

Urban Nature Atlas, a global database of urban nature-based solutions

A collection of more than 1000 inspiring nature-based solutions from European cities and beyond

Select Key Challenges



Select Nature-based Solutions



Global focus on Climate

Show projects

Search



Advanced Filter

Challenges addressed

Nature-based solutions

Region

Country

City

Focus

Management set-up

Initiating organisation

Project cost

Type of financing source

Environmental impacts

Social impacts

Economic impacts

Presence of formal monitoring system



Dora Almassy, PhD
Research Lead: Urban Nature Atlas

November 2, 2023

Urban Nature Atlas overview



www.una.city



The most comprehensive database of urban NBS

Developed during the Naturvation EU H2020 project



Produced as the result of a systematic survey

Based on secondary resources

Data collection via discourse analysis



Database development: 2017

Update: 2020

Global extension: 2021

Asian extension 2022



Includes more than 1100 interventions

- Goals
- Implementation activities
- Governance features
- Financing
- Innovations
- Benefits

Welcome to the Atlas

The Urban Nature Atlas is a collection of more than 1000 inspiring nature-based solutions from European cities and beyond.



Key Challenges



Nature-based Solutions



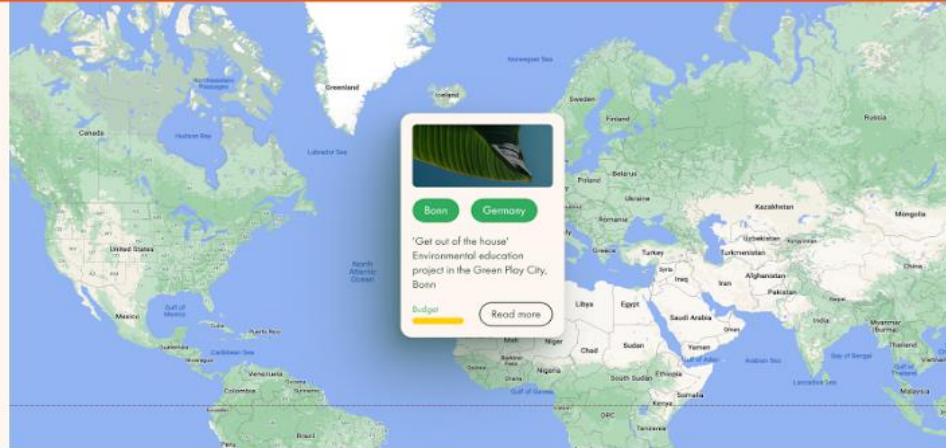
Climate and biodiversity focused projects

[Show Projects](#)

Advanced Filter

[Reset filters](#)

- Challenges adressed
- Nature Based Solution
- Country
- City
- Focus
- Project Cost
- Initiating Organisation
- Type of Financing Sources
- Social impacts
- Environmental impacts
- Presence of formal monitoring system



Bonn X Germany X

[Reset filters](#)

Projects

362 Results
1 of 23 pages

'Get out of the house'
Environmental education project in the Green Play City, Bonn

The "Green Play City", a nature experience park on 4,500 sqm exists since 1999. Initiated and administered by the non-profit organization "Wissenschaftsladen" (short WiLa), it combines nature...

Budget [Read more](#)

Global Project featured by **British Academy**

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Budget [Read more](#)

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Budget [Read more](#)

Constructed wetland

Last updated: May 2023

In 2005, a constructed wetland was established in Barangay Villareal, Bayawan City in order to improve a peri-urban settlement and promote domestic wastewater treatment with reed beds. The wetland covers an area of 2680 square metres and comprises two reed beds, with the first bed utilizing perforated pipes beneath a sand and gravel substrate for vertical flow filtering, and the second bed utilizing horizontal flow for biological filtering. The roots of the *Phragmites karka* reeds, which are used in the system, act as a natural filter, removing microorganisms and pollutants. The treated effluent is reused for various purposes, such as watering plants, firefighting, and irrigating ornamental plants and agricultural crops. The overarching objective of the initiative is to safeguard coastal waters from pollution caused by domestic wastewater and enhance residents' quality of life by providing safe sanitation and wastewater treatment facilities. Furthermore, the initiative seeks to showcase the effectiveness of constructed wetlands, encourage the use of locally available reeds for wastewater treatment, and conserve water and nutrients by reusing treated wastewater. [1,2].



