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## NATURE-BASED PLACEMAKING IN HIGH-DENSITY CITIES

Learning Outcomes arising  
from the ReCreate project



Prepared by Ecostack Innovations with contributions from Dawra Madwarna, the University of Malta and Senglea Local Council .

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## FOREWORD



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Now is the time to accelerate progress towards green and climate-neutral cities. This need is already recognised by policies and plans, such as the European Green Deal and the EU Biodiversity Strategy for 2030, and the recently proposed EU Nature Restoration Law which is calling for no net loss of urban green space by 2030 and an increase in total area covered by urban space by 2040 and 2050, and by citizens across the globe.

Nature is a source of inspiration, education and scientific knowledge, but also a means to climate adaptation and urban quality improvement for more liveable cities. Yet, recent literature has shown how access to nature is, often, not equitably shared within communities and is driven by demographic and socio-economic conditions, such as population density and according to areas of advantage and disadvantage. At the same time, nature-based interventions which aim to improve the quality of urban areas, are in many cases not accompanied by significant engagement and empowerment of communities and are rarely followed upon through comprehensive monitoring and assessment of arising benefits, and their distribution within communities.

Placemaking inspires people to reimagine and reinvent public spaces used by communities. Here, we focus on the role of '*nature-based placemaking*' in revitalising urban spaces in dense urban settings. Inspired by the recent work on the use of nature for the well-being of communities, nature-based placemaking focuses on revitalising urban spaces for communities with and using nature.

Ecostack Innovations is proud to present the *Nature-Based Placemaking in High-Density Cities* publication with the Senglea Local Council, Dawra Madwarna and the University of Malta, with whom we have been collaborating to test a nature-based placemaking methodology to recreate urban spaces in the historic city of Senglea, Malta.

Through this document, we are, therefore, sharing some of the learning experiences from the implementation of nature-based placemaking in high-density cities based on our work in the European Institute of Innovation and Technology (EIT) Community New European Bauhaus project ReCreate. This learning outcomes document defines nature-based placemaking, provides an overview of the benefits of effective stakeholder engagement and evaluates the role of citizen science activities in reconnecting communities with nature while sharing practical advice based on outcomes of the ReCreate project.

Finally, we recognise the need for social, methodological and technological innovations to foster the uptake of nature by communities and evaluate how nature-based placemaking activities can be replicated and upscaled to other high-density cities while contributing to the objectives of involving the wider community, reconnecting these communities to nature, and prioritising places and the people that need it most.

These efforts are part of a wider range of initiatives that we are carrying out to build interdisciplinary communities that foster placemaking and nature-based solutions and which, as we show here, if integrated can lead to improved urban spaces that provide tangible benefits to the communities, thereby shaping a new era of nature-based placemaking.

**"We must bring wildlife and wild places back on an ambitious scale, in turn creating new livelihoods and protecting the planet for future generations. Our lives depend on it"**  
- Sir David Attenborough



## DEFINING NATURE- BASED PLACEMAKING

Placemaking inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Nature-Based Placemaking (NBP), therefore, focuses on revitalising and reinventing public spaces by reconnecting communities with nature and using nature and contributing to the well-being and resilience of communities (Bush et al., 2020).

NBP combines a community's natural assets, economic activity, and the culture of the community associated with those assets (Fitzpatrick & Fontana, 2017). Natural assets include landscapes and seascapes, and waterways, green spaces, parks, trails, and local agriculture systems and landscapes. Economic activity includes access to services, nature-based recreation, interactions with community businesses and supplemental experiences. Community culture on the other hand is based on local identities and interests and focuses on developing communities around natural assets (Fitzpatrick & Fontana, 2017; Greedy et al., 2022).





## CHALLENGES OF IMPLEMENTING NATURE-BASED PLACEMAKING IN HIGH-DENSITY CITIES

The proportion of the global population residing in urban areas is on the rise and various studies have shown that urban development leads to an increase in congestion and pollution, whilst access to green space rapidly decreases (Blanco et al., 2009; Fuller & Gaston, 2009; McDonald et al., 2013; Wüstemann et al., 2017). In cities that have undergone or are currently undergoing processes of densification, green space provisioning and urban biodiversity loss are major challenges that need to be overcome, however, little if any consideration has been given to the perspectives of the local residents (Balzan et al., 2018, 2021; Haaland & van Den Bosch, 2015). As such, the creation of urban green space in high-density cities requires a strategic, integrated and interdisciplinary approach (Jim et al., 2018; Balzan et al., 2022; Scheiber, 2021).

