

RESILIENCE AND PUBLIC SPACE

Quality combination for the contemporary city

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ABSTRACT

To increase the quality of life and stimulate the sense of belonging of the inhabitants, it is necessary to place the public space at the centre of the design strategies, giving it a key role in the regeneration process of the contemporary city. Numerous examples in which resilience strategies are integrated with the design of the public space, creating efficient proposals from both an ecological/environmental and social point of view, are proposed. Resilience tactics can operate as a tool to transform urban voids into quality public spaces. These can be set as a 'frame' for the configuration of a new resilient city, which is able to change itself by building new social, cultural, economic and environmental responses that allow it to resist the stresses of the environment and history.

KEYWORDS

resilience, public space, contemporary city, urban voids, quality

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The quality of man's life is a direct reflection of the quality of the places he lives and visits. Public space plays a central role if considered not «[...] as a complementary space to the built volume, but rather as a subject, a space in tension, full of meanings, history and energies, in which the first gesture of sociality is accomplished: knowing and communicating» (Nucera, 2013, p. 198). For this reason, the design of the public space must respond to parameters concerning the liveability, safety, health, sustainability and attractiveness of the places themselves, to create liveable, accessible public spaces, with general conditions of comfort and the capability to stimulate the sense of belonging of the inhabitants (Fig. 1). Within the current structure of societies and cities, it is necessary to encourage opportunities for exchange and interrelation, recover public spaces that have lost meaning and propose new ones, preferably to replace areas in a state of decay, non-places and marginal spaces. It is essential to expand the offer of the public space by giving a new life to the voids of the city, through projects that are aware both from the point of view of sustainability and adaptation and from a social perspective.

The crisis of contemporary cities and resilience tactics | Contemporary cities are among the main causes of climate change and, at the same time, they are the most vulnerable organisms to the impacts of the natural events that develop from them. The city must become resilient, that is, be «[...] a city that changes by building new social, cultural, economic and environmental responses that allow it to resist the stresses of the environment and history in the long term» (De Angelis and Izzo, 2013, p. 149). Today the urban form is defined as diffuse, discontinuous, alternating city passages with unedited, degraded or abandoned spaces, marginalized areas and defined as peripheral which however are internal to the city itself. The term periphery derives from the Greek 'periphérō', formed by 'peri' (around) e 'pherein' (carry), so it means bringing around, carrying around, as if to say that «[...] peripheries are by nature dynamic and in evolution, and can be understood as traditional spaces, areas of potentiality for change, between action and transformation» (Oliva, 2018, p. 218).

Peripheries must be considered as 'vital areas of new urbanism' (Carta, 2018) and the goal to be set is the rediscovery of empty spaces, urban voids and places of abandonment as an opportunity to develop the city's resilience, responding to the need to «[...] produce 'new soil', give thickness, quality and value (social and productive, not real estate) to that which is not consumed and regenerate the built through recycling policies» (Gasparri, 2013, p. 115). «To guarantee a renewed urban environmental comfort, it is necessary and appropriate to place the public space at the centre of adaptability and resilience strategies, granting it, through strategic and design actions, a key role in the regeneration process of the contemporary city according to new principles» (Accica and Torresan, 2017, p. 499). There are many examples in which resilience strategies are integrated with the design of the public space, resulting in efficient proposals from both an ecological/environmental and social point of view. In this

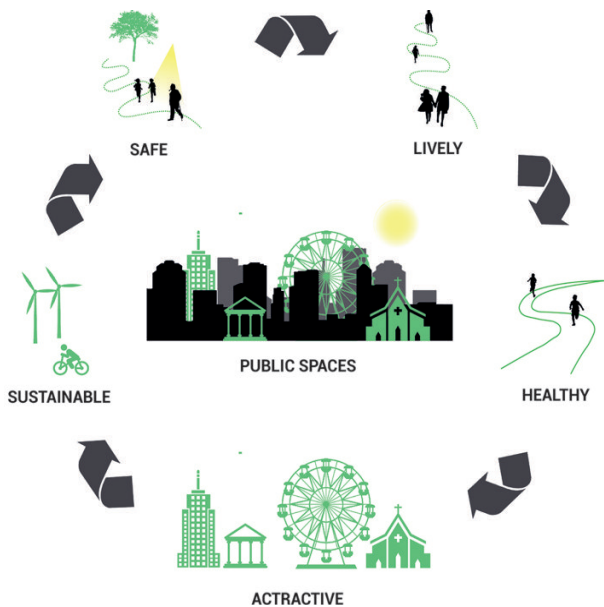


Fig. 1 | Quality parameters of public space (credit: M. G. Di Baldassarre, 2019).

