



URWAN in BARCELONA Catalonia, Spain

Discover How Barcelona is promoting Sustainable Drainage Systems for water sensitive green space management: Insights from the URWAN Team's Visit

This factsheet unveils the key takeaways from the URWAN team's visit to Barcelona, where they engaged with representatives from Barcelona Cicle d'Aigua SA (Barcelona Water Cycle Company), the Municipal Institute of Parks and Gardens and the Municipality of Barcelona. Dive into some of the innovative strategies and integrated vision that make this remarkable city a benchmark for integrating Nature-based Solutions (NbS) and promoting water sensitive urban planning.





→ URWAN FOCUS

URWAN is dedicated to advancing urban planning by identifying and promoting best practices for the integration of Nature-based Solutions (NbS) into cities. Through visits to exemplary urban areas, URWAN seeks to uncover both the challenges and opportunities of NbS implementation, offering valuable insights to inspire and guide others. This initiative, complemented by the URWAN NbS catalogue, aims to create a shared understanding of the latest advancements for NbS in urban settings, strengthening URWAN's mission to empower cities in adopting sustainable, adaptive, and innovative solutions.

→ CITY PROFILE & CLIMATE CHALLENGES

Barcelona is a cosmopolitan Mediterranean city with a population of 1.702.547 inhabitants, located in Catalonia, in northeast Spain. It is a vibrant touristic city that attracts around 15M visitors per year, due to its rich history and architecture, its smooth climate, its access to the Mediterranean Sea and its cultural offer. Barcelona is a pioneer city in terms of resilience and sustainability, through the implementation of the city's climate, resilience, water and nature strategies and innovative actions.

Despite its many strengths, Barcelona faces pressing climate challenges due to the combination of a densely populated and highly urbanised territory and a Mediterranean climate. These include managing storm water and reducing the risk of flooding while dealing with long periods of drought and water scarcity that affect its capacity to irrigate green areas. To face the rising temperatures and heat island effects, the city is called to plan for water smart green areas in a context of high competition for public space and limited availability of green areas, in order to improve its natural environment and biodiversity and enhance the well-being of the community.



Rain Garden





→ CITY SOLUTIONS

Barcelona is making remarkable progress in addressing its climate and water related challenges through a comprehensive and innovative application of NbS and the generalisation of sustainable urban drainage systems (SuDS) in public space.

The municipality has placed sustainable urban drainage and the mobilisation of alternative water resources, including reclaimed and rain water, at the core of its water resilience action. Since 2010 the city has been constructing SuDS as a solution for both sustainable and passive rainwater management and the creation and irrigation of green areas. The SuDS techniques employed include bioretention areas, permeable pavements, floodable garden beds, underground detention-infiltration tanks, among others. SuDS in urban renovation projects are capable of capturing, treating, retaining, and returning run-off to the ground through infiltration, and can be applied not only to urbanised surfaces but also to the rooftops of adjacent buildings.

Barcelona also recognises the importance of promoting nature in the city and its Nature Plan aims at increasing greenery by 160Ha by 2030, through the creation of new parks and by transforming streets using traffic-calming techniques, green public spaces and SuDS, green axes and superblocks. In a context of drought that will seemingly worsen in the future, aside from mobilising alternative water resources for irrigation, the city also selects species with low water requirements as a means for improving greenery and biodiversity.



Sustainable Drainage Systems (SuDS)



Rain Garden



Additionally, Barcelona uses urban planning to enhance private green areas by providing grants for the greening of facades and rooftops of existing buildings and by mobilising temporarily empty private urban plots as new green areas and urban orchards. It has also updated its building code to introduce water sustainability features and request the creation of green areas around new buildings.

Community involvement is central to the success of these initiatives. Barcelona actively encourages residents to participate in planning and decision-making processes, fostering a culture of collaboration and shared responsibility.

To sustain and expand these efforts, Barcelona is also investing in internal capacity building and improved coordination. An example of this is the SuDS Commission that gathers several departments and agencies in a multidisciplinary approach in order to collaborate in the planning and maintaining of SuDS, taking into consideration the particularities of the Mediterranean climate and the city's regulations. Last but not least, a detailed technical guide on SuDS planning, implementation and maintenance is available to make sure that this common knowledge is shared among all the municipal departments involved as well as the private ecosystem.

→ LESSONS LEARNED

Barcelona showcases how a unified vision and sectoral strategies can lead the city's efforts towards sustainability and resilience. Key lessons from Barcelona's implementation of NbS highlight the critical importance of interdepartmental coordination instruments in order to make sure that sectoral interests align with the city strategy.

Community engagement and targeted communication is also essential to ensure the social acceptance of NbS and an understanding of their multifunctional benefits. Lastly, Barcelona shows us the need to adapt NbS and SuDS to the needs and realities of the Mediterranean climate. For that reason, Barcelona has created specific tools for knowledge generation and transfer, as well as monitoring instruments tailored to its territory.

