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Europe!

JOURNAL

PROJECT

PUJ - Prato Urban  
Jungle

📍 Prato, Italy

TOPIC

Sustainable use of land  
and nature based  
solutions

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EXPERT

# PUJ - Journal 1: Project activities development

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UIA Expert Daniela Patti focuses her first journal on presenting the main objectives of the Prato Urban Jungle project, the pilot sites, the consortium, the initial activities that have been undertaken since the project started, and what is forthcoming.

## Executive summary

The first journal of the Prato Urban Jungle (PUJ) project in Prato recounts the activities carried out within the first phase of the project as well as providing an overview of the role and tasks the different local partners have carried out together with the learnings they can share with others wanting to embark on a similar journey.

The Prato Urban Jungle project fosters creative and visionary urban design for re-naturing Prato's neighborhoods in a sustainable and socially inclusive way. The City of Prato is experimenting with urban forestation strategies and aims to re-naturalize three diverse districts of the city by introducing areas with high green density – urban jungles – in the built environment.

To reach such a goal, within the first months of the project the local partnership has been preparing the background conditions for the projects to be implemented, conducting research and co-design workshops, raising visibility to the public, and doing awareness campaigns on topics such as urban ecosystem services and green infrastructures.

The key activities carried out up until now have been around four areas:

- Ethnographic research and co-design path aimed at raising awareness and citizen participation, civic imagination, and co-planning of sustainable urban futures;
- Setup of the public procurement process for starting the intervention in the pilot sites;
- Awareness activities that allow citizens to be acquainted with the project activities and start getting familiar with some of its concepts, through courses and toolkits;
- Ideation and realization of a communication strategy.

All local partners have been greatly involved in the development of the different items experiencing great cooperation and resilience to adapt the plan to the needs and challenges encountered along with the project setup and the rescheduling due to the impending pandemic situation.

The upcoming activities of Prato Urban Jungle will see the beginning of the works in the pilot's sites, and continuing motivation to the public towards greening and the green benefits, with a special program in the schools, the installment of the stations for collecting environmental data, the launch of the app that rewards sustainable actions and ideas and the integration on the municipality's website of the participatory platform more inclusive urban green development in the city of Prato.

## 1. Background and context

72% of the population lives in European cities that consume about 75% of global energy and emit 80% of the greenhouse gases generated by their activity, contributing significantly to climate change.

Cities, nowadays, are facing challenges related to poor air quality, urban heat island effect, flooding, social exclusion, and degraded urban environments, which lead to health problems, poor quality of life, well-being, and safety of citizens, especially among the less privileged classes. The reintegration of nature and natural processes into built areas through nature and nature-based solutions (NBS) are increasingly seen as a solution to these challenges and in favor of sustainable land use in cities. NBS can foster sustainable urbanization, restore degraded ecosystems, improve climate change adaptation and mitigation, and assist risk management and resilience. Furthermore, by reshaping the urban environment, NBS can improve inclusiveness, equity, and livability, regenerating disadvantaged neighborhoods, improving citizens' mental and physical health and quality of life, reducing violence and social tensions through a better social cohesion, in particular for the most vulnerable groups, e.g. children, the elderly and people with low socioeconomic status.

In 2018, the Municipality of Prato adopted a new master plan that dictates the rules of use of the territory of the entire municipality on the types of intervention on an existing building (from renovation to expansion) or on the land use (e.g. agricultural or building). Among the thematics tackled by the master plan, the environmental one finds its expression in the urban forestry strategy where the analysis of urban green benefits by Stefano Mancuso and Pnat is supported by the Forestry Action Plan by Boeri Architects.

The analysis carried out on 29,151 public trees made it possible to estimate and evaluate their value in order to guide planning choices: buildings, road areas or waterproofed surfaces without trees are responsible for raising local temperatures. The so-called "green infrastructures" enhance energy saving, the increase in the value of buildings, the reduction of pollution, the improvement of air quality, the increase in biodiversity, the reduction of runoff phenomena, and much more benefits.

