# A Recipe for Engagement in Nature-based Solutions and Nature Recovery

## Why the key to tackling biodiversity and climate crisis is working together, and how we can do it

# Executive Summary

Engagement is a cornerstone for Nature Recovery (NR) and Nature-based Solutions (NbS), offering a path to delivering multiple, integrated benefits for people, nature and climate. It applies to a range of initiatives including conservation, restoration, rewilding, urban greening, community gardening, sustainable forestry and agriculture. Engagement can involve approaches like consultation, collaboration, partnership working, and co-design: it is ultimately about how people can work together to deliver for nature. The power of engagement lies in its ability to foster more inclusive decision-making, build trust and transparency, and empower communities while improving environmental outcomes and enhancing democratic participation.

**The Recipe for Engagement (RfE)** is a versatile guide for effective engagement in NR and NbS projects. Its value lies in providing a balance between process prescription and flexibility: the RfE provides clarity and structure for engagement, while also allowing for creativity and adaptability to individual contexts and available resources. It is designed for practitioners and policy-makers including landowners, land managers, charities, government bodies and agencies, non-governmental organisations, funders, scientists, other researchers, community groups, and consultants. Whether you are new to engagement or looking for ways to improve, this guide offers a flexible framework, not rigid rules, with key components (ingredients) and essential questions. Think of it as a flexible and adaptable recipe that embraces project-specific needs while fostering innovation, maximising opportunities, and working towards long-term improvement through capacity building. **Find out what practitioners have to say about their experience using the RfE in the quotes below:**

> *It was really useful to learn from these flexible ingredients for our own engagement work. The guidance helped to form the foundation of our engagement strategy, our 'Engagement Roadmap', ensuring that it aligned with our mission and vision for rewilding and repeopling. It is great to see this practical yet comprehensive guidance now available to support others' work, helping more organisations to effectively navigate and harness engagement to benefit nature and human well-being.*

**Calum Brown, Chief Scientist, Highlands Rewilding**

> *I wanted to let you know how much I enjoyed reading the RfE. I found it refreshingly supportive instead of overwhelming. There were reminders of how to act when there are limitations on an organisation's ability to deliver all ingredients and how to commit to continuous improvement. Thank you for sharing this and helping non-experts like me understand the engagement process much better. I've already changed the way that I've been thinking about and preparing for engagement after reading this.*

**Nature Recovery Project Manager**
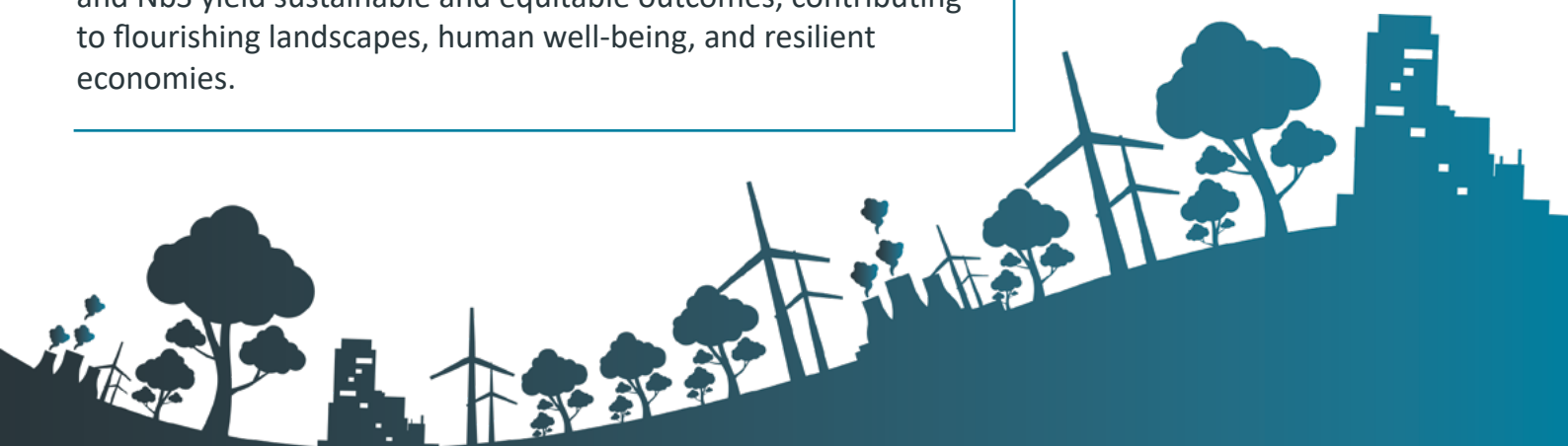
The key Ingredients of the Recipe for Engagement are:

1. **Scope and context:** tailor engagement to local factors, aligning with stakeholders' needs for context-appropriate outcomes.

2. **Clear purpose:** define roles and expectations, adapting the purpose to the project's unique context.

3. **Identifying relevant parties:** recognise who is interested and impacted by the project. ensuring the representation of overlooked voices.

4. **Socio-economic monitoring:** integrate social indicators, linking to impact strategy.

5. **Community benefits:** Advocate for more place-based approaches, involving local people in (co-)defining and (co-)delivering positive impacts.

6. **Effective methods:** Select engagement methods that are aligned with project goals, local context, and participant characteristics.

7. **Digital inclusivity:** Use digital tools responsibly, addressing concerns related to digital divides, biases, and the quality of social interaction.

8. **Feedback and evaluation:** Embrace continuous evaluation with clear feedback mechanisms, linked to impact strategies.

9. **Culture of engagement:** Institutionalise participatory and democratic values, which may necessitate a culture shift and capacity building.

**To successfully implement the RfE**, practitioners should first grasp the significance of engagement as an essential element of NR and NbS projects. To help with this, the RfE addresses some key questions around the **What, Why, Who, How and When** of engagement. Practitioners can then consider implementing the nine key ingredients within the context of specific projects and situations, adapting them as needed to align with different priorities and objectives.

The Recipe for Engagement's value lies in its flexibility, offering adaptable components that can be tailored to diverse projects and decision-making scenarios. It complements existing engagement guidance and can be integrated with other resources. It also outlines how environmental organisations can support long-term success through embedding a culture of engagement, building the capacity and capability needed to engage well.

**Practitioners can use the RfE** by selecting sections relevant to their needs, considering available resources and capacity. Whether starting from scratch or enhancing existing processes, the RfE caters to varying levels of experience. The inclusion of case studies, links to additional resources, and supplementary material enhances its practical utility.

Embracing the RfE supports practitioners in fostering inclusive, impactful and meaningful engagement. It shows how engagement can be a dynamic force for positive change, ensuring that NR and NbS yield sustainable and equitable outcomes, contributing to flourishing landscapes, human well-being, and resilient economies.

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# Project details

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*This guidance is a living document which will be periodically updated and improved based on feedback and testing with practitioners involved in the design and delivery of nature recovery and nature-based solutions projects in the UK. If you would like to share feedback and/or test the Recipe for Engagement in your project or organisation, please get in touch with Caitlin Hafferty:* **caitlin.hafferty@ouce.ox.ac.uk**

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# How this guidance was developed

The Recipe for Engagement guidance emerged as a result of research conducted as part of two research projects: Natural Environment Research Council (NERC)-funded Agile Initiative project on *Scaling-up Nature-based Solutions in the UK* (**https://www.agile-initiative.ox.ac.uk/sprints/how-do-we-scale-up-nature-based-solutions/**), and the Leverhulme Centre for Nature Recovery (**https://www.naturerecovery.ox.ac.uk/**), in collaboration with the Nature-based Solutions Initiative (**https://www.naturebasedsolutionsinitiative.org/**).

The guidance also draws from previous research conducted during an Economic and Social Research Council (ESRC)-funded PhD: **Hafferty, C. 2022**. *Engagement in the digital age: practitioners' perspectives on the challenges and opportunities for planning and environmental decision-making* (Ph.D. thesis). *Countryside and Community Research Institute, University of Gloucestershire, UK.*

It also builds upon previous work conducted with Natural England on a review of engagement (**https://publications.naturalengland.org.uk/publication/5365328451469312**), and the Highlands Rewilding engagement roadmap (**https://www.highlandsrewilding.co.uk/blog/community-engagement-in-rewilding**).

# Acknowledgements

# Key words

Engagement, participation, collaboration, nature-based solutions, nature recovery

# Introduction: the what, why, who, how and when of engagement

Engagement is key for achieving Nature Recovery (NR) and Nature-based Solutions (NbS) that provide multiple and integrated benefits for people, nature and climate. Engagement is a process by which individuals, groups or organisations (including farmers and land managers, non-governmental organisations, charities, businesses, local authorities, government bodies, members of the public and local communities) choose to take an active role in decisions which affect their lives[2,4] (**Appendix A** provides a glossary of key terms). It is relevant to a range of NR and NbS projects including the conservation and restoration of existing ecosystems (e.g., wetlands, forests and coastal mangroves), rewilding, urban greening (e.g., green roofs and tree planting), community gardens, sustainable forestry, organic and nature-friendly agriculture. Due to its wide range of associated benefits, the engagement of members of the public and other relevant parties has been promoted in a diversity of environmental decision-making contexts including integrated catchment management, agricultural and sustainable land management, waste management, environmental impact assessment, protected area management, forest management, environmental governance, environmental planning, and environmental research applications[1,2,3,4].

Engagement is all about diverse groups of people working more collaboratively together to deliver more for nature and people. It can promote more participatory, democratic and inclusive ways of working together at the scale needed to address the biodiversity and climate crisis. This includes working with stakeholders through conservation partnerships, environmental education and outreach, green business initiatives (e.g., for obtaining sustainability certifications), client and/or customer engagement, participatory urban planning and green infrastructure, climate and nature action (e.g., local action groups), policy and advocacy work, citizen consultation, collaborative agricultural initiatives, community-led and grassroots initiatives, and more.

The evidence shows that engagement helps to enhance environmental outcomes[1], improve decision-making and generate more robust socio-economic and ecological evidence[2,3,4], build trust and integrity in environmental projects and organisations[5,6], reduce risks like legal and regulatory challenges, promote pro-environmental behaviours and shared learning, and empower communities[7]. This includes working together to manage and make decisions about the environment, incorporating diverse value and knowledge types, building community agency and empowerment, and producing more creative and adaptable solutions that benefit everyone.

The **Recipe for Engagement (RfE)** is a flexible guide for effective engagement. It is applicable to anyone working on NR or NbS projects (broadly and inclusively defined), whether you're new to engagement or seeking ways to improve. It is aimed at practitioners and policy-makers who are involved in the strategy, design, and/or delivery of NbS and NR. This could include landowners, land managers, charities, government bodies and agencies, non-governmental organisations, funders, scientists, other researchers, community groups, and consultants.

