Network Nature

Seizing opportunities for ecosystem restoration to tackle societal challenges

The Factsheet explores the potential of ecosystem restoration actions to halt and reverse the degradation of ecosystems. Building on the outcomes of the last NetworkNature semester theme on Nature-based solutions for Ecosystem Restoration, the factsheet provides an analysis of several restoration projects carried out in diverse ecosystems, and addressing multiple challenges. It concludes with a list of recommendations, resources and opportunities moving forward to ensure that restoration actions are put in place to successfully deliver on environmental, social and economic benefits.

Who should read this?

Are you a practitioner directly involved in, or thinking of starting, a restoration project but would like to find out more about what types of benefits can be achieved and what actions can best support effective restoration? This factsheet is for you!

Recognising the need to prevent, halt and reverse the degradation of ecosystems

Biodiversity loss is altering ecosystems worldwide, negatively affecting their ecological function and the provision of ecosystem services. Since 1970, the world has seen an average 68% decline in mammal, fish, reptile and amphibian populations (WWF, 2020). The resulting ecosystems degradation has impacted the well-being of 3.2 billion people across the globe and the loss of ecosystem services has reduced our global economic output by more than 10% (UNEP, 2021).

Restoring 350 million ha of degraded land by 2030 could remove 13-26 gigatons of greenhouse gases from the atmosphere while generating $9 trillion worth in ecosystem services (UNEP, 2019)

Shifting societal and environmental conditions, including land-use change and increasing demand for resources, are accelerating ecosystem degradation. Currently, land degradation has reduced productivity in 23 per cent of the global terrestrial area, and between $235 billion and $577 billion in annual global crop output is at risk as a result of pollinator loss (IPBES, 2019). The loss of important ecological processes decreases the capacity of ecosystems to recover from perturbations.

Towards ecosystem restoration

As a response to this trend, the restoration of ecosystems is the process of halting and reversing degradation, resulting in improved ecosystem services, and recovered biodiversity[1].

Ecosystem restoration encompasses a wide continuum of practices, depending on local conditions and societal choices. Depending on objectives, restored ecosystems can be achieved by assisting natural regeneration, restoring urban and farmland areas, and shifting modified ecosystems to more natural ones.

An estimated 32 million hectares of primary and recovering forest were lost between 2010 and 2015 (IPBES, 2019)

Over one-third of the mitigation required by 2030 to keep average global temperatures below a 2°C increase can be ensured by reversing land and marine ecosystems degradation, while also conserving biodiversity, increasing food and water security, and improving human well-being, therefore contributing to the achievement of the UN Sustainable Development Goals (UNEP, 2019).

1 See UNEP definition of ecosystem restoration

Experiences from ecosystem restoration projects

As part of the NetworkNature semester 'Nature-based solutions for ecosystem restoration', the international community working on ecosystem restoration was invited to submit case-studies and experiences of ecosystem restoration.

43

case studies on ecosystem restoration

23

countries

6

continents

By sharing experiences of ecological restoration from around the world, developing collaborations and co-creating knowledge, it is possible to replicate and scale-up ecosystem restoration and to reset our relationship with nature to one that fosters stewardship and sustainable management of our natural capital.

The analysis of the restoration case studies received shows that a large majority of actions were carried out to restore urban, marine and forest ecosystems but a wide range of ecosystems was identified.

Challenges associated to biodiversity enhancement and building climate resilience resulted the most commonly addressed, while those associated with social and economic factors appeared to be less often tackled through ecosystem restoration projects.

Despite this trend, ecosystem restoration projects offer great potential not only to improve the ecological status of ecosystems, but also to support ecosystem services that benefit society and the economy, such as health and well-being improvement, social cohesion, new economic opportunities, among other.

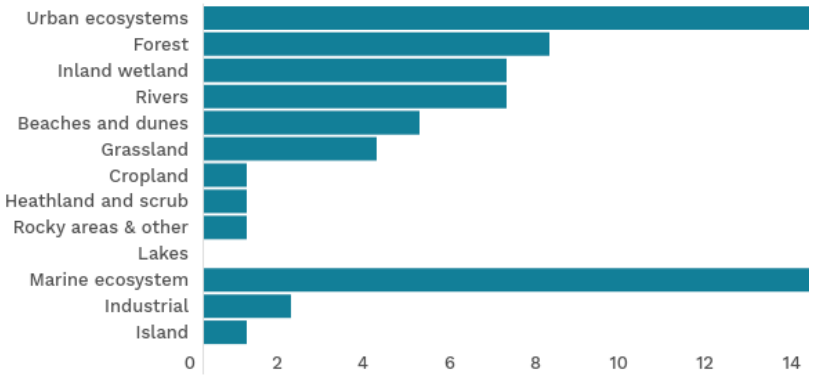

Figure 1 - *Restored ecosystem types*

Figure 2 *- Challenges addressed by the ecosystem restoration projects*

Brazil Water Programme 'Agua Brasil'

What are the challenges?