Urban biodiversity can be indicative of the quality of city life and NBP can contribute to a sense of community and stewardship of the natural environment, in addition to improving social cohesion (Fuller & Gaston, 2009; Bush et al., 2020; Truong et al., 2022).

However, to develop an understanding of these interactions and meaningful NBP actions, an awareness of the socio-cultural and economic links, and their integration into tactical interventions, is needed (Sen & Nagendra, 2019). NBP must be culturally sensitive as it depends on a complex web of ecological and sociological factors. It is for this reason that NBP is considered a highly dynamic process.

Several studies have highlighted the challenges faced during NBP projects, including the lack of a clear governance structure and a collective vision for the use of the space, as well as problems arising from sources of funding for the creation and maintenance of the project (Wesener et al., 2020; Truong et al., 2022). Moreover, there is often a great difference between the approach of urban planners and local citizens in regard to the use of urban spaces and planners are often viewed as representatives of the state, leading to a sense of unequal power between these two parties, which must be balanced in order to achieve a positive interaction (Friedmann et al., 2010).

*The creation of urban green space in high-density cities requires a strategic, integrated and interdisciplinary approach*



## PLACEMAKING AND COMMUNITY ENGAGEMENT

Culture and engagement with the communities are central topics in NBP. There are some crucial topics to be considered when discussing placemaking and community engagement, such as cultural identities, stakeholder identification and mapping, and engagement methods for the creation of value for communities through placemaking.

According to the [Local Biodiversity Outlooks 2](#), the social and cultural systems are intricately linked with nature, as cultural behaviour can both preserve nature and lead to loss of biodiversity. In addition, it is stated that "nature-based solutions situated on or impacting on indigenous peoples' lands and territories must not proceed without full recognition of their rights and with their free, prior and informed consent", making community engagement crucial along the lifespan of the project.

Culture can also be an important determinant of people's willingness to engage and invest in NBS, and citizen's acceptance of NBS and related collaborative governance models are essential to creating demand for NBS, given that people need to understand why NBS are important to be able to truly engage (European Commission, Directorate-General for Research and Innovation, 2022). With experimentation often based on top-down decision-making processes, the lack of appreciation and limited awareness of the benefits

of nature-based interventions by communities, municipalities and decision-makers has been considered as a key barrier in current practices focusing on improving the uptake and mainstreaming of nature-based solutions across sectors and for communities (Balzan et al., 2021; Hoover et al., 2021).

In this respect, developing an understanding of the context and the cultural identities, along with fostering community participation from the beginning, is crucial to reach the objectives of NBP projects. It is worth highlighting that the community's needs must be taken into consideration, and the individuals must feel they are part of the process, therefore regaining a sense of community and belonging.

But who are our stakeholders in NBP projects? The stakeholder can be defined as an individual or group influenced by – and with an ability to significantly impact (either directly or indirectly) – the topical area of interest (Engi and Glicken, 1995). The stakeholder group can range from the local community, NGOs, and the private sector to the public sector.

The first step in the stakeholder engagement process is their identification based on their interest and influence (Engi and Glicken, 1995). A stakeholder is defined as any individual, group or organisation affected by, or able to affect, a proposed project or its implementation.

### Stakeholders may be categorised into the following categories:

- Key players, or stakeholders with high interest and influence;
- Context setters, highly influential stakeholders but having little interest;
- Subjects, or stakeholders having high interest but low influence;
- Crowd, or stakeholders who have little interest or influence over desired outcomes (Cundy et al., 2013).

While various methods exist for stakeholder mapping, stakeholders can be mapped according to the following criteria (based on Wilk et al., 2020):

- Information and resources: what useful information can they provide?
- Influence: what is their capacity to affect the issue?
- Interest: why would they want to be involved?
- Impacts: how, if at all, are they impacted by the issue?