**Boxes 2–6** provide illustrative case studies that showcase engagement in action in the UK, demonstrating how working with nature can benefit biodiversity and climate while engaging with communities and delivering direct, tangible benefits to local communities. For example, the Plymouth Natural Grid and Community Forest projects (https://www.plymouth.gov.uk/plymouth-natural-grid-project) in South West England delivered tangible benefits for biodiversity and human-wellbeing through active engagement with local people including job creation, creating green urban learning spaces, and connecting over 1000 people with nature, while prioritising the accessibility of nature for those living in deprived areas and historically marginalised groups. In Scotland, Highlands Rewilding (https://www.highlandsrewilding.co.uk/) – an organisation that seeks to rewild and re-people the Highlands – made agreements with local communities to provide direct benefits including local jobs, increased tenancy security, and the sale of land to the community, and also set up a Local Management Board to foster collaborative decision-making.

The RfE offers adaptable components and essential questions for effective engagement in various contexts. It doesn't prescribe one-size-fits-all guidelines or a "gold standard" for engagement, but provides broad questions and thinking points. Like a recipe, you can modify suggestions to fit project specifics, resource constraints, and socio-cultural considerations. As a general rule of thumb: the more ingredients you have, the better the outcome. However, this will look different in different situations and if you can't deliver on one ingredient, then it is important to be transparent about why this is (e.g., due to lack of capacity) and put in place a strategy for improvement.

Engagement can be a messy and complex process and the RfE presents this as an opportunity to foster creativity and innovation, learn from mistakes, and adapt to unexpected and rapidly changing situations. This recipe therefore aims to provide a balance between process prescription and flexibility: it helps to provide clarity and structure to the engagement process, while allowing for creativity and adaptability to individual contexts. The RfE is also designed to be integrated with other engagement resources, allowing flexibility and complementing (rather than replacing) existing guidance for participatory environmental work. The crowdsourced platform Participedia (https://participedia.net/) provides numerous examples and resources from the UK and internationally, and links to further resources are provided throughout.

**The Recipe for Engagement (RfE) is designed to be relevant and useful for anyone who aims to work with nature to address societal challenges and provide multiple benefits for climate, biodiversity and human well-being.**

In the following sections, the RfE discusses the **What, Why, Who, How and When** of engagement and then presents nine key ingredients for more effective outcomes. Remember, don't be overwhelmed; this guidance aims to provide inspiration to improve engagement over time, and to build the confidence and knowledge needed to engage well. Capacity building – such as upskilling and building engagement experience over time – may be important here. When relevant, draw on the expertise of social scientists, professional facilitators and engagement experts.

# What is 'engagement'?

When thinking about and conducting engagement, it is important to be clear about what is meant by key terms used. This is because our understanding of key terms helps to provide a clear and coherent base of understanding for designing and implementing an engagement strategy. The Recipe for Engagement includes a list of some frequently used terms and their definitions in Appendix A. **Box 1** below addresses some common myths about engagement in environmental decision-making.

One key concept to grasp is 'engagement' itself, which will vary depending on the way that your group or organisation makes decisions, and the context in which it is used[4]. **Boxes 2–6** include case study examples of *'engagement in action'*, showcasing how working with nature can benefit both biodiversity and people, while addressing climate change.

In the Recipe for Engagement, engagement is defined as a **process by which individuals, groups and organisations choose to take an active role in decisions which affect them[2]**. It encompasses a range of participatory approaches that can be adapted to specific situations (there is no 'one-size-fits-all' approach), for example, through co-designing engagement strategies with relevant parties. 'Engagement' encompasses both focused engagement (for specific purposes or projects) and wider engagement (for information sharing). Engagement covers a spectrum from top-down (e.g., informing and educating) to bottom-up (e.g., co-design and empowering) (**Figure 1**). It is important to engage across this spectrum. Engagement can also range from one-way communication (e.g., updating people on the progress of a project), to two-way dialogue and deliberation (involving more discussion, feedback, and mutual learning). It is a messy and complex process which provides significant opportunities for enhanced creativity, innovation, adapting to unexpected situations, and bringing together diverse knowledge types and actors for more transformative approaches to tackling the world's most pressing challenges[8].

**Figure 1.** The International Association of Public Participation (IAP2) Spectrum of Participation (source: IAP2, 2018)[9].



## IAP2 Spectrum of Public Participation

IAP2's Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public's role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

INCREASING IMPACT ON THE DECISION

| | INFORM | CONSULT | INVOLVE | COLLABORATE | EMPOWER |
|---|---|---|---|---|---|
| **PUBLIC PARTICIPATION GOAL** | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions. | To obtain public feedback on analysis, alternatives and/or decisions. | To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution. | To place final decision making in the hands of the public. |
| **PROMISE TO THE PUBLIC** | We will keep you informed. | We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. | We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision. | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible. | We will implement what you decide. |

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# Box 1: 10 common myths and realities about engagement in Nature Recovery and Nature-based Solutions

**Myths**          **Realities**

| Myths | Realities |
|---|---|
| **1. Engagement is irrelevant.** | *Engagement is essential for all land and environmental management decisions. It is key for bringing together diverse actors and building the positive relationships needed to benefit local areas, while aligning with broader scale priorities, to deliver stronger and more sustainable projects.* |
| **2. Engagement lacks direct benefits.** | *Good engagement leads to better, more inclusive environmental outcomes, nature connectedness, pro-environmental behaviour, socio-cultural and economic benefits, while ensuring public support, trust and legitimacy.* |
| **3. Engagement is for the end of a project.** | *Engagement is not a 'one-off' or 'add-on' activity, but an ongoing process that should be considered as early as possible. This will help to maximise the benefits and proactively mitigate any issues.* |
| **4. It is sometimes better to not engage at all.** | *Not engaging at all increases the risk of conflict, opposition, legal implications, and costly delays. It also means that your project or organisation misses out on harnessing the multiple associated benefits.* |
| **5. Engagement is about buy-in & support.** | *Engagement goes beyond persuading people and involves more genuine and meaningful efforts towards inclusion, mutual trust, empowerment, and two-way learning.* |
| **6. Engagement is comms, education, & access.** | *While these are all useful and common types of engagement in NbS and NR, it is important to remember that there are more active, collaborative and empowering ways of involving people.* |
| **7. Anyone can do it.** | *Wherever possible and relevant, engagement should be conducted by people with relevant skills and experience, e.g., engagement experts and/or professional facilitators.* |
| **8. Engagement is not based on science.** | *Participatory and collaborative approaches for environmental decision-making draw from decades of inter-disciplinary social science and applied research from an international research community.* |
| **9. Engagement is going to slow things down.** | *Engagement helps to proactively identify and mitigate risks, rather than having to react to things when they go wrong. Well-designed engagement helps deliver better projects that are more successful in the long-term.* |
| **10. Limited capacity prevents good engagement.** | *While resource constraints will always pose challenges, we can recognise these limitations and develop a strategy for continuous improvement overtime, supported by embedding an engagement culture.* |

**Source: the authors own elaboration**

# Why is it important to engage well?

Engagement is vital for collaborative and participatory approaches to address environmental challenges, especially land use and management projects. It is essential that a range of relevant parties (e.g., farmers and land managers, non-governmental organisations, charities, businesses, local authorities, government bodies, members of the public and local communities) have the opportunity to be involved. It is important that engagement is conducted ethically, promotes empowerment and the equitable representation of diverse voices[10]. This can lead to an array of benefits like improved environmental outcomes, increased trust, and reduced opposition and delays. Engagement is also legally important in the UK and globally, aligned with the Kunming-Montreal Global Biodiversity Framework and COP15 goals[11] which underscore how nature's recovery must respect the rights, knowledges and contributions of local communities for fair and equitable outcomes. This is supported by scientific evidence which shows how engagement fundamentally underpins the success of nature-based solutions[12]. In the UK, the 1998 Aarhus Convention agreement[13] – which the UK has agreed to follow – grants public rights to access information, public participation, and access to justice in environmental decision-making processes. The Gunning Principles[14] set out legal requirements for UK organisations to deliver public consultation, and the 25 Year Environment Plan states that engagement is essential for reaching environmental goals and keeping track of progress[15]. The Department for the Environment, Food and Rural Affairs (Defra)[16] and Natural England[17] prioritise engagement, recognising that collaboration and partnership working are key for nature's recovery[18].

There are a number of core reasons for engaging in any situation: people have a right to be involved in and influence the decisions that affect their lives; engagement incorporates diverse knowledge types into decision-making processes, which helps to improve the quality of evidence; and engagement helps to increase the legitimacy of decisions and enhance the credibility and trust of decision-making organisations[19,20]. Engagement is vital for the success of nature-based solutions and nature recovery projects, and it offers numerous evidence-backed benefits, including:

- **Improved environmental outcomes:** empowering engagement processes lead to better environmental governance outcomes[1,21].

- **Enhanced knowledge quality:** engagement incorporates diverse knowledge types, including local and scientific knowledge, for better decision-making[22].

- **Integrated monitoring and evaluation:** engagement contributes to holistic understanding and monitoring of environmental systems, including incorporating (local) knowledge to accommodate multiple issues, values, scales, and uncertainties[23].

- **Collective action:** engagement helps to bring diverse groups and individuals together for collective action for nature's recovery[24], fostering collaboration and partnership working, facilitating the co-creation of place-based environmental management projects[25].

- **Relationship building and mutual trust:** effective engagement builds trust and rapport, helping to improve the social legitimacy and credibility of decisions and the organisations implementing them[26].

- **Conflict resolution:** engagement can help to negotiate conflicting priorities, trade-offs, and other tensions and complexities[27].

- **Inclusivity and social learning:** engagement promotes more inclusive and representative decisions, helps to meet the needs of local people, and promotes social learning and pro-environmental behaviours[28,29].

- **Empowerment and community benefits:** greater community involvement can help to empower communities, deliver tangible local benefits, build community wealth, and promote the (co-)ownership of land and natural resources[30,31].

However, neglecting or poorly executing engagement can lead to significant risks. These risks may be better understood, and well-informed strategies put in place to mitigate them, if engagement is underpinned by the best available evidence and is implemented by an engagement expert[32]. In addition, the evidence suggests that professional facilitation may also help manage power dynamics and enable effective dialogue, particularly in situations where conflicts and tensions are likely[33]. It is important to be aware of these potential risks early on and put strategies in place to mitigate them. Potential risk factors include:

- **Disagreement and opposition:** lack of or poorly designed engagement can lead to increased opposition, protests, legal challenges, and damage to an organisation's reputation[34,35].

- **Lack of trust and transparency:** insufficient engagement erodes public trust and confidence in decision-making, presenting a barrier to delivering on social responsibility strategies and social license to operate[36], and impacting the success of future projects[4].

- **Undermined collaboration:** poorly executed engagement undermines collaboration[37], knowledge sharing, and productive working relationships needed for effective environmental management[38].