Constructed wetlands in Bayawan City

https://www.wetlands.ph/projects/conference_wetlands-climatechange-biodiversity/exposure-trips/bayawan-wetland/



Bayawan, Philippines

City population: 122747

Duration: 2006 – 2006

Implementation status: Completed

Scale:
Micro-scale: District/neighbourhood level

Project area: 2680 m²

Type of area:
Residential

Urban NBS can address multiple challenges



1. Climate action for adaptation, resilience and mitigation



2. Water management



3. Coastal resilience and marine protection



4. Green space, habitats and biodiversity



5. Environmental quality, including air quality and waste management



6. Regeneration, land-use and urban development



7. Inclusive and effective governance



8. Social justice, cohesion and equity



9. Health and well-being



10. Economic development and decent employment

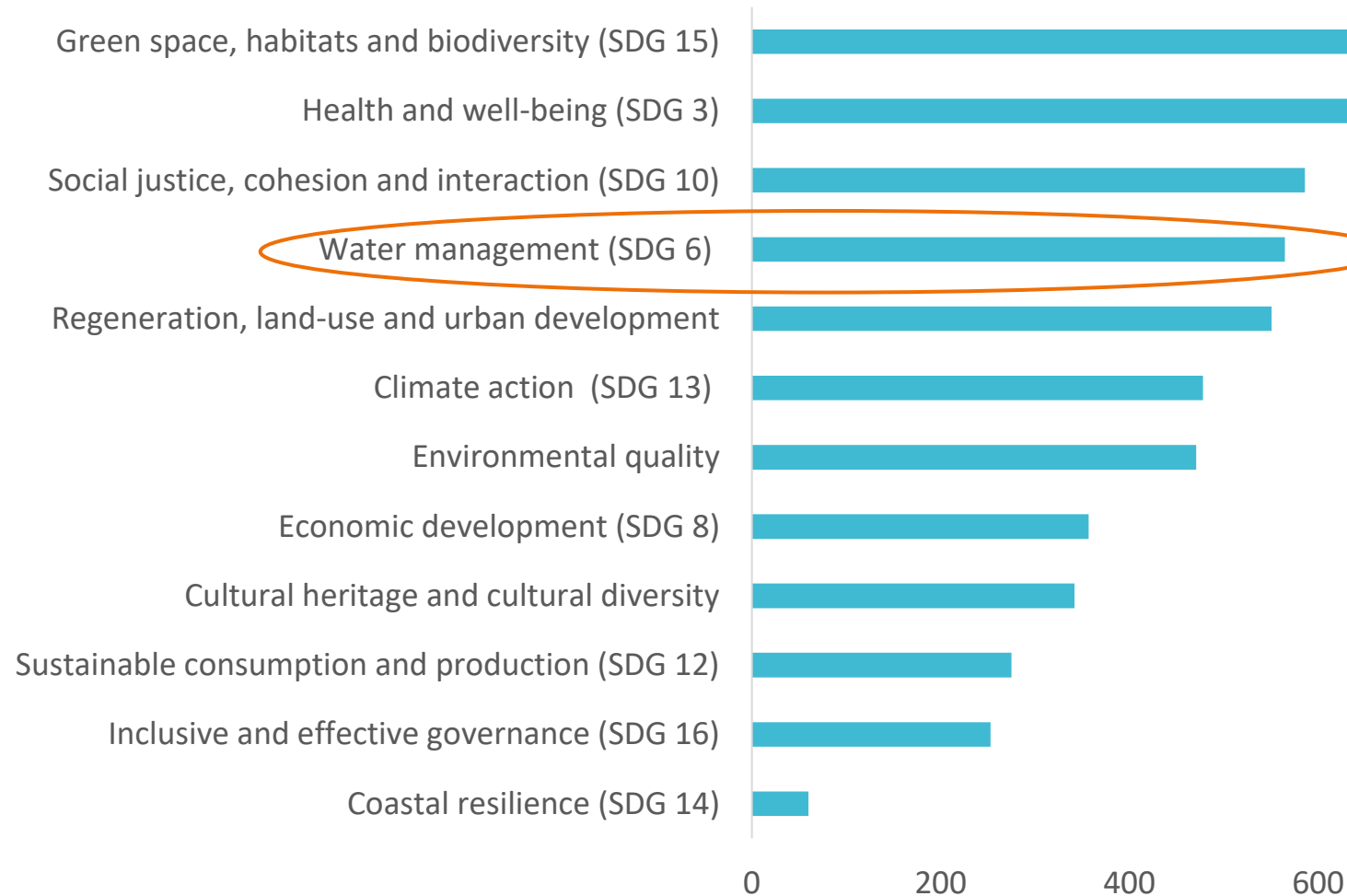


11. Cultural heritage and cultural diversity



12. Sustainable consumption and production

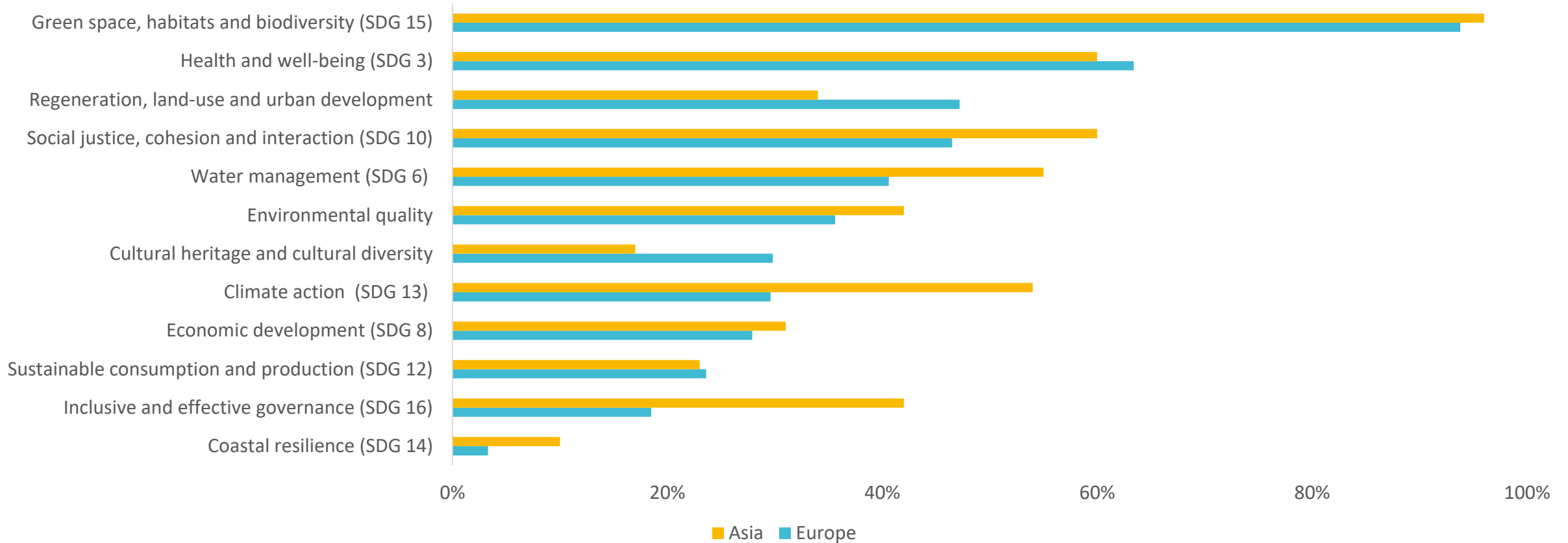
In practice, cities introduce NbS to address a wide range of urban sustainability goals



Water management objectives:

- Stormwater and rainfall management and storage (353)
- Flood protection (299)
- Improvements to water quality (237)

Addressing climate change and water management challenges serves as a prominent driving force for implementing NbS in Asia



