



Mixed-method integration of evidence and valuation findings

Policy Recommendations

- 'Value' should be recognised as more than an economic metric and different forms of evidence about how people experience, interpret, and perceive NbS produced and used
- NbS are complex and plural types of evidence are needed to fully understand what works, where and for whom
- Different audiences will need and respond to different types of value and evidence

This brief provides information about the outcomes of REGREEN research on assessing the wellbeing values of NbS

Nature Based Solutions (NbS) are often undervalued because the range of values (e.g. social, environmental, health) are not taken fully into account. Valuing benefits properly is required in order to inform decision-making, especially with increasing pressure on our urban areas. A key challenge is it is much simpler to articulate and monetise the value of development of housing and other built infrastructure compared to the complexity and multiple functions of and responses to nature.

Different forms of evidence, individually and in combination, can reveal if and how an NbS action had the intended impact, clarifying who or what benefited, to what degree, and in what ways. Additionally different audiences need, and will respond to, different types of evidence.

The health and wellbeing values of NbS are significant, and through REGREEN we have demonstrated the importance of understanding these values from multiple perspectives. Monetary values are crucial and often are the primary driver of decision-making. However, other approaches add important dimensions to our understanding, provide opportunities for local citizens to be involved, and ultimately result in better, more sustainable decisions.

UNDERSTANDING THE MULTIPLE VALUES OF NATURE BASED SOLUTIONS

WHY DO WE VALUE?

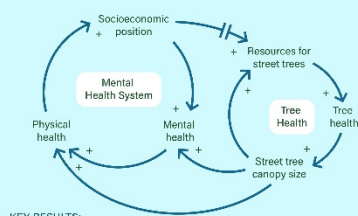
Nature based solutions (NBS) have wide-ranging benefits for communities, human health and the environment.

Holistically valuing all the benefits (and disbenefits) can inform decision making. Each of the approaches used here contributes to the collective valuation of nature-based solutions in urban areas.

1 SYSTEMS THINKING THROUGH CAUSAL LOOP DIAGRAMS

Using a systems thinking approach, we reviewed existing evidence and consulted stakeholders on NBS in urban areas to develop our causal loop diagrams. They visualise the outcomes, feedback loops, and unexpected consequences of NBS on communities.

Here's an example that looks at the links between street trees and mental health:



KEY RESULTS:

The health of the street trees is important – maintenance is needed to ensure they reach the age and size when the benefits to mental health are realised.

Communities that don't experience benefits may be less likely to advocate for future investment in street trees, ultimately leading to increased inequalities.

2 ON-SITE ECOLOGICAL EXPERIENCES SURVEY

Ecological momentary assessments engage with in-the-moment experiences, behaviours, and moods of people as a means of valuing NBS.

People surveyed within the green spaces were most often local individuals using it to travel through.



4 DELIBERATIVE VALUATION

Deliberative valuation utilises small groups of citizens who discuss and choose between NBS scenarios and their costs to inform the economic valuation of NBS benefits in urban areas.

This method helps understand preferences and guide environmental policy and decision-making.

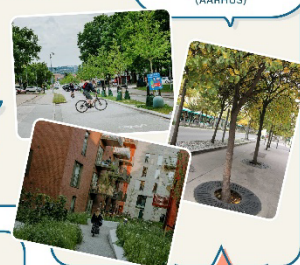
CITIZENS ARE WILLING TO PAY FOR A
12%
 TREE CANOPY COVER INCREASE

3 PHOTO-ELICITATION WITH COMMUNITY GROUPS

Photo-elicitation uses photographs to prompt discussions to uncover information, feelings, and memories about NBS.

"I remember the whole community gathered to plant these trees. I still remember that planting... When I think about it now, it still keeps my heart warm and I'm proud!" (VELIKA GORICA)

"That experience [moving around in the city] is enhanced by the existence of trees, and you can follow the seasons, when you can see that new leaves are coming out, you can see birds' nests in the trees." (AARHUS)



