

JOURNAL

PROJECT

UPPER - Urban
Productive Parks for the
development of NBS
related technologies
and services

📍 Latina, Italy

TOPIC

Sustainable use of land
and nature based
solutions

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The Productive parks and Demonstration sites included in the Upper project today represent milestones from which the current and future government of the Municipality of Latina will not be able to ignore the economic, social and productive plan of the city, guaranteeing it a new dignity and centrality. The UPPER project has once again made it clear to local policy makers that in the planning of urban areas it is not only necessary to involve local stakeholders but also to focus interventions on environmental and economic sustainability criteria. Thanks to the executive actions developed within UPPER, further interventions financed by the ERDF have been guaranteed in the 2021-2027 programming period. The planned interventions will allow not only the recovery of the areas but also the attraction of private investments that will be able to count on a green ideal for creating new productive settlements in the investments. The Municipality of Latina has organized a staff dedicated to the UPPER project, necessary to guide the implementation phases of the project through technical, administrative and financial monitoring actions, providing for the coordination and supervision of the partnership, as well as the definition of the strategic guidelines of certain activities within its competence. The staff has become an interface between the administration and private partners, while at the same time translating the project forecasts into the correct administrative procedures. This experience has made the Municipality of Latina more effective and efficient in managing funded and complex projects. In such a way that in 2024, on the occasion of the remodeling of the macrostructure of the municipality, Department XVI was created, dedicated to the governance of European and national funding.

Project's progress

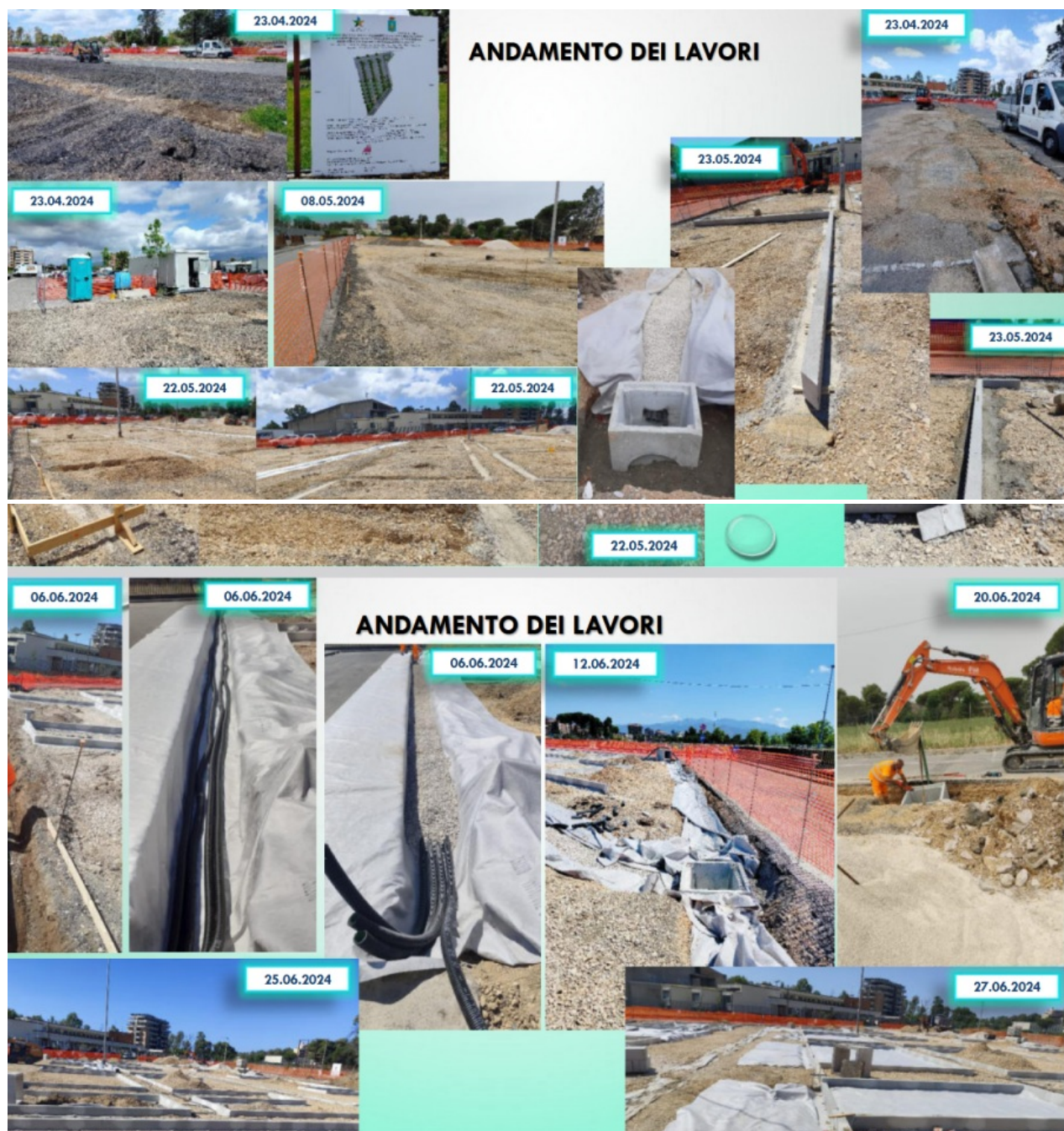
The UPPER project ended on 31 August 2023 with the final event that took place at the De Pasquale hall of the Municipality of Latina. However, the activities at the sites subject to the interventions continued even after the official conclusion of the project. For example, it can be mentioned that the environmental monitoring activities were continued by Ce.R.S.I.Te.S. thanks to the data collected by the ENGIE control units.