Urban NBS can take various forms and can be implemented in various ways



1. Green walls and green roofs



2. Street trees, railroad greens



3. Parks and forests



4. Allotments and community gardens



5. Green indoor areas



6. Constructed wetlands, river restoration



7. Rain gardens, SUDs



8. Derelict areas

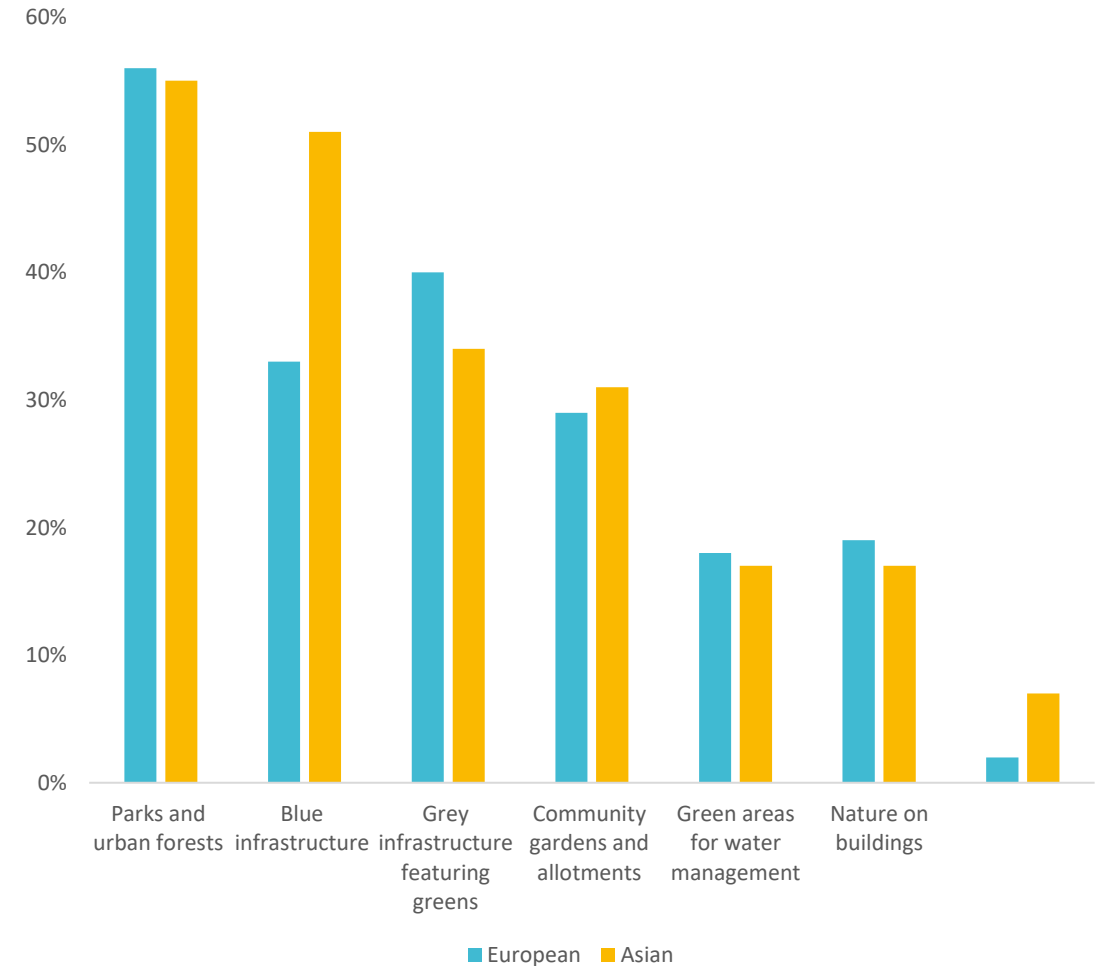
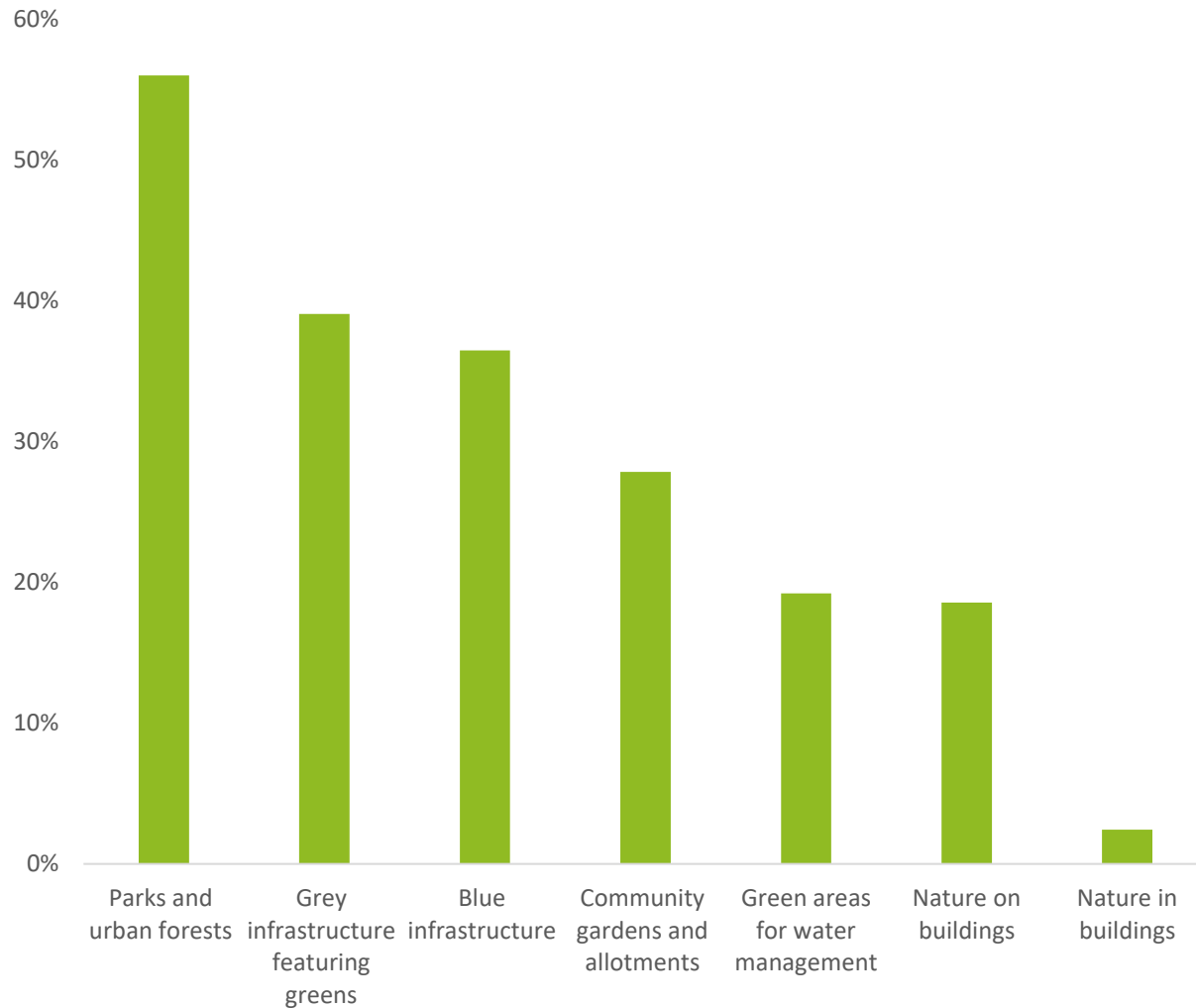
Physical interventions

