

URBAN GREENING: FROM THE SOCIAL VALUE TO ENVIRONMENTAL QUALITY

Rossella Franchino, Caterina Frettoloso

University of Campania "Luigi Vanvitelli"/Department of Architecture and Industrial Design

1 San Lorenzo Street, Aversa, Italy

rossella.franchino@unicampania.it;

caterina.frettoloso@unicampania.it

ABSTRACT

In recent years, despite the fact that there has been a significant growth not only of large cities but also of smaller urban areas where there is a growing demand for services for the community, an intensification of spaces has been observed (urban gardens, vertical walls, roofs) dedicated to urban agriculture, a sort of re-appropriation of the soil removed from nature.

In this context urban greening can make a valuable contribution as an effective instrument for the renewal of urban open space. It offers significant possibilities since it allows for the improvement of the environmental quality of these spaces, the achievement of both social benefits, with its responding to the needs of aggregation, thus implying a collective use of the land by the inhabitants.

The paper will focus on the design of productive green systems as an integral part of a city oriented towards providing concrete responses to sudden climate change taking in account the aspects related to the technological and environmental quality of open spaces as well as systems that allow to integrate natural and built environments. It is necessary not only intensify the urban green, but, above all, make it functional to the mitigation and improvement of the micro-climatic conditions in line with the resources available.

The paper also will show design proposal in contexts characterized by specific critical social and technological-environmental issues. The reuse mode, the natural and landscape reconfiguration, the usability in general are all closely related aspects to achieving a renewed ecological-environmental quality of the territory as a whole.

KEYWORDS: productive green, urban open spaces, re-use, environmental redevelopment

INTRODUCTION

The re-use of degraded urban areas, focused on the activation of new functional processes of environmental and social reconnection, satisfies some needs attributable to the issue of safety and, in general, to the improvement of the quality of life. In particular, the following considerations start from the idea of reconstructing the relationships between the natural environment and built through a “productive” development of the territory and share the interest in the use of environmentally friendly technologies.

The “productive” redevelopment of sensitive contexts is understood as a recovery strategy aimed not only to ecological and environmental regeneration but also to the creation of urban agriculture systems aimed to improving the overall quality of the site in question. The urban agriculture is an effective tool for the redevelopment of open spaces that represent nodal elements capable of performing the delicate function of connecting the urban system with the surrounding natural system.

The theme of connection is considered according two declinations: technological and environmental.

From a technological point of view, the proposal for a “productive” redevelopment also implies special attention to the relationships established between the environment recovered with the surrounding context to repair possible fruitive fragmentations.

To arrive at an applicative definition of the concepts previously discussed, this study also applies to a structured case study based on research and didactic exercises.

THE COLLECTIVE SPACES AS CATALYSTS OF URBAN QUALITY

The theme of urban quality and, in particular, of living is as alive as ever in the scientific debate and has provided a strong push to think in terms of re-appropriation of the soil by attributing to open spaces the ability to put social, environmental and economic values into a system. The city of Milan in recent years has invested heavily in this regard, its public spaces have acted as “catalysts, activating new polarities of the urban fabric and revitalizing depressed areas” (Berizzi, 2018). What happened in Milan from a strategic and planning point of view is a change of trend, “where the urban voids, unlike the previous plans, are not intervals in contrast to the built, but places in which livability is concentrated and breathed of the city. They are the “soft” part of the

metropolis, the most malleable and capable of containing the changing needs of the liquid society, with the hybridization of the functions that characterize it, with contemporary complexity and its sudden accelerations” (Berizzi, 2018).

In this change of trend the re-use of existing open spaces certainly finds a specific position to activate diversified mechanisms of urban regeneration of compromised areas that can, instead, take on a new role in the socio-economic dynamics of the city: new attraction poles, new connection systems, increase in environmental quality and last but not least, increased safety through the conscious and correct use of recovered spaces. In fact, the sense of insecurity that the inhabitants of different cities have in common, often pushing them to change their habits, to avoid places or to visit them only at certain times (Nobile, 2017). The non-use of an urban space slowly leads to its abandonment and, above all, transforms it into a land of conquest for activities that are not always legitimate.

