

UrbanByNature: Going through Step 6 MONITOR

Collective workshop

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Learning Outcomes for this Learning Unit

- Understand the importance of monitoring
- Learn about effective steps to monitor an NbS
- Learn about the benefits of citizen science in NbS monitoring
- Learn how to define a protocol for monitoring that suits your local situation

Structure of this Learning Unit

- Introduction: What is NbS monitoring? - 5 min
- Reflexive monitoring in Connecting Nature - 5 min
- Case study: How citizen science can support NbS monitoring? - 5 min
- Collective workshop: Preparing a protocol for citizen science monitoring - 35 min

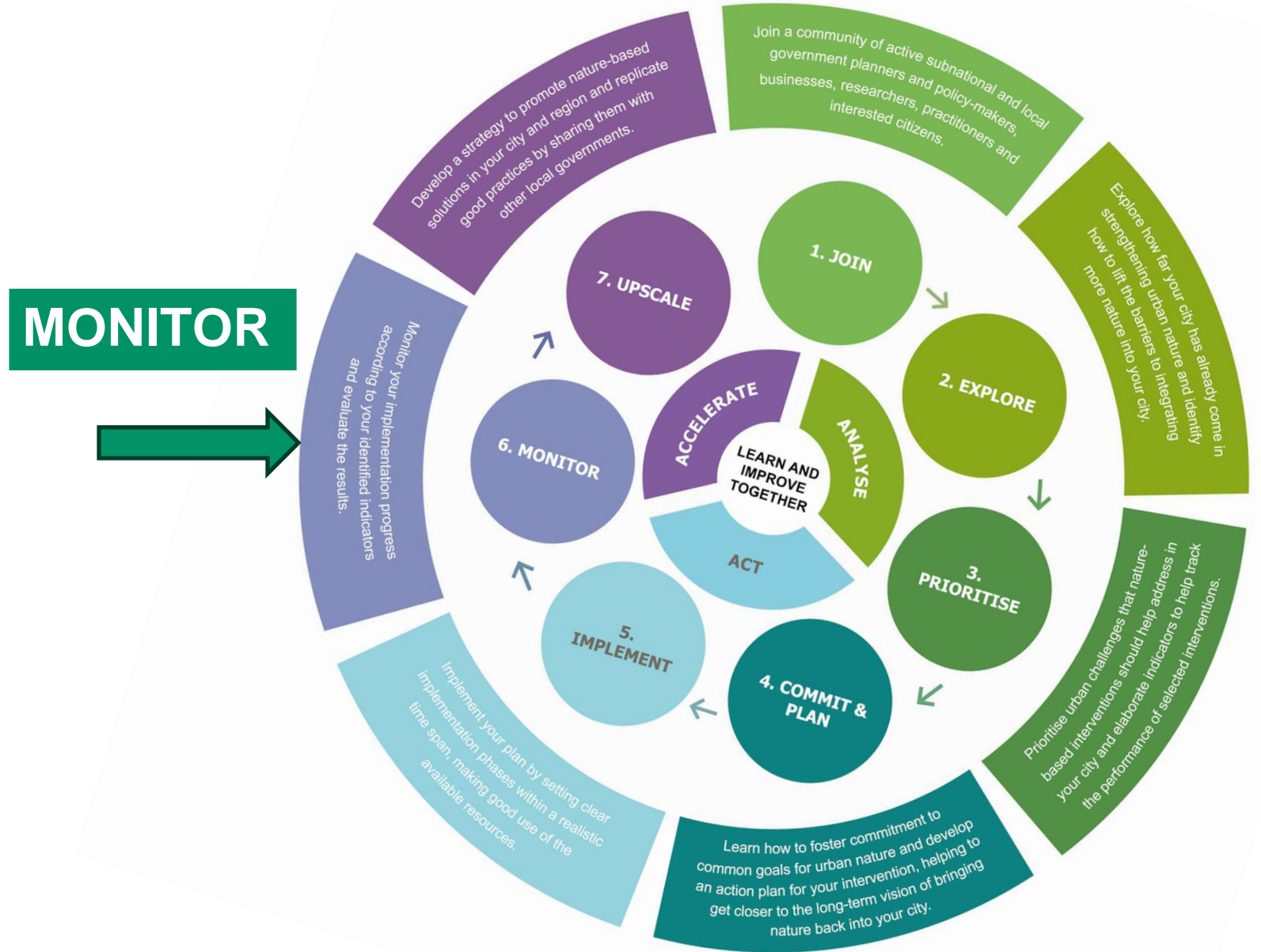
UbN Step 6

Monitoring the NbS implementation process...

