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Water Climate Change and Architecture

the selected paper of blue in architecture 09

Is it possible for Venice to be a model for a sustainable city of the future? And, is its characteristic of amphibious city to make its metropolitan system a possible model for a sustainable city? During several workshops and dissertations of the Second Level Degree in Architecture for Sustainability we have tried to explore and to deepen the issue of urban sustainable development, investigating choices and strategies that could answer these questions.

The first necessary action is to identify, as the proper reference area in order to trigger actions for a sustainable development, the complex and amphibious settlement system corresponding to the set of insular city, lagoon and mainland portion of metropolitan area. To think about a metropolitan city that designs its own future coherently with its exceptional territorial settlement means to catch and to interpret the specific opportunities offered by a city leaning on an extraordinary tray of connectivity, represented by the lagoon, and fed on the ground by the regional subway line (SFMR). This integrated network of land and water feeds the excellent historical settlements beyond the main island, the minor islands and all the locations on the mainland, and can create the contemporary ones, in the urban part of mainland and in the strategic points of the gutter.

In this scenario, the new mobility network, the Regional Metropolitan Railway Service, which is being implemented, in addition to increase an environmental mobility and to make accessible the territory, has to be interpreted as an opportunity to create a constellation of urban episodes, able to specialize the single locations with logics of excellence, transforming the territory, disorderly and anonymously widespread, into a sort of new central campus provided with innovative services, transforming new forms of housing into new avant-garde buildings, with structures and environment-friendly technologies optimized to reduce energy consumption and all accessible without a car. Taking advantage of the structure of the historic city, exemplary for its relation between buildings and public space, is possible to recreate an open system and a territory which is a new seat for collective life, a place for social meeting, for exchanging knowledge and ideas.

The public transport network, together with the system of artificial canals and rivers, if thought as an integrated system, allows to exploit the functional, morphological and geographical settlement opportunities, specializing and strengthening each individual location and identity as a piece of the greater

SERGIO PASCOLO

**The amphibious city as a
urban model:
Sustainable development of
Venice, city of water, and its
amphibious metropolitan
area**

amphibious metropolitan area around the lagoon.

Interpreting the settlement vocations and options of single places, it's possible to articulate complex new nodes with experimental cohabitations of activities and people, uncommon overlapping of functions and uses, that form an archipelago of urban excellences able to transform the urbanization spread into a sustainable, metropolitan and high quality territory that is in equilibrium both within the territory and towards the no-barycentric center, represented by the historic insular city.

The amphibious Venetian system finds its origin and its natural engine in the water of the lagoon which, if thought also as a resource for mobility, becomes an opportunity to re-establish a settlement system based on a network, which is capillary, interactive and responsive to the polycentric and multi-center system, a web of existing, links and new interventions that does not generate imbalances, but that distributes harmoniously the strengths and weaknesses, reacting to different flows, special events and seasons.

Is the amphibious, ambivalent and plural character of the system to determine the new paradigms that can be taken as a base for the model of sustainability? Innovation and environmental respect rather than heavy infrastructure, slowness and quality rather than speed and stress, speed of proximity rather than speed in the distance, alternation instead of uniformity, plurality instead of singularities are the alternatives to “make at system” and to assess their consequences.

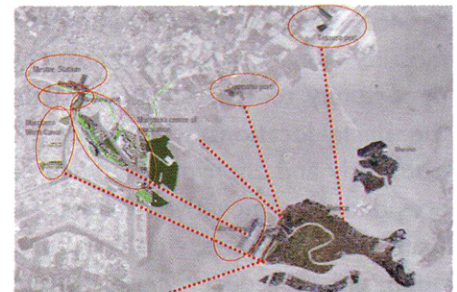
To consider the insular city of water, the lagoon, the city and the mainland territory as an integrated amphibious system is a design act, and not at all an obvious fact, so far, not only misunderstood but also hindered by the recent urban policies and today in act. In the model of amphibious city, the insular system and the core of the ancient city, in particular, are “model” as they indicate a mode of organizational system in equilibrium: a rare and extraordinary balance between land and water, between nature and artifice, between liquid and solid, between slowness and speed, between proximity and distance, between heaviness and lightness, between the production of culture, tradition and innovation, between material and immaterial, between major and minor, between old and new. This balance has given rise to morphologies and architectures, ways of use and movement, habits and forms of specific and special social forms, related to the amphibious character of the system; we



Fig. 1 | The amphibious metropolitan area region

Fig. 2 | Plurality of connections between island and mainland

Fig. 3 | Concept for a sustainable amphibious urban system



loop progressive over time. The constellation of nodes of contact between water and land become urban fragments densely inhabited and lived and not just nodes of “interchange” of the means of transport anymore. In this way, the network system intensifies with complex nodes, which are also concentrations of facilities and services, and with new reference points and “light” additions on the water and green that work together to make the routes a continuous system and making enjoyed, inhabited and connected what is now separate, distant and isolated.

