



my building is green
A LIFE PROJECT

LIFE-myBUILDINGisGREEN:

Application of Nature-Based Solutions for local adaptation of educational buildings to Climate Change



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PROJECT LOCATION



- ★ Solana de los Barros (Badajoz)
- Porto (Portugal)
- ☾ Évora (Central Alentejo, Portugal)



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CLIMATE ISSUE AND SOCIAL IMPACT

Education and social care centres in southern Europe experience indoor temperatures above 32°C for several months of the year.



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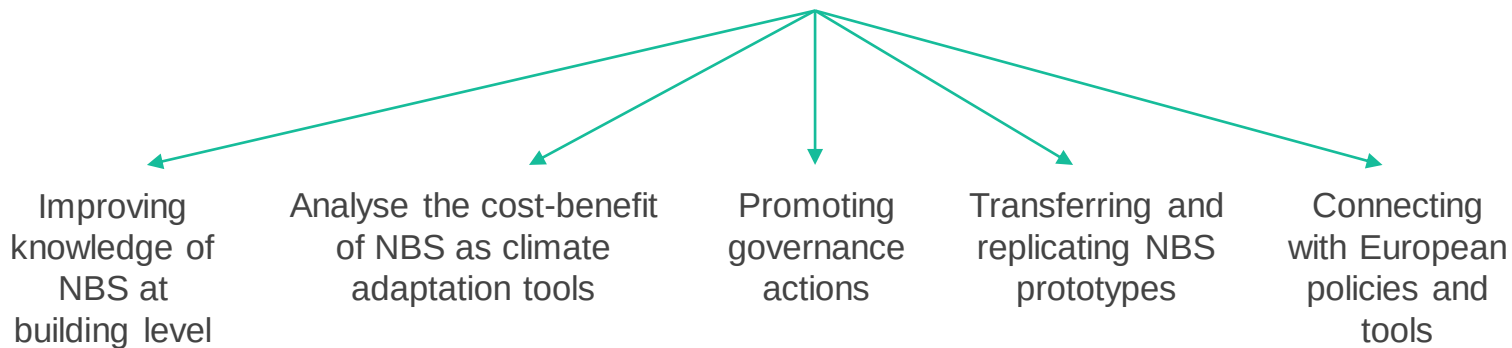


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PROJECT OBJECTIVES



Increasing climate resilience in educational buildings in Spain and Portugal by implementing NBS as climate adaptation tools.



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Case-study: Nature-Based Solutions in schools: a green way to adapt buildings to climate change in Solana de los Barros, Extremadura (Spain)



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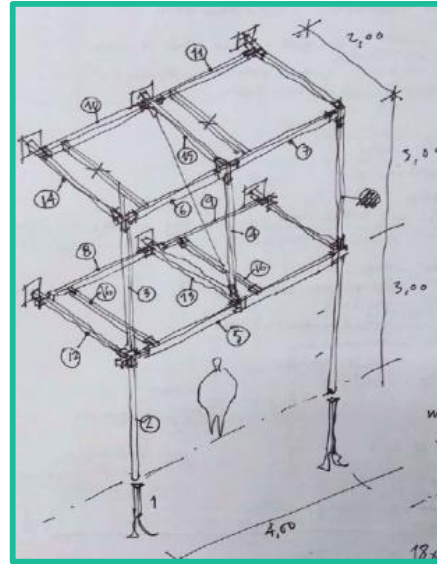


NBS implemented (green façades)



mBiGFAVE 1 & 2

- System of planters on metal structures parallel and perpendicular to building facades
- It includes climbing plants that protect the façade from sunlight



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NBS implemented (green façades)



mBiGToldo

- Rack system with mineral substrate for vertical vegetation growth
- Includes plants for hydroponic irrigation that incorporate nutrients into the system



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NBS implemented (green façades)



Indoor vertical garden

- Includes a wide variety of plant species
- Continued maintenance and pruning is necessary to avoid shedding



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NBS implemented (green roofs)



mBiGCUVE 1

- Larger green cover including a variety of more than 25 native plant species



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NBS implemented (green roofs)



mBiGCUVE 2

- This system is a variant of the previous one but includes an air chamber underneath the plantations that retains part of the temperature generated by the constant radiation on the roof



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NBS implemented (green roofs)



mBiGCUVE-SUS

- This system is another variant of the more extensive roof but includes a more sustainable substrate that allows for better rainwater filtration
- In order to obtain a greater impact from NBS, in some cases they are installed together



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NBS implemented (ventilation)



Induced natural ventilation: System of five windows with programmed opening and closing that allows the circulation of fresh air in the school during the night.