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Fig. 2 | General plan of the Det Første Klimakvarte project at district scale and section of Skt. Kjelds Plads (credit: www.tredjenatur.dk/portfolio/).

case, the adaptation to climate change operations are not simple applications of control and/or management technologies, but turn out to be actions that find their most appropriate implementation in the reading and understanding of the context and are the bearers of positive changes related also to cohesion and social integration. These design strategies can act as resilience tactics and can be categorized as set out in the following paragraphs.

Rain Gardens are nothing more than green areas capable of intercepting and storing rainwater from roofs, roads, parking lots or squares within their terrain. By modelling the soil, different conformations can be created and by increasing the volume inevitably it increases its ability to retain water. With this system, on the one hand, the water is collected, in opposition to the waterproof surfaces which, in cases of floods, would cause flooding, and the water flow is slowed down due to the various drainage layers that the liquid must pass through, on the other hand, they create green public spaces that contribute to the improvement of urban thermal comfort, healthiness and social integration, as dry areas can be used for sporting, recreational and recreational activities. An exemplary project of this way of thinking is the Det Første Klimakvarter of the Tredje Natur studio (Fig. 2).

The city of Copenhagen is often subject to flooding, due to heavy rains. An analysis conducted by the municipality revealed that the Skt. Kjeld's district is one of the most vulnerable in the whole city. Ole Schröder, on the studio's website, illustrates the goal of the project: «[...] improve the city based on residents' expectations of what the city should be able to sustain on a sustainable, social and health level. The idea here is



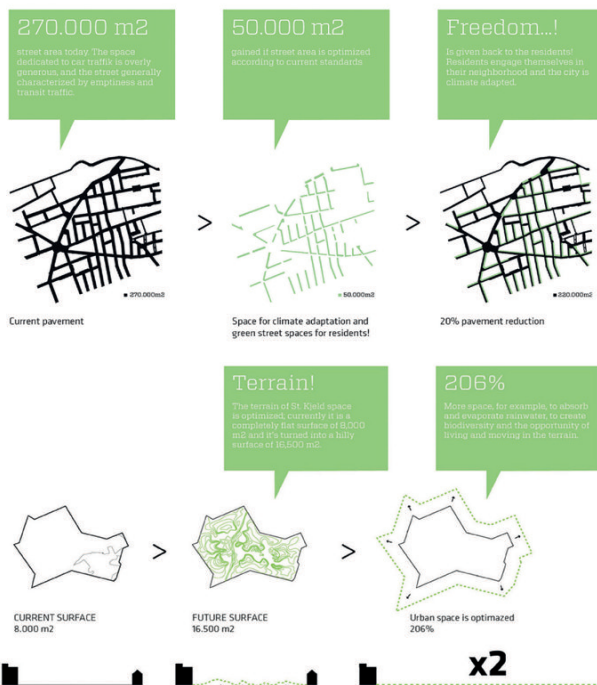


Fig. 3 | Graphic elaboration of the project proposal for Skt. Kjelds Plads (credit: www.tredjenatur.dk/portfolio/).

Fig. 4 | Project concept of the Det Første Klimakvarter on the reduction of the road waterproof surface in favour of the green permeable surface in the district and the increase of the useful surface through dune modeling (credit: www.tredjenatur.dk/portfolio/).