The Urban Forestry Action Plan, through 6 strategies - River and Gore Park, Green Infrastructure Mitigation, Capillary Green, Peri-urban Agricultural Gulfs and Large Parks, Urban Demineralization, and Agricultural Belt Park - aims to increase the wooded areas of the city, in particular in areas with a high rate of urbanization, in order to restore spaces and corridors of life, through processes of urban re-naturalization. A large wood that unites existing and newly planned parks, agricultural areas, and private green spaces in a single system. A forecast of planting of 190,000 trees, approximately one for each inhabitant. An effective environmental compensation tool that finds its implementation in the regulatory body of the master plan.

As part of this strategy, the Prato Urban Jungle (PUJ) project aims to renovate the districts of Prato in a sustainable and socially inclusive way by developing urban jungles, i.e. redesigned areas with a high density of greenery, immersed in the urban structure, which multiply the capacity natural plant to break down pollutants, restore the use of soil and space in the community and transform marginal and decaying areas into active green hubs within the city.

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## 2. Prato Urban Jungle in the context of EU, national and local policy

Prato Urban Jungle (PUJ) develops and tests innovative nature-based solutions (NBS) in a dense urban setting. This solution will bring more diverse nature and natural features and processes into the city. It serves as an inspiring showcase for other cities in Europe and elsewhere that still struggle to introduce those solutions due to financial, knowledge, and political barriers. As such, it informs and contributes to the implementation of multiple European policies and initiatives that recognize the broad benefits of nature-based solutions and green infrastructure for nature, health and well-being, flood protection, and climate change adaptation.

The Eu Green Infrastructure Strategy explicitly promotes the use of green and blue infrastructure solutions, and the EU Biodiversity 2030 aims at systematically integrating NBS into urban planning to stop and reverse the loss of green urban ecosystems. The EU Urban Agenda, kicked off by the Pact of Amsterdam, has included a specific partnership on Sustainable Use of Land and Nature-based Solutions to foster their use and ensure that the changes in urban areas are respectful of the environment, improving quality of life.

Beyond those explicit policies, NBS are key solutions in other EU policies such as the Floods Directive, the EA Adaptation Strategy, and the Covenant of Mayors for Climate and Energy, they can also contribute to social, health, and economic policy. By considering all these aspects in the solutions of PUJ, the city of Prato demonstrates impressively that a multitude of benefits can be realized by NBS even in a dense urban setting. These will be valuable contribution also to the latest EU policy developments, the European Green Deal and New Cohesion Policy with one of its main objectives targeting a greener, carbon-free Europe and explicitly supporting locally-led development activities as well as the Green City Accord, a European initiative supporting cities to commit to improving their environmental objectives.

NBS like in PUJ fits also directly into national and local policies. Italy's efforts are aimed at immediately stop land consumption by protecting free soils, including those within already urbanized areas, and reusing the building stock existing. Nevertheless, the Municipality of Prato with the new operational plan, dated 2018, sets itself the ambitious goal of defining local sustainable development models from a social, cultural, and economic point of view. PUJ, as a pilot, is completely embedded in this framework and will deliver inspiration and concrete solutions to maximize nature in urban settings.

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### 3. Ambitions and innovative features

The project of the Municipality will renew the districts of Prato with greater social, productive and environmental criticality, in a sustainable and inclusive way by developing areas of high green density - the so-called Urban Jungles - that will be grafted into the urban landscape by multiplying the natural ability of plants to break down the substances pollutants, and returning the territory to the use of people, transforming the areas of marginality into real points of green well-being within the city.

Arch. Valerio Barberis, Deputy Mayor for Urban Planning and Environment

Like other urban areas in Europe, the City of Prato is facing several challenges related to poor air quality, heat island effects, social exclusion, poverty, and degraded urban environments. Next to this, Prato hosts a number of abandoned industrial sites, resulting from the economic crisis of the last ten years.

The project will provide a new strategic approach to urban planning which, by involving stakeholders through an innovative digital platform and governance model, will be able to support a more inclusive urban green development in cities. The implementation of urban jungles, that goes beyond common urban forest approaches, proposes the creation of areas with a high density of greenery through an innovative co-design path that improves the resilience of the city and creates sustainable urban landscapes. They will constitute a ground-breaking solution for sustainable land use within the city.

The Prato Urban Jungle approach is integrated into the guidelines for European cities for the implementation of Urban Forestry strategies and for the use of Nature-Based Solutions and Plant-Based Solutions in architecture.