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NBS implemented (external structures)



mBiGPEVE 1 & 2: VEgETal PErgola

- Planter system on metal structures similar to mBiGFAVE but without anchoring to building façades
- Includes deciduous climbers



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NBS implemented (outdoor patios)



Wooden structures for shading of recreational areas

- These structures are located in playgrounds with a high occupancy rate by school students



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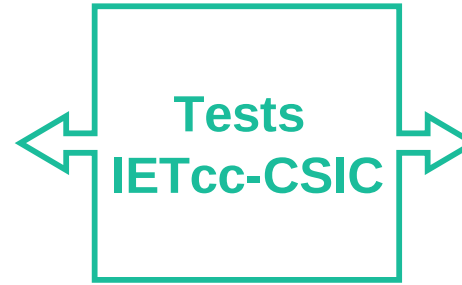
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NBS implemented (pavements)



mBiGSUVE: Permeable surfaces that improve the filtering of rainwater in the soil and allow the proliferation of natural vegetation.



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Improving knowledge of NBS at building level (and beyond)



Travelling exhibitions



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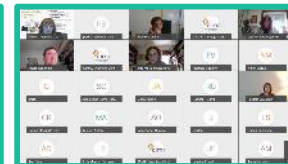


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Improving knowledge of NBS at building level (and beyond)



Round tables, workshops, conferences and congresses



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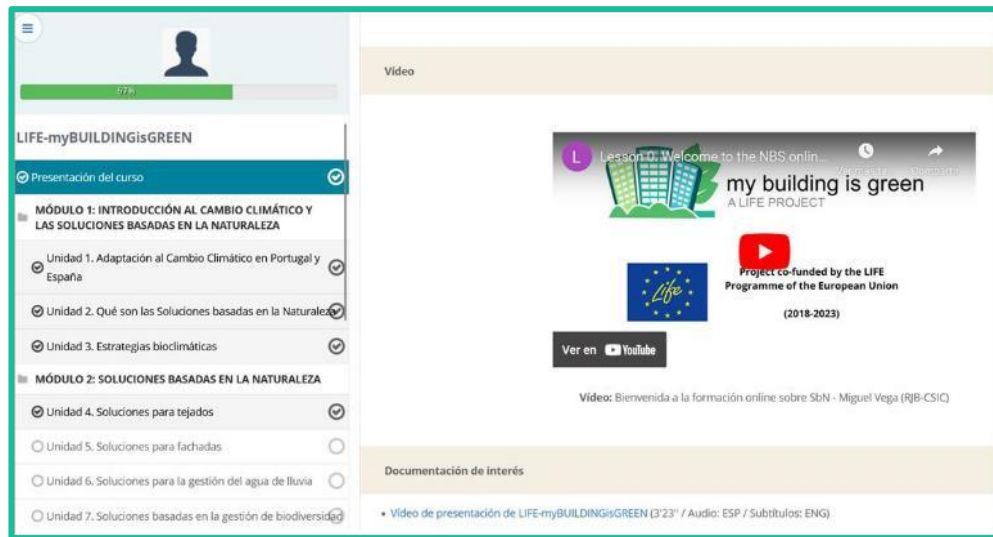


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Improving knowledge of NBS at building level (and beyond)



Online course on NBS: the LIFE-myBUILDINGisGREEN project (3 languages)



<https://www.learning-nature.org/courses/LIFEMBIGEN>



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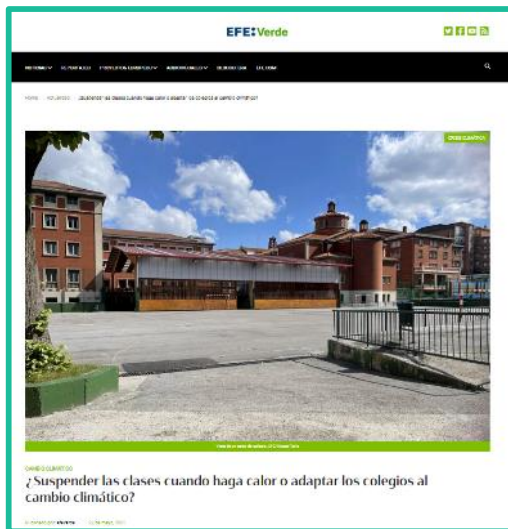
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Improving knowledge of NBS at building level (and beyond)



Media presence



<https://life-mybuildingisgreen.eu/shared-files/3917/?E1.4-E1.5-Dossier-visibility-del-proyecto-LIFE-mBiG.xlsx>



