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ECOLOGICAL CONTINUITY AT THE URBAN FRINGE: THE LANDSCAPE OF THE AREA NORTH-EAST OF NAPLES AND SOMMA-VESUVIO

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Introduction

The research proposal is based on the need for an integrated and complex model of landscape management focused on multisectoral tools as well as on an approach to the governance of Mediterranean metropolitan landscapes whose priority would be the non-negotiable and sustainable management of the natural resource base, with particular reference to water and soil.

The agricultural landscape matrix is assumed here as the spatial (connectdness) and functional (connecivity) model in which to identify an agro-ecological management option. Within the agricultural landscape matrix can be achieved: (i) restoration of the environmental complexity and increase of both biodiversity and ecological heterogeneity; ii) rehabilitation of relics of fragmented natural habitats; iii) river control and sustainable water management; iv) functional interface between the river network and agroecosystems; v) functional reorganisation of the system of sub-urban open spaces; vi) redefinition of environmental management strategies for the system of protected areas; vii) increase in both biodiversity and economical, social and cultural welfare of local communities as well as the increase of their both cultural and physical identification as opposed to the "condition" of belonging to outlying districts.

The study area is located east of the city of Naples. This is an high environmental risk area as it is comprised of both intensive residential settlements and industrial plants as well as heavy infrastructures.

The research rationale aims at the encouragement of both system diversity and complexity as this appears as the only ecologically and politically sound option.

The study area and its conflicts

The plain east of Naples is a wide alluvial depression sloping down towards the sea and connecting the Phlegrean to the Somma-Vesuvio volcanic systems.

This plain collects the runoff waters coming from both relief systems. It used to be characterised by the occurrence of many ground water springs that formed the so called Naples' marshes.

The past agricultural landscape, that was formed by adhering to the spatial configuration of the natural system, was almost completely deleted during the period after the second world war. Former rural settlements were surrounded and upset by industrial and residential ones.

Fragmented and isolated remnant patches of such an agricultural landscape matrix are heavily cross sected by transport infrastructures.

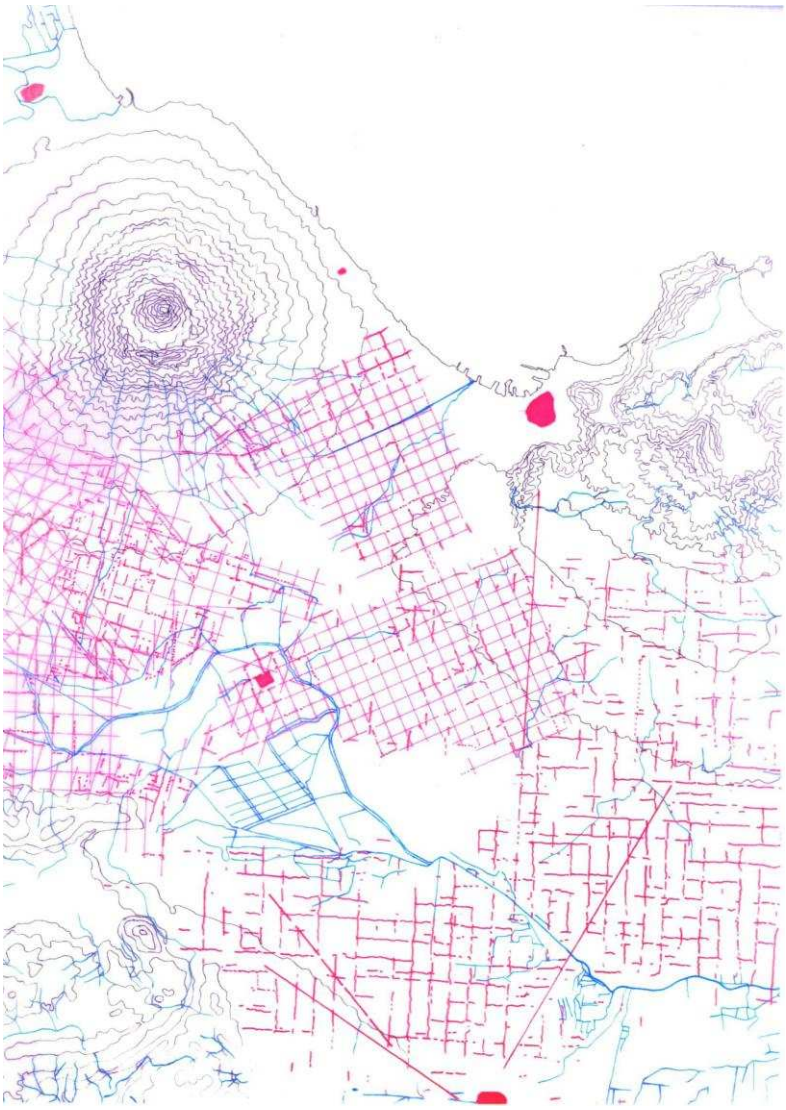
A transdisciplinary research approach, including the analysis of the evolution of the morphology of settlements, provided insights on the role of environmental components (primarily water and soil) in the distinct phases of transformation and anthropisation of the area.

