

# **PROCEEDINGS**

of the

## **INTERNATIONAL CONFERENCE**

on

# **CHANGING CITIES III**

*Spatial, Design, Landscape & Socio-economic Dimensions*

**Under the aegis of**

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The Greek Ministry of Tourism

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*University of Thessaly*

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## FORWARD

The 1st international conference on 'Changing Cities', which was hosted on Skiathos island, 18-22 June 2013, had started as an idea in 2012. The initial concept was to organise an academic event creative, inspiring, stimulating, and above all, international. There had been a belief that such an academic event may contribute in revitalizing academia and promoting tourism in Greece - hit by the economic crisis of public debt in the Eurozone. Given that during the last years, both societies and cities in Greece have been dramatically changing, shrinking in economic, spatial and demographic terms, we have chosen Changing Cities as the main theme of this series of conferences. Our aspiration had been to provide an international forum for transaction of ideas on cities and bring together architects, urban designers, landscape designers, urban planners, urban geographers, urban economists, urban sociologists and demographers, to investigate new challenges. This goal became a reality since the 1st Changing Cities conference gained strong interest of academics and researchers from many countries and regions around the world; Greece and the Balkans, south Europe and Mediterranean countries, northwest Europe, Middle East and Asia, Far East, North America, Latin America and Africa. A total of about 460 abstracts and 320 papers had been submitted in the conference – most of them, about 60% from abroad.

The 2nd Changing Cities conference, Porto Heli, Peloponnese, Greece, 22-26 June 2015, was also fruitful academically since it attracted the attention of scholars, not only from Greece, the Balkans and Europe, but also from far-away countries like USA and Canada, Brazil, Chile, Colombia in Latin America, and China, Japan and Australia in the far-east. We received about 500 abstracts and more than 350 papers. Among the scholars participating, there were about 185 Greek academics and researchers. This indicated that despite shortage of research funds, salary cuts, and broken morale, university teachers and researchers in Greek state universities were trying hard to keep a high-level academic status. Besides, the number of contributions by scholars from abroad (63%) emphatically pointed the international character of the conference.

The results of the 3rd Changing Cities conference, Syros Island, Greece, 26-30 June 2017, points that the series of conferences on Changing Cities is getting established in the international academia as a significant bi-annual international forum. We have received 485 abstracts and 200 papers from many countries around the globe – honouring our efforts as Organising Committee. The contribution by Greek researchers and scholars is 27.42% while that of foreign academics reaches 72.58%; this indicates the international character of the conference. Regarding foreign academics, many of them are from neighbouring countries such as Italy (69), Turkey (37), Cyprus (11), and

Serbia (6); but also many are from distant countries such as Brazil (27), USA (16), UK (16), Poland (11), and Netherlands (10).

The strong interest for this conference by academic communities allows us to have thoughts about organising the 4th Changing Cities conferences in two years' time, spatially hosted in a different Greek sea resort – probably Santorini Island, or Crete.

I would like first to thank the Organising Committee, the keynote speakers, and the members of the international scientific board who supported enthusiastically the academic organization of this conference. I would especially like to thank those colleagues of the Scientific Committee who have also pre-organized special sessions in this conference. I would like to thank all the academic, political and scientific organisations which supported this conference in many different ways: University of Thessaly; The Municipal Authority of Syros Island; the Greek Ministry of Tourism; The Greek National Tourism Organisation (GNTO); Finally, I would like to thank the shipping companies 'Blue Star Ferries' and 'SuperFast Ferries' which sponsored sea travel to and from Syros Island.

**Aspa Gospodini, PhD**

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**PRE-ORGANIZED  
SPECIAL SESSIONS**



# Urban Natures for Changing Cities



Organized and chaired by:

**Prof. A. Ippolito**

*Università degli Studi di ROMA "La Sapienza", Italy*

## Green Infrastructures and Biodiverse Urban Gardens for Regenerating Urban Spaces

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### Abstract

This paper aims to investigate the project of the Urban Gardens in contemporary city, considering them as a part of the green spaces of the city, in a strategic vision of green infrastructure of the urban organism, which plays an important rule in terms of ecological services, biodiversity preservation, improvement of quality of life. Particularity it is underlined the social dimension of the urban gardens, which foster the relationship of the community with the urban context. In a time of crises and loss of resources, the urban gardens represent also a strategy for urban regeneration with a bottom-up approach, which seeks, at the same time, to meet the social demand of "landscape" by recovering public spaces with social purpose and with an aesthetic improvement of the common good. The analyzed case studies - the Orti urban project of Italia Nostra, which is based on a funding request for a European LIFE project; And the project for the upgrading of the Fontivegge area in Perugia, which is part of the funding plan for suburbs of metropolitan cities- both provides for specific strategies in terms of promoting biodiversity and urban regeneration.