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#### 3.1 Guidelines for European Cities

##### Urban Forestry

Urban and peri-urban forestry is the practice of managing metropolitan forests, to ensure their optimal contribution to the physiological, sociological, and economic well-being of urban societies. It is an integrated, interdisciplinary, participatory, and strategic approach to planning and managing forests and trees in cities and surrounding areas. It encompasses the assessment, planning, planting, maintenance, conservation, and monitoring of urban forests and can operate on scales ranging from individual trees to landscapes. It emphasizes the commitment of citizens (including educating them on the value and benefits of trees and forests) in caring for the growth and life of plants, whether they are publicly or privately owned.

Forestry, together with correct planning and environmental sustainability policies, is one of the tools that will allow cities, including the city of Prato, to respond to the increasingly urgent request to combat the causes of climate change within the city itself, thus making it a resilient city.

As part of the Prato Urban Jungle project, Boeri Architects' team is developing guidelines for Urban Forestry, with the aim of directing urban regeneration processes based on Nature and Forest-Based Solutions, identifying a system of solutions applicable to urban and peri-urban scale in which the interventions can be put into a system with the natural heritage of the cities.



Fig. 1: Urban forestry strategy © Boeri Architects

#### Plant-Based Solutions

Plant Based Solutions (PBS) identifies all the solutions, strategies and interventions based on plants, able to enhance sustainability and resilience of urban systems to climate change, to protect and restore biodiversity and to bring benefits in terms of health, well-being, air, water and soil quality. PBS provides the use of plants in all dimensions of the built space, without limiting them to canonical, albeit fundamental, places, such as parks, avenues, gardens and flower beds. If used in an innovative and efficient way, plants can cover the facades of buildings by reducing energy consumption, producing food on horizontal surfaces, purifying the air of indoor environments, phytoremediation or re-naturalizing abandoned and degraded areas, regimenting and purifying wastewater, capturing CO<sub>2</sub> and filter atmospheric contaminants, effectively responding to the needs of sustainable development of cities. In addition to environmental benefits, the benefits produced are economic, social and psycho-physical, and directly affect the quality of life of the inhabitants.



Fig. 2: Green benefits © PNAT

### 3.2. Pilot sites

Prato Urban Jungles (PUJ) will develop four “jungles” in specific and diverse areas of the City of Prato. Initially, the areas of implementation were only three: Soccorso Neighbourhood, Consiag - Estra headquarters; San Giusto neighbourhood, EPP buildings via Turchia; and Macrolotto 0 neighbourhood, Covered Market. The Municipality of Prato, recently, has announced the addition of a fourth site: Commercial Area, via delle Pleiadi.

Soccorso Neighbourhood, Consiag - Estra headquarter

The first pilot area will show the creation of an urban jungle in a private area: the ESTRA building and its surroundings located in a complex urban area overlooking the busiest public street in the city with the daily passage of 50,000 vehicles. The building, recently, has been the subject of energy efficiency interventions, and the construction of the urban jungle is part of a path that aims at sustainability, which the company pursues in all its areas of activity. Estra has chosen to join this project aiming not only at the protection of the environment but also at the well-being of people (employees, citizens, the territory). This is why it will experiment with NBS to address this socio-environmental challenge and will do so by exploiting the synergies with the project partners, with the aim of safeguarding the psycho-physical well-being of its employees and making a concrete contribution to the territory in which it operates.





Fig. 3: Soccorso Neighborhood, Consiag - Estra headquarter © Elisa Viglianese

#### San Giusto Neighbourhood, EPP buildings via Turchia

The sector of EPP buildings in via Turchia, located in the San Giusto neighbourhood, an urban area with a high population density and large green areas, characterized by the presence of social housing, is the second pilot area of the Prato Urban Jungle project. The complex in via Turchia, completed in 1994, consists of three blocks connected by a pedestrian square overlooked by two low buildings intended for cellars. There are a total of 102 public housing units. Here, the intervention aims to restore natural soils and public space to the community, including trees, plants and living nature, grafted onto existing buildings by reducing mineralized surfaces, absorbing numerous tons of CO2 and increasing the well-being of the inhabitants.