The collaboration with the schools continued, carrying on the activities already started previously. Several schools are demonstrating a continued commitment to nature-based educational activities, utilizing their own resources and external support. G.B. Grassi High School proactively maintains its existing outdoor classrooms and school gardens. They have also expressed their strong interest in renewing their collaborative agreement with the municipality for managing this valuable green space. IC G. Giuliano has secured additional funding from the Ministry of Education to revitalize its school garden and orchards. This project builds upon the groundwork laid out during the UPPER Seeds initiative. The school also continues key nature-based activities, particularly school

gardening and outdoor theatre, activities initiated during the UPPER project. IC T.Tasso has actively engaged some of the UPPER stakeholders in its eco-committees. Together, they organize further initiatives like recycling days, school garden maintenance, and environmental education programs.

As regards the infrastructural works, examples of interventions carried out include:

- Creation of green spaces in urban areas or peri-urban forestry, functional to mitigate the effects of climate change.
- Use of reflective/low heat absorption materials, for example for paving/street furniture, shading structures.
- Creation of climate-friendly building interventions, green roofs and walls, shading tree barriers, insulation and natural ventilation systems, cold roofs and ventilated roofs, etc.
- Creation of rainwater collection systems, with purification and accumulation aimed at recycling for non-human uses, for a more efficient and rational use of water resources, also with a view to innovation and smart cities.
- Interventions aimed at recycling and reusing purified wastewater, with the aim of using the water resource for other purposes (e.g. agriculture, irrigation of parks and gardens, street washing, ornamental uses also for improving the use and microclimate of public spaces, etc.) and to reinforce circularity practices in the management of the integrated water cycle.
- Creation, expansion or reconstruction in urban areas of pedestrian areas, parking lots, roadsides, paths, etc., with the removal of existing paving and the restoration of soil permeability in terms of urban regeneration.
- Experimentation in public spaces of solutions for sustainable urban drainage, intended in terms of urban regeneration, such as multifunctional squares/spaces or structures, basins, tanks designed to collect and drain rainwater in the event of particularly intense rainfall.



Challenges and results

The Municipality of Latina, starting from the initial difficulty in managing the project, given its interdisciplinary nature, had to review some internal organizational procedures in order to coordinate the departments involved (Environment, Public Works, Personnel Services, Productive Activities, Heritage, Finance) to achieve common objectives. A segmented organizational structure with rigid exercise of functions and the difficulties linked to the administrative instability of the urban authority (during the project 2 mayors and 2 Commissioners succeeded each other) made the challenge even more complex. The COVID-19 pandemic increased the difficulties by making communication difficult and sometimes cancelling the first results achieved in terms of coordination, forcing the project to start again.

First of all, functions and skills related to the work packages were distributed among all the departments involved with a formal act, a Resolution of the Municipal Council. Secondly, the project manager has constantly involved the administrative and political representatives of the institution (Director/Secretary General, Commissioner, Advisors) in the decisions and has participated in the conferences of managers convened by the Director/Secretary General on critical issues and results. At the same time, close informal relationships have been established between the project manager and managers of the other departments, and between the internal coordination support staff and the municipal offices involved in the management acts. This has contributed to spreading, within the institution, the motivation and awareness of the importance of working towards a common goal, beyond specific skills.

The change produced, with extreme difficulty, of orienting the work of so many people placed in single units of a complex structure, with different skills and functions, towards multiple common objectives has made it clear that involvement and motivation are a spur in work. The awareness of having contributed to the realization of a tangible, useful and innovative result is fundamental in motivating people to work at every level. However, this is not enough: sharing must start from the decision-making spheres of an organization and must be constant throughout the life of a project. In the absence of a clear political direction, the urban authority has strengthened its ties with the university world to ensure urban solutions recognized at a scientific level and therefore not attackable by potential new political bodies. The co-design activity was carried out remotely and had to adapt to a new way of working.