According to your set of indicators....

... and evaluate the results.

MONITOR



What is NbS monitoring?

Evaluating the impact of Nature-based Solutions: A Handbook for Practitioners, European Commission, Directorate General for Research and Innovation, 2021, 373p.

■ Official definition given by [the European Union \(2021\)](#):

“Monitoring is a continuous process that tracks:

- *The implementation process in order to determine what takes place and when, during a project. **The collected data are used to inform project implementation, day-to-day management** (adaptive management, management of risk) and decisions related to effective implementation processes and governance, and **addressing challenges** associated with these processes.*
- **NBS performance against expected results and compared with measurements of a reference situation (baseline).** *NBS performance is defined as the degree to which NbS address an identified challenge and/or fulfil a specified objective in a specific place (territory), time and socio-economic context.”*



In simpler words:



“NbS monitoring” refers to the **measurement process** of Nature-based Solutions. This process is often carried out after the implementation phase of an NbS intervention, to effectively measure its potential impacts.



As NbS cover multiple benefits in a wide variety of topics, such as biodiversity, human health and well-being, pollution reduction, etc, **specific monitoring is required to quantify the effectiveness of the implemented NbS.**



The monitoring process needs to **follow scientific methodologies and protocols** with dedicated tools, equipment and technologies and is based on previously identified indicators.



To ensure the high effectiveness of the NbS implementation, monitoring process is often **planned ahead** of the implementation phase. It can involve a variety of stakeholders, from scientists to citizens.

“Reflexive monitoring” for NbS

Marleen Lodder, Kato Allaert & Wouter Mulders, *A practical guide to using reflexive monitoring for nature-based solutions*, Connecting Nature, 2022, 76p.

- Definition given by Connecting Nature:

*“Reflexive monitoring supports practitioners to identify and reflect on the challenges and opportunities they encounter **throughout the process itself**.*

*By identifying barriers and opportunities, practitioners can better navigate them as well as **react to how they change over time.**”*



“Reflexive monitoring” for NbS

Marleen Lodder, Kato Allaert & Wouter Mulders, *A practical guide to using reflexive monitoring for nature-based solutions*, Connecting Nature, 2022, 76p.

In short, it:



- **“Encourages proactive problem solving** – by solving the problem in real time, not retrospectively.



- **Takes context into account** – by revealing the complexities of the problem and breaking it down into learning questions – which leads to better solutions.



- **Turns lessons into actions** – by focusing on learning, you get to address barriers and structural changes and translate these into actions and learning outcomes.”