Fig. 4: San Giusto Neighbourhood, EPP buildings Via Turchia © Elisa Viglianese

#### Macrolotto Zero Neighbourhood, Covered Market

Macrolotto Zero is the third pilot area of Prato Urban Jungle. The Prato Urban Jungle intervention will be carried out in the Covered Market and will be part of an even broader plan for the redevelopment of the district carried out by the municipal administration through the implementation of services and the creation of new buildings and public spaces for study, meeting, trade and outdoor activities. In the historic district of the city characterized by underutilized spaces, the completion of the Project of Urban Innovation (PIU) for urban redevelopment financed by the ERDF for urban areas, cultural and social innovation is underway.





Fig. 5: Macrolotto Zero neighbourhood, covered market © Elisa Viglianese

Commercial Area, via delle Pleiadi

This new pilot area, strongly desired by the Municipality, is located in via delle Pleiadi. The intervention is divided into several parts: a high-performance urban greenhouse for the production of plants at Km 0, a refreshment area, created with old industrial containers and intended for the administration of locally produced food and drinks, an area dedicated to musical or cinematographic events consisting of an internship made with recycled materials and an area for the little ones where play will be a way to approach the most current environmental issues. All elements will be strongly integrated with the green.

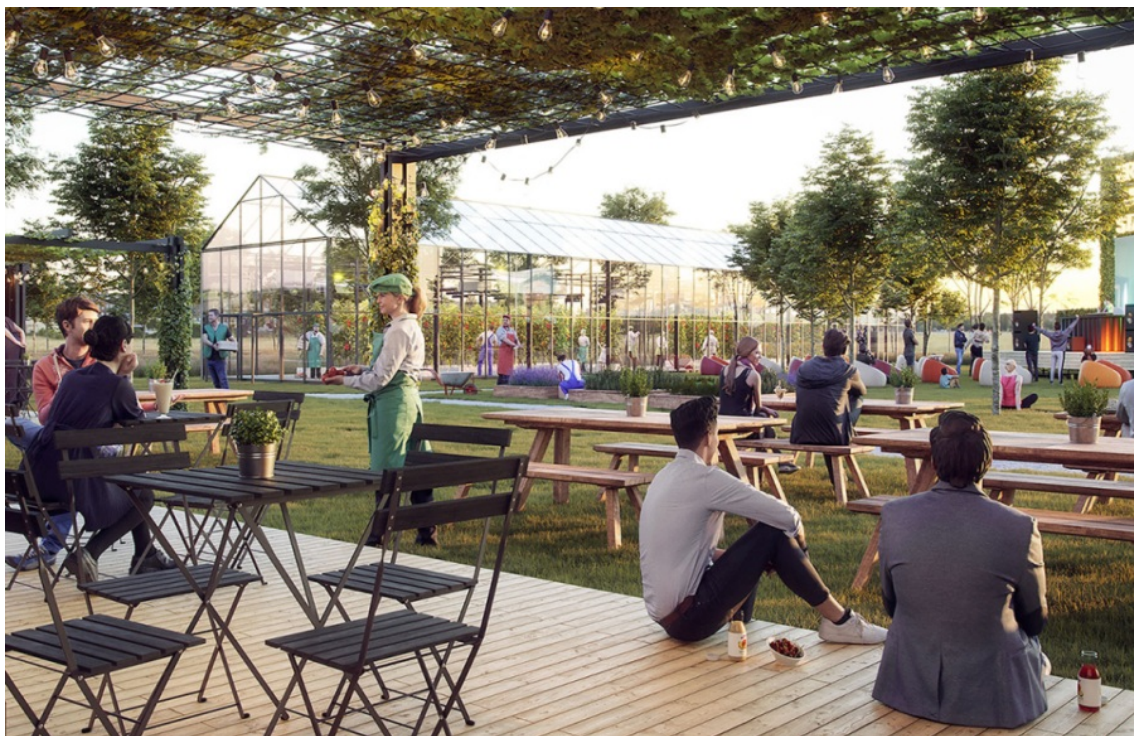


Fig. 6: Commercial Area, via delle Pleiadi © PNAT

## 4. Partnership

Prato Urban Jungle mobilizes a great amount of knowledge and resources within the city of Prato. The partnership consists of the Municipality of Prato, as leader partner, and other seven partners involved in the completion of the activities of the project: PNAT, Boeri Architects, CNR IBE, ESTRA, Legambiente Toscana, greenApes, and Treedom.