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Fig. 5 | The Benthemplein Water Square project (credit: O. van Duivenbode).

that a coherent and natural design creates the most powerful strategy and solution for the district as a whole, but also contains a sensitivity to individual space, place and person in the city». This aim was achieved by the study through the creation of a particularly performative urban nature that increases the attractiveness of the city and the recreational and sensorial opportunities, combining the urban characteristics – sociality, commerce, meeting places and places to move – to those natural – calm and relaxation (Fig. 3). The width of the road and the parking areas have been optimized and the unbuilt spaces have been recovered to create green dunes for the storage of water, new cycle paths and changing public spaces. The particular conformation of the dunes derives from the need to have more absorbent soil and the impossibility of extending the intervention area (Fig. 4), and in this case «it is the architecture that integrates technique and aesthetics in a new way».

The Water Squares are urban spaces imagined as aggregation areas characterized by a mode of use that changes according to weather conditions, combining the storage of water with the improvement of the quality of the urban public space. If dry they represent areas for play, sport and leisure, but in case of heavy rains, they represent a hydraulic risk management technique through the open-air temporary storage of rainwater. They are sized on a district scale since they collect the water from the roofs of buildings, public spaces, roads and adjacent paved areas through a canalization sys-



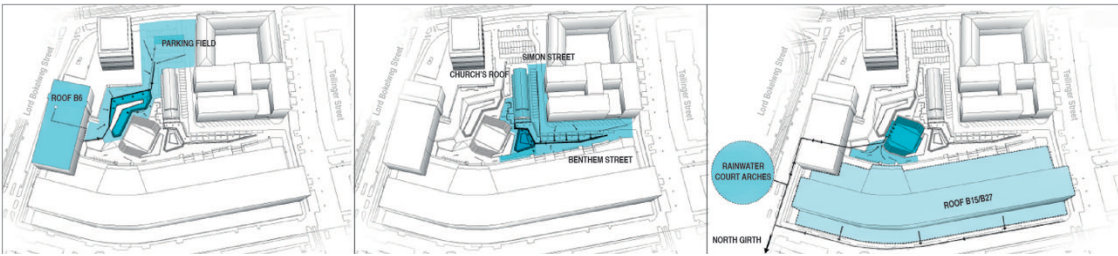


Fig. 6 | Benthemplein Water Square design concept: the filling process of the three basins (credit: www.urbanisten.nl/wp/?portfolio=waterplein-benthemplein; translation: M. G. Di Baldassarre).

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Fig. 7 | Miroir d'Eau nebulization phase (credit: corajoudmichel.nerim.net/index.html).

Fig. 8 | The Palace of the Chamber and Industry is reflected in the Miroir d'Eau (credit: corajoudmichel.nerim.net/index.html).

tem, to then retain and return them in a controlled manner, thus avoiding overloading the networks or flooding. In addition to this operation, in the event of slight downpours, the square remains partially usable and the water that is collected is stored in hidden basins for future use.

The Benthemplein Water Square project (Fig. 5) represents the first realization of this typology of squares. It was conceived through a participatory process that involved the resident population and people that frequents the place, thus contributing to making it an identity space for the community itself. A dynamic place has been designed for young people, a space to play and spend time, but also places to relax surrounded by greenery. There are three rainwater collecting basins, two not deep, which always receive the water collected from the surrounding waterproof surfaces, and the third deep one, which welcomes it only when it rains constantly (Fig. 6). After the rain, the water from the two not deep basins gradually returns to the groundwaters. This helps keep the city trees and plants in good condition, encouraging to reduce the urban heat island effect. The water from the deep basin returns to the city's open water system after a maximum of 36 hours to ensure public health. When the squares are dry, one of the two not deep basins is dedicated to sports activities on wheels, the second has a smooth flooring typical of classical dance rehearsal rooms, while the deep basin is a real field suitable for sports such as football, volleyball, basketball, with seating areas that make it usable also as an outdoor auditorium.

The Nebulization Square is a cooling system based on direct contact between air and water. To evaporate, water needs energy, which is supplied to it by the cooling of the air. This particular system is used in transit places, waiting for areas or large waterproof surfaces. In the unedited space of the historic Place de la Bourse in Bordeaux, a water mirror was created, in French Miroir d'Eau, precisely, artificial and 2 cm deep, connected to a nebulization system and water games. Thus, two phases alternate: the





Fig. 9 | The Kerb Garden bus stop after the realization of the project (credit: theediblebusstop.org).