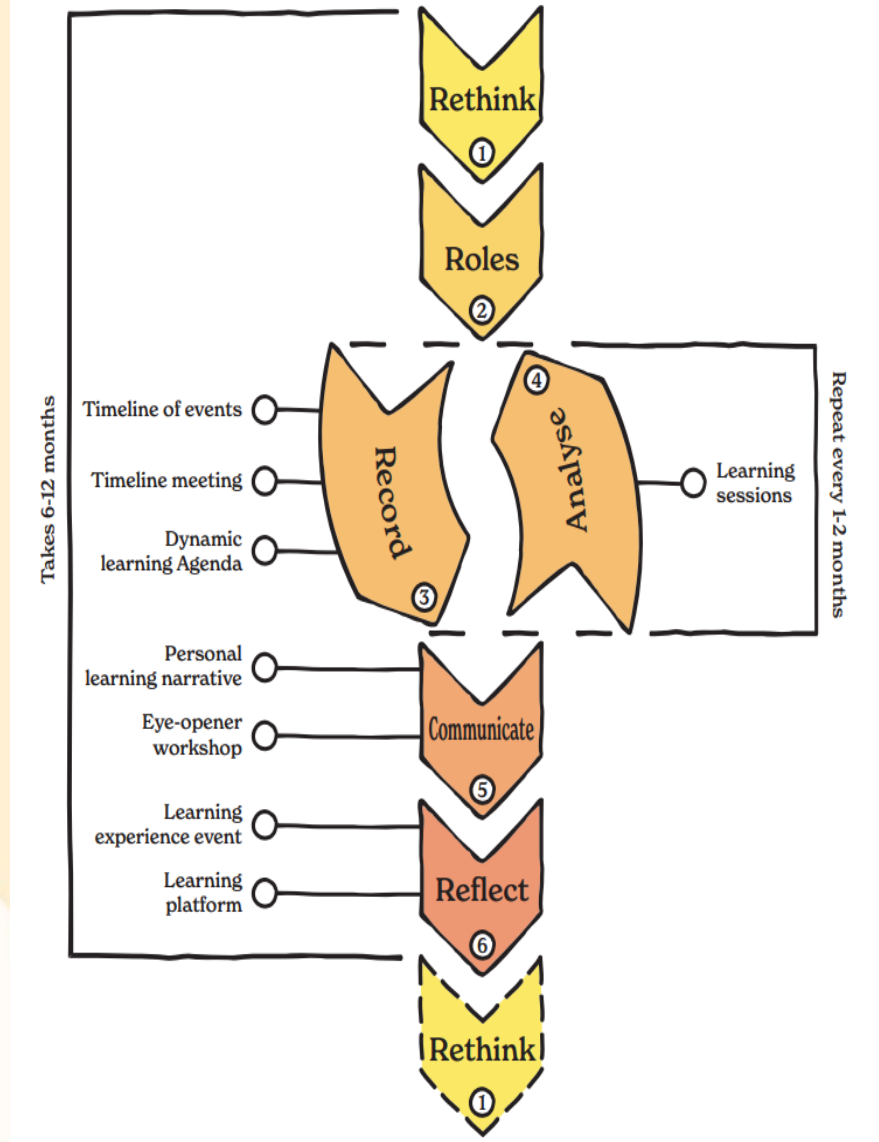
“Reflexive monitoring” for NbS

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A 6 steps approach:

1. Rethink your goals 
2. Define the roles 
3. Record your learnings 
4. Analyse the learning outcomes 
5. Communicate your findings 
6. Share your best practices 

Find all the guiding questions & workshops in the manual!



How citizen science can support NbS monitoring?

■ What is citizen science?

“Citizen science (or participatory science) and research can be defined as forms of scientific knowledge production in which civil society players participate, along with researchers, in an active and deliberate way”. ([Muséum National d’Histoire Naturelle](#) - MNHN, France)



Citizen science initiative, North Carolina Museum of Natural Science, USA, 2011

How citizen science can support NbS monitoring?

■ Some concrete examples?

The Vigie Nature programme is a brilliant illustration of citizen science applied to NbS. Indeed, its numerous observatories enable citizens from all over France to participate in biodiversity monitoring, including for NbS cases. It brings together a variety of stakeholders and a diversity of citizens to collaboratively evaluate the impacts of NbS interventions: from NGOs to local governments, from pupils to the elderly, everyone can participate in scientific monitoring activities!

([Vigie Nature](#) - MNHN, France)

BIRDLAB	SUIVI DES ORTHOPTÈRES NOCTURNES (SON)
FLORILÈGES	SUIVI PHOTOGRAPHIQUE DES INSECTES POLLINISATEURS (SPIPOLL)
OBSERVATOIRE AGRICOLE DE LA BIODIVERSITÉ (OAB)	SUIVI TEMPOREL DES LIBELLULES (STELI)
OBSERVATOIRE DES BOURDONS	SUIVI TEMPOREL DES OISEAUX COMMUNS (STOC)
OBSERVATOIRE DU LITTORAL (BIOLIT)	STREETS (FLORE AUX PIEDS DES ARBRES)
OISEAUX DES JARDINS	SUIVI TEMPOREL DES RHOPALOCÈRES DE FRANCE (STERF)
OPÉRATION ESCARGOTS	VIGIE-CHIRO
OPÉRATION PAPILLONS	VIGIE-FLORE
PLAGES VIVANTES	VIGIE-NATURE ÉCOLE
PROPAGE	QUBS
SAUVAGES DE MA RUE	

Citizen science observatories, Vigie Nature programme, Muséum National d'Histoire Naturelle, France, 2024

How citizen science can support NbS monitoring?