*Keywords: green infrastructure; urban regeneration; public spaces; urban gardens*

## 1. INTRODUCTION

### 1.1. The Green Infrastructures in EU Strategy

The Green Infrastructure can be defined as an ecosystem or a network of ecosystems with specific parts, needs, functions and services. Benedict et al. (2000) define the Green Infrastructure as “an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations” [1]. Aspects related to ecological coherence and connectivity play an important role in ensuring the normal functioning of ecosystems, and this is essential for providing ecosystem services such as food air quality, carbon sequestration, flood management, water treatment, local climate conditions, soil erosion prevention, etc [2, 3].

The European Union has issued several directives and has outlined several documents aimed at developing Green Infrastructure in Europe within the overall *EU 2020 Biodiversity Strategy* in order to achieve the goal of requalification of degraded ecosystems by 2020.

The aims of GI are to promote ecosystem health and resilience, contribute to biodiversity conservation and enhance ecosystem services [4]; but also to improve quality of life in many ways, through its environmental, social and economic credentials, based on the multi-functional use of natural capital [5].

The EU Working Group on GI strategy has proposed that GI also promotes integrated

spatial planning by identifying multi-functional zones and incorporating habitat restoration measures into land-use plans and policies (GI Working Group Task 1 Recommendations, 2011). Ultimately, GI can benefit human populations and contribute to a more sustainable economy based on healthy ecosystems delivering multiple benefits and functions.

## 1.2. Urban Farming and Urban Gardens

Greenering the city also means different practices of urban agriculture, urban farming and urban gardening. Generally speaking the practice of urban farming provides for the self-production of edible plants inside the peri-urban areas, urban green areas or even on the surfaces themselves of the buildings.

Under the label of urban agriculture may include different experiences, starting with “urban vegetable gardens”, areas for cultivation within the public parks and allocated by the municipalities on free loan to citizens. These “community gardens”, in addition to providing products for family consumption, contribute often to preserve green interstitial spaces between the built-up areas mostly uncultivated and leave in a state of decay.

To promote the creation of urban gardens and regulate the procedures for assigning and managing the areas, has been signed a protocol in 2008 by ANCI (Association of Italian Municipalities), the association “Italia Nostra” and the Association “RES TIPICA”, agreement renovated in 2016. Currently they joined several municipalities in Italy (Milan, Bologna, Parma, Turin, Naples, Andria, Barletta, Nuoro, etc.), with a growing number of citizens involved in this initiative.

An analysis of Coldiretti based on Istat data shows that in our country urban gardens in 2013 tripled compared to 2011, rising from 1,3 to 3,3 million of square meters of land owned by municipalities.

Social practices related to urban agriculture are not limited to areas assigned by the municipalities, but also cover marginal areas, residual urban spaces on river banks, or close to the railways, occupied by the initiative of citizens without a license. At this regard, the movement of activists called “guerrilla gardening” is acting in the urban space occupying flowerbeds or abandoned plots of land for growing plants or crops.

Alongside the urban vegetable gardens implemented on public spaces, are an increasing number of private areas destined to the cultivation, including the roofs of apartment buildings, for example, courtyards and housing balconies, also involving the residents in gardening activity. Another form of edible green into the city is the vertical farming project, called *Urban Farming Food Chain*, launched as a pilot project in Los Angeles in 2008. It consists of “edible” food-producing wall panels mounted on walls of buildings, growing fresh produce (without the use of pesticides) at four locations in and around downtown Los Angeles, inclusive of the Central City East (Skid Row) area. The aim is to replicate the project in other cities to provide immediate access to fresh produce, and also an opportunity for community service and involvement.

## 2. MAIN FUNCTIONS OF THE URBAN GARDENS

### 2.1. Climate mitigation, Ecosystemic services and Biodiversity correlation

The urban gardens, like the green infrastructures, play a significant action to mitigate the effects of climate change in the urban environment, promoting adaptation strategies of cities. They can play an important role for the reduction of emissions, prevention of hydrogeological collapse, soil protection, improvement of air quality and the conservation of genetic resources



potentially better suited to cope with extreme weather conditions. The resilience to hostile climatic conditions, in fact, is closely linked to the level of biodiversity, and the preservation of traditional varieties and the use of agro-ecological management systems in the urban agricultural production may represent the only way to maintain their productivity and sustainability.