- **Legal and regulatory challenges:** failure to meet legal requirements for engagement can result in project delays, funding and resource challenges[39].

- **Exclusion of diverse perspectives:** instead of incorporating diverse viewpoints, engagement may (further) marginalise people, neglect local needs, and fail to represent affected communities[36].

- **Restricting opportunities for community empowerment:** normalising top-down control over environmental decisions can limit meaningful opportunities for community empowerment and benefit[20].

- **Over-promising and under-delivering:** when engagement opportunities are promised but under-delivered, this can lead to increased mistrust and opposition[4].

- **Participant fatigue and lack of interest engaging:** people can become tired and frustrated with engagement, particularly if it is complex, confusing and/or there are no tangible and direct benefits for their involvement[40].

Remember that engagement does not guarantee good outcomes, and poorly reasoned, designed and/or delivered engagement can work to marginalise and disempower people[41]. When assessing the risks from neglecting or poorly executing engagement, it is crucial to prioritise the inclusion of the needs and opinions of concerned parties in environmental decision-making. This involves respecting people's knowledge and beliefs, ensuring fairness, fostering trust, and acknowledging varying levels of influence. Additionally, it is vital to critically evaluate which actors have influence and whose perspective are considered significant in these processes[42]. Keep in mind that engagement is intricate and imperfect, so it is important to allow room for learning from mistakes and having a plan to enhance engagement strategies over time. This might require developing your organisation's capacity and skills in engagement (see Ingredient 9). Ingredient 2 helps practitioners define the purpose of engaging, which could seek to achieve many of the above benefits while mitigating risks.

# Who to engage with?

People who are interested in (e.g., they have a vested interest or stake in the process) or could be affected by (e.g., they could directly benefit, or experience issues and risks, from a project or intervention) an environmental decision or outcome should be engaged. Avoid prescribing who should participate and instead appreciate that who is involved, and at what level, may change depending on the context and purpose of engagement. It is also important to be reflective and consider your organisation's role in this, considering how your organisation might be influencing who gets to decide and whose voice is heard in the decision-making process[43].

Environmental projects and organisations should aim to engage diverse groups and individuals, including communities of interest (those with shared interests, like nature enthusiasts), communities of place (people who live locally who could be directly impacted by projects)[44,45], and other relevant parties (refer to the Glossary for details). These terms include anyone who is interested in, can influence, or could be impacted by a project or decision. They encompass local residents, the public, community groups, farmers and land managers, government bodies, non-government organisations, businesses, and more. The RfE refers to these groups collectively as *relevant parties\**. Evidence-based strategies for stakeholder mapping and analysis can be used to identify these relevant parties (see Ingredient 3 for guidance).

Remember that people may be disengaged and/or disinterested in engaging in the first place. Any efforts towards engaging must acknowledge people's right to choose to engage on their own terms, including their right to opt-out of engagement. People may choose not to engage for various reasons including a desire for autonomy, disengagement resulting from socio-economic disparities, lack of knowledge of engagement opportunities, aversion to engagement, time constraints, financial limitations, and limited access to engagement venues or resources[46]. Ingredient 3 helps practitioners decide who to engage with.

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\* In this guide, where possible we avoid using the term 'stakeholders' due to its colonial associations and instead opt for alternatives like 'relevant parties'. See this blog post for more information: **https://www.fasttrackimpact.com/post/why-we-shouldn-t-banish-the-word-stakeholder**

# How to engage?

**How to engage** involves two core aspects: models and methods. Models (and the context in which they will be used) should be considered first to inform which methods are most suitable for different situations.

**Engagement models** provide structure and clarity for understanding effective engagement. They define various levels of engagement, the roles of relevant parties, preferred methods, and expected outcomes. Ultimately, engagement should be about moving towards ways to empower people to take an active role in decisions that affect their lives[47]. Examples of engagement models include Arnstein's 1969 ladder of participation[48], the International Association for Public Participation (IAP2) spectrum of participation[9], and the OECD Guidelines for Citizen Participation Processes[49]. The IAP2 spectrum – which is commonly used in research and practice – ranges from low engagement (e.g., informing and consulting) to high engagement (e.g., collaboration and empowerment), reflecting the influence of communities and relevant parties on decision-making outcomes (see **Figure 1**). Practitioners should assess where their engagement can and should fall on this spectrum, considering project or organisational constraints and acknowledging that the level of engagement may change throughout the decision-making process. Although it is important to recognise and be transparent about practical limitations, including available time and resources, opportunities for more meaningful and empowering engagement should be explored, which could involve embedding an engagement culture and changing how environmental decisions are made.

Examples of engagement models and case studies can be found for free on a variety of engagement resource hubs, including:

- Participedia, a global network and crowdsourced platform of over 2,000 engagement case studies across over 150 countries (**https://participedia. net/**).
- OECD Observatory for Public Sector Innovation (**https://oecd-opsi.org/case_type/opsi/**).
- UKERC Observatory for Public Engagement with Energy and Climate Change (**https://ukerc-observatory.ac.uk/**).

- Involve UK's resource hub (**https://involve.org. uk/resources**).
- The Citizens Handbook (**https://www. citizenshandbook.org/toc.html**).
- The National Co-ordinating Centre for Public Engagement (**https://www.publicengagement. ac.uk/do-engagement/inspire-me**).
- IAP2's resource bank (**https://www.iap2.org/ page/resources**).

Many organisations will also have their own bespoke models and frameworks for understanding engagement, and there are a range of strategy and innovation consultancies for public engagement and democracy. It is important to find out what relevant guidance, expertise and support already exists for your project or organisation, and build on this where necessary.

**Engagement methods** encompass a variety of approaches and tools for involving groups and individuals in decision-making processes. These methods can be in-person, virtual, or hybrid, including public meetings, surveys, focus groups, social media, participatory platforms, storytelling, interviews, and more[4]. **Appendix B** provides a list of different engagement methods and examples. The choice of method should align with the specific context and engagement level, as explained in Ingredient 6. Additional resources for engagement methods and case studies are available through the aforementioned online resource hubs. Examples of engagement methods and activities could include[49]:

- **Ongoing informal outreach and engagement:** continuously build relationships, trust and rapport through informal interactions like events, talks and social gatherings.

- **Providing information and data:** proactively share project information through various channels like public talks, social media, websites, and local notice boards. Consult the community to determine the best information-sharing methods for their area.

- **Open meetings:** organise regular formal engagement events, such as public meetings, community drop-ins, and open days to gather local communities and other relevant parties for information dissemination and open discussions.

- **Community consultation:** establish two-way relationships to gather feedback, opinions, advice and experiences. Maintain ongoing contact channels, like email or face-to-face meetings, with those particularly affected with management activities. Targeted consultations with specific groups can enhance engagement opportunities.

- **Engagement on key issues:** engage the community in discussions related to socio-economic benefits, community baseline, and potential trade-offs or disagreements. Consider discussing mechanisms for empowerment such as community vetoes, community ownership of land and resources, and community wealth building approaches.

- **Citizen science:** involve citizens or community scientists in various stages of scientific investigations, including scoping, data collection, observations, analysis and implementation. Foster a collaborative approach to scientific projects and (wherever possible) incorporating local knowledge in this process.

- **Participatory mapping:** facilitate interactive mapping activities that draw on local knowledge, empowering participants to explore socio-economic and environmental problems, opportunities and questions. Communities can create visual representations of there area while sharing insights and stories, which could be professionally facilitated or entirely led by local people.

- **Representative and deliberative processes:** form a systematically selected, broadly representative group to collaboratively deliberate and provide recommendations for complex environmental decisions. This could take the form of a local management board, which should be supported by a professional facilitator. This approach is beneficial for incorporating diverse views, including scientific and local knowledge.

- **Community ownership, empowerment and wealth building**[45]**:** these approaches prioritise local control, community ownership of natural resources, agency and economic resilience within communities of place. Community ownership means local people manage and conserve natural resources, community wealth building means that economic benefits arising from nature recovery stay in the local community, and empowerment supports individuals and communities in leading nature recovery efforts. Research shows that these approaches lead to improved environmental outcomes, increased participation in local democracy, enhanced skills, more community volunteering, and greater life satisfaction[1,45].

Before selecting the models and methods, it is important to conduct an internal scoping review within your organisation. This review should uncover the organisation's engagement goals, existing practices, assumptions, expertise, capacity, and barriers. Effective engagement may require a culture shift and ongoing organisational learning, with resources dedicated to building staff capacity and confidence in engagement[4]. For projects which aim to place people at the heart of decision-making, it could help to set initiating and embedding a culture of engagement as a project milestone or performance indicator.

# When to engage and at what scale?

Engagement should be conducted as early as possible for better environmental decisions and outcomes. It should also be continuous throughout the decision-making process, spanning project conception, planning, data collection, implementation, monitoring, and beyond. It is essential to integrate engagement early and throughout project stages, avoiding late-stage, one-off efforts, which can create problems. Issues include expensive project delays, disagreements and opposition, eroded trust, and missed opportunities for meaningful collaboration and delivering multiple benefits[4].

**If people are engaged a long time after important decisions have been made, they may become disillusioned in the process and feel that engagement efforts are a superficial, tick-box activity with no meaningful opportunity to contribute.**

Proactive, early engagement is much more effective than reacting to problems later on. Engaging after the baseline and monitoring phases also hinders opportunities for integrated socio-economic and ecological monitoring, which could mean that opportunities are missed for delivering on funding and policy requirements for producing multiple benefits through nature's recovery.

It is important to acknowledge that sometimes practitioners might look at engaging later on in the process, for example due to limited time and resources. Although it is not ideal to engage later on, in some situations this will be better than not engaging at all, although some new challenges may arise like reduced trust and credibility. If you are engaging later in the process, then it is important to think about how engagement could start earlier next time to fully and meaningfully involve people in the decision-making process.

Engagement should align with specific, place-based issues. These issues should be relevant to local communities, authorities, businesses and other key actors. One key consideration here could be "Think big, by acting local"[50] to ensure that organisational ambitions are rooted in local communities, while balancing co-design with goals and priorities for profitable nature recovery. It is also important to consider spatial and temporal ecological scales: some processes take a long time and don't affect many people, while others can change quickly and impact a range of groups and individuals. To increase the likelihood that engagement works well, involve people at the right spatial scale. For example, for national problems, engage representatives of the entire country (e.g., through citizen assemblies or surveys). For local issues, communities should have an active voice in issues that are most relevant to them (e.g., through participatory mapping, workshops or a community advisory board) and/or be empowered through community ownership models. In short, engagement should match the scope of the problem, involving decision-makers at the relevant level, enabling everyone to contribute meaningfully to solutions that are tailored to the challenge.

# Engagement in action: case studies

The boxes in this section provide illustrative case studies that showcase engagement in action in the UK, demonstrating how working with nature can benefit biodiversity and climate while engaging with communities and delivering direct, tangible benefits to local communities.