To overcome the problem of the increase in the cost of construction materials (effect of the war in Ukraine), a dialog was activated with the UIA Permanent Secretariat which led to the possibility of dividing the original project into two parts, the first one consisting of a finalised operation covered by the UIA co-financing, while the second composed of remaining interventions was to be included in the three-year public works program as a commitment of the Municipality of Latina to complete the original package of investments with subsequent financial availability. The project experience underlines the need to have a clear initial intervention framework within which the technical bodies can take the necessary subsequent decisions to achieve the objectives, as well as the importance of greater flexibility, intended as the ability to adapt actions based on the contingent situation with re-planning activities at the end.

NbS are a valid tool to create social inclusion and consolidate ties between people. Putting people first allows to activate synergies and overcome bureaucratic obstacles. However, it is clear that even in the most challenging objectives, especially when public administration is involved, it is impossible to ignore an analysis of the technical and administrative feasibility of the activities to be implemented, in order to avoid certain failures. The simultaneous lack of political leadership and the problems related to the selection of companies for the construction of the works did not allow all the works planned to be carried out in the three production parks.

The failure to achieve these objectives consequently did not allow full participation of citizens in the project. It was difficult to involve companies in the idea of being able to create value through the production of NbS in an urban Productive Park. The market is unprepared to welcome this opportunity despite various attempts to involve companies and trade associations in a guided path.



Continuation and up-scaling

The project partners have also worked on continuation and upscaling. Several forms of financing have already been identified and secured for this purpose, for example:

- 1) Ministry of Ecological Transition - Experimental program of interventions for adaptation to climate change in urban areas; Project Title: "Climate, energy and air - Works for adaptation to climate change - Creation of new systems to combat heat islands in urban areas - Piazzale dei Mercanti car parking in Latina" (Upper DS); Amount: €736,400.00
- 2) Lazio Region - PR FESR 2021-2027 - Specific Objective 5.1 - "Territorial Strategy" of the Municipality of Latina; Project Title: 1.3.4 - Environmental and climate redevelopment of urban public spaces through desealing actions - Completion of Piazzale dei Mercanti (Upper DS); Amount: €781,765.60
- 3) Lazio Region – PR FESR 2021-2027 – Specific Objective 5.1 – “Territorial Strategy” of the Municipality of Latina; Project Title: 1.3.5 - Environmental and climate redevelopment of urban public spaces through desealing actions Via Neghelli car Parking (Upper DS); Amount: €712,218.90.

These show how the project is embedded in a broader policy context in the city (or region, country) that would secure its sustainability. The UPPER project represents a central axis in the design of the overall territorial strategy of the Lazio Region. In parallel, Ce.R.S.I.Te.S. continues to carry out transfer of scientific knowledge and results, while Engie is dealing with the collection of data from environmental control units.

Knowledge transfer activities

On June 11, 2024, on the occasion of the final conference of the project “Mediazione Sociale – Recupero Urbano integrato”, financed by the Presidency of the Council of Ministers as part of the extraordinary intervention program for urban redevelopment and safety of the suburbs of metropolitan cities and provincial capitals, Project “Latina anche città di Mare – Volano di riqualificazione urbana”, the experience of the Upper project was reported, in particular regarding the green areas bank. On July 2, 2024, as part of the Project “Climate, energy and air - Climate change adaptation works – Creation of new systems to combat heat islands in urban areas - Piazzale dei Mercanti car park in Latina”, funded by the Ministry of Ecological Transition, the Municipality of Latina organized the Conference-Seminar “Climate change: causes, effects, solutions”. On this occasion the urban regeneration interventions at the Upper Project Demonstration Sites were illustrated.

The partner Ce.R.S.I.Te.S. will be able to continue knowledge transfer activities within the undergraduate and master's degree courses in Engineering at the Latina campus of the Sapienza University, within the secondary schools in the municipal area, and in meetings with citizens at the university dedicated to NbS. The teachers participating in the Upper Seeds activities were trained by the partner Labirinto on the management of school gardens. As part of this training, digital guidelines on the management of educational gardens were produced and distributed to the teachers. Inhabitants and NGOs from another city neighbourhood (Latina Scalo) were

informed on how to design, propose and manage a pact of collaboration with the municipality for the co-management of nature based solutions in their city area. This knowledge transfer was carried out by Labirinto during an open workshop organized by the Municipality of Latina.

The UPPER approach can certainly be used in other urban areas that suffer from similar problems, particularly heat islands, because the problem of lack of trees and shaded areas in cities is becoming more serious. The central element in enabling transferability is related to the ability to share the solutions developed by the scientific community with local communities and different stakeholders.



