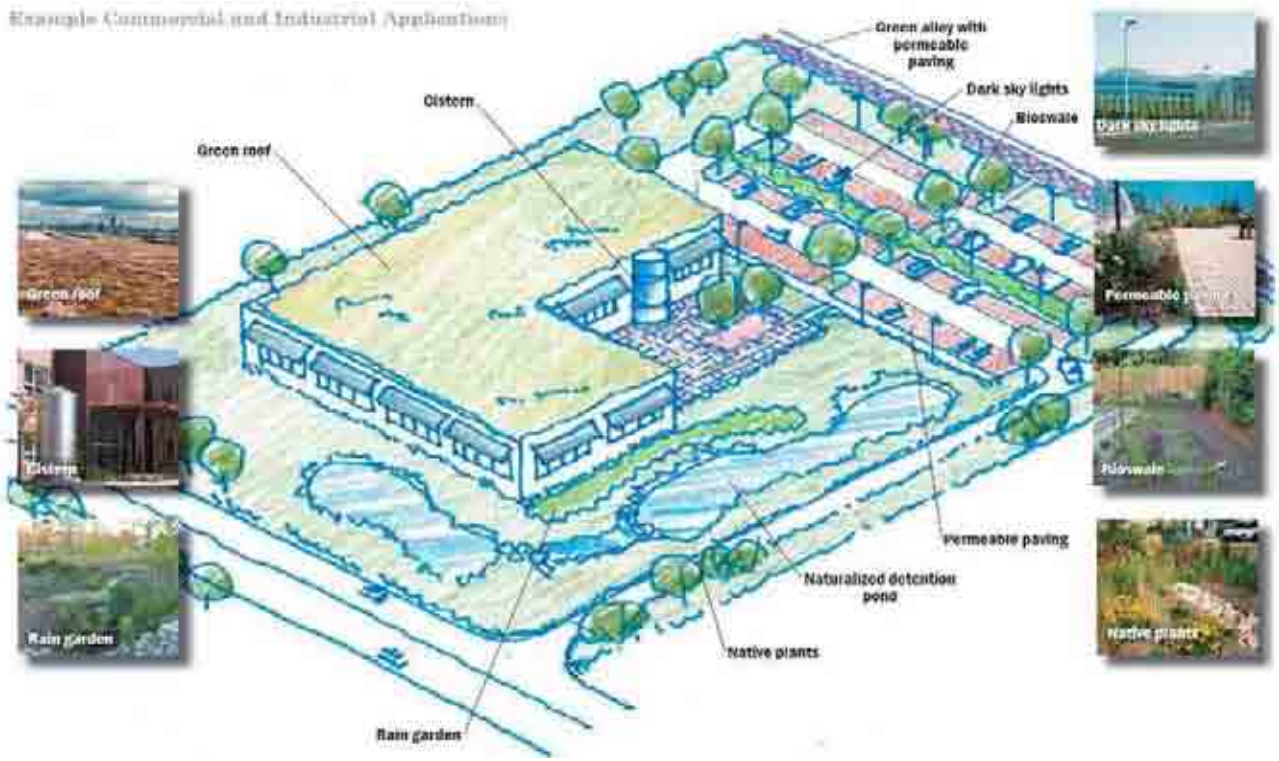
BENEFITS OF MITIGATION

- The extent to which urban areas can benefit from heat island reduction strategies depends on a number of factors - some within and some outside of a community's control.

- Although prevailing weather patterns, climate, geography, and topography are beyond the influence of local policy, decision makers can select a range of energy-saving strategies that will generate multiple benefits, including vegetation, landscaping, and land use design projects, and improvements to building and road materials.

PROJECT TOOLS AND TECHNOLOGIES FOR AN ECO-INDUSTRIAL AREA

- Trees and Vegetation
- Green Roofs
- Cool Roofs
- Permeable Pavements
- Cool Pavements



Conclusions: productive settlements as new centralities

- I have investigated the impacts of productive innovation and the changing patterns of productive territories, stretching the familiar boundaries of what currently constitutes the concept of industrial spaces.

Finally, the preliminary results of this investigation lead me to the conclusion that future research on productive settlements are needed to shed more light on the linkages with further main challenges:

- Shrinkage: new relationships between spatial patterns organisation, socio-economic dimensions, real estate market, and design principles for underused settlements;
- New concept of growth: the spatial dynamics of Italian territories in connection with the long run development process;
- Regional and local environmental policy: socio-spatial phenomena in contemporary city and territories (climate change, mobility).

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