

SOCIAL CAPITALISM IN THE VENETO REGION

Miguel Cuellas Canedo, Diego Luna Quintanilla, Sara King.

INTRODUCTION

'Social Capitalism' is the concept of this urban project, the aim of which is to charge capitalist developments with a social responsibility towards both the environment and the communities that they have an impact on. In the productive landscape of the Veneto region, the transformation in the urban form in the last century can be closely linked with (successful*) economic developments and the evolution of the structure and management of the economic unit. This economic unit, currently recognized as the industrial land, is now undergoing further transformation. This transformation, coupled with role the units play in the lifestyle of the people, and the impact they have on the environment, indicate the ideal place to act. Looking towards 2050, the challenge is, with increasing pressure on land for agriculture and space for water and a growing population, can these lands accommodate the space needed to provide for a future sustainable society? Quantifying this space, the needs of the territory and its new inhabitants are represented in relation to square meters of the total industrial land as layers of a cube. These quantities are then tested in sites of the same area but different configuration, as samples of the territory. Design projects demonstrate how interrelated and complementary spatial relationships can promote social, environmental and economic sustainability. On a territorial scale, by using the industrial fabric, the structure of the diffused city is reinforced, thus exploring how this isotropic spatial condition of this economic model can become a more resilient urban form

^{*}In Veneto, the socio-economic model that promoted entrepreneurship producing small to medium enterprises, is hailed as a 'winning model', not only economically but in terms of distribution of welfare with high employment indexes which were consistently above national and European levels. (Consiglio Regionale del Veneto)



The monocentric urban form of St. Petersburg



Paris, Frankfurt, Lyon, Milan



Bassano, Trevisio, Padova, Venice samp THE DIFFUSED CITY AS PART OF FRACTAL STRUCTURE



Zurich, Munich, Milan, Veneto



sample of the diffused city

PRECEDENTS

ST. PETERSBURG

In the Extreme Cities Workshop 02, 'an idea of Greater St. Petersburg' the project title was Social Capitalism in the Peri-Centre. The focus area of the project was the industrial land, the peri centre, which was recognised both as a place of transformation and opportunities, and for its strategic location between the two contrasting urban conditions, the compact historical centre and the socialist periphery. The strategy was based on the interaction between three layers of transport, ecology and program density. Then, by creating zoning guidelines for the industrial land, and constructing social capitalist partnerships between the sites of development potential and ecological potential, a framework was set up where in bottom-up developments can take place. These interventions demonstrate how the peri centre can begin to respond to the needs of the city today, and, in a time when the future demands of the city are uncertain; they safeguard space for the future generations of the city to meet their needs.

EXISTING SITUATION

THE VENETO REGION

To bring the idea from St. Petersburg to Veneto the nature of the territory was brought under question to understand where the key spaces would lie to employ the mechanisms of social capitalism.

A Fractal of the Global City

The dominant urban condition of the Veneto region is described as a diffused city. In dealing with this specific condition we must attempt to explore the potentials that this city model can offer. If we think about the global city we can understand it as a fractal structure, where each part is as a piece and in the same time the whole. Following this, we can recognize the diffused city as a global city as a micro-cosmos, a manageable model of the global world. With this approach, the diffused city becomes an experimental space open to interventions, proposals and projects that may have an impact on global sustainability.



linear settlement car scale

concentric settlements pedestrian scale

PLACES OF EXCHANGE

Cities are, in a traditional definition, the places without agricultural production(R.E. Dickinson), with an heterogeneous population (Wirth), related with transportation, industry and commerce (Aurousseau)

However, today, the concept is more complex: "The world is an urban place" (David Clark). In the diffused city, a fractal of the global city, these traditional definitions no longer hold. So we must understand the key characteristics of a city in a different way. "The city is an essential element of the economic system precisely as a PLACE OF EXCHANGE" (Remy). The "place with the greatest wealth of trade" (Meier).