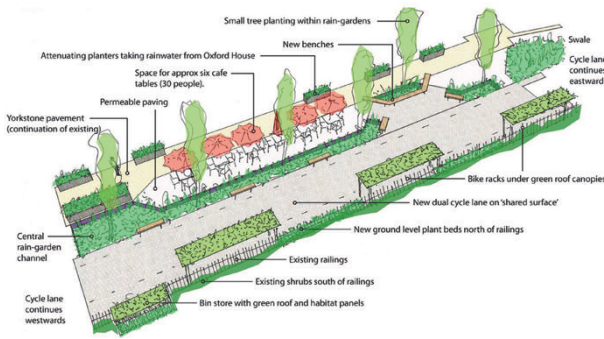


Fig. 10 | Three-dimensional graphic elaboration of the project proposal of Derbyshire Street Pocket Park (credit: worldlandscapearchitect.com).

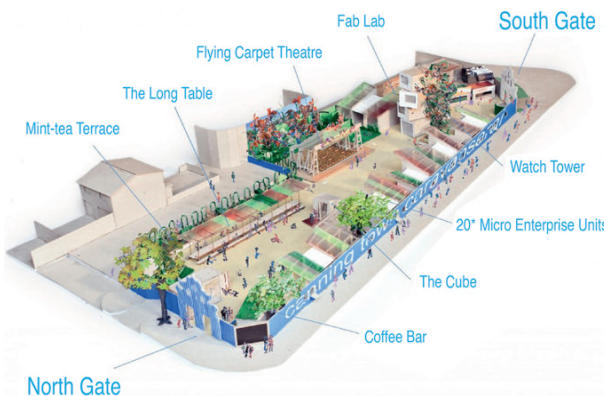
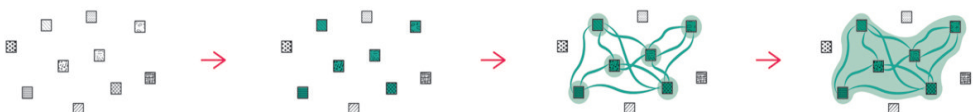


Fig. 11 | Three-dimensional graphic elaboration of the Caravanserai project proposal (credit: www.ahsak.com/projects/canning-town-caravanserai).

Fig. 12 | Study of the consequences of the transformation of urban voids into resilient public spaces, from a punctual approach to a reticular structure: Urban voids in the contemporary city; Punctual resilience tactics transform urban voids in public space of quality; Network of resilience public spaces; Urban quality (credit: M. G. Di Baldassarre, 2019).



first recreational, where the jets of water create dynamic evolutions, and the second in which the liquid veil appears immobile and acts as a cooling of the huge space completely exposed to the sun (Fig. 7). This is a magnificent example of how the architectural project manages to combine the techniques for adaptation to climate change, in this case, the heat islands, with the respect and enhancement of the historical heritage, in fact not only the project is not invasive, but reflecting the facade of the Palace of the Chamber and Industry manages to create a suggestive space (Fig. 8).

Pocket parks, vegetable or not pocket gardens, are punctual and capillary techniques for transforming urban voids, degraded areas or abandoned spaces into public spaces with trees and vegetation, places to sit and relax and areas for socializing, whether they may or not be for productive purposes. They try to make active disused parts of cities and at the same time contribute to the improvement of environmental well-being as permeable areas, which mitigate the city temperature and, if set up a network, promote biodiversity. They can be born on public or private initiative and represent places of relationship and coexistence of different generations and cultures that inhabit the same district. Through the creation and active management of common places such as these, it has become evident how this contributes to cohesion and increases the sense of community between the inhabitants and those who frequent those places.

For these reasons, the Pocket Park Cluster program began in London in 2013 and funds were made available for the creation of more than one hundred parks within the city. This project involved twenty-six districts and supported local communities and volunteers with the aim of recycling and converting marginal areas of uncultivated land or spaces in a state of decay, into prestigious green spaces that the whole community could enjoy, without forgetting the positive effects, in climatic terms, that widespread action on the city could have. Among the most significant experiences, it is important to consider the following three projects.