The Municipality of Prato is responsible for defining the management strategies to ensure sustainable use of the city's territory. In addition to the new urban forestry plan, the Municipality of Prato in recent years has developed and adopted various tools and policy plans with a view to ensuring the sustainable use of the territory. PNAT and Boeri Architects have taken care of the design phase. PNAT is an academic spin-off of the University of Florence, and particularly, is composed of designers and plant scientists that use the comprehension of plant patterns and behaviors to inspire innovative design concepts and products. Their goal is to build and promote synergistic relationships between the natural and artificial environment.

Cities must no longer be places separate from nature, but must become a continuation of the nature

Stefano Mancuso, Co-founder and coordinator of PNAT

Boeri Architects operates in the fields of architecture, urban design, and urban planning all around the world with a focus on the use of green in architecture.

Urban forestry is not only a way to change urban spaces, but also to change living spaces

Stefano Boeri, architect and urban planner

The Institute for BioEconomy of the National Research Council (CNR IBE), which works in the definition of strategies and in the development of technologies and operational solutions that contribute to the resilience and sustainability of territorial and productive systems, will collect and monitor a series of environmental indicators on the site of the pilots, and in other strategic position of the municipality. The big amount of environmental data that will be collected are managed and stored by ESTRa, a leader in the distribution and sale of natural gas and gpl, in the sale of electricity, as well as in telecommunications, in the design and management of energy services and in the production of energy from renewable sources.

The intervention on Consiag - Estra headquarter will make it possible to recover living spaces and to give a new concept to corporate welfare

Paolo Abati, general director Estra SpA

Education and awareness of sustainability and greening and their related benefits are two other main concepts of PUJ. In this regard, Legambiente, which is one of the main Italian environmental associations, will engage with citizens and schools throughout courses, and other awareness campaigns. While, greenApes, a certified Benefit Corporation, through a digital platform will involve citizens and reward their sustainable actions and lifestyles. Lastly, Treedom, the only web platform in the world that allows you to plant a tree remotely and follow it online, will develop a new strategic approach to urban planning which, by involving stakeholders through an innovative digital platform and governance model, will be able to support a more inclusive urban green development in cities.

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## 5. Activities undertaken since the beginning of the project

The Municipality of Prato commissioned Space and Flod the communication of the project, who have experience in the dissemination of European funded projects. To assure the coherence of communication, they have developed a communication plan to which partners have to follow. The communication is done through a constant updating of the website and, especially by Flod, through the various social media channels. Worth mentioning an ad hoc rubric, "[lessico vegetale](#)" - vegetal glossary - in which the Deputy Mayor for Urban Planning and Environment, Arch. Valerio Barberis, illustrates some of the keywords of the project, such as hydroponic agriculture, water run-off, air quality, energy savings, demineralization, biodiversity, and health. This rubric had success and contributed to the education of the citizens on such topics in a simple and engaging way.





Fig. 7: Rubric “lessico vegetale” © Città di Prato

Other activities oriented to education and raising awareness on the themes related to PUJ have been undertaken by Legambiente Toscana. It engages two events each semester. During last summer and autumn, it embarked a series of treks in the parks and woods around the city of Prato showing and explaining the different species and seasonality of the trees. While, between January and February, held the first edition of the “Create Your Jungle” course. The course was structured of five theoretical classes (online), plus one practical lesson (in person). It touched upon various topics, such as the theoretical basis of natural environments, designing and maintenance of green space, species and soil analysis, and an in-depth analysis of the pilot sites. Importantly, in the last practical class, participants could test the knowledge acquired in the field.



Fig. 8: Course “create your jungle” © Città di Prato

A key event of Prato Urban Jungle’s firsts months was the “Junglathon” conducted by Codesign Toscana, a cultural association and a multidisciplinary network of professionals in the planning and facilitation of co-design paths. The Junglathon represents a fundamental path of the Prato Urban Jungle project, dedicated to the participation and involvement of citizens. They have conducted research through surveys, urban trekking and interviews, workshops and prototypes in two of the pilot sites: San Giusto Neighbourhood, EPP buildings via Turchia and Macrolotto Zero Neighbourhood, Covered Market. While, for Soccorsio Neighbourhood, Consiag - Estrà headquarters activities with employers were conducted through online platforms. Currently, Codesign Toscana is working in the second phase of the methodology, the so-called “double diamond”, by reporting the ideas that emerged from the previous phase to the evaluation and a feedback round of partners, relevant

stakeholders and citizens, and bring clear ideas and proposals from citizens and workers to the local administration to be implemented in the pilot sites. Meanwhile, PNAT and Boeri Architects have delivered the executive projects for San Giusto Neighbourhood, EPP buildings via Turchia and Macrolotto Zero Neighbourhood, Covered Market to the Municipality of Prato. The municipality, soon, will start the public procurement procedure for the commission and the execution of the interventions.