Lessons learned and recommendations to other urban authorities

Beyond technical considerations, the project highlights the critical importance of effective management and inclusive engagement, pivotal for both the construction phase and subsequent environmental sections. The composition of the partnership can be considered a strong point of the project. The project's success owes much to its innovative approach, fostered by a diverse partnership encompassing research institutions, environmental organizations, NGOs, private enterprises, and the Municipality of Latina as lead partner. This collaborative model, though unconventional, proved indispensable for driving forward such a pioneering project, nurturing a culture of openness and mutual learning among stakeholders.

The partners worked in synergy, carrying out all the technical-scientific activities according to the objectives, without the need to consult external experts. This, in addition to an economic advantage, led to a direct involvement and an enrichment for the staff members above their specific skills. Working with a varied partnership increases the professional competence and contribution that each partner can make to the project. The UPPER project has been defined as a complex multidisciplinary process because it acted on several fronts: economy, social innovation, entrepreneurship, improvement of the urban environment, training. This was made possible by the very diversified skills. Managing such a complex and varied partnership from an administrative point of view has led to the development of new managerial and management skills for the offices. Robust project management played a pivotal role in providing guidance and facilitating cooperation among partners, ensuring clear delegation of responsibilities alongside regular communication and coordination. Despite challenges such as escalating construction costs, the project remained aligned with Latina's vision, with political leaders viewing setbacks as opportunities for growth and refinement rather than barriers to progress. The strong collaboration between universities and the municipality, known for their open-mindedness and can-do attitude, was pivotal for the project's success.

UPPER has brought a number of things which can be considered as shared knowledge, which include:

- Involving local communities in the planning, implementation, and management of nature-based solutions projects so as to recognize and respect local knowledge and traditional practices related to land and gardens management as well as by creating new interactions through the use of digital applications.
- Establishing monitoring and evaluation systems to assess the effectiveness of nature-based solutions and afforestation projects is key. Thanks to the use of remote sensing, GIS and other technologies it is possible to have accurate and timely data collection.

- Developing and implementing supportive policies that incentivize nature-based solutions and sustainable parks management; this will align afforestation efforts with international agreements and commitments.
- Raising public awareness about the importance of nature-based solutions and afforestation for environmental health and climate resilience is fundamental to promote environmental education and capacity-building initiatives at various levels.

These lessons are applicable to other cities embarking on similar projects. Establishing a diverse and innovative partnership that encompasses a range of knowledge and skills is crucial. Projects utilizing nature-based solutions face the challenge of proving their functionality once implemented. Nature and its ecosystem services are not fully developed at the end of the technical construction. Hence, adequate time for testing new solutions should be planned to ensure the final design rests on a solid foundation. Furthermore, monitoring of these solutions should extend beyond the project's duration to provide policymakers and planners with evidence of their efficacy and allow for necessary design adjustments.



Conclusions

The most innovative elements of the adopted solution were the vision of the areas to be redeveloped as key parts of the green and blue infrastructure network with Nature-based Solutions (NbS) and the interdisciplinary integration of environmental, urban planning, economic and social aspects throughout the project development process.

The project experimented a socio-behavioural type, thus broadening the concept of NbS to the sphere of human behaviours in interaction with urban nature. The experiment involved the organization of an educational, sports, social and cultural program called "UPPER Seeds" co-designed with interested stakeholders, following a specific call for ideas. To disseminate among citizens and stakeholders the importance of the use of native plants to tackle climate change and biodiversity loss, and to encourage the emergence of new businesses dedicated to urban afforestation. The development of a dedicated data platform allowed the creation of an essential database to understand the initial situation and the actions to be taken to improve air and environmental quality. The results were achieved thanks to the synergy of the work of all the partners.

The lesson learned from the management of the UPPER project was for sure important - the complexity in managing innovation and the associated risks was fully perceived at all levels of the Municipality of Latina. With a great degree of honesty, we can say that there was an awareness of the organisational impossibility of managing such processes, which led the institution to create a department dedicated to the coordination and management of activities for projects financed by the PNRR, FESR 21-27, Extraordinary Program for Urban Suburbs.

The UPPER project has successfully implemented innovative NbS despite encountering numerous challenges, including the COVID-19 pandemic disrupting participation and the escalation of material prices due to the war in Ukraine threatening the project's further financing. Moreover, citizens have already demonstrated their satisfaction by embracing the parks and green areas for recreational activities like walking, playing, and sunbathing. This collaborative spirit, fostered by Latina's politically open-minded approach and its commitment to

green development, laid also the ground for citizens' early involvement in the project, which actually had started already long before the UPPER project.

Continued urban development using Nbs technologies in other areas of the city, as well as ongoing collaboration between former project partners, demonstrate the lasting impact of the UPPER initiative. The tangible example provided by UPPER, which highlights the benefits of nature-integrated design for citizens and the city as a whole, and the lessons learned from this project, will guide future initiatives.



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