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Analyse the cost-benefit of NBS as climate adaptation tools



VS

Actual cost of final construction projects

Results of the project indicators

- Thermal comfort in buildings and outdoors
- Energy saving, water and rainwater management to sewage system
- Increase in BDV and indigenous sp
- CO₂ levels in classrooms
- External noise levels
- Improved public perception of urban nature
- Reduction of user absences

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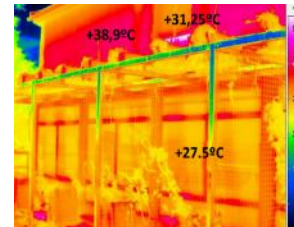
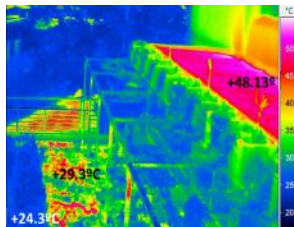


Analyse the cost-benefit of NBS as climate adaptation tools

First results Gabriela Mistral school (Solana de los Barros)

Climate change adaptation and mitigation indicators:

- Although more monitoring time is needed, the results so far are positive.
- It seems that green roofs reduce surface T and could be related to the reduction of T inside the building.
- The FAVE system requires more time for the vegetation to be more developed and for real effects to be measured.



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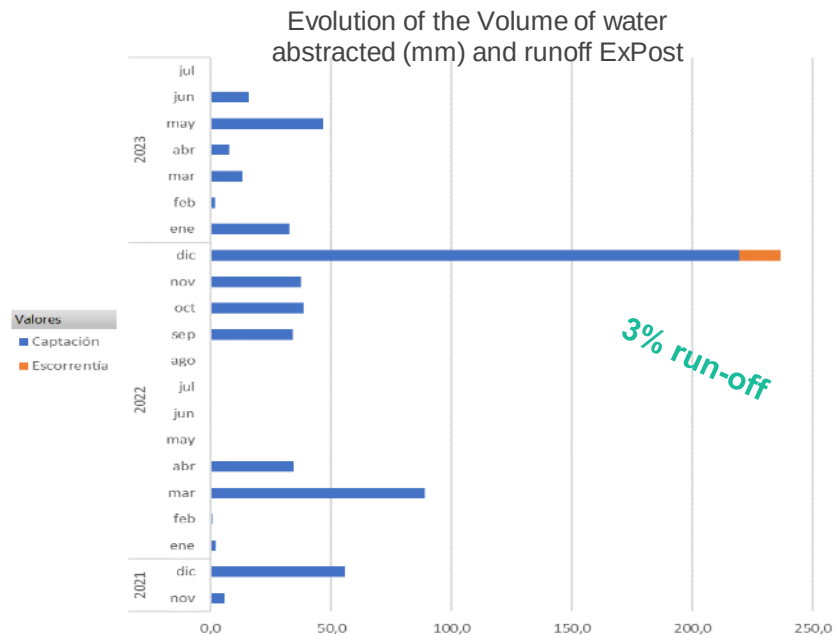
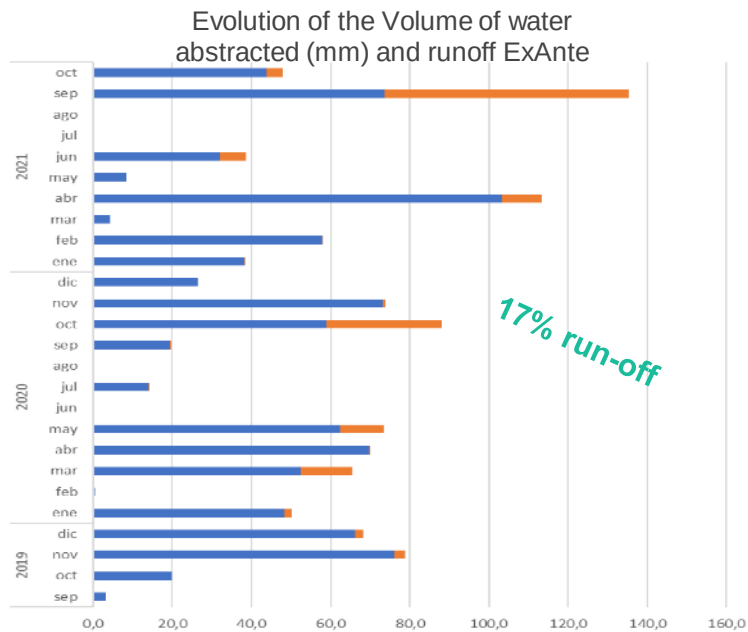
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Analyse the cost-benefit of NBS as climate adaptation tools