Considering the urban area extremely sensitive to the decay of environmental conditions, the aim of the urban gardens and green infrastructures is to open a new way toward a post-carbon society, through the promotion of the new lifestyle and policy/management model experienced in the social group of active citizenship. For the preservation of local varieties in danger of extinction, should be considered that, since the beginning of the last century, 75% of the genetic diversity of agricultural cultivation has been lost and that, according to the FAO statement, "the genetic heritage is the basis of food security and health".

The term biodiversity must necessarily be analysed considering the peculiarity of local territory and reality, the environmental context and the priorities set out in National and European policies in the field of nature preservation. On this way is very important to consider the socio-economic context in which urban gardens will be established, focusing the project objectives on the native species that do not conflict with economic purposes and cultural needs of the gardens, or on the species that can offer services in terms of control of the harmful species (insects, molluscs) and limitation in the use of synthetic compounds for their control.

Central role has the ecological network established on the residual green spaces bordering the city. It can provide a broad-spectrum on urban ecosystem services, in order to highlight the importance of the environmental benefits and, consequently, properly define and plan the public intervention according to an environmental policy for the preservation of biological wealth in the city.

Implementing Urban Gardens able to have a positive effect on the state of local biodiversity actually means, as well as encouraging changes in social behaviour, to propose a practical support for the development of land management practices that help to reduce/absorb emissions through a network of urban green spaces.

The urban gardens are part of this green space; peculiar is the relationship they can establish with their users, user/client or beneficiary who "becomes" as one who "acts", eating its own products, thus promoting environmental awareness, and then, a more active relationship with the environment and the community.

### **2.3. The Social Dimension of Urban Gardens**

Urban gardens can be understood as tools to favor the presence of citizens in the urban context, to support sociality and participation, to promote opportunities for meeting, social cohesion [6], and also for the creation of informal exchange and help networks.

Urban gardens can become real social aggregational spaces where they can meet people from different social and age groups. For the elderly, they also constitute a moment of aggregation and participation in social life: while they take care of their work, they exchange ideas and opinions, rediscovering new forms of sociality and relationship among citizens[7].

There is also an increase in the number of gardens for educational activities into the schools, the vegetable gardens in prisons, for reintegration into the workplace of the prisoners; gardens with a rehabilitation function such as those for orthotherapy, gardening and horticulture activities to support rehabilitation programs for people with disabilities. The therapeutic function of horticulture correlates with the theory of taking care of a living organism as a plant, improves self-esteem and helps the patient regain an active role in society

and promotes reintegration into a group.

On the one hand, urban gardens represent a great opportunity for Municipal Administrations to recover abandoned and degraded areas, making them ordered and productive, tearing them off from dirt and lurking, on the other, they foster public participation in the activity of local government[8].

Realizing green infrastructure in urban areas strengthens the sense of community and re-occupation of the site, strengthens ties through actions voluntarily supported by society and contributes to counteract exclusion and social isolation[9].

## 2.4. Urban Space Regeneration

Green infrastructures, often supported by public funding (Regional, National or by European Union), represent a great opportunity for urban regeneration [10] and cities redevelopment. Several "green infrastructure" projects, also born to rebalance the urban metabolism, have become structuring systems in contemporary cities, sometimes of great iconic and representative value.

Examples are the New York highway, which has become in a short time a famous place and most frequented by locals and tourists; the system of parks and public spaces along the Madrid Rio, the Rose Fitzgerald Kennedy Greenway of Boston, the Buffalo Bayou Promenade, designed by SWA Group; and also to the numerous interventions to build urban gardens in many European cities.

Even the policy of building urban gardens into the cities, according to a reverse process that starts from the bottom, or from the involvement of citizens in the realization of small local interventions, contributes to the creation of a green network that goes to graft and overlap, sometimes to the primary network of green infrastructure.

Apart from the great value of the vegetation within the urban space, as mitigating factors in favour of psycho-physical well-being of the residents, these projects have also fostered new social practices and new uses of urban open space.

The theme of mitigation of climate change, biodiversity and environmental re-qualification becomes the support structure for grafting on this green network, new cycle paths, new urban functions and new opportunities for enjoying public space in contact with nature.