The process has three orders of objectives: the international re-launching of the metropolitan area of Venice based on the quality and uniqueness of this city of water, and the increase in residential activity in the lagoon and the corresponding limitation of the suburban expansion on mainland, the environmental sustainability of the transformation and development through the strengthening of the environmental values and balance that have characterized the city's history from its beginnings. The project pursues these goals with three choices, closely interrelated and roundly necessary to the overall picture: new high-density settlement systems on the contact zones between land and water both in urban parts of Mestre and Marghera and in some sites of the lagoon, increase in light water mobility and its integration to the new settlement systems and to the public transport networks of land, a strategy of expansion of agricultural, forest and lagoon green as a policy of environmental quality and of reduction to zero of the new urbanization, complementary to the proposed settlements of re-invention of the territory already man-made. Goals, decisions and projects are declined and inserted into a vision of transformative process with a span of 40 years, identifying several progressive steps from 2020 to 2035 to 2050. It has been identified ten sites to be developed as innovative high-density settlements for residents and activities at points of interchange between land and water, or as new light nodes to connect natural areas: the Venice Maritime Station, Passo Campalto, Tessera, S. Erasmo in the group of islands of the northern lagoon, the smaller islands of the lagoon south, the front of the industrial canal of Marghera, the head of water towards Mestre and the big waterfront on the industrial northern canal of Marghera. The requalification of the portion of the industrial area around the Pole of Research and Innovation (Vega) assumes the role of hinge between the parties highly configured of the system that are now

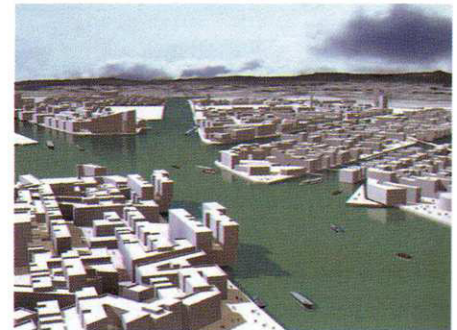


Fig. 4 | City of Innovations – Innovation of the city: aerial view

Fig. 5 | : City of Innovations – Innovation of the city: Canale Grandissimo

amphibious condition of facing and service as typological and architectural peculiarity; the aggregation of the new buildings searches for overall logics, balanced between density and complexity, looks for new proximities and relationships that could promote the use of urban public spaces as civic spaces, places of encounter and exchange, places of socialization, places of innovation thanks to the quality of urban life, proposed to future residents and workers. Overall, all the great transformation interventions or the small changes in the islands and in the connections assume equal importance; the relationship, both in terms of process and in terms of design, returns to the mobility strategies that should aim to enhance public transport in general and, in particular, to increase the light mobility on the lagoon with innovative means of low impact and the interface of the new urban nodes with land lines (trams, SFMR, eco cars park-ride and car sharing). The transport network provides access to these settlement systems and, through them, become network and creates a continuum with the islands and the mainland. This strategy, opposed to that of the unidirectional infrastructures, strictly carrying imbalances and environmentally impactful as the hypothesis of a sub lagoon underground, aims to promote Venice as an International Laboratory of experimentation of ecological mobility on water, a research center of new navigation means, small, large, light, fast or slow that, both by involving the best resources in the shipbuilding craft and local production and by attracting researchers from all the world. The capillary accessibility through water, as opposed to concentrated links, intends to make at system even routes and accessibility of the Northern Lagoon and the minor islands of southern lagoon, designed with specific projects that allow to make useable, as large urban parks, those that are now sparsely inhabited islands and sparsely connected; in addition, through the water doors the overall drawing makes it complementary to the portion of water and, connected to this, to other large natural systems of land: north-east, a great lung of 15 million square meters of agricultural park to Sile, southwest, a large forest with 150,000 forest trees that separates the lagoon from the Romea, a water park to the south, which reuses the waterway as a place for sports facilities related to water and naturally continuing to the southern marshes of Fusina, the transformation of the landfill of Tezze in a open solar photovoltaic farm. Considering the present historical moment in which the Western development model is proving its total hazardous and in



Fig. 8 | Campalto Harbour
Degree workshop 2008-2009, WAVE: Campalto
The step. Design by Benedetta Lenci, Elena Trovò

Fig. 9 | Darsena of Marghera
Degree workshop 2008-2009, WAVE: Mestre Re-
Water. Design by Giovanni Calvi, Giovanni Masiero

some ways irresponsible blindness in the indiscriminate use of resources, the reflections on the amphibious character and on its physical and morphological characteristics in terms of opportunities and also in terms of choices, suggest a direction for what concerns urban development, which should be further explored and promoted.

credits:

CITTÀ DELL'INNOVAZIONE – INNOVAZIONE DELLA CITTÀ Marghera – “Il Canale Grandissimo”

Corso di Laurea in Architettura - Anno Accademico 2010/2011

Laurea Magistrale in Architettura per la Sostenibilità LABORATORIO INTEGRATO 3B

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WAVE – WAter VEnice

Sviluppo sostenibile di Venezia città d'acqua e della sua area metropolitana

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Tesi di laurea – Sessione marzo 2010

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Fig. 10 | West Channel: view

Degree workshop 2008-2009, WAVE: Marghera Watervision. Design by Federico Beltrame, Andrea Trentin

Fig. 11 | West Channel

Degree workshop 2008-2009, WAVE: Marghera Watervision. Design by Federico Beltrame, Andrea Trentin