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**Box 2**
## Engagement in action: Highlands Rewilding Tayvallich Estate, Tayvallich peninsula (mid-Argyll), Scotland

Highlands Rewilding (**https://www.highlandsrewilding.co.uk/**) seeks to help rewild and re-people the Scottish Highlands by increasing carbon sequestration, growing biodiversity, creating green new jobs and generating sustainable profit for purpose. Highlands Rewilding purchased Tayvallich estate in May 2023 and they have been working with the local community to develop a collaborative approach to estate management. To date, engagement has occurred through:

- Public meetings, with and without Highlands Rewilding representatives, to discuss management goals and engagement opportunities.

- Individual and small group meetings, both in-person and online, with residents and community members for open-ended discussions.

- A facilitated event to identify desired community benefits from the estate.

- Negotiations with the Tayvallich Initiative, a community body set up to consider options for community land purchase, to agree on shared objectives and a framework for collaboration.

- Agreeing a Memorandum of Understanding for land management to benefit the local community and nature (see (**https://www.highlandsrewilding.co.uk/blog/memorandum-of-understanding**). This included the provision of local jobs, increased security of tenancies, sale of land to the community, and application of rural housing burdens to ensure that plots and properties remain available to the community in the long term.

- Establishment of a Local Management Board, collaboratively designed to be representative, to advise on estate management objectives and methods in monthly meetings.

These steps provide a basic framework that Highlands Rewilding plan to adapt to their other estates, Bunloit (Inverness-shire) and Beldorney (Aberdeenshire). Highlands Rewilding aim to continue to develop their engagement strategy in collaboration with local communities and other relevant parties. They also continue to draw from interdisciplinary social science evidence and deliberative democracy expertise to inform their approach, and they have published the Highlands Rewilding Engagement Roadmap for community engagement in rewilding (**https://www.highlandsrewilding.co.uk/blog/community-engagement-in-rewilding**).

| Box 3 | **Engagement in action: Hogacre Common Eco Park, Oxford, England** |

Hogacre Common Eco Park (https://www.hogacrecommon.org.uk/) is a community-run green space and nature reserve located about a mile from the centre of Oxford. The 14-acre site – which was formally the sports ground for Corpus Christi college – has been leased to the community and now features fields, woodland and aquatic habitats and hosts a range of sustainable community activities and events. Hogacre Common is entirely led, managed and maintained by a community organisation which is made up of passionate volunteers and local residents. Their approach to engagement is community empowerment and generating direct, tangible benefits to diverse groups of local people.

Hogacre Common showcases how nature-based community projects can combine conservation, sustainability and low-carbon lifestyles, and community engagement. Key activities include:

- Conservation and sustainability projects to promote biodiversity and natural habitat preservation, including a mix of wildflower meadows, woodlands, an orchard of local heritage apple trees, and wetland areas.

- Events, workshops, recreation, volunteering and educational programmes are hosted throughout the year to actively engage the local community and visitors in environmental and sustainability topics.

- The site features a Forest School offering outdoor education, a community allotment (OxGrow), natural beekeeping and workshops on coppicing, hedge laying, and tree planting.

- Cultural and arts activities featuring local arts exhibitions, outdoor performances, local sustainable food, and music events. This includes the annual Harvest Festival.

In addition to conservation and community events, Hogacre Common is committed to sustainable practices such as water management, organic gardening, composting, and renewable energy. It serves as a model for sustainable land use and low carbon community living, and published a Sustainability Report in 2021 (https://www.hogacrecommon.org.uk/sustainability-page) which set out their strategy to reduce their environmental impact, encouraging others to do the same. This approach is strengthened by their community-led and grassroots approach.

Hogacre Common demonstrates how a community can come together to create and maintain a green space that benefits both nature and people, through community-led urban nature-based solutions.

**Box 4**

## Engagement in action: Natural Grid and Community Forest, Plymouth, England

Plymouth faces significant health disparities and issues related to socio-economic deprivation. The Natural Grid project (**https://www.plymouth.gov.uk/plymouth-natural-grid-project**) is actively addressing these issues by enhancing local habitats and expanding access to 390 hectares of land. This initiative has yielded tangible benefits through active engagement with local people[51], including:

- The creation of 22 new jobs, including apprenticeships for young individuals, and accredited learning opportunities for 96 people.

- The project has organised nature engagement weeks in underserved communities, connecting over 1000 people with the natural world. These events have also provided valuable learning and employment prospects, including collaborative efforts with local schools to establish green learning centres and plant wildflower meadows.

The Plymouth Natural Grid project prioritised accessibility and inclusion in its efforts to make nature accessible to all demographics in Plymouth, especially those in deprived areas and historically marginalised groups with limited access to green spaces. They collaborated with groups like the Devon and Cornwall Refugee Centre and the Trevi Women's Group. To increase community involvement, the project organised community ownership days and a summer programme of events that emphasised nature connection and biodiversity awareness. They also helped schools in deprived urban areas create biodiverse-friendly green learning spaces. Community engagement was a central part of the project throughout the design and implementation phases, including feeding into monitoring and evaluation by using several qualitative and quantitative methods to measure progress against project goals.

Funding has now been secured for a significantly larger Community Forest project, encompassing 1,900 hectares of ecologically robust community woodlands, street trees, woodland corridors, and hedgerows. This includes rewilding and natural regeneration efforts and will be overseen by a Youth Panel, with a strong focus on skills development and job creation for young individuals. Projections indicate that the new forests will yield substantial benefits, including 350 job opportunities and over £7 million annually in advantages such as increased property values, improved physical and mental health, carbon sequestration, and pollution reduction.

| Box 5 | **Engagement in action: North Harris Trust, Western Isles, Scotland** |

The North Harris Trust (https://www.communitylandscotland.org.uk/wp-content/uploads/2023/05/Case-study-2023-NorthHarris-biodiversity.pdf), in its two decades of managing one of Scotland's largest community-owned estates, has remained dedicated to strengthening the local community while preserving the region's unique cultural and natural heritage. The Trust's approach is one that emphasises community ownership of land, collective management of resources, and community-led conservation where biodiversity and human populations are viewed as inherently entwined.

North Harris is part of an island chain that sits on the edge of Western Europe, with a spectacular landscape where mountains meet the sea, and its inhabitants' way of life is heavily influenced by the surrounding Atlantic weather. Its landscape includes kelp forests, flower-rich machair, lochans, wet heath, blanket blog and alpine grassland, and is home to otters, Atlantic salmon, freshwater pearl mussels, plants, mosses, and liverworts, plus many breeding birds of conservation importance. Red deer and mountain hare also reside on the island, and feed one of the highest densities of golden eagles anywhere in Europe.

The North Harris Trust (Urras Ceann a Tuath na Hearadh) views the land primarily as a community resource, providing food and productivity through activities like salmon harvesting, deer management, and kelp harvesting. The land is seen as very much for its people and non-human inhabitants rather than simply as land in of itself. North Harris has a population of approximately 1000 residents, with crofting – a traditional land use – having shaped the landscape over years, and with changing livestock practices impacting biodiversity. The Trust has initiated projects to increase native woodland in North Harris, focusing on regeneration and planting, and actively managing invasive species and deer populations.

Since its purchase of the estate in 2003, the community has established the North Harris Ranger Service which offers guided walks, events and educational initiatives. It also opened the North Harris Eagle Observatory in 2012, which is the only purpose-built viewing facility for golden eagles in Scotland. The Trust also has plans to expand and purchase additional land through community buy-outs[52].

| Box 6 | **Engagement in action: Nattergal: Boothby Wildland, Lincolnshire, UK** |

Nattergal (https://www.nattergal.co.uk/) is an organisation which aims to buy, lease and/or manage large areas of ecologically degraded land and seascapes across the UK and Europe to recover biodiversity and bring about functioning natural processes. Nattergal's mission is to invest in ecosystem restoration, starting with Boothby Wildland (https://www.nattergal.co.uk/boothby-wildland) in Lincolnshire, a 617-hectare arable farm purchased in December 2021. The farm will transition away from intensive farming over three years, allowing natural vegetation to return. Free-roaming herbivores will be introduced to kickstart ecosystem recovery, and natural hydrology will be restored. Boothby is one of the 22 first-round Environmental Land Management (ELMs) Landscape Recovery pilots. It will demonstrate how to develop an innovative business model for rewilding, sell ecosystem services, help establish a rewilding community and encourage nature to thrive. Nattergal's aim is to create an important natural asset in an intensively farmed region of the UK, bringing economic and social benefits to the local community including nature-based employment, volunteering opportunities, and engagement with local people and schools.

Nattergal has recognised the vital role of engagement in their mission. In 2023, they partnered with researchers from the Countryside and Community Research Institute (University of Gloucestershire) and University of Oxford to create an evidence-led strategy for public and stakeholder engagement[50]. This strategy encompasses best practices, emphasising the importance of engagement in achieving environmental goals. Nattergal's approach combines online and in-person community workshops to involve local stakeholders in shaping Boothby Wildland's plans. These workshops aim to maintain an open dialogue with the community to assess the project's strengths, weaknesses, opportunities, and threats. Feedback on their approach to engagement is also collected to continuously improve their strategy over time, helping to ensure a more effective and responsive approach that works well for local people.

# Implementing the Recipe for Engagement: 9 key ingredients

You should now have a good grasp of the **What, Why, Who, How and When** of engagement. Next, we introduce the Recipe for Engagement (RfE), featuring nine key ingredients for effective engagement in Nature-based Solutions and Nature Recovery projects. The RfE provides adaptable components and questions suitable for various contexts. Rather than rigid rules, it offers versatile components that can be tailored to different projects or decision-making scenarios, much like modifying a favourite recipe to suit your needs, tastes, and available resources. Engagement, like cooking, can be intricate and sometimes messy, but the RfE encourages embracing this complexity as it fuels creativity, innovation, and learning from mistakes. There is a wealth of evidence from the social sciences that can help mitigate barriers and harness the full potential of more engaged, participatory and collaborative ways of working. The RfE can also complement existing environmental policy and practice guidance for engagement, offering a highly flexible and adaptable approach.

## Ingredient 1: Understand the scope and context

Engagement is not a one-size-fits-all process; it depends on various socio-economic, cultural, temporal, and institutional factors. These factors are best understood at the local level and can reflect broader (e.g., national) trends. Effective engagement strategies should consider the unique context of each project or decision, involving a range of relevant parties – including partners, business, charities, local authorities, communities of place and other relevant stakeholders – and adapting to their needs and priorities. This ensures that nature-based solutions and nature recovery projects deliver multiple, context-appropriate benefits for both people and nature.

Understanding the scope and context is crucial from the start and should shape the entire engagement process[32]. It guides the mission, identifies relevant parties, selects appropriate methods, informs baselining and monitoring, and defines measures of success.  A context-first approach will help to identify the most effective and relevant route for future engagement.