Fig. 9: Co-designing workshop “Junglathon” © Città di Prato

## 6. Mapping the PUJ project against UIA challenges

Under the current pandemic conditions, the PUJ partners have done very important work towards ensuring the development of the activities in the closest manner to the Project plan. Obviously, certain aspects of the project have been affected by the current sanitary situation, being these mainly the respecting of the timing of the implementation of certain actions and the active participation of citizens at large in testing project pilots. Finally, upscaling at the moment is an item of the project which still has to be developed, yet the project is still in its initial phase so there are the conditions for this to be adequately developed. Despite these challenges, the PUJ project has been able to overcome the criticalities with innovative, creative, and engaging solutions.

### Challenge

### Observation

#### 1. Leadership for implementation

Challenge level



The City of Prato has a very solid leadership of the project both at the administrative level (with the EU funds, urban planning, and environment depts) and at the political level (with the city councilor for urban planning and environment as well as the one for economic affairs being highly committed and the Mayor being very well informed about the project activities). The full partnership is carrying out activities as planned, the only issue is a delay of approximately 6 months due to the COVID-19 pandemic.



2. Public procurement  
Challenge level ●

Currently, the public procurement within the project appears to be in time with the expected plans.

3. Integrated cross-departmental working  
Challenge level ●

The most relevant departments for the implementation of the project are highly committed, these being the EU funds, urban planning, and environment departments.

4. Adopting a participative approach  
Challenge level ●

Within the project have been made great efforts to ensure citizens' participation in the choices developed for the three pilot cases. For example, the Junglathon has been an important co-creation moment with the inhabitants and stakeholders of the different sites. Nevertheless, participatory activities have been compromised by the lock-down and social distancing measures because of the COVID-19, especially as the City of Prato was in a condition of pandemic emergency for many months.

5. Monitoring and evaluation  
Challenge level ●

The monitoring of activities is being well carried out, its evaluation is adequate, at least given the initial stage of the project.

6. Financial Sustainability  
Challenge level ●

Currently, the project pilots are developing a plan for their long-term sustainability after the project ending, for example for the management of the urban forests in order not to be sole responsibility of the Public Administration.

7. Communicating with target beneficiaries  
Challenge level ●

The communication team hired for the project is highly integrated within the partnership and committed to narrating the project developments through different media in order to reach the targeted audience, also through the structural support of the entire partnership.

8. Upscaling  
Challenge level ●

Due to the pandemic, the international exchanges of the project partners have been very limited, if not through digital means which don't help to understand the local implementation contexts. For this reason, after the pandemic, great effort will have to be posed by the project in order to ensure the upscaling of the project solutions to other cities. On the other hand, the upscaling of urban forestation within the City of Prato is taking place already now.

## Conclusion

BE CREATIVE!

The current pandemic conditions have put great pressure on citizens and have obviously limited the actions planned within the project. For this reason, it is important to develop creative solutions to ensure that plans can still be, in some way, carried out. For example, within the Junglathons walking visits in the open air and social distancing were organized to illustrate the projects and meet the local stakeholders in full security.

BE PARTICIPATIVE!



Between lock-down and social distancing, it is extremely hard to ensure civic participation in projects, especially as people are worried. But even more so, it is important to increase a participatory strategy that responds to the needs under the present conditions. For example, the project organized many online talks as well as a real-life three-day Junglathon to engage and co-create with citizens.

#### BE SUSTAINABLE!

Environmental, social, and economic sustainability must be carried out together for projects to really be considered sustainable. For this reason, it is important to ensure that the impacts of actions are sustainable in the long run under all these different aspects. Both the Macrolotto Zero ex-industrial site and Via Turchia social housing neighborhood show how urban forestation is an opportunity to increase the environmental conditions of the buildings but also improve the living conditions of inhabitants and possibly create new forms of the local economy.

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