5 ECOSYSTEM SERVICE VALUATION

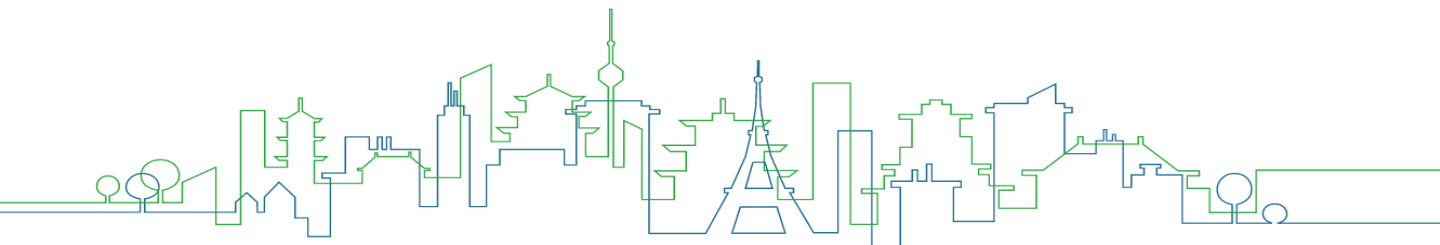
Ecosystem service valuation assigns measurable economic value to the processes through which nature contributes to human well-being.

Our work valued the cooling effect of green spaces for Paris residents and the associated reduced risk of mortality.



57%

OF PEOPLE IN CENTRAL PARIS LIVED CLOSE ENOUGH TO GREEN SPACES TO BENEFIT FROM COOLING EFFECTS



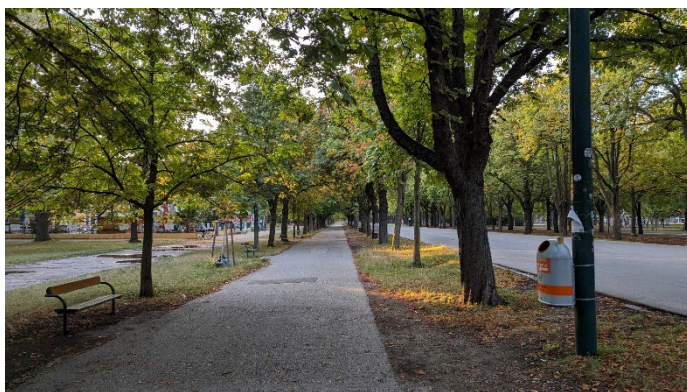
Relevance

Different audiences require different forms of evidence to inform their decision making about NbS. Further, collecting information on how values differ between communities or stakeholders can inform NbS strategy elsewhere.

Need

Producing and using different types of evidence of the value of NbS facilitates an understanding of the complexities of NbS. NbS are multi-functional, with complex environmental, social and economic impacts. Actively working to develop, assess, and communicate a broad, mixed value and evidence base enhances our understanding of the potential or realised multifunctionality and co-benefits of NbS. Better understanding of this complexity can help strengthen arguments for the implementation of NbS.

Using constrained types of values and evidence in decision making limits the effectiveness of the NbS implementation, delivery, and function and risks severe unintended consequences including wasted resources, or even harm to individual or communities.



Street trees are an important NbS with multiple wellbeing-related values © B.W. Wheeler

Do you know that...

Different types of value include:

- **numerical data**, such as quantifying health impacts through mortality or hospital admission rates.
- **monetary values**, which may be ascribed using various methods, and are often considered useful due to policy/decision-making relevance and potential utility as a comparable quantity.
- **qualitative evidence**, which can help reveal, in more depth and in citizens' own words, values such as perceptions, aims and intentions, and their experiences.
- **cultural evidence**, which can come in the form of, for example, texts, images or performances, can reveal values held by communities.
- **evaluative evidence**, which can take numerical, economic, qualitative or many other forms, can reveal if an action (such as an NbS) had the intended consequences. Evaluations may indicate who or what benefited, to what degree and in what ways.

Approach and results

Through REGREEN we used a range of different methods to assess the values of NbS:

- Theory building and complex systems were used to understand the multiple outcomes, feedback loops, and unexpected consequences of implementation of street trees.
- Ecological momentary assessment was used to document the experiences, behaviours, and moods of people in urban parks in three of the Urban Living Labs.
- Photo-elicitation captured the responses of community groups to green space, specifically street trees.
- Deliberative valuation was used to explore people's perceptions and preferences regarding ecosystem services and subsequent benefits, and disbenefits of NbS.
- Ecosystem service valuation demonstrated the potential of public green spaces in Paris in terms of their cooling effect on nearby residents and the associated reduced risk of heat related mortality.

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You want to know more?

REGREEN webpage

www.regreen-project.eu

REGREEN repository zenodo

<https://zenodo.org/communities/regreen>



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