Contextual factors include things like socio-economic conditions, cultural norms, and power dynamics. The evidence suggests that these factors can strongly influence the success of engagement processes[53]. Understanding your organisation's motivations, barriers and constraints for engagement (e.g., available capacity) is also essential[4], as well as considering how any organisational barriers to undertaking engagement could be addressed with targeted strategies such as resource allocation or upskilling.

Table 1 outlines important existing contextual factors to consider. The RfE encourages projects and organisations to assess these factors and adapt engagement strategies accordingly, bearing in mind that some factors may be more or less relevant to your project or organisation, and that new factors may emerge through collaboration with local actors and communities. You can use the contextual factors to help inform other stages in the engagement process, for example, like identifying relevant parties (Ingredient 3), social monitoring and delivering community benefits (Ingredients 4 and 5). In engagement situation, it is vital for organisations to consider their role and positionality in the engagement process and how this might impact whose voice is heard, who gets to decide, and who is able to take command and lead the decision-making process[43,47].

**Table 1.** Understanding the (local) existing context of nature-based solutions and nature recovery projects[4,32,54].

| Contextual factor | Examples |
| --- | --- |
| **Rationales and objectives** | Understand the purpose and importance of engagement for specific projects and organisations. This could involve considering the list in the 'Why to engage' section. |
| **Institutional factors** | Assess organisational capacity, capability and confidence for conducting good engagement. Consider Ingredient 9 as a starting point. |
| **Ecological factors** | Examine existing scientific, local, and traditional ecological knowledge, identifying relevant groups that have expertise in this area. |
| **Socio-economic factors** | Consider existing income and employment opportunities, education, access to resources, health and well-being, and demographics. |
| **Cultural factors** | Take into account beliefs, place attachments, values, spirituality, aesthetics, local knowledge, art, local traditions, and other connections to the landscape. |
| **Historical context** | Understand past land use patterns, colonial legacies, land tenure systems, and previous experiences with engagement and democracy. |
| **Power dynamics** | Understand the current situation, recognise existing power imbalances (e.g., in resource ownership and control) and account for them throughout the engagement process by seeking not to perpetuate them and/or explicitly working to tackle them. |
| **Political factors** | Assess government policies, leadership dynamics, funding, legal frameworks, and advocacy groups. |
| **Spatial and temporal factors** | Consider geographical location, urban/rural context, ecosystem types, and temporal variations. |

You can find out what the existing context is by engaging with relevant parties in the local area (e.g., community groups, land owners and managers) and conducting baseline research (see Ingredients 4 and 5). For example, find out about what is already happening in the local area, who is involved, what information already exists, and how you can build on existing efforts. This could be achieved by undertaking stakeholder mapping (Ingredient 3) and then taking available changes to meet a variety of people representing different groups, for example, by attending their events and meetings, and remaining open to new perspectives and opportunities for collaboration.

## Ingredient 2: Statement of purpose

If your organisation's mission is to restore nature to deliver multiple benefits for people and the planet, then engaging will be integral for building the partnerships and collaborations necessary for achieving this. To do this effectively, there should already be a good understanding of the (local) context relevant to the overall mission, specific projects and interventions.

Informed by the context (Ingredient 1), identify the purpose of engagement early on in the process. Clearly state why you're engaging and how it aligns with organisational and project objectives. Depending on the situation, different approaches may be needed for more strategic decision-making compared to project delivery. For each engagement context, it is recommended to develop statements which describe the purpose and scope of engagement, including the extent to which relevant parties will have a say in the decision-making process (**Figure 1**). Be realistic and transparent about what is possible in the short term, manage expectations, and avoid overpromising and underdelivering. Organisations should strive to enable meaningful and empowering engagement, and it is recommended to outline a long-term strategy for improving and addressing any barriers like resource constraints. Where relevant, statements of purpose themselves should be co-designed with local communities and relevant parties as part of the engagement process, to ensure that engagement works for them and is on their terms.

## Ingredient 3: Identify relevant parties

Developing a method for determining who to engage with and at what scale is crucial. Work with diverse groups and individuals to ensure appropriate and purposeful engagement, and identify those with an interest in or influence over a project, considering local and non-local groups, including communities of place and interest (see the Glossary for key terms).

Relevant parties may include:

- Local community (residents, farmers, landowners, local authorities etc.)
- Children and young people (schools and youth charities, etc,)
- Farmers and landowners (and representative bodies and unions)
- Non-governmental organisations
- Government departments (like Defra)
- Non-departmental public bodies (like Natural England)
- Charities and not-for-profits
- Scientific community (including universities)
- Natural capital investors
- Environmental activist groups
- The general public

Recognise that there is no one-size-fits-all approach, i.e., you may need to work with different groups in different ways (and ask people how they would prefer to be engaged). Identifying relevant parties depends on various factors, including motivations for engaging and contextual factors (e.g., Table 1). Make an effort to include those traditionally overlooked in environmental decision-making, using recommended evidence-led strategies for engaging 'harder to reach', 'seldom heard', or 'left behind' people55. Realise that it may not be feasible to engage every relevant party in every situation, and careful consideration should be given to your organisation's capacity to deliver a robust and systematic stakeholder identification process (e.g., available time, staff and expertise), which is an important consideration for continuous improvement (see Ingredient 9).

Different strategies for identifying relevant parties exist, including stakeholder analysis methods and frameworks like **the 3 I's** (Interest, Influence, Impact)[56]. Other organisations, standards and schemes may also have their own recommendations for how a stakeholder analysis could be conducted, for example in landscape recovery or local nature recovery strategies. The 3 I's framework is broadly applicable and involves identifying (i.e., the names of those who could be interested in or affected by a project or decision) and analysing (rating each party as 'high', 'medium', or 'low' levels of interest or influence) parties based on three criteria:

1.  **Interest** ('who is interested in my project?'): Think about groups and individuals who have specific interests, preferences, values, beliefs, and norms related to your project. These factors drive their interest in and support for your project.

2.  **Influence** ('how might they be able to influence my ability to deliver this project?'): Identify those who have the power and influence to shape the decision-making process and project outcomes. They can either help facilitate progress or hinder it.

3.  **Impact** ('who is impacted by my project?'): Recognize those who will experience direct or long-term benefits, as well as any unintended negative consequences resulting from your project or decision. This category includes harder-to-reach individuals who may be more marginalised.

## Ingredient 4: Link to socio-economic monitoring

Engagement can help to inform and support monitoring and evaluation processes (also see Ingredient 8), and can help to deliver direct community benefits (Ingredient 5). For nature recovery projects to deliver multiple, integrated benefits for people and nature, delivering socio-economic outcomes and community benefits is vital. These benefits need to be measured and this involves baselining and monitoring, ultimately allowing you to evaluate your projects' social impact.

Understanding and evaluating social impact not only enhances project appeal but also can attract investment opportunities and grants from individuals and organisations seeking to meet social responsibility goals, enhance environmental and social credentials, or support responsible and ethical natural capital investment[57]. Ingredient 5 explains that although there are a wealth of options for socio-economic monitoring, what works in specific situations will depend on the (local) context. It is important that the people who are impacted (positively and/or negatively) by NR and NbS projects should be given the chance to be actively involved in baselining and monitoring for multiple social, biodiversity and climate benefits.

To help design an effective social monitoring and evaluation process, you can use available guidance like the UK Government's Magenta Book[58], resources from the New Economics Foundation Measuring Social Impact[59], and a range of useful resources from the Green Finance Institute[60]. Ingredient 8 includes more detail about evaluation frameworks. When possible and relevant, it is advised that specialist advice is sought for how to run a robust social monitoring and evaluation process. The ambition, extent and comprehensiveness of the social monitoring and evaluation process will depend on what resources are available, existing expertise and staff capacity, and what outcomes need to be delivered from the project (e.g., to meet funding and policy requirements, investor expectations, local needs and priorities). See Ingredient 8 for more information.

### Existing social and socio-ecological frameworks and surveys can be useful to help identify some key questions and indicators to inform monitoring and evaluation.

It is important to recognise that these surveys and frameworks are all designed for different purposes, and are not all explicitly for monitoring and evaluation (but they can be useful for thinking about different indicators). Examples include the People and Nature Survey for England (PANS)[61], the National Survey for Wales (NSW)[62], the Natural Capital Ecosystem Assessment Programme[63] and Enabling a Natural Capital Approach guidance[64], and the Culture and Heritage Capital framework[65]. The University of Oxford social surveys on people and nature report[66] provides a list of a wide range of people and nature surveys in the UK (as of August 2023) and considers why survey data is being collected and by whom. This report provides a good starting point for understanding the range of social surveys and indicators available in the UK.

There is a wealth of research on social monitoring and indicators which offers valuable insights for evidence-based approaches in designing socio-economic and ecological monitoring frameworks[67]. Resources like the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report on the assessment of the multiple values of nature and its benefits provides valuable insights[68]. While ongoing research develops new social indicators, there are already a range of evidence-backed indicators ready for use. These can be adapted to various project needs, levels of governance, and local community contexts. For landscape management and planning, consider specific social indicators such as aesthetics[69], which assess scenic beauty and landscape quality, and place attachment indicators[70], which measure people's emotional and physical bonds to specific places. These existing indicators can help inform and enhance monitoring and evaluation approaches effectively.

Drawing from the above resources and the available scientific literature, the list below synthesises a range of socio-economic indicators that could be used for different NR and NbS projects. Remember that engagement outcomes are going to be better if it is adapted to the local context; wherever possible, these indicators should be co-designed with members of the local community and other relevant parties to ensure that they are place-based and provide relevant, direct, and tangible benefits to people. Practitioners could use a range of methods to collect data to measure against these indicators, including longitudinal surveys, focus groups and participatory mapping techniques. **Appendix B** provides a comprehensive list of methods that could be used.

Socio-economic indicators could include:

- **Jobs and apprenticeships** (FTE, PTE) and apprenticeships created.

- **Number of training courses and educational opportunities** (e.g., school visits, visitor centres, nature trails, interpretation boards).

- **Number of people taking part in engagement activities**, the extent of their involvement (e.g., as defined by the IAP2 Spectrum of Participation; see Figure 1), and participant feedback on the quality and effectiveness of that engagement.

- **Change in community land ownership** (e.g., percentage of land transferred to community ownership as a result of community buyouts).

- **Community wealth building** (the extent of wealth, e.g., generated by a NR or NbS project, that is redirected back into the local economy, placing control and direct benefits into the hands of local people).

- **Equity in conservation** (i.e., the extent to which your project or organisation is delivering fair and inclusive NR and NbS) can be measured using social justice indicators including procedural, recognition and distributional aspects (see the IIED social justice indicators for ways to measure this)71.

