Network Nature

Nature-based solutions for ecosystem restoration

Concept

Introduction

NetworkNature is a resource for the nature-based solutions community, creating opportunities for local, regional and international cooperation to maximise the impact and spread of nature-based solutions. The project is funded by the European Commission under the Horizon 2020 programme.

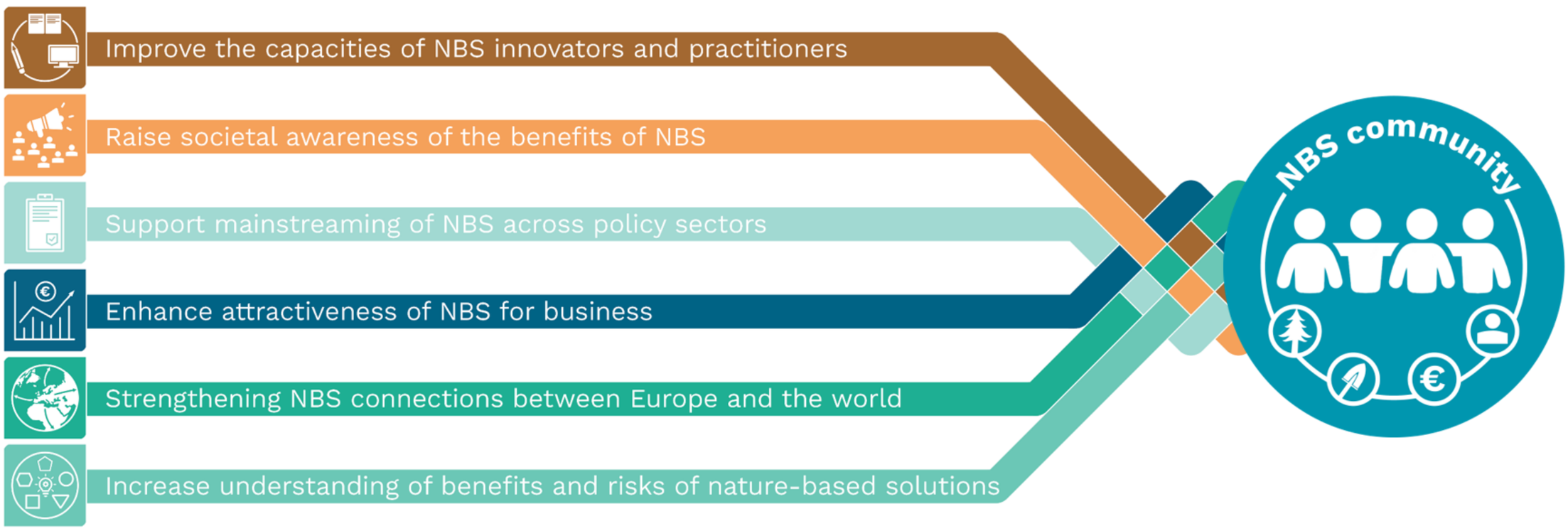

Image: NetworkNature pathways to maximise impact of NbS

NetworkNature semester 'Nature-based solutions for ecosystem restoration' will shed light on ecosystem restoration as a way to improve biodiversity, and achieve sustainable development. Following the three pillars of sustainability, the theme will take a look at ecosystem restoration through the social, environmental and economic lenses.

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NbS - NAture-based solutions

NbS are defined by the European Commission as *"Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services"*

Why

The world's diverse ecosystems including farmlands, forests, freshwater, grasslands, shrublands and savannahs, mountains, oceans and coasts, peatlands and urban areas have degraded significantly with negative impacts on biodiversity and livelihoods. Overexploitation of natural resources throughout centuries has disrupted the equilibrium of the ecosystem.

What is ecosystem restoration and how does it contribute to biodiversity?

Ecological restoration is defined by the Society for Ecological Restoration (SER) as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed". Ecosystem restoration is defined as a process of reversing the degradation, to regain the ecological functionality in order to improve the productivity and capacity of ecosystems to meet the needs of society. This can be done by allowing the natural regeneration of overexploited ecosystems or by planting trees and other plants" (UNEP, 2019).

With a focus on biodiversity, ecosystem restoration is defined as: "a means of conserving and restoring biodiversity, ecosystem functions, services and resilience, given adequate time and investment." A global meta-analysis indicated that the restoration of degraded systems enhanced the overall biodiversity by 44% and provided a range of benefits across targeted degraded ecosystems." (Crouzeilles et al. 2016; CBD, 2019).

According to the Convention on Biological Diversity (CBD), the objective of ecosystem restoration is "to contribute to the conservation and sustainable use of biodiversity as well as create social, economic and environmental benefits, whereby healthy and connected ecosystems should contribute to improve food and water security, peoples' livelihoods and to mitigate and adapt to climate change" (CBD, 2019).

Ecosystems should be understood socio-ecological terms - delivering multiple functions that benefit a wide range of stakeholders. This enables the identification of drivers of ecosystem degradation and loss, diverging and competing interests in landscape management and economic issues and to create long-term goals for ecosystem restoration (IUCN, 2008).