In their multifunctional dimension, new pedestrian pathways become attractive for private investors, local stakeholders, who can engage in the same recreational and commercial activities that contribute to making the urban environment vital and attractive.

A combined action of top-level governance and active community participation, becomes a strategy for retrieving abandoned areas, refurbishing neighborhoods and revitalizing parts of degraded cities, involving planning authorities and policy makers with responsibilities ranging from the local to the European level[4].

The Green Infrastructures project assumes the value of urban regeneration, or a strategy for improving the quality of life of citizens in terms of "smart city". The bottom-up action of Urban Gardens project moves towards the same goal. They fit into urban voids or in public green areas without maintenance, becoming a strategy for retraining degraded or abandoned urban areas, improving the quality of life of local communities, in terms of "resilient city".

It is necessary to consider, when speaking of green infrastructures within cities, that zero-scale urban redevelopment interventions are essentially based on public investments, contrary to what happened in the construction of modern and contemporary city, which is most developed on private investment on constructible urban areas.

In this historical juncture, when the economic crisis has made it impossible to search the funds in the local context, it has become necessary to look at the possibilities offered by European programs.

Other possible sources of funding are represented by national or regional calls, which provide resources for local authorities to carry out interventions of urban regeneration.

### 3 CASE STUDIES

In this paper, it could be useful explain two different project that try to use the multifunction value of the green infrastructures and of the Urban Gardens as a strategy for urban regeneration.

The first is a proposal submitted by Italia Nostra under EU LIFE Program. The second is a proposal of the Municipality of Perugia for the “urban requalification of the periphery”, related to the “extraordinary program” inspired to Renzo Piano idea about the sewing of urban fabrics. The funds were devoted to projects for the suburbs 'characterized by economic and social marginalization, building degradation and shortage of services', with projects submitted by provincial capitals and metropolitan cities.

#### 3.1. Project of the BioDiverse Urban Gardens by “Italia Nostra”

"Urban gardens" is a national project of "Italia Nostra", which is the result of an agreement signed by ANCI (Association of Municipalities of Italy), to which they joined Coldiretti and the “Campagna Amica” Foundation.

The "BioDiverse Urban Gardens" project promotes the realization of urban gardens in Italy with particular attention to the theme of biodiversity and the local context, defining methodologies and operating practices, starting from the guidelines developed by the Faculty of Agriculture of the University of Perugia.

Starting from the campaign promoted by Italia Nostra, the project is aimed at developing a pathway to connote urban gardens to better enable them to preserve and increase biodiversity. Objective is to come to light by the sample taken into consideration - 30 Municipalities and more than 3,000,000 square meters of urban gardens - their function and potentiality in order to plan and testing demonstrative and replicable solutions able to preserve and valorise the different aspects of biological wealth that coexist and mingle in the urban pattern built-up highly.

Also if these proposals are not (yet) financed, it will create anyway discussions and hypothesis of a new development of territory. They represent anyway an investment into research. And, indirectly, it will be return with benefit for the territory and landscape.

Process will be developed on an punctual scale of each single garden, on a scale of the urban landscape and on a scale of the ecological network, for which the agronomic and cultural-historical knowledge are integrated with the knowledge about bio-geographic, phyto-geographical, and geo-botanical local context.

These actions will be implemented in parallel session with a process of support, awareness and environmental education that put the citizens at the centre of the urban environment preservation. They are considered "citizens keepers" for the preservation of native species and traditional cultivars at risk, for the defence of "BioDiverse Urban Gardens" brand and definition - to be assigned to those urban gardens that meet the criteria mentioned above - and for their participation at the active monitoring (Citizen science monitoring), accompanied by a system of virtual collection of historical images of urban gardens.

### 3.2. Urban Regeneration Project for the area of Fontivegge in Perugia

The project has been elaborated for the extraordinary program for the peripheries, addressed to all the metropolitan cities and provincial capitals. titled : "*Notice to present new proposals for the organisation of the Special Program for an intervention to requalify the urban area and the safety of the suburbs*"<sup>1</sup>. The project was drawn up in collaboration between the Department of Civil and Environmental Engineering and the Municipality of Perugia<sup>2</sup> and entered the list with a request of 16,388,790.60 euros. The proposal is resulted financeable, and it is foreseen in starting in the next coming months.

The project area is not an urban periphery but a central area of Perugia (in the neighborhood there is the directional center and the Piazza del Bacio designed by Aldo Rossi), where, due to the presence of the railway station, they concentrated over time, phenomena of degradation and also of social disadvantage of residents.