- **Area of accessible green space** (which could include green space provision to those in deprived areas and historically marginalised groups).

- **Perceived health and well-being benefits** from visits to green space.

- **Perceived aesthetic benefits** from improved landscapes.

- **Interaction with nature** and biodiversity.

- **Ecosystem service benefits** (e.g., flood protection, erosion protection, food production, cooling and shading, noise reduction, air quality, water quality, climate mitigation).

## Ingredient 5: Plan for community benefits

Ingredients 4, 5 and 8 are all closely linked and relevant to improving monitoring strategies and evaluating social impact. However, it is important to explicitly consider whether and how indicators could be co-designed with impacted communities, and not just lifted from pre-existing frameworks. This can help you develop a more place-based and participatory approach.

**Taking a place-based approach to monitoring and evaluating Nature-based Solutions and Nature Recovery projects is crucial for understanding both broader and local benefits.**

For example, while existing socio-economic indicators (like those outlined in Ingredient 4) provide a good foundation, they may not capture local nuances. Community benefits can include social, economic, climate and biodiversity aspects because these are often viewed as interlinked and it is important to consider these connections between people, nature and the environment. A place-based approach embraces local realities and perspectives, fostering collaboration to enhance nature and human well-being[72]. This ingredient may look different depending on the project and decision-making context, purpose of engagement, and relevant parties (e.g., some organisations that support partnership working may not directly work with communities on-the-ground, but instead support other actors more strategically).

Engagement plays a key role in this approach. It helps to identify socio-economic benefits at the local and landscape scale, uncovering community benefits, insights and local ecological knowledge, enriching broader socio-economic indicators and validating national indicators at the local level[73]. **Figure 2** visualises how engagement can play a role in broader monitoring and evaluation processes. Ideally, community benefits should be co-defined with the local community and other relevant parties early in the project.

Distinguishing between broader public benefits and local community benefits is vital. The term 'community benefits' varies, but it can be used to refer to *intentional benefits provided to the local community* through nature recovery, nature-based solutions and natural capital projects[74]. Community benefits are for the local communities in the project area. They can include socio-economic benefits such as local jobs, infrastructure improvement, funding for community initiatives, education, community cohesion, and connections to culture and heritage, as well as local ecosystem services such as opportunities for recreation, interaction with nature, education, community food production, flood protection and air quality improvement, all of which provide health and well-being benefits. These are distinct from broader public benefits or ecosystem service benefits that occur beyond the local area, such as carbon sequestration, biodiversity conservation, or flood protection for communities further downstream from the project. Community benefits (and indicators used to measure them) are specifically tailored to the local context, designed and delivered in collaboration with local people. They are all about empowering people to make decisions about their local area, on their own terms. Community benefits should be direct, place-based and clearly evidenced positive impacts that are locked into the local area.

Empowering communities from the outset yields better outcomes for the environment and for people1. It is crucial that communities have a say in what social benefits are right for them, and do not have standards, metrics and frameworks imposed on them. Establishing community baselines, including social, cultural and economic indicators, can complement natural capital baselines and can be used for assessing biodiversity and climate trends (e.g., through identifying and incorporating local ecological knowledge)[75]. These should encompass both qualitative and quantitative data, collected through methods like participatory mapping and surveys. Community baselines should be reported on regularly (e.g., annually and in detail at least every 5 years throughout the project lifetime) and continuously updated via an active engagement process. Community benefits and baselines should be co-defined and agreed upon with communities of place, ensuring that they meet local needs and priorities. Feedback mechanisms should also be in place to make improvements when anticipated benefits are not delivered, providing space to learn from errors[76] (also see Ingredient 8). Socio-economic and community baselining methods can align with other engagement approaches, such as longitudinal surveys, workshops, mapping and storytelling methods (see Appendix B).

To action this ingredient, you could start at a basic level with choosing which socio-economic indicators you could measure (Ingredient 4) and carefully consider whether it is possible to undertake a full social impact evaluation[59]. How comprehensive this is will depend on your organisation's available capacity and capability. To deliver more effective, meaningful and place-based outcomes with direct and tangible community benefits, you should identify and co-produce social indicators through engaging with those who are (or could be) impacted by your project.

**Figure 2.** The role of engagement for measuring socio-economic benefits, as part of an integrated socio-economic and ecological monitoring framework.
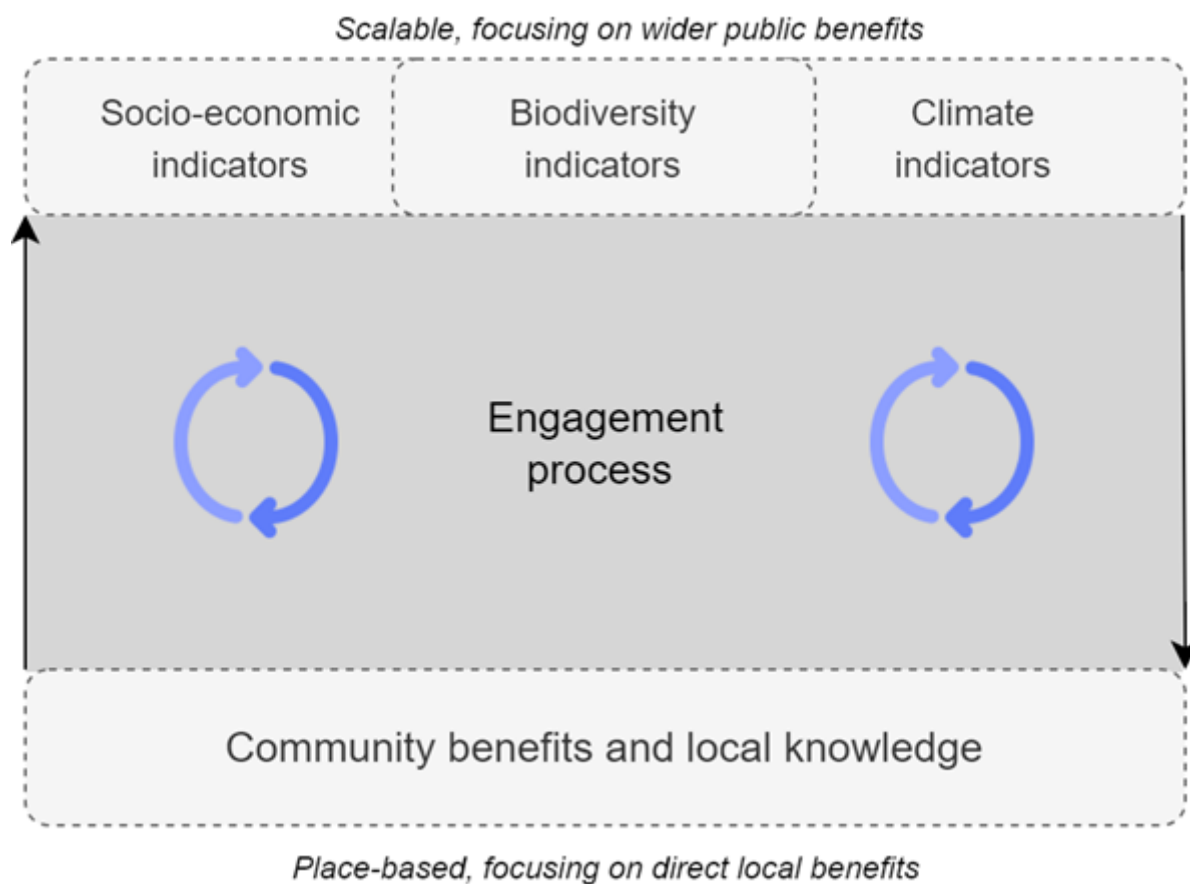
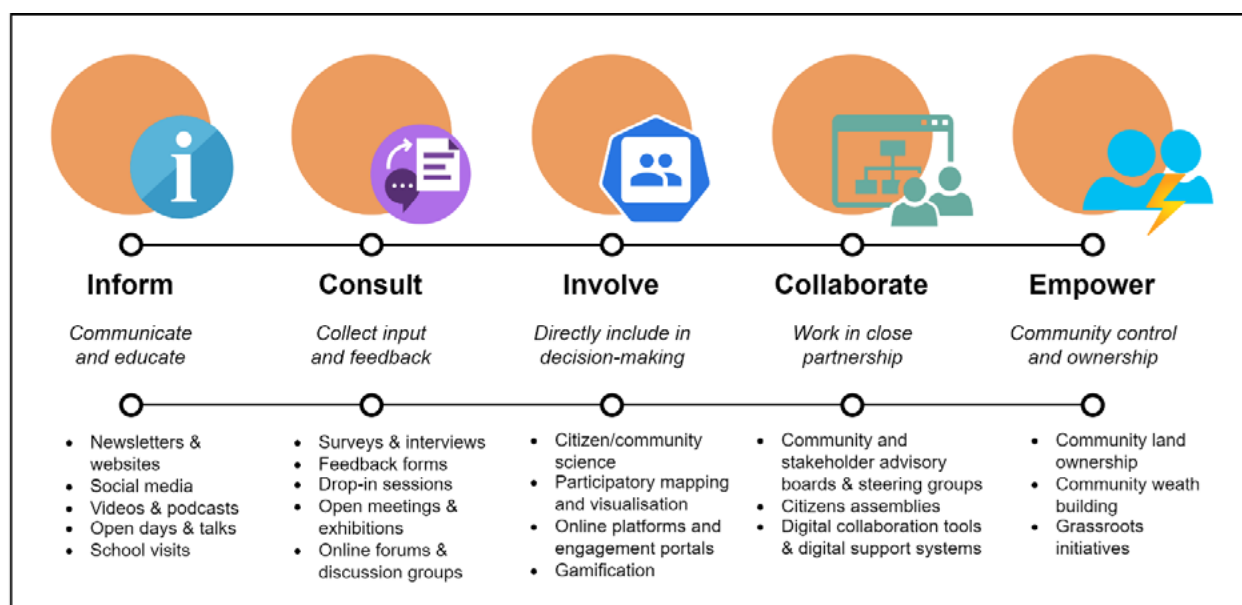# Ingredient 6: Choose the most effective methods

Choosing the most effective methods should be supported by a context-specific approach that considers project objectives, participant types, and the desired level of engagement. It is crucial to select methods after understanding the local context, (co-)defining engagement goals, and clearly articulating project objectives and the appropriate engagement level.

A wide array of in-person, digital, and hybrid methods are available for engagement (Appendix B). Different methods are more suitable for different engagement levels, such as informing, consulting, involving, collaborating, or empowering (see Figure 3). It is vital to distinguish between tools for one-way information communication (e.g., to raise awareness about a project or to educate people) and two-way deliberation (to actively listen, and act upon, people's views).