■ What benefits?



1. **It enables citizens to learn about NbS**, natural processes and scientific methodologies.



2. **It fosters scientific emulation** and knowledge sharing among participants.



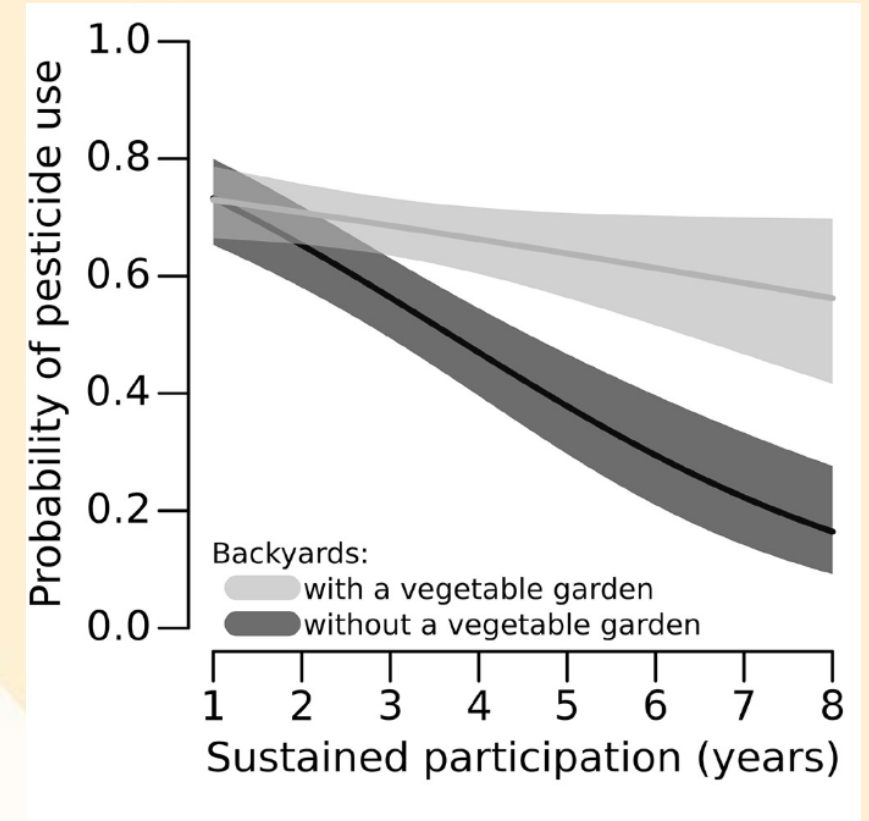
3. **It changes people's behaviours** towards nature.



4. **It increases NbS acceptance** among the participants.

(Simon Bénateau, MNHN, France, [4th NBS EduWORLD UrbanByNature webinar](#))

Studies have demonstrated that the more citizens participate in citizen science initiatives, the less they are willing to use pesticides in their own gardens (butterfly surveys).