Subsequently, it is essential to identify how different stakeholder groups can participate in each project phase since the stakeholders come from different areas and might need different engagement strategies. The stakeholder participation

spectrum (below) is a good tool to help in this phase since it can identify the roles and responsibilities of the different stakeholders involved, and the engagement strategies needed for each group (Wilk et al., 2020).

TYPE OF STAKEHOLDER PARTICIPATION	DESCRIPTION	STAKEHOLDERS 1	STAKEHOLDERS 2	STAKEHOLDERS 3
Inform	Providing stakeholders & public with balanced, objective information about NBS projects and plans in order to support them in understanding the problem/solution; no active citizen engagement.			
Consult	Consulting stakeholders & public on results of analyses, and alternatives for action as part of decision-making; however, inputs do not have to be considered.			
Involve	Working directly with stakeholders & public to ensure that their concerns are understood and considered throughout the processes.			
Partner	True partnering between public authorities and stakeholders in each step of the decision-making integrate them as much as possible; shared roles & responsibilities around planning & management of NBS.			
Empower	Placing the final decision into the hands of the stakeholders/public, implementing what they decide (e.g. management agreements, leasing or purchasing of public and private land).			

A template of the Stakeholder Participation Spectrum tailored to NBP applications (Source: Mattijssen et al., 2017; Wilk et al., 2020)

More effective decision-making processes are normally associated with transparent and inclusive stakeholder engagement and empowerment across all stages of decision-making as this fosters the creation of collective action for a more sustainable approach to shaping cities (Arlati et al., 2021). In addition to strengthening a sense of ownership, participation in placemaking

initiatives also strengthens the connection between people and the places they share, develops learning opportunities, and promotes the creation of quality public spaces (PPS, 2007; Mahmoud et al., 2021) while increasing the social capital of communities.



## EVALUATING THE ROLE OF CITIZEN SCIENCE IN RECONNECTING COMMUNITIES TO NATURE

There is ample evidence in literature regarding the use of citizen science projects as a way of engaging and educating the public about ecology, as well as contributing to the monitoring and implementation of the United Nations Sustainable Development Goals (Silvertown, 2009; Prévot et al., 2018; Fritz et al., 2019). Furthermore, there is evidence that participation in citizen science activities can positively contribute to social well-being and a sense of place, providing citizens with a chance to express their thoughts on local environmental concerns (Bonney et al., 2016; Toomey et al., 2020). The literature also emphasises the opportunity of using citizen science projects to combat the “extinction of experience” by providing people with a palpable connection to nature, as well as improving children’s and the wider community’s sense of environmental stewardship (Makuch & Aczel, 2018; Schuttler et al., 2018; Palma et al., 2022; Shirai et al., 2022).

A successful citizen science project should avoid a purely scientific approach as it might be challenging and unappealing for the public (Ang et al., 2021). As such, an appropriate balance should be reached between the degree of scientific complexity and the attractiveness of such an activity to the public (Parrish et al., 2018). If designed well, citizen science holds great potential in educating the general public about environmental issues and biodiversity (Peter et al., 2019).

One way of conducting citizen science is through a BioBlitz. The aim of a BioBlitz is to record as many species as possible in a given space and time (Baker et al., 2014), typically organised by scientists, but actively encouraging the participation of the general public with no scientific background, who identify species using guidebooks and smartphone apps, such as iNaturalist and others (Lorke et al., 2021; Rokop et al., 2022).





Pollinators, such as bees, are an excellent focal taxon for citizen science projects since their role in pollination is generally well-known by the public and can be successfully integrated into environmental education activities (Wilson et al., 2017; Koffler et al., 2021). Similarly, butterflies are ideal for engaging the public in biodiversity activities since they are a charismatic taxon, well-loved by the public, easily identifiable with the use of smartphone apps and easy to handle and photograph (Wang Wei et al., 2016; Pudic et al., 2018; Sanderson et al., 2021).

The growing availability of image-identification methods using smartphone apps allows members of the public with no scientific background to easily find the names of plant species simply by taking photographs of them (Silvera Seamans, 2018). This approach is shown to have a relatively high degree of accuracy and citizen science projects that utilise these apps positively contribute to updating the existing image datasets (Boho et al., 2020).