Kerb Garden (Fig. 9) is a project that has the aim to transform the sterile and neglected area of a bus stop into a lively and fascinating garden so that people are more than happy to spend the inevitable wait there. This garden is actually a real urban orchard where there are flowers, aromatic herbs and five fruit trees. From the project it is clear how it wants to move away from the usual stereotype of community gardens, where the emphasis is mainly on function than the form, rebalancing and allowing to the design to increase the profile and promote inclusiveness and pride. On The Edible Bus Stop website, the design team claims that garden production promotes harmonious meeting areas where «[...] people can get together for the good of the district and get to know each other. By gardening and enjoying these spaces of community growth, the conversation is encouraged, the barriers are broken down and an interest acquired in a district is fomented».

Derbyshire Street Pocket Park of Greysmith Associates (Fig. 10) is a project that allowed the redevelopment of a blind alley which had been the location of anti-social and discriminatory behaviour in a safe and lively space made available to the commu-

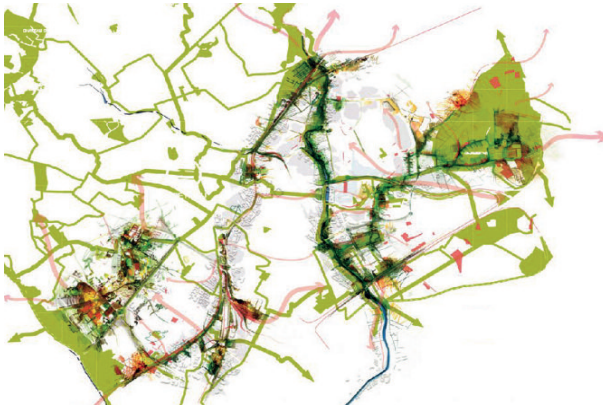


Fig. 13 | Project plan of the Etude Stratégique pour la Gestion des Délaissés (credit: F. David and S. Sellam).

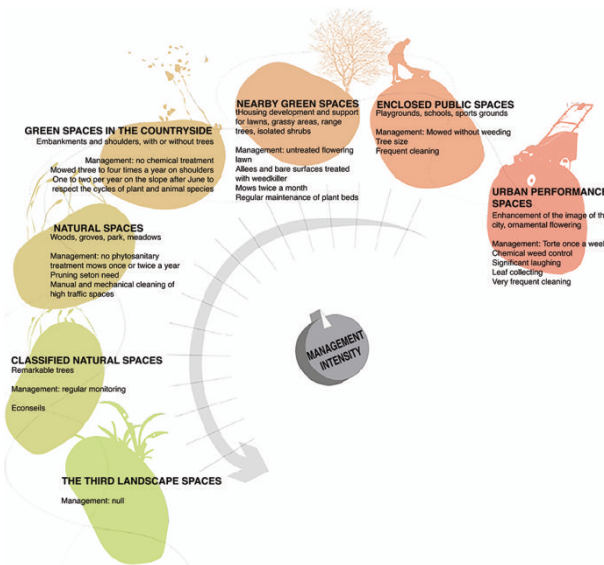


Fig. 14 | The management objectives (classification of urban voids) and the approach methods of the Etude Stratégique pour la Gestion des Délaissés (credit: F. David; translation: M. G. Di Baldassarre).



Fig. 15 | Dynamic synthesis of the process between the urban actors and the wastelands of the cities (new natural spaces to be enhanced) of the Etude Stratégique pour la Gestion des Délaissés (credit: F. David; translation: M. G. Di Baldassarre).

nity. The intervention includes a rain garden, a space used as a café with thirty seats, a new pedestrian path with high permeability road section, flooring mitigating planters, shelters for racks for bikes with green roofs and new seats.

Caravanserai (Fig. 11), by the Ash Sakula Architect studio, is a temporary campsite aimed at occupying an unbuilt site in East London and thus transforming an empty landfill into a living village. Built entirely with waste, available on the site, and incrementally, through the work of volunteers. It was believed as a place for meeting, exchange and rescue and was configured as an open place where structures, gardens, kitchens, stalls, exhibition spaces are mixed. After five years, it was completely dismantled.