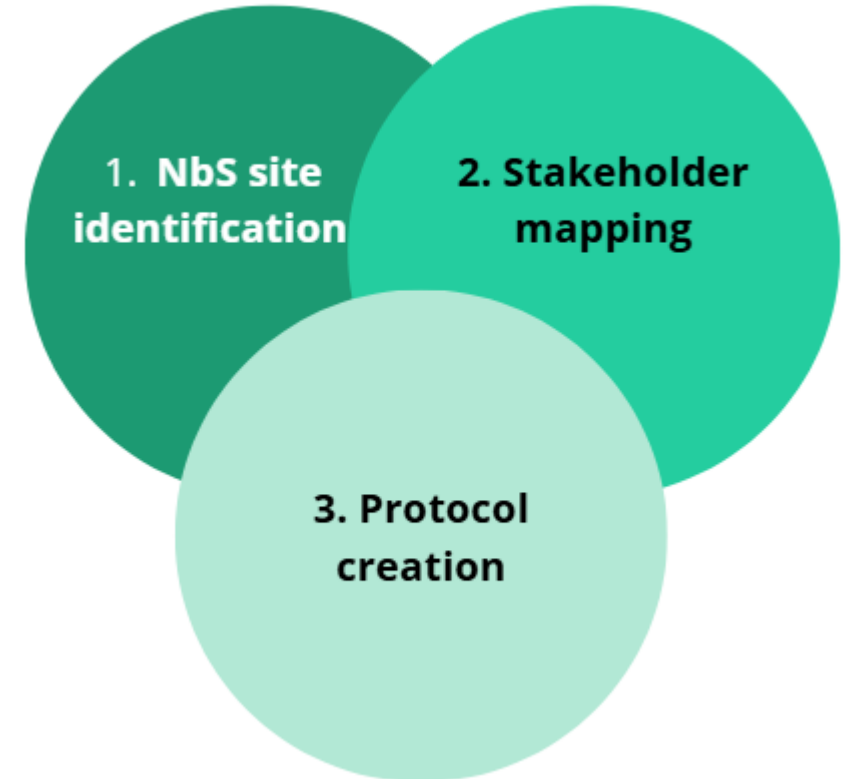


Deguines, N., Princé, K., Prévot, A. C., & Fontaine, B. (2020). *Assessing the emergence of pro-biodiversity practices in citizen scientists of a backyard butterfly survey*. *Science of the Total Environment*, 716, 136842.

Activity: Prepare a protocol for citizen science monitoring!

Instructions


1. This is a collective exercise among the municipality departments. No need to breakout. **Ensure that the collective is working in a holistic approach, combining complementary departments** (eg. education, environment, citizen, youth, public health, urbanism, etc).
2. **Material needed:** post-its, white boards, paper, pens, creativity!
3. **Take 10 minutes to reflect for each of the three guiding steps.** Guiding questions are here to sustain your brainstorming activities.
4. **Use the 5 remaining minutes to wrap-up** and make a list of actions to start realise your citizen science monitoring process!
5. **Have fun!**



1. NbS site identification


- Do you already have existing NbS implemented on the ground?
- If so, does their impacts have been monitored over the short, medium and long term? How specific the ecosystem of this NbS is?
- If not, are there any NbS implementation ongoing or foreseen?
- If no NbS is under planning, reflect about the main climate change impacts that your city is facing and the most affected areas. These areas could be a perfect fit for a NbS!





**2. Stakeholder
mapping**

- Which local or regional organisations with a solid scientific focus could lead the monitoring process? Think about natural history museums, nature conservation NGOs, universities, public agencies.
- Which public organisations could financially sustain the monitoring process? Think about different scales: global, European, national, regional, provincial, local.
- What about possible private actors to do a partnership with? Think about companies present locally, in relation to NbS.
- What groups of citizens could be involved in the monitoring process? Think about pupils, teachers, families, vulnerable and marginalised groups, the elderly, farmers, naturalists, landowners, etc.
- Who would lead the monitoring process?
- Who would finance it?
- Who would design the protocol and the associated materials?
- Who would train the citizens?
- Who would analyse the collected data?
- Who would communicate and disseminate the results?



3. Protocol creation

- What would you like to monitor in the selected NbS site? Think about biodiversity improvement, human well-being improvement, pollution reduction, heat wave mitigation, etc.
- In relation to the topic you would like to monitor, what indicators would you select? Eg: if you are interested in monitoring the biodiversity impacts of your NbS intervention, you can focus on one specific bird, plant or insect species depending on your own local ecosystem.
- What materials would need citizens to effectively monitor your NbS impacts? Think of photographs, counting lists for species, cell phone apps, etc. Take into account the possibility that some people may not have access to some materials (especially technological materials).
- How long would you need to monitor the NbS impacts? Consider short, medium and long term duration according to the selected scientific question and indicators.
- What period would be used to monitor? This may vary depending on your indicators.
- How could citizens report back they monitoring data? Think of ways to collect data: online interactive platforms, cell phone app, letters via post for counting lists, etc.



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