In the diffused city exchange takes place at two different scales. The scale of the pedestrian and the scale of the car. Looking at a sample of the diffused city we see two main different typologies of built up areas. The concentric and the linear. Exchange at pedestrian scale occurs more in the concentric and by car more in the linear.



concentric and linear settlement structures



land cover in Veneto 40 x 40 sample Source: Corine Land Cover 2007



100%	
100	
80%	
ren	
424	
50%	
425	
32%	
22%	
12%	
ON .	
3674	ce siduity Agriculture
2005	
Tertiary:	Service 62.5%
Technology	Telecommunications, Computing, Research & Development, Post
Market:	Sea And Air Transport, Property
	Services, Machinery Hire,
	Services to Enterprises
Financial:	Banking, Tax, Accounts
Traditional:	Trade, Hotels, Restaurants,
	Land Transport, Travel Agencies
Personal:	Household Tasks, Luxuries



Veneto Region economic sectors gdp Source: http://statistica.regione.veneto.it/ENG/Pubblicazioni/RapportoStatistico2010/Capitolo06.jsp





Source:- Google earth, Veneto, close to Padova

Source:- Ward, 'The Garden City'

VENETO REGION AS A PRODUCTIVE LANDSCAPE

When we look at the component parts of the diffused city with the integration of urban and agriculture in Veneto we can begin to understand it as a productive landscape where the economy is also dispersed. The land cover of the diffused city is primarily agricultural. Yet, the economy is driven by the service sector, which has taken over the industrial sector in 2005. The service sector is strongly related to the industrial sector however, based on 'value added'. Furthermore, the agricultural sector still plays a crucial role, where we see the combination of the three secotors in agro-industry accounting for 38% of the GDP. The dispersion of this economy is composed of small to medium enterprises, ranging from individual lots to industrial clusters, but rarely reaching the size of the barriers of the industrial belt in St. Petersburg. Dwellings and landscape are always proximate. This recalls images of the garden city of tomorrow, where people are 'living and working in the sun', close to nature.

The lifestyle offered by this model is not the only positive factor. In Veneto, the socio-economic model that promoted entrepreneurship producing small to medium enterprises, is hailed as a 'winning model', not only economically but in terms of distribution of welfare with high employment indexes which were consistently above national and European levels. This relatively even distribution of wealth can be seen spatially, where the dispersion of lower incomes throughout the region correlates with the average densities. The distribution of wealth in Veneto can be correlated with the isotropy of the diffused structure and its pipes and sponges infrastructure supporting its connectivity. In relation to Ronald Sean Wall's theory of "urban network sustainability", cities ability to develop socially, economically or environmentally is strongly related to the capacity to interact with other cities. This theory is focused on global connectivity, where the centralized structures of power and production are located only in a few cities, and the rest of the world is relegated to lower levels of economy. In this way, seeing the diffused city as a manageable model of the global world, we understand that isotropy and connectivity are essential positive characteristics of this model.





THE TREND CONTINUES

In order to understand the formation Veneto Region as a productive landscape, we must look at the relationship between the economic trend, the social organization, and the effects of both on the economic unit and the urban form in the past decades. In the 40's the agro-economy and the family structure gave a special fine grain urban form with the farm house as a model. In the 60's the increase of the industrial production structured by the community, produced a new kind of landscape based on repetition and addition, where the farm house and the factories composed the territory. In the 80's extensive industrial production demanded services to be more efficient and used the municipal structure to generate the typical industrial cluster. By the end of the century, with the industry operating internationally, the new power of the service sector produced a hybridization of the unit, mixing the different sectors and building a new productive system based on logistics and marketing (Pertoldi).

Globalsiation

The globalisation of the industrial sector is discussed in 'The Internationalisation of Production Activities of Italian Industrial Districts', Giuseppe Tattara. Here we see there are two main types of globa interaction- Direct Investment, and Sub Contracting. Direct investment tends to happen with larger enterprises, where firms, i.e. Benetton, invest in whole plants in other countries, or international firms invest in new plants in Veneto. Subcontracting is more a trend for small to medium enterprises, where they subcontract parts of the manufacturing process to firms abroad. On consultation, Tattara stated that the trend of globalisation steady. The tendancy is that companies will remain in Veneto and not move out completely as the market is a growing one, so it is a case of expanding rather than moving.

The territory is in continuous transformation. If we imagine a future scenario where the current trend of specialization in services, will be supported by a sustainable and globalized society, we must question then the future urban form and the economic unit.

ACTING IN THE INDUSTRIAL LAND

To address both urban form and economic unit we look to the existing industrial land. What if we use this land to resolve the social, economic and ecological needs for the future generations? Why? As the industrial land is a place of exchange, located along main infrastructures, a hard surface and now in transformation. It also offers the potentials for the implementation of social capitalism. Firstly, because the industry is in transformation to new economies. Secondly, the industry has produced the economic wealth of the



ecological footprint, Vento Region sources: next page

society but in doing so has been a major contributor to the pollution of the region. Thirdly, because the future economy has the responsibility to recover and maintain the quality of the landscape.