- Creation of new green areas
- Creation of semi-natural blue areas
- Management of urban nature
- Management of rivers and other blue areas
- Coastal landscape management/protection
- Ecological restoration of ecosystems
- Protection of natural ecosystems
- Transformation of previously derelict areas

Soft measures

- Knowledge creation and awareness raising
- Strategy, plan or policy development
- Improved governance of green/blue areas
- Monitoring of habitats and/or biodiversity

To address sustainability challenges, cities are embracing different type of NbS



A roof garden of the Diakonissen Klinik in Augsburg, Germany

- 370 sqm roof garden on the new building of the clinic
- Benefits:
 - Improved lives and working conditions
 - Serves as a recreation facility for the patient.
 - Increased biodiversity





Greening Laval, Canada

- Integrated approach to mitigate the impact of urban heat islands in the city.
- Aimed to replace impermeable surfaces such as asphalt with vegetation.
- Extensive collaboration with a variety of local organizations and institutions, including local planting organizations, the director of public health, universities

Evozone Rain Garden, Santa Rosa, the Philippines

- 32,000 sqm rainwater catchment
- Supports rainwater harvesting, serves as a fire reserve, and provides recycled water for irrigation.
- Habitat for bamboo, birds, and birdwatching area



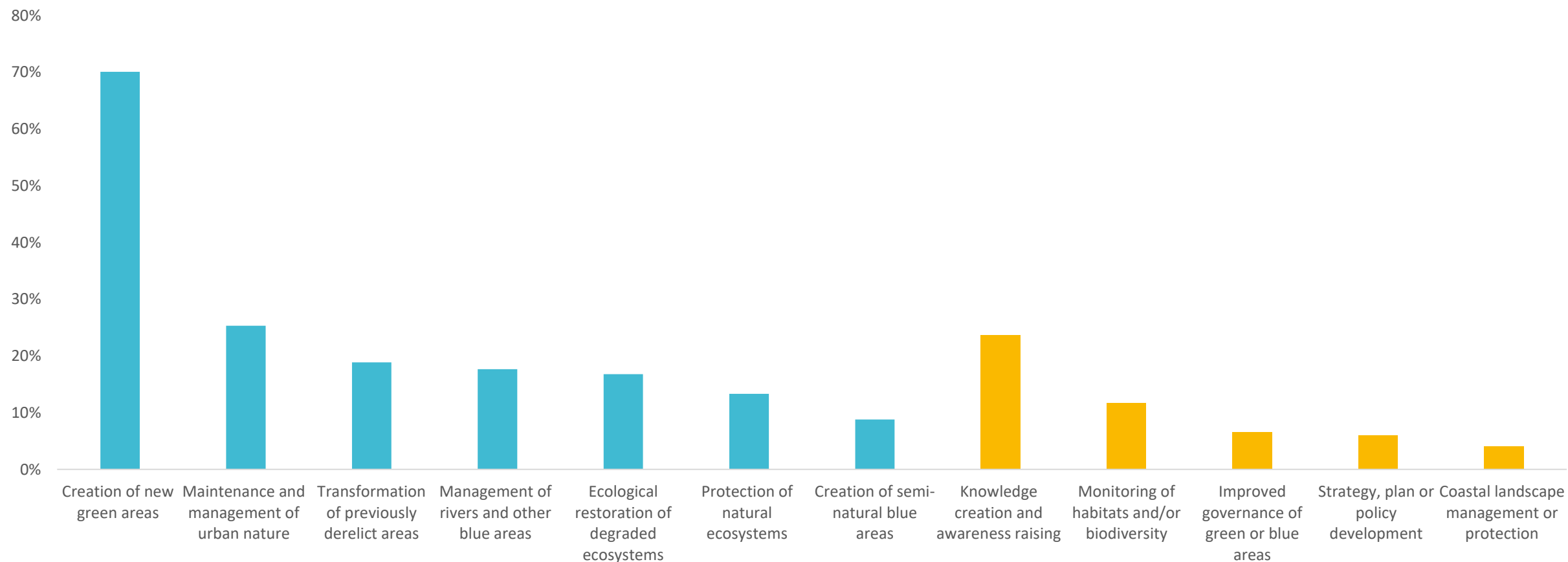
The unique Rain Garden combines aesthetic with multi-functional use. Not only does it act as a rainwater catchment basin with a natural plant-based filtration system, but it also utilizes sand and stones to form a landscaped area. The area will also be home to different varieties of bamboo. Rain Garden lots provide options for possible views of the Rain Garden, the 4-hectare lake, open spaces, or the Lakeside Evozone.