Network of resilient public spaces | Punctual actions on isolated sections of cities can certainly bring an improvement in terms of adaptation and social development, but the effect would certainly be amplified if these were put in a system with each other (Fig. 12). As a complex and dynamic organism, the city is characterized by multiple systems: infrastructural, ecological, economic, productive, social, cultural. The design approach must be integral, considering the existence of the different endogenous systems and hopefully evaluating their mixture. The public space has the possibility and the necessary characteristics to become the element that hosts the integration between these systems and favours their enhancement, so the goal must be to consider the city as a whole, «[...] incorporate more areas, so as to produce a differentiation in the definition and offer of collective spaces, inevitably raising the quality for those who live in them and making the whole area more attractive and captivating in the view of investments and future perspectives. Make an appropriate jump in scale so that these sections of cities properly placed on the network can become the connective tissue that connects the different urban parts, with an appropriate diversification of the offer (functional, typological, social mix) and with particular attention to the environment, thus implementing sustainable behaviours from a social and environmental point of view» (De Angelis and Izzo, 2013, p. 150).

In these terms, the city of Montpellier moved with the l'Etude Stratégique pour la Gestion des Lélaissés (Fig. 13), that is the strategic urban and landscape study for the management of residual areas and disused spaces, that aims at the survey, management, development and enhancement of abandoned, degraded or underutilized areas within the city limits (Fig. 14) by 2040. This plan has the objective of intervening across the territory, reorganizing the existing city and strengthening cohesion between the inhabitants. The concept behind all the undertaken activity is that «[...] the urban fabric contains fragments of landscapes that provide refuge for diversity» (Clément, 2004, p. 7) and we must work to reintegrate them into the green structure of the city and bring new qualities and values to the inhabitants. A new vision of urban nature is proposed and isolated areas, open spaces, ex agricultural field or railway areas (due to the scarce industrial development of Montpellier) are considered, not as waste of widespread urbanization, but in terms of potential of wealth, and it is suggested to

combine them with the system of parks, gardens or squares in the city, with the aim of establishing continuities that strengthen biological relationships, imagining a dynamic vision of the city. «The recycling strategy proposes minimal interventions to guarantee the improvement of biodiversity and at the same time a progressive public use of abandoned areas» (Ferretti, 2017, p. 86).

In fact, the team of landscape architects (Coloco and Gilles Clément) in charge of this strategic study claims that considering space starting from its transformation capacity means implementing dynamic urbanism where the creation of the city is defined as a process of collective action. The whole process was carried out by placing the figure of the citizen at the centre of the development of the project, both in the planning phase, through consultation meetings with the district associations, and in the implementation phase, in which they themselves are the creators of the work (Fig. 15). On their website, the team of landscapers claims that «[...] sharing the creation process becomes exciting, it connects everyone's freedom of imagination to the consistency of the results. It is in this way of acting that we like to find the tools of a collective win back of the city». Indeed, «[...] the proposed vision is that of an active territory that encourages the community to act for the ecological transformation of the urban space. [...] The main objective of the project is to create a network of 'third landscapes' that introduce biodiversity into the urban space, provide support for a new system of gentle mobility and above all significantly improve ecological connections» (Ferretti, 2017, p. 89). It is clear that this project represents a concrete answer and absolutely in step with the various problems facing contemporary cities: climate change, the social crisis and the crisis of urban metabolism. Through the recycling of the voids in resilient public spaces network, the resilient city becomes concrete both from the environmental and relations between citizens point of view.

Conclusions | «This system is being created as [...] 'frame' for the configuration of a new model of resilient city, characterized by dynamic urban landscapes and temporary uses, by new industrial ecologies and circular economies, reliable responses for urban scenarios affected by the socio-economic crisis and by climate change» (Poli and Ravagnan, 2017, p. 149). The application of the resilience tactics in a punctual way and the successive creation of a network of resilient public spaces, with material and immaterial value, which pervades the empty spaces placing the citizen at the centre of the decision-making and realization processes, can have different urban implications.