THE EOCOLOGICAL FOOTPRINT OF VENETO production and consumption in veneto region

To construct an image of the future sustainable society. We must look to the territorial scale. The figures indicate the levels of production and consumption in 2010. With an increase in population of over 1 million people by 2050 these demands will also increase. However, the figures projected for 2050 show a reduction, as the goal is to apply energy saving techniques, use clean, renewable sources of energy, employ agressive agriculture and improve water management on all scale levels.



Veneto 2010 Inhabitants: 4.912.410 Inh. Industrial Land: 524.260.076,29 m2

Veneto 2050 New Inhabitants: 1.265.658 Inh. Total Inhabitants: 6.117.557 Inh.

Surfaces for New Inhabitants:

New Industrial Workers: 1% (- 5.448.155,55 m2) New Device Workers: 1% (- 5.636.818,18 m2) New Dwellings: 10% (- 55.089.986,60 m2) New Public Buildings: 2% (-13.583.833,37 m2) New Public Space: 5% (-23.313.163,93 m2) New Water Demand 1 m : 9% (-45.973.768,33 m2) New Water John (-6.328.290,98 m2) New Water 0.03% (-194.087,38 m2)

Surfaces for Total Inhabitants:

Solar Panels: 30% (158.116.446,35 m2) Water Storage 1,5 m : 16% (84.525.925,35 m2) Hydroponic Agriculture: 73% (385.530.274,98 m2) Solar panels for H.A.: 66% (345.991.476,23 m2)

New Forest: 1678,7% (8.801.177.773,02 m2)

STRATEGY

THE CUBE

To understand what these demands really mean in relation to the industiral area we translated each figure into a square meter area and related it the total square meter area of industry in the Veneto Region.

The calculations were made with the following conversions from the following sources.

New Inhabitants:

Source & Projections: 1. Istat 2. http://www.dart-project.eu/fileadmin/OrdnerRedakteure/0101_ Partners/Veneto_Region.pdf

New Industrial Workers & New Service Workers

Area: Working Space Source of trend: www.venetolavoro.it/portal/html/v4//pdf/Layouting.pdf

New Dwellings

Area: Living space Source of trend:14 censimiento della popolazione e delle abitazioni 2001

New Public Buildings

Area & Projection: Calculated in relation to new residences (+20% of total built less working space)

New Public Space

Area & Projection: Per new inhabitatnt 20sqm

New Water Demand & Wetlands

Source & Projection: Per capita, greatly reduced using www.data360.org/wisewater

New Waste

Source: http://europa.eu/abc/keyfigures/transportenergy/ protectingenvironment/index_en.htm) Conversion: http://www.zendergroup.org/docs/container.pdf

Solar Panels

Source (Energy Demand): http://statistica.regione.veneto.it/ENG/ Pubblicazioni/RapportoStatistico2007/Capitolo10.jsp Conversion: http://erenovable.com/2007/08/02/paneles-solares-con-42eficiencia-un-nuevo-record/

Water Storage

Source of Calculation: VCI Schede

Hydroponic Agriculture

Source: 10x normal productivity (Viviana Ferrario)

Solar Panels of Hydroponic Agriculture

Conversion: http://www.gov.mb.ca/agriculture/crops/greenhouse/ bng01s01.html



pre-selection of 7 municipalities



subsoil pollution in the 2 municipalities source: Ungaro et al



the new transport proposed in the n0-auto 2 scenario in the 2 municipalities



2 selected municipalities

SITE SELECTION

We took a 40 x 40 km sample of the region and we analyzed the current features in relation to the industrial areas. A pre-selection was made of 7 municipalities to the north of Padova, making analysis of proximity between industrial areas and urban settlements, regional infrastructure and water networks.

We choose two municipalities: campodarsego and vigonza due to the contrasting isotropic and hierarchical conditions. Campodarsego represents the typical small to medium industries dispersed in the landscape, with one or two larger clusters. However in Vigonza, with the presence of both the highway and train line, and its proximity to Padova the clusters are more defined and larger.

Within these conditions we selected three industrial typologies: dispersed (Campodarsego), compact and linear (Both in Vigonza) with similar surface area. This was overlaid with the proposed transport system, by the no-auto scenario, and the pollution of the soil, as main drivers.