Method selection should align with context and purpose (Ingredients 1 and 2), including the desired engagement level. Engagement models, such as the spectrum of participation (Figure 1), help plan engagement strategies across various levels. **Figure 3** provides an example of how practitioners can plan to engage across a spectrum of engagement. Different methods will also be more effective at different project stages and use contexts, from project initiation, establishing goals, conducting baselines, implementation, monitoring and evaluation, and beyond77, ideally involving communities and relevant parties throughout.

Collaboratively defining the engagement strategy with communities and relevant parties ensures that methods align with their preferences and the local context (e.g., Table 1). Feedback should be collected to assess the participant experience and the quality of evidence generated through particular engagement methods78. To guide this process, seeking advice from engagement experts or professional facilitators is recommended. Methods should be adapted to the local context, promoting accessibility, inclusion, multiple knowledge types, transparent decision-making, trust, and credibility. The choice of engagement methods should be flexible, with feedback driving continuous improvement in their effectiveness as engagement progresses.

**Figure 3:** A spectrum of engagement and examples of how practitioners can engage across it (adapted from IAP2, 2018; Davis et al., 2023; Hafferty et al., 2024; Hafferty, 2023).



| Inform | Consult | Involve | Collaborate | Empower |
|---|---|---|---|---|
| *Communicate and educate* | *Collect input and feedback* | *Directly include in decision-making* | *Work in close partnership* | *Community control and ownership* |
| • Newsletters & websites<br>• Social media<br>• Videos & podcasts<br>• Open days & talks<br>• School visits | • Surveys & interviews<br>• Feedback forms<br>• Drop-in sessions<br>• Open meetings & exhibitions<br>• Online forums & discussion groups | • Citizen/community science<br>• Participatory mapping and visualisation<br>• Online platforms and engagement portals<br>• Gamification | • Community and stakeholder advisory boards & steering groups<br>• Citizens assemblies<br>• Digital collaboration tools & digital support systems | • Community land ownership<br>• Community weath building<br>• Grassroots initiatives |

## Ingredient 7: Promote inclusive digital and hybrid approaches

Digital technology has revolutionised how we engage in research, policy and practice[79]. However, while digital tools offer new opportunities for engagement, they also come with specific considerations and potential risks compared to in-person approaches[80]. For example, the OECD guidelines for citizen participation highlight how digital tools enable people to engage in new, different and more interactive ways. Appendix B includes a variety of examples of digital tools for engagement including social media, online participatory mapping, geo-visualisation, and gamified methods.

In the UK, there is a strong emphasis on digital-first strategies in line with the government's aspirations to become a world leader in digital adoption[81]. Organisations and practitioners may be drawn to digital methods because they can offer novel and rapid solutions, or more inclusive and representative ways to engage[79]. However, digital engagement has significant associated risks including exacerbating digital divides, injustices, bias and prejudices[4].

Digital tools can affect accessibility and inclusiveness by excluding those lacking digital skills or access. They can also impact the quality of interactions and the capture of local knowledge. Building trust solely through digital interactions can be challenging and may lead to misunderstandings and tensions[4].

To address these concerns, consider the key challenges and opportunities for digital engagement[82] included in **Figure 4**. Practitioners should take a moment to consider the various practice and ethical implications of using technology in environmental decision-making, particularly when aiming to involve diverse communities and incorporate local knowledge. The evidence suggests that a flexible mix of in-person, digital remote and hybrid techniques will promote more accessible, inclusive and trustworthy engagement with a diverse range of voices.

**Figure 4.** The challenges and opportunities for engaging in the digital age.



**How can we promote more effective and inclusive digital engagement?**

| Challenges | Opportunities |
|---|---|
| Digital technology can increase accessibility for some, but **exacerbate digital divides and skills gaps** for others. | Adopt a **balanced approach that combines digital and in-person techniques** to increase accessibility, and invest in building digital skills. |
| Digital tools can be less effective at promoting **depth and richness** in engagement, which can **negatively impact trust building**. | Create opportunities for **more informal and spontaneous conversations** to promote better social interactions, trust and collaboration. |
| Digital-only approaches may **limit the capture and representation of people's experiences of local context** and place. | In-person and hybrid approaches can be more effective at capturing **in-depth and unrestricted discussions about place**-based issues. |
| Digital tools create new **privacy and security concerns** regarding the credibility of digital information, bias, anonymity and ownership. | Promoting in-person approaches early in the engagement process can help to **establish trust and credibility** in a more informal setting. |

Source: **Hafferty, C.** 2023. Engagement in the digital age: practitioners' perspectives on the challenges and opportunities for planning and environmental decision-making. (Ph.D. thesis). Countryside and Community Research Institute, University of Gloucestershire, UK.

## Ingredient 8: Feedback and evaluation

Continuous evaluation of engagement processes is essential and should be integrated into feedback, monitoring and evaluation processes. It may also be beneficial to include feedback mechanisms and a grievance process[83] to help address any issues. This involves incorporating local knowledge, values, needs and priorities as a fundamental part of the decision-making process[84]. Evaluation also offers an opportunity for organisational learning[85], allowing improvements in engagement and the delivery of multiple benefits by learning from successes and failures in different contexts. This process of organisational learning and evaluation is crucial for fostering a culture of engagement.

Wherever possible, it is important to use an evaluation framework to measure and assess the multiple benefits and outcomes arising from engagement. This can be linked to your project's overall social monitoring and evaluation framework, which can be made more effective and place-based by co-designing the process with affected parties (see Ingredients 4 and 5). Helpful guidance on integrating and evaluating environmental projects in policy and practice has been published by Forest Research (**https://www.forestresearch.gov.uk/ research/integrating-research-for-policy-and-practice/**). Core evaluation questions for engagement and socio-ecological impact include[86]:

I.   **Impacts:** *Who or what changed, in what ways, and how do we know?*

II.  **Causes of impact:** *Why/how did changes occur? What factors or processes caused impact?*

III. **Lessons and actions:** *What worked? What could (or should) have been done differently? What lessons can be learned? Which actions should follow to generate impact?*

The extent of your social evaluation framework (and whether and how this is integrated with other ecological and climate aspects of the project) will depend on available time and resource capacity. However, there are significant challenges in evaluating engagement and community benefits, and the results of such evaluations are not often widely shared or used to drive improvements in practice[76]. Monitoring and evaluation processes for engagement and social outcomes are frequently ad-hoc or absent altogether, relying heavily on informal and anecdotal evidence[87]. This is not to dismiss the value of anecdotal evidence but to highlight issues related to the capacity and capability of environmental organisations to conduct systematic, integrated and institutionally embedded monitoring and evaluation processes[4]. Reasons for these challenges include limited budgets, staffing constraints, lack of expertise in social monitoring, and insufficient motivation or lack of structured approaches for incorporating social indicators and metrics[32]. Addressing these limitations requires careful consideration and the development of strategies, such as a long-term plan for embracing social values and nurturing an engagement culture.

# Ingredient 9: Embed a culture of engagement

To ensure long-term success, the institutionalisation of engagement and social benefits within environmental organisations is crucial[4]. However, organisations often encounter complexities and conflicts, particularly when there are different interests and priorities at play. Many of these challenges arise from organisational cultures and structures[4] influenced by broader political and financial factors, such as policy and market incentives.

The process of institutionalisation involves integrating participatory and democratic values into existing governance and decision-making structures, making them standard procedures[4]. Achieving this often necessitates a cultural shift and governance changes, towards promoting an organisation-wide *culture of engagement*[4,72]. The integration of community perspectives and insights from the social sciences into environmental decision-making will likely add value to this process, maximising the delivery of integrated benefits for people and nature.

Institutionalisation is the process by which organisations gain stability and value Embedding and institutionalising a culture of engagement means integrating core participatory and democratic values into existing governance and decision-making structures until they become standard procedures[88]. Achieving this often requires a shift in organisational culture and/or changes in governance, including building the capacity to make community perspectives and social sciences integral components of environmental decision-making.

Initiating and embedding an organisational culture shift is a complex undertaking. It should begin with an understanding of current engagement practices, available resources, expertise, and internal obstacles[4]. It is essential to consider the broader political, financial and institutional dimensions that shape organisational priorities and motivations[89]. When striving to incorporate effective engagement and social benefits, organisations should consider the following[4]:

- **Roles and resources:** Assess resource availability (time, finances, personnel, etc.) for engagement, and support capacity building where needed (e.g., through allocating resources, signposting to available guidance and expertise).

- **Skills and expertise:** Develop engagement skills and confidence among practitioners, invest in training (e.g., in communication, facilitation, conflict resolution) and/or collaborate with specialists where necessary.

- **Long-term planning and strategy:** Establish engagement as a continuous, evolving process with clear steps (using the Recipe for Engagement to help guide this) and an associated engagement monitoring and evaluation process. Integrate engagement into the organisation's vision and mission for nature recovery and nature-based solutions.

Qualified social scientists, encompassing various disciplines, can play a central role in embedding a culture of engagement for more holistic, integrated and equitable environmental solutions. Social sciences add value to environmental decision-making because they help us to develop solutions that people are able and willing to follow through on, produce insights about perspectives and human behaviours, cultures, histories, human-environment relationships, political and economic structures, and help ensure that communities and local knowledges are represented in decision-making[89]. While social sciences are crucial for supporting nature recovery and achieving net-zero goals, environmental organisations often lack the capacity and capability for such work. It's important that practitioners are able to build the skills and confidence needed to engage well, and that engagement is considered as a crucial outcome in its own right and not treated as an additional or one-off task. Social sciences add value and help organisations to fully realise the potential of more engaged, participatory and democratic approaches for delivering Nature-based Solutions and Nature Recovery efforts. It is therefore important to think about when such support, skills and specialisms might be needed and fostering inter-disciplinary collaborations and partnerships to work together to bring more benefits for people and nature.

# What's next? Implementing the Recipe for Engagement

To implement the Recipe for Engagement in practice for Nature Recovery and Nature-based Solutions projects, practitioners should first consider the **What, Why, Who, How and When** of engagement. This involves understanding the value of engagement as a vital component of NR and NbS projects that improves environmental outcomes for multiple, integrated benefits for people and nature. Practitioners can then consider the following key ingredients within the context of their own project or organisation (Figure 5):

**Ingredient 1:** Understand the scope and context

**Ingredient 2:** Statement of purpose

**Ingredient 3:** Identify relevant parties

**Ingredient 4:** Link to socio-economic monitoring

**Ingredient 5:** Plan for community benefits

**Ingredient 6:** Choose the right methods

**Ingredient 7:** Use digital tools ethically

**Ingredient 8:** Feedback and evaluation

**Ingredient 9:** Embed a culture of engagement

The value of the RfE is it's flexibility. Rather than prescriptive rules or step-by-step guidance, it offers versatile components that can be tailored to different projects and decision-making scenarios. Remember that it is important to embrace engagement as a complex and messy process which fuels creativity, provides opportunities for innovation, and space for being reflexive and learning from mistakes. It can also complement a range of existing guidance for engagement across research, policy and practice, and you can merge the RfE or add new ingredients from other resources. If specific ingredients cannot be implemented within the short term, then it is crucial to be transparent about why this is and put in place a strategy for improvement in the future, for example, as part of a process for embedding a culture of engagement. Ultimately, by embracing the principles of the RfE, practitioners can embark on a journey towards more inclusive and impactful engagement that supports flourishing landscapes, healthy societies, and resilient economies.