The use of a space by the people does not guarantee their safety, rather it is necessary to work according to specific strategic lines oriented first of all to the definition of the most appropriate fruition method. Secondly, it will be appropriate to evaluate the level of connection with other collective spaces in the city or, in any case, with nodal and strategic points, to allow for the creation of synergies and mutual support. In order to obtain tangible benefits on the quality of life, it is important to work above all on the connection between the environment and people in physical and perceptive terms as well as ecological ones.

Connection that involves the insertion of a series of suitable infrastructures, first of all to allow the achievement, and then the fruition, of the areas placed in the system. The connection methods can be oriented, according to the specific conditions of the intervention context, to mitigate discomfort situations, to strengthen areas of territory characterized by a good level of quality, but also, to indicate innovative ways of growth and development to urban scale in an attempt to systemize the numerous aspects that intervene to define the quality of life in an urban environment (Frettoloso, 2017).

“The growing awareness of the unsustainability of the model of the city in the developed world” and the evident socio-economic problems of some parts of the population in this part of the world, has given a strong impulse to urban agriculture movements and interventions also in these contexts (Palumbo, 2012). In recent years, despite the fact that there has been a significant growth not only of large

cities but also of smaller urban areas where there is a growing demand for services for the community, an intensification of spaces has been observed (urban gardens, vertical walls, roofs) dedicated to urban agriculture, a sort of re-appropriation of the soil removed from nature. In this logic, urban agriculture, appropriately oriented, can be considered a strategy to propose models of better performing cities starting from the sharing of founding principles such as resilience, sustainability and hospitality (De Filippi, Saporito, 2017) contributing “to increasing the environmental quality of cities (...) (as well as) closing the open loop (Smit and Nasr, 1992), of cities, using local resources (including water and waste) putting other resources in circulation (food, compost, but also no-food products) such as wood for biomass or fabrics, thus contributing to its ecological balance” (Gallo, Casazza, Sala, 2016).

Making a more extensive consideration, it will be necessary to increase the technological-environmental quality of the recovered space, working on the recognisability of surfaces and on the comfort of spatial elements, according to an integrated approach to the project in which the technological and functional aspects necessarily intertwine with the social and environmental ones. A re-use aimed at a regeneration that pursues “broader recovery strategies, favouring the growth of urban quality, accessibility and permeability” in which “the redesign and the differentiation of paths, inclusion in ecological networks and corridors allow for insert these micro-spaces into an integrated environmental system in transformation” (Boeri, 2017).

In a logic of strengthening the user-urban space relationship, the designing of open spaces assumes a leading role, with it being defined as new generation, in places where the actions to improve the technological-environmental quality are integrated with an inclusive approach. This is due to some design-action areas: protecting and increasing biodiversity and resilience aimed at implementing the ecological and social network on a local scale; good practices for the design, maintenance and management of green spaces (UNI, 2014).

THE URBAN OPEN SPACES TRANSFORMATION THROUGH THE URBAN GREENING

Anthropic activity, with interrelated complex structures and relationships determines its own track in the environment, with it being a sign of decay and eventually left as a burden on future generations. In order to limit the footprint, it is necessary to assume that any redevelopment interventions have the goal of making sustainable

changes to the environment in which they will be carried out. It is therefore a priority to orient any redevelopment intervention so that the unavoidable impression is contained as much as possible, with this being achieved by increasing the load capacity defined as the ability to absorb and control the anthropization phenomena with a sustainable impact on the ecosystem.

To intervene on the development of the urban territory in order to find an alternative to the model that emerged over the last century, redevelopment interventions need to be orientated towards sustainability. Consequently, the contribution from the conversion of urban open spaces is particularly important, since they constitute nodal elements capable of performing the delicate function of linking the urban systems with the surrounding natural ones, while assuming a strategic role in the transformation of antropized areas. All this only if the reconversion is outlined as a tangible re-naturalization, with it being possible to activate those processes that use the principles of nature as a model of sustainable management and stimulate the intrinsic potentialities of natural and undeveloped resources due to intense anthropization. This process takes on a particularly important role, especially when the open spaces are in highly compromised ecological and environmental conditions, since their transformation corresponds to a definite renewal of the urban context.

In this context the use of productive urban greening can make a valuable contribution as an effective instrument for the renewal of urban open space because offers significant possibilities from an environmental, economic and social perspective. In the field of productive urban greening this paper focuses on the use of the urban farming (Bit 2014), (Fox, 2011) that offers significant possibilities since it allows the improvement of the environmental quality of these spaces, the achievement of social benefits, responding to the needs of aggregation and of land collective use by the inhabitants and also the achievement of economic benefits, configuring as an innovative business model (the self-production of food products at km 0), which can be easily extended to other related activities as catering.