The no-auto scenario provides the basis for an improved public transport infrastucture in the the 40×40 sample of the Veneto region.

The type of soil pollution is the presence of arsenic(Ungaro et al), from anthropological sources, i.e. industry.

dispersed

linear

compact



porosity



THREE TYPOLOGIES

Land Ownership

The percentage of public space is by far the highest in the compact. **Dispersed:** public 4% private 96%; **Linear:** public 13% private 87% **Compact:** public 26% private 74%

Built-up Area

The compact is the highest on plot level, but lowest at the district level. **Dispersed:** district 33% plot 33%; **Linear:** district 29% plot 33%; **Compact:** district 25% plot 36%;

Permeability

The dispersed is part of the impermeable network on a larger scale. While the others, represent islands dotted with green spaces. **Dispersed:** district 8% plot 8%; **Linear:** district 18% plot 14%; **Compact:** district 20% plot 15%;

Flood Risk

This is proximate in the **dispersed** typology, nil in the **linear**, but a major issue for the **compact**.

KEY THEMES

From the comparison these four main themes are identified as key in defining the future urban form;

water management, soil pollution, density and connectivity.

URBAN FORM



WATER MANAGEMENT NETWORK flooding network run-off collectors and storage wetlands



SOIL DECONTAMINATION phytoremediation sites



CONNECTIVITY green network along water lines



CONNECTIVITY eco-networks

PROPOSAL

Dispersed Typology

In order to give more space to the water, we incorporate the flow from the main water bodies in the territory though a water network connecting industrial areas. Regarding the rain water, we proposed to collect the runoff from the sealed areas in the perimeter of the industrial sites, then to store it and discharge it through the territory in a system of wetlands. In this way we propose a new water system over the existing water structure. Now certain industrial areas begin to play major role in territorial ecology, and so these are selected to begin the process of soil decontamination by phytoremediation*. The new forest areas will be distributed along the new water network, forming an eco-network. Taking a close look to an industrial plot, we propose a new economic unit. The logistics areas are optimized and the land reshaped in order to provide water collectors and wetlands. Floodable areas are created where we can treat the soil by a process of phytoremediation. Within a major system of eco-networks the industrial activities will be optimized and diversified incorporating new services, hydroponic agriculture and energy production.

*techniques of phytoremediatioin are sourced from Federal Remediation Technologies Roundtable



ECONOMIC UNIT

URBAN FORM



CONNECTIVITY historic transversal links new public transport stops new harbour and road extension



DENSITY higher density around new public transport stops medium density along the road front



CONNECTIVITY water management system green networks extending from Brenta banks



CONNECTIVITY two network system eco-networks

Linear Typology

In the linear typology we begin by looking at the old path of the Brenta river. We propose to recover the old transversal connections, and to improve the linear connections with the new tram line. The road network can be extended to a new harbour area. Higher density will be concentrated around the public transport stops, and a medium density along the road front.

A new water management system can be put in place, along with new green corridors extending from the Brenta banks. The fast transport network operates complementary to these slow green corridors giving them space to form a new eco-network.

In the economic unit, the section shows how the new transversal connections are reinforcing the strategic densification, and the general environment is enhanced by the integrated water management structures and green corridors.



ECONOMIC UNIT

URBAN FORM



WATER MANAGEMENT NETWORK new contours peak and seasonal storage pump and circulation for purification outlets linking to a pond network



DENSITY F.S.I. 1.5 within 500m of the new station F.S.I. 1 within 1km of the new station



CONNECTIVITY pedestrian route defined with station as an anhcor routes extend into landscape carry ecological corridors through barriers overlaid with water contours creates eco-lines



CONNECTIVITY logistics network is laid out complementary to the pedestrian routes the route is minimised to a point where all plots are accessible car parking spaces are now free for new uses

Compact Typology

To understand the flood risk we look at water flows in the area and the potential catchment area for run-off. Working with the existing topography we can propose a system of new contours on the site to manage the water. These are linked to the open areas providing space for both seasonal and peak water storage. With a pump the water can be re-circulated in the site for purification. Outlets connect to the adjacent settlement and industrial sites in an extended pond system.

With the proposed transport system of the no-auto scenario the site now lies in the catchment area of the new train station. New, higher densities are proposed along with new priority pedestrian routes, which can host green networks. Overlaid with the water management contours we define eco-lines. The slow network defines the fast network, which must provide vehicular access to all plots. This new logistics network is based on the proposal by REDECON. This project looks at spatial planning for economic development and proposes the most viable option going forward is to move towards a reorganization of logistics with third party logistics providers, which will be located at strategic points in relation to the location of industries. Thus there is the potential to reduce logistics space on plot level. This allows for a requalification of the streets.