First results Gabriela Mistral school (Solana de los Barros)

Water management indicators:



Analyse the cost-benefit of NBS as climate adaptation tools

First results Gabriela Mistral school (Solana de los Barros)

Indoor air quality indicators:

- It is observed that induced ventilation reduces CO₂ concentration levels in the classrooms

Semana	Aula 557	Aula 997	Aula 2422
Antes (46)	963	1081	651
Después (51)	730	824	620

Fuente: CARTIF



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Analyse the cost-benefit of NBS as climate adaptation tools

First results Gabriela Mistral school (Solana de los Barros)

Indicators of biodiversity enhancement and indigenous species

- An increase in abundance and biodiversity is observed, although more sampling is needed to obtain significant positive data



Photographs of
colonising plants



Arthropod dropping
traps



Arthropod sample



Sample identification



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Promoting governance actions



Governance actions: agreements, commitments or support obtained from administrations at various levels and related entities that enable or facilitate the transferability of the project's NBS in other contexts

Some examples:



Inclusion of NBS in green infrastructure and climate change strategies (OECC & FB, Jan 2019)



Integration of NBS in the CTE (MITMA, Oct 2022)



Territorial Agreements (CIMAC, Nov 2022)



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Promoting governance actions



Building sustainability certification of Gabriela Mistral school (GBCe, Nov 2022)



Collaboration with Green Cities Platform (Climate-KIC, Nov 2022)



Transferability of NBS through the Spanish Network of Cities for Climate (FEMP, Feb 2023)



Related deliverables (<https://life-mybuildingisgreen.eu/en/results/>):

C4.2 Reference report on Governance Tools

C4.3 Report on NBS included in Edification Technical Code and Local Regulation



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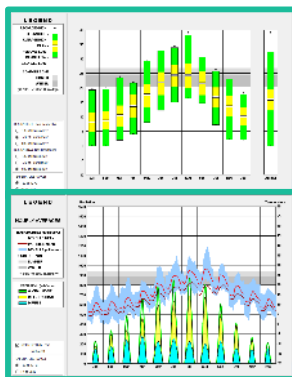


Transferring and replicating NBS prototypes

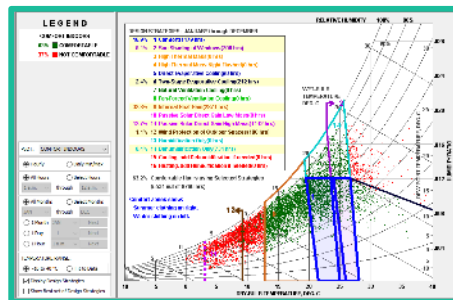


Replicability Plan: aimed at technical profiles, educational community and professionals from other European countries with similar climate problems.

NBS projects in 15 European schools:



Climate data Bari
Meteorological Station, Italy



Psychrometric diagram with
incorporation of the optimal
passive improvement measures



General plan of NBS implementation at Scuola
Media Statale Massari Galilei (Bari, Italy)



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Transferring and replicating NBS prototypes



Demonstration workshops



Workshop for political profiles (Solana, Mar 2023)



Workshop for technical profiles (Solana, Mar 2023)



Workshop for teacher profiles (Porto, Sep 2023)



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Connecting with European policies and tools



European policies and tools



LIFE-myBUILDINGisGREEN as a case study on climate adaptation in urban settings



Gabriela Mistral school in the process of assessing the LEVEL(s) building sustainability indicators



A resource that transfers evidence-based knowledge on biodiversity and ecosystem services to policy makers in the European Union.



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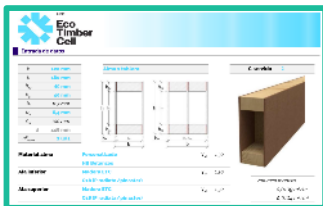
Connecting with European policies and tools



European projects and initiatives



BooGI-BOP Meeting
(Madrid, Oct 2019)



EcoTimberCell plans for
LIFE-mBiG



H2020 URBAN GreenUP
Conference (Valladolid,
Mar 2023)



European Sustainable Energy
Week (online, May 2023)



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Thank you!

- <https://life-mybuildingisgreen.eu/en/home/>
- X (former Twitter): [@buildingisgreen](https://twitter.com/buildingisgreen)
- #LIFEmBiG
- LinkedIn: <https://www.linkedin.com/company/28944174>



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