Certainly, in the environmental field, these processes can positively influence the sustainability of the entire urban area, increasing its liveability for the present generation, making the city resilient to climate change and transmit them in legacy to the future ones. This system also plays a fundamental role in the social and cultural sphere, promoting the identification of citizens, their cohesion, the exchange between different cultures and therefore the growth of both theoretical and practical knowledge. Finally, this process of recycling urban voids, of abandoned and marginal areas, acquires

great importance in the economic field, increasing the quality of the space and therefore the touristic attraction, becoming a productive space and therefore a basis for the circular economy, reducing public maintenance costs as it is the citizen himself who has the capabilities and the will to do it.

This contribution proposes a new method of city governance, considering as a foundation a holistic approach to environmental, structural, social and economic needs. The major limitation of the research is that the result can be influenced by a wide range of variables depending on the geographical, structural and social context itself. About this, new areas of development of this study are proposed, in order to understand how this system can be applied to various contexts, how efficient it can be, especially in relation to the different effects of climate change, and how it can be further implemented through the proposal of more resilient tactics or involved in the ones just presented other sectors of development (technologies, renewable resources, branding, ...).

References

- Accica, F. and Torresan, M. (2017), “Vivere urbano sano e desiderabile. Potenzialità dello spazio pubblico nella costruzione di nuove relazioni tra aspetti sociali e ambientali della città contemporanea”, in *Urbanistica Informazioni*, n. 272, Special Issue, marzo-aprile, pp. 498-502.
- Carta, M. (2018), “Polipheries: Heterotopic Cities and Plural Communities of a Different Present in Southern Europe”, in Schröder, J., Carta, M., Ferretti, M. and Lino, B. (eds), *Dynamics of Periphery – Atlas for Emerging Creative Resilient Habitats*, Jovis, Berlino, pp. 30-49.
- Clément, G. (2004), *Manifesto del terzo paesaggio*, Quolibet, Macerata.
- De Angelis, A. and Izzo, M. V. (2013), “Lo spazio pubblico acceleratore e generatore del rinnovo della città resiliente”, in Sbetti, F., Rossi, F., Talia, M. and Trillo, C. (eds), *Il governo della città nella contemporaneità – La città come motore di sviluppo – Tema 1 Quale forma di piano e nuovi compiti della pianificazione | Urbanistica Dossier*, n. 004, pp. 149-151.
- Ferretti, M. (2017), *Land Stocks – New operational landscapes of city and territory*, LISt Lab, Trento.
- Gasparrini, C. (2013), “Un’urbanistica selettiva per città resilienti”, in Sbetti, F., Rossi, F., Talia, M. and Trillo, C. (eds), *Il governo della città nella contemporaneità – La città come motore di sviluppo – Tema 1 Quale forma di piano e nuovi compiti della pianificazione | Urbanistica Dossier*, n. 004, pp. 115-117.
- Nucera, T. (2013), “Una rete di tessuti urbani resilienti”, in Sbetti, F., Rossi, F., Talia, M. and Trillo, C. (eds), *Il governo della città nella contemporaneità – La città come motore di sviluppo – Tema 1 Quale forma di piano e nuovi compiti della pianificazione | Urbanistica Dossier*, n. 004, pp. 197-199.
- Oliva, J. S. (2018), “Resilience in City-Core Peripheries: Flexible, Creative, and Dynamic Urban Regeneration Processes”, in Schröder, J., Carta, M., Ferretti, M. and Lino, B. (eds), *Dynamics of Periphery – Atlas for Emerging Creative Resilient Habitats*, Jovis, Berlino, pp. 216-223.
- Poli, I. and Ravagnan, C. (2017), “Trame verdi e blu: verso un futuro affidabile tra visione strategica e gestione dei rischi”, in Talia, M. (ed.), *Un futuro affidabile per la città – Apertura al cambiamento e rischio accettabile nel governo del territorio*, Planum, Roma-Milano, pp. 149-154. [Online] Available at: issuu.com/planumnet/docs/un_futuro_affidabile_per_la_citta_/157 [Accessed 5 November 2019].