The first colonisation phase of the plain

The colonisation of the plain begun during the Roman age when the first plan for the territorial arrangement of the area was implemented. The centuratio of the area, aimed at the socio-economical organisation of the rural space, ended up as an actual land reclamation operation the affected settlements both pattern and dynamics thereafter.

Such a land reclamation scheme was restored and enhanced during the late Middle Ages.

The analysis of historical maps and sources reveals that the reclaimed wetland was sparsely settled, served as a fresh water reservoir for the city of Naples and its economy was based on textile and milling industries, cropping of hydrophilous species and animal husbandry.



The industrial expansion phase

The city of Naples started its expansion towards the plain as from 1855 in coincidence with the implementation of the Bourbon land reclamation scheme, that also included mountain river control works and the construction of retention basins. The Bourbon land reclamation scheme deeply affected the spatial configuration of the area by changing the "natural orientation" of the main reclamation channels. Their North-South orientation, already implememnted ath the end of the XIX century, imprinted the future industrial expansion in the plain east of Naples, as such channels also served as sewerage system for both human settlements and industrial plants.

The urbanisation phase

The intensive urbanisation occurred as from the period after the second world war in the plain between Naples and the Somma-Vesuvio system progressively deleted the spatial configuration of the rural area as well as of the river network as a function of which it had been formed.

The remnants of ditches and channels, serving as sews and fragmented by old and new linear infrastructures, host relics of riparian vegetation and scattered ruins of mills and buildings. The area at the Vesuvio piedmont is nowadays heavily urbanised and the reorganisation of the sewerage system has affected both the spatial and functional pattern of surface waters, whilst the construction of a huge service centre on a marsh area, formally used as pasture, as well as of several transport infrastructures, have affected groundwater circulation.

The network of new linear infrastructure is superimposed on both the pre-existing one, that is comprised of roads and channels, and the agro-urban industrial landscape matrix.

The result is a "complex" rural-metropolitan landscape in which infrastructure networks overlay that attain to distinct ways and time domains of space perception.

Some considerations

An overview on the national planning current practice reveals a trend towards a landscape management model centred on "constants" around which action should be organised in such a way as to overcome conflicts on the use of natural resources, particularly water and soil.

It is clear that what is needed is a strategy that would integrate planning and nature conservation as well as the governance of agricultural areas. This seems a feasible option for the study area too as it is included (Piano di assetto territoriale of the Campania Region, 1988) among the so called metropolitan protected area. Such a category of protected areas is typical for intensively urbanised European countries where the protection and rehabilitation of wide open spaces is a means for balancing the environmental crisis of huge metropolitan areas.

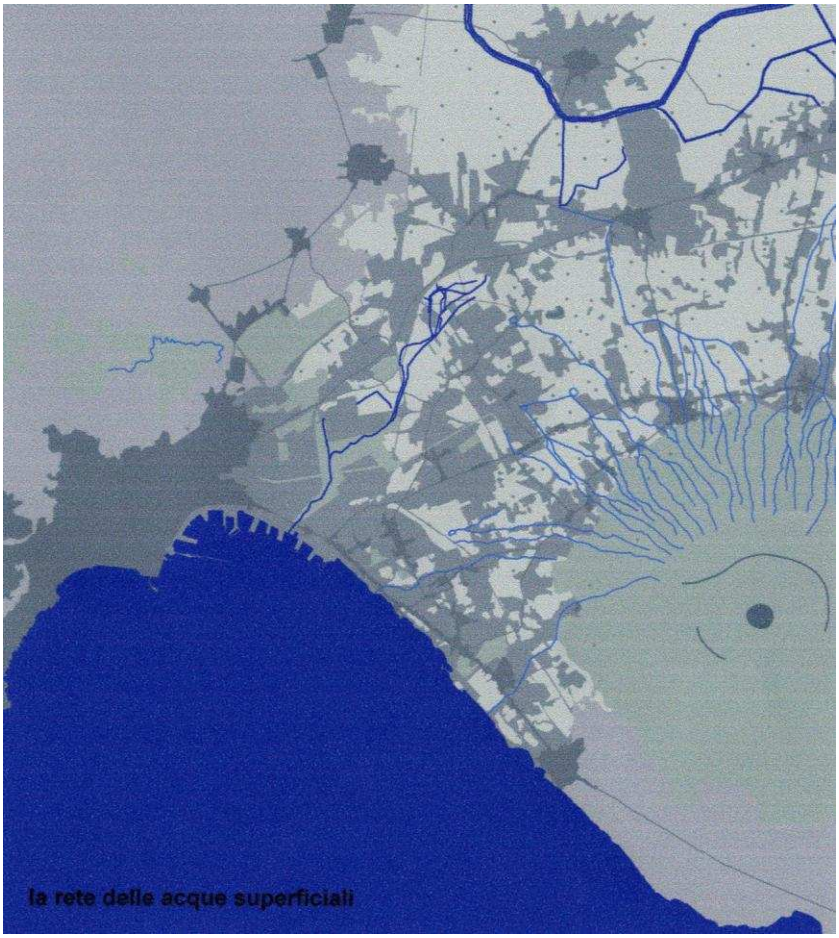
As a matter of fact the "internalisation" of parks planning as an attempt to solve the question of shared resource management meets both the IUCN principles (Unep, 1991) and the Action Plan (IUCN, 1996). Plans for protected areas are the very tools for the preservation of ecosystem biodiversity and for a transdisciplinary approach to planning.