Gorla Maggiore water park in Lombardy, Italy

- Constructed wetlands for flood control and pollution.
- Utilizes sand filter beds and retention basin for water treatment.
- Offers educational, recreational, and wildlife-watching activities.



Projects primarily focus on the creation of green areas, but they also have important potential to improve the management of, protect or restore existing natural areas

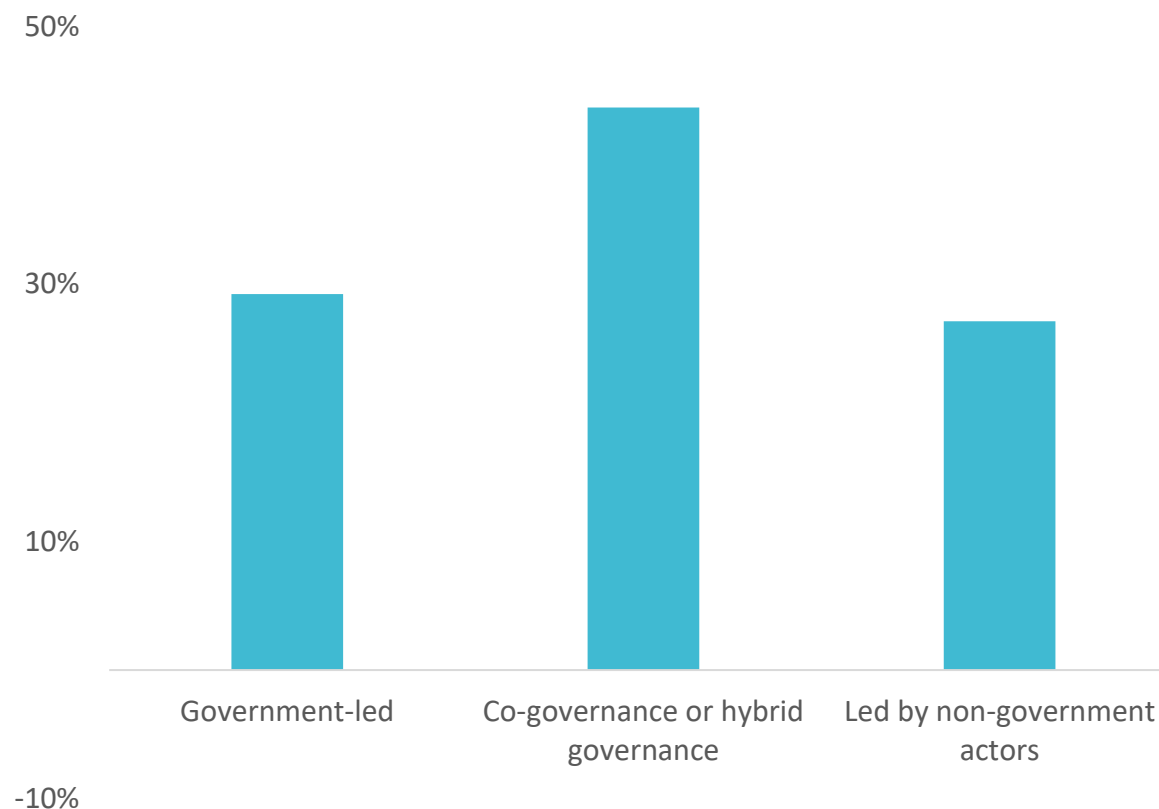


Inspiring Water Action in Torne, *Doncaster, UK*

- Habitat restoration to help improve water quality, reduce flood risk, and enhance natural habitats for protected species
- Woodland management: selectively thinning the woodland, re-wetting areas that have dried out, and sowing native plants that will help filter pollutants

NbS implementation can involve various actors across different governance levels and in various implementation arrangements

- *Government-led projects*; exclusively managed by public actors, such as national, regional, or local government bodies
- *Projects led by non-governmental actors*; such as Non-Governmental Organisations (NGOs), businesses, community groups, and research organisations
- *Co-governance or hybrid governance settings*; involving the combination of governmental and non-governmental actors sharing planning and implementation responsibilities



Benchakitti Forest Park in Bangkok, Thailand



Park features:

- Wetlands support park's sustainability, water and soil management.
- Four constructed wetlands filter and store water.

Implemented by government bodies:

- Treasury Department: Project owner and landowner.
- Thai Tobacco Authority: Primary project founder.
- Royal Thai Army: Responsible for construction.
- Bangkok Metropolitan Administration (BMA): Park management after completion.

Neela Hauz: A dumping ground transformation into a scenic lake

- Project Goals included bioremediation, desilting, ecological balance, aesthetics.
- Lake revival by Constructed Wetland System.
- Raw sewage and STP-treated water sustain the lake.

Implemented in a co-governance arrangement:

- Collaboration between Delhi Development Authority and the Centre for Environmental Management of Degraded Ecosystems associated with the University of Delhi



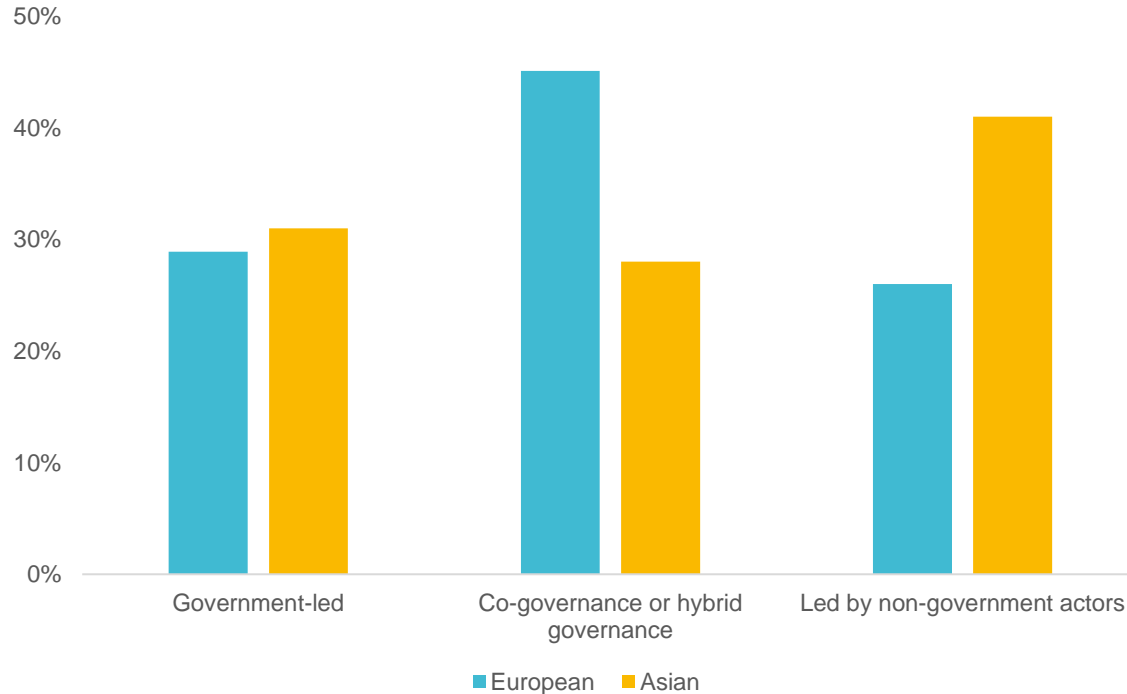
Before restoration



After restoration



Community-based approaches to urban planning and development can be essential in scaling up the implementation of NbS