**Figure 5.** The Recipe for Engagement in Nature Recovery and Nature-based Solutions: 9 key ingredients.
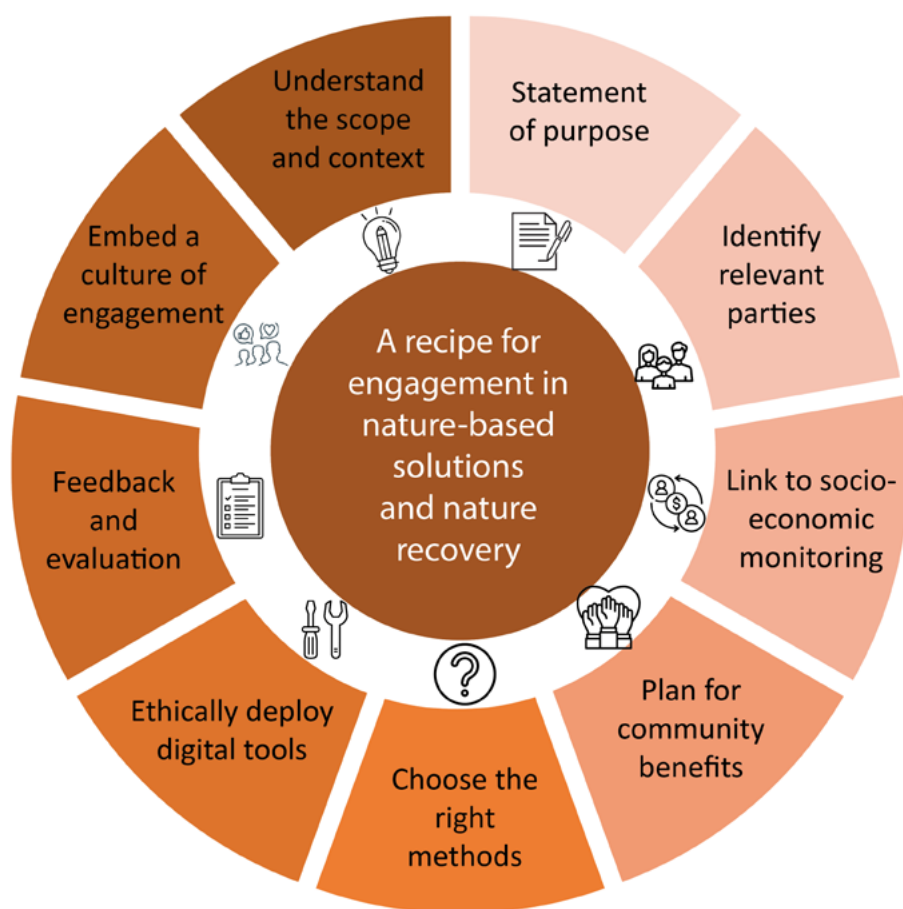
# Appendices

## Appendix A: Key terms for engagement

1. **Participation:** This term encompasses various methods and approaches through which individuals, groups, and organisations from the public or stakeholder community get involved in decisions that impact their lives. This can include consulting the public in agenda-setting, decision-making, and policy development activities.

2. **Engagement:** A more specific term referring to the formal processes led by organisations to involve public and stakeholder groups in decisions affecting them. It's widely used in sectors like health, education, arts, policy, and more, with flexibility in its definition across sectors.

3. **Effective engagement:** In this context, effectiveness means achieving desired results in the engagement process, including meeting intended goals and benefits. It encompasses professional methods and approaches considered most effective, often referred to as 'best practice.'

4. **Relevant parties:** An umbrella term encompassing people and groups interested in, affected by, or influencing a decision. This includes local residents, the wider public, community initiatives, local authorities, charities, businesses, and non-governmental organisations. Relevant parties can also include non-human entities.

5. **Non-human entities:** Engagement should not just be about people, and is crucial to care for the more-than-human world (including humans, animals, plants and other aspects of the natural world) in participatory governance processes. This approach recognises and highlights the interconnectedness and interdependence of humans with the broader ecosystem and the multitude of non-human entities within it, including animals and plants.

6. **Members of the public:** A broad term referring to anyone interested, involved in or potentially impacted by a decision or decision-making process. This includes national publics, citizens, non-citizens, local communities, and others.

7. **Communities of interest:** Members of the public who share a common interest, for example, people who are interested in nature recovery, rewilding, or nature-based solutions.

8. **Communities of place:** People who live and/or work locally on the land and whose lives could be directly impacted by nature recovery and nature-based solutions projects and decisions. Communities of place can also be communities of interest (and vice versa), and also include non-human entities.

9. **Stakeholders:** Groups and individuals who can influence or be affected by a decision, having a vested interest in the process. This includes members of the public and other stakeholder groups, such as local authorities and charities. The term 'stakeholder' has been critiqued for its colonial associations and so other terms are sometimes preferred.

1. **Practitioners:** Individuals involved in planning, designing and implementing Nature Recovery and Nature-based Solutions. This term is inclusive of both practitioners and practice-enablers, collectively referred to as 'practitioners'. Those responsible for carrying out engagement are also sometimes known as 'engagers', 'sponsors', 'coordinators' or 'facilitators'.

2. **Practice-enablers:** Individuals working to support, reinforce, or expand the work and impact of practitioners. They may focus on improving engagement practices at an organisational level rather than directly delivering engagement activities.

3. **Organisation:** A structured group of people working together to achieve common goals or objectives, including businesses, government departments, and institutions.

4. **Institution:** A specialised organisation founded for educational, religious, professional, or social purposes. All institutions are organisations, but not all organisations are institutions. Institutions are often associated with delivering knowledge, such as academic institutions.

5. **Institutionalisation:** The process by which organisations, including institutions, acquire value and stability. In this context, it involves embedding participation principles and practices into existing governance and decision-making structures, making them a norm and possibly necessitating organisational culture change.

6. **Organisational culture:** The accepted behaviours, values, and principles within an organisation. In this context, organisational culture can either facilitate or inhibit effective engagement strategies.

7. **Culture change:** The process of altering an organisation's culture and environment by modifying its vision, values, mission, goals, processes, roles, and practices. This change may be necessary to align employee behaviours with organisational objectives, including embedding engagement.

8. **Organisational learning:** The process by which an organisation continually questions and evolves its knowledge, products, processes, systems, and strategic positions to achieve sustained change or competitive advantage.

9. **Digital (Remote) engagement:** Engagement conducted using digital tools, methods, and approaches, which can occur online or offline, in real-time or asynchronously, and virtually rather than in person.

10. **In-Person engagement:** Engagement conducted in a physical, face-to-face environment, excluding virtual or remote settings. Digital tools can still be used through hybrid or digitally mediated approaches.

11. **Hybrid engagement:** Engagement that combines both digital (online) and in-person (physical) methods, tools, and approaches. It can occur synchronously or asynchronously, involving both in-person and virtual participants at various stages of the engagement process.

# Appendix B: Methods, tools and approaches for engagement

The table below synthesises a broad range of methods, tools and approaches for engagement that can be used in environmental decision-making processes.

| Engagement methods | Description and examples (see Babelon, 2021; Hafferty, 2023; Hafferty et al., 2024; Falco and Kleinhans, 2018 for a review of various methods) |
|---|---|
| **Informal outreach** | <ul><li>Building relationships and trust through continuous informal interactions.</li><li>Activities like walks, talks, social events and gatherings.</li></ul> |
| **Accessing information and data** | <ul><li>Proactively publishing information and responding to requests, e.g., via website or social media.</li><li>Keeping the community informed and raising awareness.</li></ul> |
| **Interviews and focus groups** | <ul><li>Qualitative methods for gathering in-depth insights and integrating diverse perspectives.</li><li>Techniques like photo elicitation and storytelling are beneficial for capturing narratives and visualising issues.</li></ul> |
| **Surveys and questionnaires** | <ul><li>Collecting structured feedback or information, e.g., assessing community needs and visitor experience.</li><li>Methods can be in-person, online, via telephone (etc.) and longitudinal social surveys could be used for socio-economic monitoring and community baselines.</li></ul> |
| **Open meetings** | <ul><li>Engagement events for discussion and information sharing.</li><li>Including public meetings, 'walk and talk' events, community drop-ins and open days.</li></ul> |
| **Deliberative democracy** | <ul><li>Representative deliberation to form collective recommendations based on diverse views.</li><li>Including methods like citizens assemblies, local community or citizen panels, local management boards.</li></ul> |
| **Community science** | <ul><li>Incorporating community science (citizen science) can help to advance nature recovery projects and natural capital assessment frameworks.</li><li>Citizen science methods include mobile apps like iNaturalist and a variety of online platforms for collecting observations and supporting volunteer networks.</li></ul> |

| Engagement methods | Description and examples (see Babelon, 2021; Hafferty, 2023; Hafferty et al., 2024; Falco and Kleinhans, 2018 for a review of various methods) |
|---|---|
| Online platforms | • Digital tools for engagement and collaboration in decision-making processes.<br>• Examples include participatory budgeting, ideation platforms, engagement portals, Public Participation GIS (Geographic Information Systems), interactive mapping and visualisation, and crowdsourcing platforms. |
| Social media and online communications | • Information sharing, feedback, and online communities.<br>• Examples include Twitter (now X), Facebook, Instagra, Flikr, YouTube, podcasts, area-based social media (e.g., Nextdoor), citizen science and reporting apps, etc. |
| Participatory mapping | • Involving people in decision-making using geographic information and geospatial tools.<br>• Including Public Participation GIS (PPGIS), Volunteered Geographic Information (VGI), and community mapping. |
| Geo-visualisation | • Visualising spatial data for complex planning and development decisions.<br>• Examples include Planning Support Systems (PSS), Digital Twins, 3D visualisation, geocollaboration tools, and 3D CAVEs (Cave Automatic Virtual Environments). |
| Collaboration tools | • Digital systems to aid decision-making.<br>• Including Decision Support Systems (DSS), team collaboration and networking (e.g., Slack, Microsoft Teams), webinars and workshops, etc. |
| Gamification | • Using game-like elements for immersive, creative and playful engagement.<br>• Examples include virtual reality (VR), immersive games, Metaverse, augmented reality (AR), and VGI. |
| Open data, information and e-government | • Online access to public services, information and data.<br>• Including government websites, open data dashboards and databases, interactive service maps. |

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