Why restore ecosystems?

Our survival as a species depends on the health of the ecosystem. Yet biodiversity—the diversity within species, between species, and within ecosystems—is declining faster than it has at any other time in human history. The current rate of extinction is much higher than the average over the past 10 million years—and it its accelerating. We are well underway with a 6th mass extinction also known as the Anthropocene extinction (EU Biodiversity Strategy 2030).The global population of wild species has fallen by 60% over the last 40 years, with 1 million species at risk of extinction, including eventually humans as well, the UN warns. This rate of loss would have taken thousands of years if it were not for the human destruction of nature, scientists say, warning of an approaching tipping point for the collapse of civilization (Earth.org, 2020).

Human activities endanger biodiversity:

1. Agricultural and industrial expansion is the leading cause of the loss of over 85% of wetlands, alteration of 75% of land surface, and has had an impact on 66% of ocean area (IPBES, 2019).
2. Over-exploitation of plants and animals by means of harvesting, logging, hunting and fishing.
3. Habitats are being destroyed by untreated waste; by pollutants from industrial, mining and agricultural activities; and by oil spills, toxic dumping etc.
4. Introduction of invasive species that destroy native ones.
5. Climate change exacerbates the loss by reducing nature's resilience creating a vicious circle.
6. Population growth, trade, consumption patterns and urbanization; by 2030, cities are expected to cover three times as much land as they did in 2000, with much of the expansion occurring in biodiversity hotspots. Demand for food will more than double by 2050; meeting this demand will require an additional billion hectares of land or increasing yields on existing land via the use of fertilizers and pesticides (Weforum, 2020).

The protection of ecosystems by means of restoration efforts is essential if we wish to have a future.

How

When is an ecosystem considered restored?

A degraded ecosystem can be considered to have been restored when it re-attains a sufficient amount of biotic and abiotic resources to sustain its structure, ecological processes and its multiple functions with minimal to no external support. Restored ecosystems demonstrate resilience to environmental stress and disturbances. However, many local - and especially marginalised people - rely on these systems for their ecosystem services and products (Gann, G.D., & D. Lamb, eds. 2006). Hence, the needs of these groups should be taken into careful consideration to succeed in restoration efforts.

How to support ecosystem restoration?

Ecosystem restoration should not be considered a substitute for sustainably protecting and managing native ecosystems. Most natural and semi-natural ecosystems are not readily transformable or easily restored once degraded. Moreover, restoration science and technologies for many ecosystems are still far from achieving 100% recovery of biodiversity, ecosystem functionality, or delivery of ecosystem services. This means that the promise of restoration should never be invoked as a justification for destroying or damaging existing ecosystems (McDonald T et al., 2016).

Optimal restoration outcomes (environmental, social and economic) are more likely to be achieved when indigenous knowledge, legal frameworks, regulations, financial and market mechanisms are applied in a coordinated approach throughout the restoration process. Multiple issues can be addressed and diverse needs of local actors can be met if there is adequate development of innovative financing mechanisms combined with a supportive enabling environment (FAO 2021). Many investors consider scale, risk, rate of return, and measurable impact when choosing to finance sustainable and inclusive landscapes. In addition to private- and public funding (providing a lionshare of current funding) other instruments such as blended finance, green bonds and crowd funding can offer opportunities to unlock finance for smallholders and the communities they live in (GLF, 2019 (a)).