For the reasons explained above, the ReCreate project citizen science activities held in Senglea entailed BioBlitz events lasting three hours and focused on the identification of pollinating insects, particularly on common bee taxa and butterfly species. Plant species were also identified, comprising both the plants in the pop-up park and the surrounding urban area. Various didactic materials, including a guidebook written by Ecostack Innovations, a digital microscope and a collection of Maltese bee species, helped to engage all ages of the public who were willing to participate in the BioBlitz and upload the images of the species they found to a project page on the iNaturalist app.





## CASE STUDY: RECREATE NATURE-BASED CO-CREATION IN SENGLEA

Funded by the Community New European Bauhaus Initiative, and in line with the goals of the EIT (European Institute of Innovation & Technology), the ReCreate (NatuRE-based Co-CREATion in SengLEa - Beauty in Diversity) project aims to foster citizen engagement and placemaking to create a more sustainable, beautiful and inclusive space.

This project aims to build upon the vision of a group of residents from the locality of Senglea, who are actively reimagining their hometown as a greener, more liveable space, using arts and gardening as their inspiration. During this project, Ecostack Innovations has teamed up with Senglea Local Council and is working with Dawra Madwarna, the University of Malta, and local community groups to offer practical and technical expertise to these enterprising residents.

The methodology combines citizen science and co-creation as a placemaking tool, and the project is engaging with:

- Residents, community groups, and schools;
- National stakeholders, for example Local Councils and higher education and institutions
- The general public (to promote active leadership, create awareness and empowerment)

## COMMUNITY ENGAGEMENT IN NATURE-BASED PLACEMAKING

**What was done:** Place-based scoping missions were held by the ReCreate project team and attended by the city mayor and participants from the local council. During this scoping meeting, discussions were held on the planned events while we also met with the local community at the Misrah Andrea Debono.

The ReCreate team also engaged in a stakeholder mapping exercise during which stakeholders were identified through a "snowball sampling" recruitment strategy, and invited to participate in a stakeholders' visioning workshop and roundtable focus groups to identify the needs and perceptions of communities and stakeholders working on the ground.

Subsequently, NBP activities focusing on bringing communities together to work towards the common objectives and actions that had been identified by the stakeholders during previous workshops were carried out. These included developing and installing shading devices, green walls, lighting, seating, a mural along one of the main squares and street art, creating space for children's play activities, having planting workshops and using colourful pots as part of the greening activities, and improving security and accessibility. These actions were addressed through the organisation of community activities, which included a community exhibition, picnics and street games for children, a gardening workshop, the provision of balcony pots for residents to pot and take at home, setting up planters, fairy lights, the development of a pop-up park within one of the open spaces of the locality, and a Christmas Fair with the community.





### What went well:

- It was critical for the project partners to have had a prior engagement with local communities in order for the project to be contextualised, both socially and spatially, with real benefits being made towards the quality of the spaces being considered.
- The budget was sufficient to carry out small tactical interventions in the built environment, with enough being allocated for semi-permanent structures to be designed and installed in the space allocated.
- Diversity in the project team worked advantageously, since the balance between a private entity, local government, a higher education institution and an NGO allowed for the bridging of the theory-practice gap towards the interests of the community.
- Temporary placemaking activities were useful as tools for residents to understand the potential of transformations in the space, providing a tangible aid to discussions that were held with residents simultaneously during the community activity.

### What could be improved:

- The time allocated (5 months) is short to carry out community engagement, from initial relationship building to implementation of a project.
- Despite the significant engagement of the community, a longer process would normally be required for tactical interventions to be designed in a bottom-up manner and actioned accordingly.



## POP-UP PARK, COMMUNITY PLANTING INITIATIVES AND TACTICAL INTERVENTIONS

**What was done:** A pop-up park was designed for an underused square located on the Senglea Waterfront, using recycled wooden pallets to make planters of varying shapes and sizes, as well as tables and seating. The aim was to transform the space into a welcoming area for people to socialise. Community members helped to plant native and non-native ornamental species that were beneficial to pollinators in the pots of the pop-up park, which was advertised on the flyers and social media pages alongside the BioBlitz event. After the species were in place, we began engaging the community in the BioBlitz project.