Type of actors leading or involved in co-governance arrangements	Percentage of projects
Non-governmental organisation (NGO)	49%
Private sector/Corporate/Business	45%
Citizens or community groups	36%
Researchers, university	22%
Public sector institution (e.g. school or hospital)	12%
Multilateral organisations	12%
Financial institution (e.g. bank, insurer, pension fund)	6%

Monitoring is essential for assessing and demonstrating NbS impacts and promoting systemic implementation

- Monitoring, reporting and verification is often lacking
- Without evidence of impacts, making the social, policy and business case for NbS will not be possible
- To enhance decision-making and planning processes, it is crucial to advance monitoring systems to measure NbS impacts, ensuring they are equipped with reliable, evidence-based data.

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Thank you for your attention!
Visit the Urban Nature Atlas: www.una.city
Add your project: www.una.city/add-project

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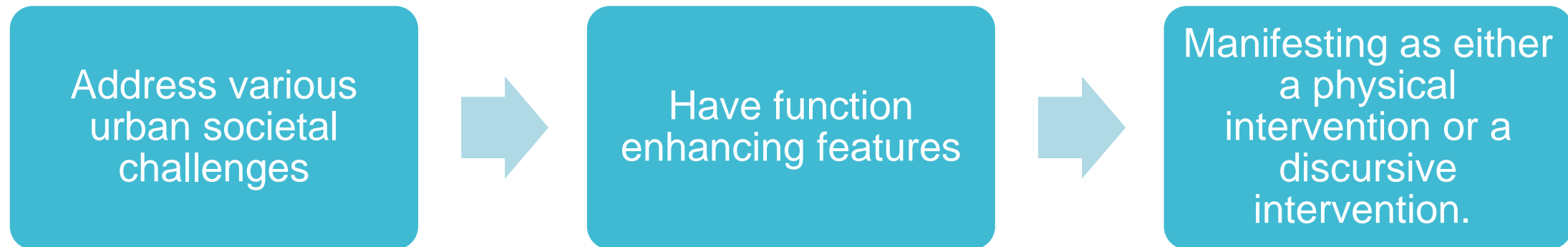
This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 730243

Data collection and analysis



- Data collection is based on **secondary sources** (e.g. project reports/ documents, websites, news or research articles, reports etc.)
- Data analysis by using **discourse analysis**;
- All data in the UNA is **referenced and is validated via a multi-step quality control process**.
- Data types included:
 - Objectives and challenges addressed
 - Implementation activities
 - Urban setting(s)
 - Beneficiaries
 - Governance and financing
 - Reported impacts
 - Presence of monitoring and assessment systems

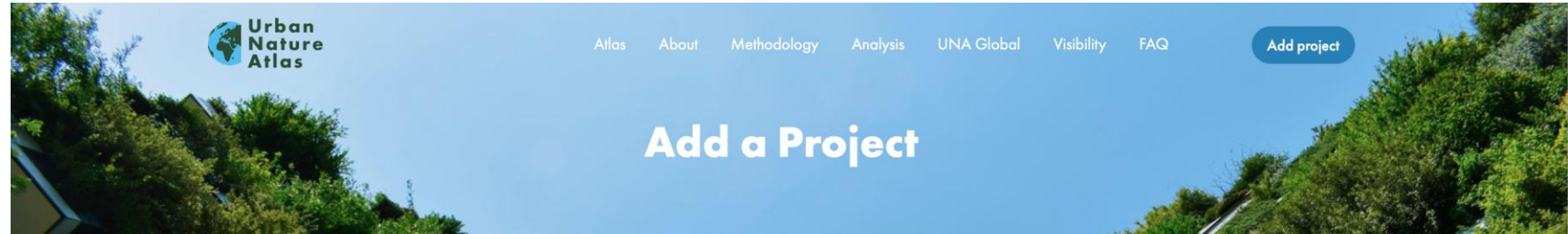
Project selection requirements



Add your project



<https://una.city/add-project>



It is now possible for users to add new projects to the Urban Nature Atlas.

If you are involved in the design or implementation of a nature-based solution, or if you are doing research on a particular initiative and thus have a good understanding of it, you can now add this project to the database.

To add a new project, you must register and create an account [here](#) or log in [here](#).

After logging in successfully, you can add a new nature-based solution by clicking [here](#).

Having registered and created an account, you can fill out a questionnaire about your project and submit your data for publication.



If you would like to edit a nature-based solution project which was previously created and is already published in the database, you can request access to the questionnaire [here](#) after registration and log in.

[Log in](#) [Register](#)