Agricultural patches of the study area are sensitive environments as their balance depends on transformation dynamics that would preserve local resources, physical, socio-economical and cultural (Cinà, 1999).

Such agricultural patches are sub-urban, either surrounded by densely urbanised patches or dissected by infrastructures, yet it is certainly possible to redefine them as "infiltration open spaces" for natural processes as they behave as "contants" in a gradually changing and homogenising landscape context.

This also appears as a sound option as it would allow for the implementation of a policy aimed at linking production to natural resources re-production, which is needed in order for marginal economies to emerge. Such seems to be the current political trend in Italy too as it can be appreciated from the rationale underlying many legal instruments (e.g., Reg. 99/1257/EC on rural development; L. 1991/394/I, on protected areas) and ongoing both EU (LIFE, INTERREG) and national (APE) programmes.

Crucial for the implememntation of such policies is the role of local and regional authorities, as also confirmed by the European Landscape Convention and by the Mediterranean Landscape Bill (Seville, Conference of European local and regional authorities Res. 254/94).



Finally it must be pointed out that the future role of network infrastructures will go beyond the mere physical connection among people and places, to get into the more immaterial dimension of means for inter-partners relationships to take place in such a way that local identities would result enhanced, that are the very base for the socio-economical development in rural areas as well as conditio sine qua non for the preservation and enhancement of landscape ecological continuity.

Suggested options and strategies for the ecological rehabilitation of the plain between Naples and the Somma-Vesuvio

Water

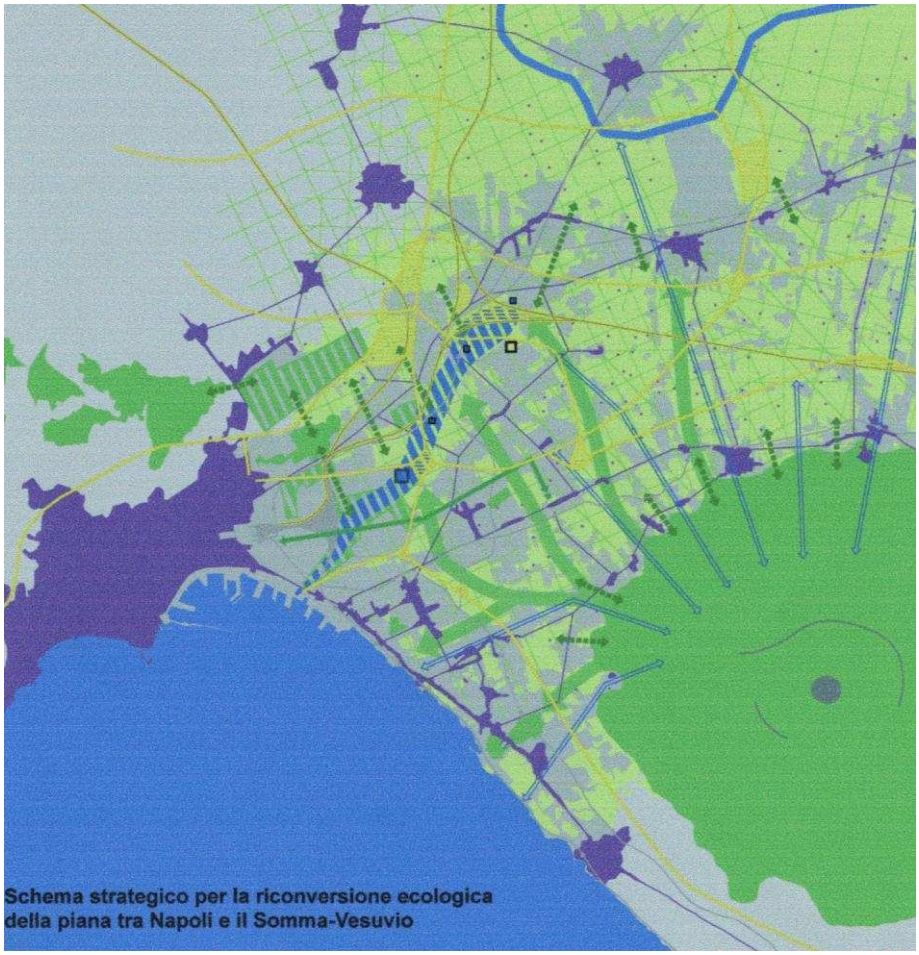
The rehabilitation of the surface waters network allows for the enhancement of the land complexity and ecological continuity as well as for its hydraulic safety. Such a rehabilitation, moreover, opens the perspective for the sustainable management of the water cycle and offers new valuable spaces for recreation.