The urban farming, through the valorisation of agricultural areas, can also represent an interesting opportunity in both retrieving and restoring degraded urban areas as well as improving them from an ecological point of view. Obviously, these areas, once suitably upgraded, can be networked with the green spaces in the city so as to achieve an ecological connection with the rural and natural peripheral areas.

For a better definition of the concepts presented, is discussed below a redevelopment design proposal of three adjacent urban open spaces in Caserta municipality which, due to its highly urbanized features, presents itself as an interesting application case study (Figures 1,2,3,4). The proposed intervention includes a re-functionalization and re-naturalization of the three urban open spaces and their surroundings and focused on the use of urban farming as a productive redevelopment tool through the use of eco-oriented technology strategies.

Due to the massive urbanization, these open spaces present problems also from an ecological-environmental point of view, so their redevelopment is an added value for the urban fabric and plays a significant role in the activation of revitalization processes. The requalification interventions implemented move, therefore, with particular interest, among other aspects, to the ecological aspects of biodiversity conservation in order to safeguard the natural processes that are the basis of the survival of ecosystems. The protection of biodiversity passes through the network connections of the habitats, and more generally of natural areas, since fragmentation of natural habitats is one of the most serious threats to ecological diversity. Designing any form of environmental redevelopment according to a network logic allows to set up the urban open spaces so that they are enriched with new functions: ecological, environmental and fruition.

Starting from these considerations, the organization of the intervention strategies structure was particularly delicate since, thanks to the peculiarity of the intense urbanization of the area under study, it is associated, by definition, with the use of technologies with minimal environmental impact, low energy consumption and reduced surface consumption. With these premises, it was necessary to structure the intervention areas with demonstration systems that were as self-sufficient as possible and not connected to large distribution and treatment networks, while also using low energy consumption as well as energy and water recovery technologies according to the off-grid architecture that manages the energy, gas, water and wastewater needs by using natural resources in the area with the aim to conserve the natural resources as well as connect the environmental and landscape values of the areas for an overall development of the territory. Among the redevelopment strategies, particular importance is given to the use of the urban cultivation, both indoor and outdoor. Specific attention is also given to technologies for the recovery and reuse of rainwater through the use of passive systems such as green

streets and rain gardens. The green streets are on the sides of the access roads in the area immediately surrounding the redeveloped area, while the rain gardens are positioned in strategic places inside.

The focus of the intervention is the urban farming that allows for the improvement of the ecological-environmental quality of the area as a whole and, at the same time, also helps to stimulate the productive activities highly representative of the territory.



Figure 1: Concept proposal for urban spaces redevelopment in Caserta
(Credits: S. Errico, F. Galluccio, Sparaco G.)

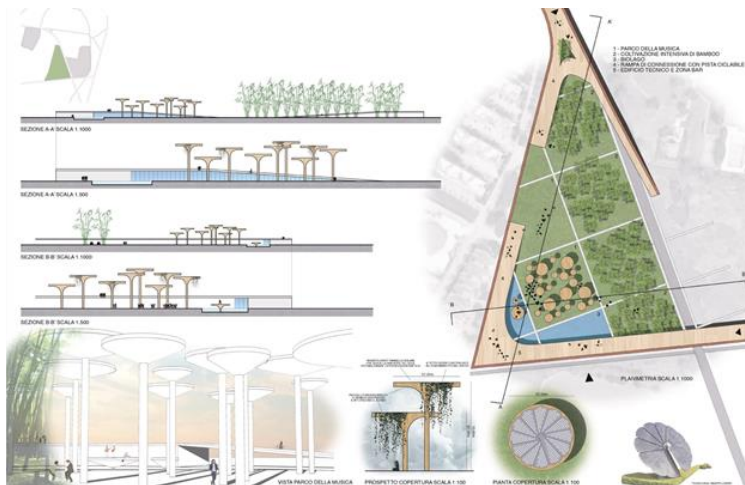


Figure 2: Proposal for redevelopment area 1 (Credit: S. Errico)