### What went well:

- Many residents attended the event to help plant up the pots of the park and then stayed to carry out one or more of the biodiversity surveys.
- Families with young children mostly participated in the planting session, with other members of the community coming to spend time in the space and enquiring about the project in general.

### What could be improved:

- In addition to the community planting session, residents could also be actively involved in co-designing the space, so that they are able to voice their opinions and ideas.
- A meeting had been held with stakeholders at the Senglea Local Council in September but fewer participants than expected attended, despite efforts to contact as many as 30 local stakeholder groups and organisations. A more informal setting could be chosen to actively engage the community in discussions regarding the design of such public spaces.



## CITIZEN SCIENCE ACTIVITIES

### COMMUNITY ENGAGEMENT DURING THE CITIZEN SCIENCE ACTIVITIES

**What was done:** Flyers advertising the BioBlitz event were distributed in shops, churches and cafés around Senglea. A social media event was also launched and promoted through organisations present in the area and their social media pages. The flyer advertised both the citizen science BioBlitz event and the planting session with the community.

Many families arrived at the beginning of the event and children took part in planting up the various Maltese and ornamental species acquired. Various teaching materials and activities, described in detail below, were utilised to make the event accessible to all ages.

#### What went well:

- The social media event gathered a lot of immediate interest and when the flyers were being distributed, many people mentioned that they were already aware of the event, either through word-of-mouth or because they had seen the Facebook event.
- Children actively contributed to the creation of the pop-up park and had fun getting their hands dirty by potting up the plants. The range of teaching and engagement materials, from simple colouring sheets for the youngest age groups to guidebooks and taxonomic collections, ensured that the degree of scientific depth could be tailored to the community members and their interest in the topic, ensuring an interesting and engaging event.

#### What could be improved:

- Flyers and written teaching materials could be produced in Maltese, as well as in English, to ensure the inclusivity of all community members.

## THE CITIZEN SCIENCE GUIDEBOOK

**What was done:** A guidebook was produced by Ecostack Innovations and handed out to participants during the event. It contained information and photos of the most common pollinating insects and plants found in Malta. The QR codes of smartphone, apps commonly used for species identification, were also included to make people aware of the use of digital applications in such activities and to encourage them to share their photos with our iNaturalist project page.

#### What went well:

- All the participants used the guidebook to help them identify common plant species and pollinators around Senglea and fill in the relevant survey sheets.

The guidebook was full of colourful pictures and was engaging for all ages, with only the most useful scientific information included so as to avoid too much text. Moreover, the guidebook could be used for future BioBlitz events in other areas of Malta, since the species included are commonly found throughout urban areas of Malta.

#### What could be improved:

- Images could be added to the section on bees to make the guide more visually engaging.
- Each section within the booklet could be expanded upon to contain a more complete set of the taxa present in Malta, rather than only illustrating the most common species.





## CITIZEN SCIENCE ACTIVITIES AND SURVEY SHEETS

**What was done:** Three types of citizen science sheets were produced, focused on pollinating insects, butterflies and plants. Instructions were provided on one side and the table to be filled in was on the back of the sheet. The guidebook and smartphone app QR codes were available for additional support in species identification.

### What went well:

- The sheets were designed in such a way as to allow the participants flexibility in deciding the scientific depth of the data they were recording, since they could simply indicate the common names or pollinator macro-categories provided in the guidebook, or they could try looking at lower taxonomic groups and species names.
- Instructions were simple and overly scientific terminology was avoided.

### What could be improved:

- The location to carry out a BioBlitz must be carefully considered, and existing green spaces are preferable, when compared to pop-up parks or other temporary installations, due to the presence of established pollinating insect populations, making them easier to find.
- Citizen science based around the construction of pollinator networks could be trialled. For example, the colours of the flowers could be noted when observing pollinating insects, to then create a web with post-it notes on a large board, illustrating the preferred flower shapes/colours/species of the various pollinating insects.



## ACTIVITY SHEETS FOR YOUNGER PARTICIPANTS

**What was done:** In order to involve all ages, activity sheets were designed for young children to observe, draw and colour in the plants, bees and butterflies that they found in the pop-up park and surrounding area.