ECONOMIC UNIT

proposed section

URBAN FORM



CONNECTIVITY two network strategy leads to street requalification urban logistics route (black) emergency access only (green) residential integration (orange) edge routes with added pedestrian space (purple)



requalification of the streets



Transport and logistics



ecolines

Compact Typology Cont...

The first economic units are those with double facades. Water storage in the plot is mainly on the roof with collectors in the street. With the green networks the requalified external street is now a leisure route, and the logistics network has a more urban nature. Strategic densification at plot level defines a new hybrid economic unit.

The second condition shows large wetlands in the public space. Phytoremediation of polluted soil can take place in the back of the plots between the blind walls of the industrial units creating a new landscape. The streets are requalified giving different conditions for green public space for pedestrians, a no-access decontamination space, and logistics street.

STUDY CASE

Compact Typology

Our study case is the compact typology. The urban form is defined by the requalification of the streets. The Eco-lines increase the porosity breaking through the industrial blocks.

ECONOMIC UNIT



proposed section

SOCIAL CAPITALISM IN THE VENETO REGION





dispersion of the cube into the study case (* quota not fulfilled)

1-3 built denstiyincreased due to trainstationfron 13% to 39% of land













4 public space in proportion to density - existing public space used - 26%

- 5 solar panels
- 33% (roof and facades)

6 water storage space catchment area only gives

- 4% (roof level)
- 16% (ground level)

7 hydroponic* reduction of quota due to increased density (now 68%)
40%
8 solar* accommodated in publc spaces (demand now 33%)

- 25%

DISTRIBUTION OF THE CUBE

Understanding the underlying topography giving the characteristics that will define the urban form we now look to the distribution of the cube to understand the economic unit.



elements of the cube



distribution of the cube in relation to the urban form



catchment area of the station potential area for sustainable development

MECHANISMS

How can this project come about?

Regional level

First we can think about policies at a regional level. With after Kyoto goals and an increasing population the region must think of sustainable development.

Reducing mobility there should be an investment in public transport, increasing the number of train stations around potential areas. These areas are; on existing rail infrastructure; with a population density of 4000(Klassen) inhabitants per square kilometer and with a large portion of hard surfaces to carry development.

Municipal level

At municipal level, because of these criteria, this site lies in the potential area for a station - with the existing population at 3500, a rail line and the hard surface of the industrial land. (In the research industrial land was up to 87% hard surfaces compared to 41% in the adjacent residential areas).

Therefore in order to concentrate the density the municipality must instigate development in this area, and then manage this development to insure investment in public projects that will increase the value of the land to sustain the development process.

The development of each plot has to follow certain conditions: (conditions with figures were calculated based on a testing of plot capacity)

- To keep industrial activities with an FSI of 0.5 of industrial use.

- To diversify uses according to a new zoning plan.

- To provide areas for rain water storage

4% at roof level (h=1m) 2% at ground level (h=1m)

- To clean their polluted soil

- To produce their own energy







zone 4



phase 01 zone 01





zone 5



phase 02



phase 03





zone 4/5

phase 04









small scale mechanisms

phase 05 zone 4/5

TIMELINE

Here we can see the time line with the key projects and with the zoning map.

In Phase 01, in the build up to the train station, Zone 01 is developed, polluted soil is treated in zone 04 and sites in both 04 and 05 begin to clean their own soil by phytoremediation. In phase 2, with the train station in place, Zone 2 is developed and polluted soil is treated into zone 5. Profit generated is invested in the first eco-line. In phase 3 zone 3 is developed and polluted soil is dealt with on site. Profit generated is invested in the second ecoline. In phases 04 and 05, the land values are higher as the soil is now cleaned and the subsequent eco-lines are developed closing the eco ring.



SOCIAL CAPITALISM IN THE VENETO REGION







view 01 - urban logistics street







view 02 - external leisure street

SOCIAL CAPITALISM IN THE VENETO REGION

and here been

CONCLUSION

On the territorial scale the isotropic structure of the diffused city is reinforced as a more resilient urban form.

By introducing compensation, intensification and interdependence in the industrial sites we create a balanced network promoting social, environmental and economic sustainability.



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