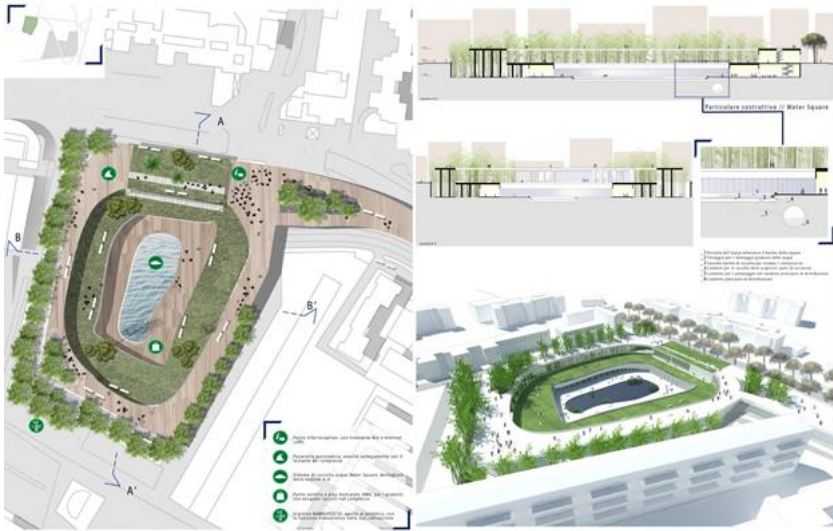


Figure 3: Proposal for redevelopment area 2 (Credit: Sparaco G.)



Figure 4: Proposal for redevelopment area 3 (Credit: F. Galluccio)

CONCLUSION

This work studied the use of urban greening as an effective tool for the sustainable renewal of urban open spaces, highlighting the particular potential of these spaces that constitute the nodal elements capable of improving the environmental quality.

Through the application to appropriately structured case studies, it was also possible to highlight the significant opportunities presented by productive green from an environmental point of view, improving the quality of the air, water and soil sub-systems, a social one, favouring the aggregation of the inhabitants, as well as an economical one, with it being configured as an innovative business model.

ACKNOWLEDGEMENTS

The paper is the result of a common reflection by the Authors. Nevertheless, the paragraph 'The collective spaces as catalysts of urban quality' is by C. Frettoloso and the paragraph 'The urban open spaces transformation through the urban greening' is by R. Franchino.

REFERENCES

- Berizzi, C. 2018. Piazze e spazi collettivi. Nuovi luoghi per la città contemporanea, Il Poligrafo, Padova.
- Bit E, (ed.) 2014. Come costruire la città verde. Dalla riqualificazione edilizia all'urban farming, Sistemi editoriali.
- Boeri, A. 2017. La rigenerazione degli spazi urbani: qualità e sostenibilità ambientale, in Gianfrate V., Longo D., "Urban micro-design. Tecnologie integrate, adattabilità e qualità degli spazi pubblici", FrancoAngeli, Milano.
- Fox T. 2011, Urban Farming - Sustainable City Living in Your Backyard, in Your Community, and in the World, Hobby Farm Press.
- Frettoloso, C. 2017. Le dimensioni dello spazio aperto urbano, in Franchino C., Frettoloso C., "Open spaces as dynamic urban environments", EdicomEdizioni, ilProgettoSostenibile quaderni di ricerca, Monfalcone (Gorizia).
- Nobili, G. G. 2017. Progettare la sicurezza nelle città, in "Il Mulino" 3/2017, maggio-giugno, pp. 410-417, available at: <https://www.rivisteweb.it/doi/10.1402/86680>
- Palumbo, M. (ed.) 2012. Architettura produttiva: principi di progettazione ecologica, Maggioli, Santarcangelo di Romagna, 275 p.
- De Filippi, F., Saporito, E. 2017. Agricoltura come dispositivo di rigenerazione urbana. Un'esperienza torinese: OrtiAlti a Casa Ozanam. In "Ri-vista", 01/17, p. 46-59. Available at: www.fupress.net/index.php/ri-vista/
- UNI 2014. Linee Guida per lo sviluppo sostenibile degli spazi verdi, "Pianificazione, progettazione, realizzazione e manutenzione"

Gallo, P., Casazza, C. and Sala M. 2016. Prestazioni e potenzialità per una rete di verde urbano produttivo, in "TECHNE" 11/2016, p. 104-112.