The theme of the project is that of urban regeneration and reconnection of the two districts of Fontivegge and Bellocchio, separated by railways and therefore the downstream area of the station with the rest of the city.

The idea is to create a public space to promote the urban vitality of the entire district, becoming an attractor for the community and for it to become a district of safety supervision. The aim of the project is to retrieve the urban space, in the new relationship between man and environmental, redrawing urban landscape for a new image of the city.

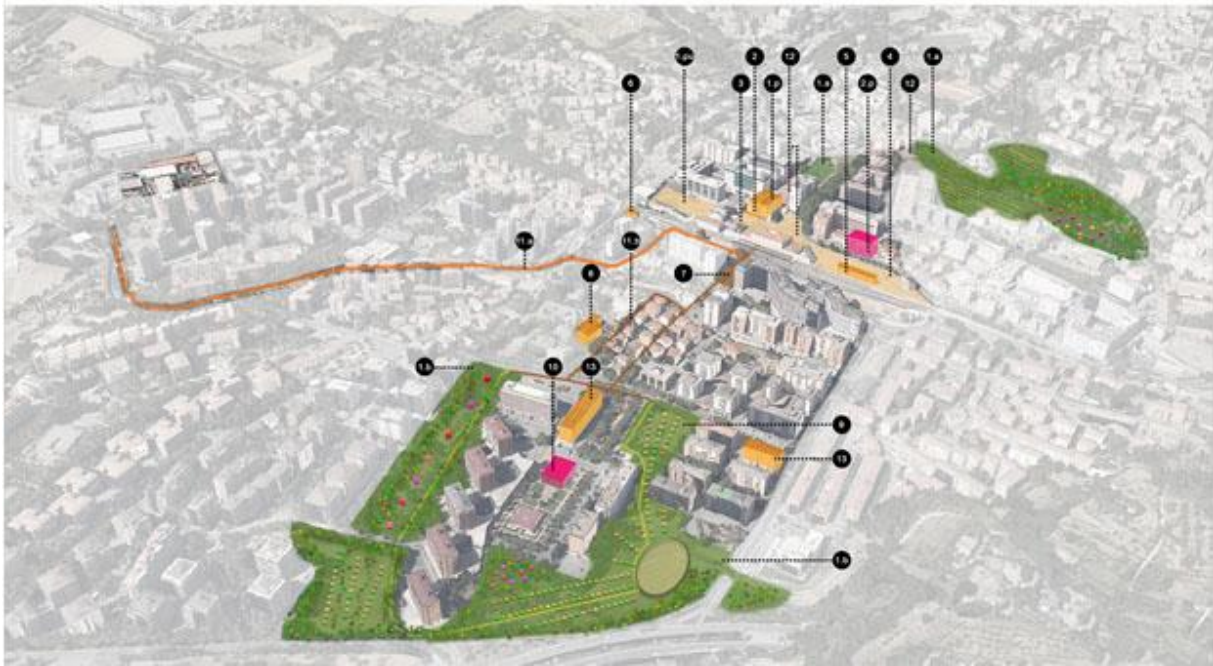
The proposal consists in particular of a series of strictly integrated and easily implemented punctual interventions as they are mainly made up of public buildings (including a library, a new neighborhood center, and redevelopment of green spaces that function as a link between the various Parties), and a series of "widespread" interventions (video surveillance, public lighting, in addition to those of a social nature mainly intended for young people), aiming at improving the level of living, security and decorum of the area. It can be understood as an urban "seam" operation to obtain urban quality based on the targeted reuse of existing buildings and the redevelopment of public connection spaces.

The most interesting aspect of the proposal is the theme of the "green infrastructure", which transversely recaptures the upstream green areas, with public spaces in front of the railway area and the natural areas beyond it. In addition to this green infrastructure, has been planed a large area dedicated to BioDiverse Urban Gardens, which, for the very high number (more than 400 gardens) and the central position in the city, could give Perugia a primacy in Italian cities.

The Green Infrastructure Project is treated as a multifunctional strategy that combines the idea of increasing habitat and connectivity to native flora and fauna, as well as cyclopedonal fruition of the area. The design of urban gardens has also been dealt with in an innovative way: definable "BioDivers" gardens, where the antropication process does not eradicate native wild species from the garden, but tries to manage the process of functional terms of ecosystem biodiversity.