### What went well:

- Many young children were keen to engage in the activity, which was a useful way of encouraging them to observe urban wildlife. In some cases, they labelled the species with their common names.

### What could be improved:

Other activities such as simple word searches or creative activities involving natural materials could be planned to enhance the nature-based involvement of the youngest age groups.

## SUPPORTING EDUCATIONAL MATERIALS

**What was done:** A microscope was used to take a closer look at the specimens collected during the BioBlitz. A bee collection containing Maltese species was displayed.

### What went well:

- These resources attracted and engaged the public, even in moments when there wasn't any opportunity to collect specimens of pollinating insects. The microscope was especially good at engaging the interest of children.

### What could be improved:

- Photos previously taken with the microscope could be used to generate immediate interest, for example at the beginning of the event or if it is difficult to find enough pollinators to view under the microscope.
- Various parts of plant species, such as seed pods, fruits, flowers and leaves, could be displayed on the table to provide botanical resources in addition to entomological displays.





## ACCELERATING AND UPSCALING IMPACT

### Silo-busting through Nature-Based Placemaking

One of the successes of the ReCreate project has been that of bringing together partners from different sectors with complementary expertise, including the ecology and environmental sciences, stakeholder engagement, placemaking, architecture, urban design and those who are engaged in local government. This has permitted the identification of a wide range of activities that have been implemented as part of the NBP processes, and which were supported by the community and community groups, and public and private stakeholders.

### Local experimentation to create positive experiences and foster Nature-Based Placemaking

Experimentation is an important catalyst to fill key knowledge gaps and generate an understanding of the social acceptance and economic viability of NBP activities that are specific to the local context. Previous research from the study area has identified how nature-based interventions have primarily been implemented outside dense cities, which already have higher ecosystem service capacities (Balzan et al., 2018), and how these have addressed a narrow range of topics and Sustainable Development Goals and were less likely to address social-cultural and economic objectives (Balzan et al., 2022).

Substantial work from the study area has focused on the need to capacity-build communities, develop more inter- and transdisciplinary approaches and creating a sense of ownership to better exploit the potential of urban open and green spaces in contributing to the well-being of communities (Scheiber 2020; Balzan et al., 2021, 2022). Based on this work, we have identified the need for interventions that foster awareness-raising, education and investment in local communities while providing tangible and visible interventions through processes of participation and deliberation about contested views. When implemented these interventions are owned by communities, who may decide to revise and enhance past actions according to their needs and preferences or to expand and replicate these in other areas that have not been covered by the project.

### Generate private and public investment

ReCreate has created visible and tangible outcomes that can be replicated, enhanced or upscaled. This has already been the case for the ReCreate project, and following the final interventions, local community groups in collaboration with the local council have continued with activities to create a beautiful Senglea while reconnecting with nature by planting and placing indigenous shrubs in decorated pots around the locality, and in areas that had not been covered by the ReCreate project.

Another intervention that has generated interest by the community is a mural in one of the squares in which we have conducted interventions in the ReCreate project. Following recommendations from the community, the ReCreate team has asked two local artists to create a colourful mural, taking inspiration from daily life in Senglea and incorporating these elements into their illustrations. The outcome was a design of a mural that incorporates furniture pieces within the square to facilitate the upkeep and enjoyment of the existing kitchen garden by the residents themselves. While there was not enough time in the project to implement the actual interventions, these designs have been shared with the community, which has shown an interest to see the project to its fruition through other investments.

Similarly, the pop-up park, which was co-developed with the community following feedback from the community itself, has led to a collaboration with national authorities, local government and public entities. Commenting during an official opening of the pop-up park, Malta's Minister for the Environment, Energy and Enterprise, [Miriam Dalli](#), explained how this model of citizen engagement forms an integral part of the Government's long-term €700 million investment in sustainable green open spaces during the next seven years. Similarly, private citizens, organisations and enterprises working within the region have shown an interest to contribute funding or to participate in fundraising initiatives that will continue to foster NBP and nature-based interventions in the long term.

By combining experimentation with stakeholder engagement, as part of NBP processes, it has been possible to generate learning, social capital and investment.





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