1. The wetland. Remove pollution sources and restoration of the drainage function of land reclamation canals by means of bioengeneering tecniques. Restoration of the system continuity up to the sea. Creation of an ecological corridor by means of the environmental rehabilitation of the banks and the creation of small pools. Involvement of local farmers in the management of the wetland.
2. The waterways. Restoration of artifacts of hydraulic archaeology and creation of pedestrian tourist-education trails along canals, with the involvement of local communities.
3. The waterpark. Design of a park in the area of dismissed oil refineries reinterpreting water as the motif of the whole project and actively involving the water purification plant to promote research and popularisation.
4. The Somma-*Vesuvio "lagni"*. Remove pollution sources and restoration of the hydraulic efficiency of the system of the Somma-Vesuvio turrents and water expansion basins by means of bioengeneering tecniques. Restoration of lavic stone hydralic artifacts and ecological rehabilitation of stream banks in order to recreate linear ecological connection landscape elements between the protected area and the pedimont. Low impact equippement of ascension trails along the turrents in order to enhance the accessibility of the Somma mountain from the historical pedimountain centres.

Soil

The soil is recognised as an environmental bulwark and agricultural landscape generator. It is envisaged that the rural character of the plain is ehnhanced by means of policies that would actively support local communities. The ecological and cultural isolation of protected areas should be overcome by means of a system of urban parks to be created as a link with the rest of the area. Conservation policies should be co-ordinated to and integrated within rural developement ones.

1. The soil resource. Reduction of soil consumption. The existing fixed capital should be transformed and made more valuable with the main objective of sustaininig the ecological balance. Active reduction of rainproof surfaces and incentives for plantation in derainproofed surfaces.
2. Agricultural soil as an ecological resource. Compensative policies for the enhancement of agricultural activites as well as guidance to sustainable agricultural practices. Incentives for the increase of the agricultural landscape quality and for the enhancement of biodiversity and ecological heterogeneity.
3. Relaunching of agricultural activites. Reintroduction of traditional local crops and fruits varieties with the purpose of both enhancing biodiversity and of enhancing their market value, in co-operation with the new agro-food centre and the local agricultural science research centres.
4. Open spaces of metropolitan periferies. Environmental rehabilitation of urban expansion areas and their connection with the wider system of open spaces of the plain by means of the road network increased quality and renaturalisation or agricultural reconversion of abandoned agricultural areas by the envolvement of local communities (playground and urban horticulture).
5. Corridors. Strict protection of agricultural corridors connecting the plain and the Somma-Vesuvio and their ecological equippement for the enhancement of ecological continuity among the protected area, agricultural spaces and the wetland, in order to counteract the trend towards the desertification of metropolitan areas.
6. Connections between systems of open spaces. The maximum ecological continuity should be pursuited between far apart open spaces of densely builded areas, by meand of their ecological equipement and the creation of network connections of smaller urban open spaces and the road system. Ecological connection should become a priority also for the transformation of dismissed areas.
7. Historical network of farm trails. Rehabilitation of the historical network of farm trails by means of their ecological and sustainable equippement (cycle-tracks, horse-tracks, rest areas) in order to favour a collective appreciation of the rural landscape. Incentives for the restoration of the historical system of the “masserie” as both production support structures and potential structures for rural based tourism and education.
8. New metropolitan parks. Design of new parks in order for them to respect the characters of the historical landscape and allow for the ecological connection with agroecosystems and the system of existing protected areas.



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