1 Gazzetta Ufficiale, n.127 del 1.6.2016.

2 Intersectoral Working Group of the Municipality of Perugia coordinated by: ing. Enrico Antinoro; arch. Franco MarinI; Dott. ssa Antonella Pedini. The individual preliminary projects were drawn up by the Operational Units involved in the intersectoral working group. The projects of UO Mobility and Infrastructures and the Environmental Resources Areas have been developed in collaboration with professionals: M. Meschini; E. Bettolini; B. Buzzi; A. Ciurnella; M. Cristofani; M. Manni; E. Tancetti, Under the coordination of the University of Perugia, Department of Civil and Environmental Engineering (DICA), with the teachers Fabio Bianconi e Marco Filippucci.



**Fig. 1:**View of the area project for the urban regeneration of Fontivegge in Perugia.



**Fig. 2:** Landscape project for the Foibe Park elaborated by the Department of Civil and Environmental Engineering (DICA).

In particular, they are planned buffer zones with spontaneous herbaceous species and hedges (always native species, typical of native claddings), as well as the use of horticultural and officinal species for the benefit of pollinating insects. Such infrastructures, in their flowering and fruiting cycle, can take on an appealing centrality for the colors, flavors and smells that characterize them.

### 3.3. Discussion

In this two projects the theme of the Urban Gardens has been conceived in multi-level and innovative way by new tools made available to administrators and citizens.

First of all, the characteristic of the gardens, being Urban Gardens "BioDiverse", very different from the repeat of the vegetable garden, which is the same in every place in Italy, and instead based on a design devoted to the diversity of local varieties and the biodiversity of native flora and fauna, which, in the logic of small communities and the urban environment, become elements of identity and valorisation of the landscape.

The projects foresee to develop, test and demonstrate a systemic approach for connecting the urban green space and the citizenship through the planning of Biodiverse Urban Gardens suited to the preservation of biodiversity and native crops in urban environment.

The two proposals will act with a bottom-up approach on the demand side with actions dedicated to the relationship between the urban gardens and citizenship, including different functions in an integrated way: the ecology function, the bioecology connection, the social dimension and the urban regeneration.

The Biodiverse Urban Gardens are conceived as a strategy to face the environmental challenges related to the sustainability of the urban settlements, through the strengthening of the green urban network and the increasing of urban green spaces. A widespread citizens' participation through social and professional networks can establish fruitful connections with the administrative/political bodies.

Urban gardens represent an interesting model of collaboration between public and private. Compared to the strategy of Green Infrastructures, which must be planned from above and implemented through public funding, urban gardens can form an urban biodiversity network and have the same social effects through micro-interventions by involving citizens in the management and maintenance of the Green, with a saving of resources for the public administration.

If we want to point out the differences between Green Infrastructures and Urban Gardens, we have to consider that in the first case large-scale unit projects are foreseen, with major investments by public administrations; In the second case, small local projects can be realized with the involvement of small, networked communities, with very small investments. Green infrastructure units consider the city in terms of "smart city", while the most widespread and interstitial interventions of Urban Gardens seem to be a "resilient strategy", with even more significant social implications.

## 4 CONCLUSIONS

Using a strategy in line with the European Biodiversity Guidelines can at the same time implement and activate urban regeneration processes and enhancing the territory. The BioDiverse Urban Gardens, in this way, may be considered as potential elements of a fruitful network among citizenship and dissemination tools about the wealth of biodiversity in the urban environment. Urban gardens can favor the preservation of the landscape, ensuring the

presence in urban areas of agricultural land areas that maintain a connection with the original aspect of the land and with the oldest traditions. By linking the territory to society, it is possible to raise awareness among citizens, as individuals and as aggregates in groups, on the need to safeguard and re-qualify the "common good" through self-management processes of public wealth, seeking in parallel to fulfill the social demand for "landscape", by recuperating public spaces with social uses and with an aesthetic improvement of the cities.

Urban gardens stand as a possible solution to a sustainable use of the land, where the garden culture, free from its exclusively productive purpose, is bound to a cultivation always determined by natural techniques and guided by the principles of sustainability.

The ultimate goal is to promote a sustainable and competitive development of the territory, through integrated models where social activation changes consumption and production, for the communities that live or are attracted to them.

Even in times of crisis and lack of resources, using new approaches to urban planning and territory governance, not just oriented for consumption growth, but also promoting new social relationships in public spaces, cities can become places where they can experience new forms of living, working and spending the leisure time in a more sustainable way.

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