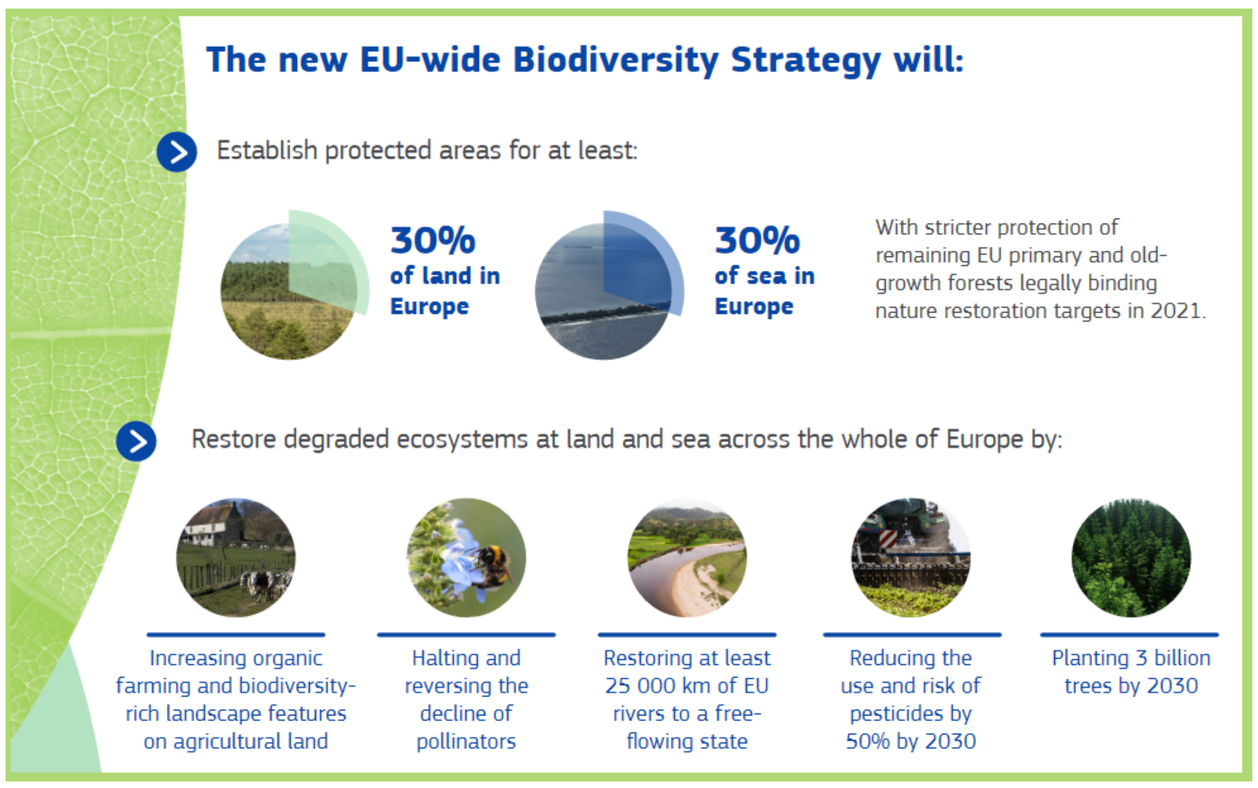
“The costs of fighting land degradation through restoration and sustainable land management practices versus the much higher cost of inaction highlights the strong economic incentive for immediate action” (GLF, 2019 (b)). However, despite the promising economic returns of ecosystem restoration in addition to environmental and social benefits, there is a considerable gap between supply and demand for appropriate financing (UNCTAD). Closing this gap will require collaborative action from a wide range of actors, especially the private sector. However, the involvement of private investors in scaling proven sustainable land management practices remains limited to date (GLF, 2019 (b)).

Without clear monitoring, reporting and verification process in place, ‘greenwashing’ can abound. Many businesses depend on natural resources, and for these businesses to have incentives to change, accountability and transparency is needed on all levels of the supply chain, whether imposed by public or private governing bodies.

Policy Frame

UN Decade on Ecosystem Restoration is a joint initiative of UNEP and FAO - and a call for the protection and revival of ecosystems all around the world, for the benefit of people and nature. It aims to halt the degradation of ecosystems, and restore them to achieve global goals. The UN Decade runs from 2021 through 2030. The main messages of the Decade are to 'massively scale up the restoration of degraded and destroyed ecosystems as a proven measure to fight climate change, and enhance food security, water supply and biodiversity'.

European Green Deal is Europe's growth strategy, aiming to create synergies across policy in order to maximise benefits for health, quality of life, resilience and competitiveness. The Green Deal outlines that lasting solutions to address climate change need to incorporate nature-based solutions. The strategy acknowledges that transformative policies are needed to increase the value given to protecting and restoring natural ecosystems. Further it outlines that work on climate adaptation should entail public and private investments in nature-based solutions.



EU Biodiversity Strategy for 2030 is part of the EU Green Deal, the strategy is a long-term plan for protecting nature and reversing the degradation of ecosystems. The strategy aims to recover Europe's biodiversity. It is the proposal for the EU's contribution to the global post-2020 biodiversity framework and it will also support a green recovery following the Covid-19 pandemic.

image: Factsheet EU Biodiversity Strategy

EU Adaptation Strategy is a plan for a climate-resilient European Union in line with EU Green Deal and green transformation and achieving this in a just and fair way by 2050. The strategy acknowledges that ecosystem and the services provided are crucial: "we need science-based, robust ecosystem restoration and management that helps minimise risks, improves resilience, and ensures the continued delivery of vital ecosystem services and features."

Post-2020 Biodiversity Framework (in development in 2021) aims to ensure societal relationship to biodiversity changes on a national level, with considerations for subnational, local and regional levels. It will provide a framework for the development of targets. It will entail regular monitoring and review. The goal is: "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

The Edinburg declaration is a process led by the Scottish Government, with subnational, local and regional governments partaking to outline a greater participation in the post-2020 global biodiversity framework. The declaration acknowledges that biodiversity and ecosystem services are key for well-being and resilience, especially during and after the pandemic and that a shift in urban development is needed.The inclusive declaration takes into account the needs and rights of indigenous people and local communities to manage their territories. The parties commit to implementation of NbS and green and blue infrastructure, particularly with ecosystem based approaches. They call for the private sector to share accountability to change practices to support biodiversity conservation and ecosystem restoration.

In addition, Ecosystem restoration substantially supports the objectives of international agreements and global objectives, including the Sustainable Development Goals (specifically Target 6, 14, and 15), the Paris Agreement, the Land Degradation Neutrality goal, the Global Forest Goals, and the Ramsar Convention on Wetlands (IUCN, 2008).

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**It is in our nature to network –
we will expand the wider NBS community
and support maximise the impact of
nature-based solutions.**

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