29% of land in Brazil is dedicated to agricultural-livestock production activities, 82% of Brazil's water is consumed by the rural sector, and the country is expecting adverse impacts of climate change to both the agricultural sector and water resources.

How can ecosystem restoration help?

Restoration of forest and agricultural land can improve the quantity and quality of water, restore biodiversity and ecosystems, and mitigate climate change effects, whilst creating revenue for both farmers and investors.

What did the Programme entail?

In 2010, WWF-Brazil, Banco do Brasil, the National Water Agency, and Fundação Banco do Brasil joined forces for the Água Brasil Programme. The Programme was present between 2010-2019 in five regions of the country, with projects in seven watersheds and in five Brazilian cities.

Over 100 individual forest restoration projects have been completed as part of programme across water basins in the Amazon, Cerrado/ Pantanal, Atlantic Forest and Caatinga. Additionally, the programme developed a campaign that conducted a social and environmental assessment of the bank's suppliers for 10 sectors of the economy and 10 commodities.

What benefits have been achieved?

Environmental

- 194.75 hectares of forests restored
- 15% increase in water production in the four local water basins
- Improved water quality

Social

- 2.4 million people in the cities benefitted from the increase in water quantity and quality
- 207 Payments for Environmental Services contracts signed
- 230 domestic cisterns for rainwater storage installed
- Creation of 4 cooperatives and 18 Community Supported Agriculture (CSA) projects

Economic

- R$ 13 million invested by the Água Brasil Programme and R$ 19.6 million invested by 88 local partners

You can access the full case study here.

Opportunities moving forward: Ecosystem restoration to address socio-economic challenges

Research increasingly shows that the benefits of nature go beyond climate resilience and regulation and biodiversity protection, and can lead to significant improvements in health and well-being, as well as provide socio-economic benefits, such as job creation and improved food production.

Restoring degraded environments can therefore contribute to reaching such goals, addressing socio-economic challenges. For instance, ecosystem restoration can help boost the local economy by generating employment and creating opportunities for tourism, while providing a healthier environment to its residents (WWF, 2021).

But how can it be ensured that restoration actions are put in place to successfully deliver on environmental, social and economic benefits?

Every $1 invested in land restoration generates an estimated $7-$30 in economic benefits (Verdone, Seidl, 2017)

Highlighting the benefits of restoration

Highlighting the benefits of restoration activities in the economic and social domain, in addition to the environmental domain, can enable restoration practitioners to appeal to broader funder priorities and unlock new resources to help increase restoration efforts (UNEP-WCMC, FFI, ELP, 2020).

In the context of the UN Decade on Ecosystem Restoration, IUCN has developed an interactive restoration experience to show how degraded ecosystems change when restored, explaining causes of degradation and restoration approaches.

Monitoring restoration

Successful restoration projects require effective monitoring of both short-term and long-term outcomes of their related activities. Developing and agreeing on dedicated indicators, and especially socio-economic indicators (e.g. linked to jobs), will help practitioners keep track of the evolution and progress of their restoration actions (IUFRO, 2017).

The FAO and the WRI have developed a new guide, The Road to Restoration, to anyone actively restoring land identify priorities and indicators for monitoring forest and landscape restoration.

In addition, representatives of 17 EU-funded NBS projects[2] and collaborating institutions such as the EEA and JRC, as part of the NetworkNature Taskforce 3 for NBS Impact Assessment, have developed a Handbook for practitioners – Evaluating the impact of nature-based solutions, providing a comprehensive NBS impact assessment framework, and a robust set of indicators and methodologies to assess impacts of nature-based solutions across 12 societal challenge areas.

Engaging in dialogues with stakeholders

Restoration actions may involve and affect different stakeholder groups, which may have objections or even additional values to consider as benefits of restoration. Recognising these needs and objectives, also over time, will help achieve a common view and avoid conflicts which may hinder the success of restoration projects (IUFRO, 2017).

---

2 CLEARING HOUSE, CLEVER Cities, Connecting Nature, EdiCitNet, GrowGreen, NAIAD, Nature4Cities, Naturvation, OPERANDUM, PHUSICOS, proGIreg, RECONECT, REGREEN, ThinkNature, UNaLab, URBAN GreenUP, URBiNAT.

IUCN has developed a Community Organizing Toolkit on Ecosystem Restoration, providing actors engaging in restoration journeys with tools, knowledge, and resources necessary to restore your ecosystems and highlighting the importance of community organizing.

Further, a team of scientists from IUFRO has published a Practitioner's guide to implementing Forest Landscape Restoration, to help practitioners gain an understanding of the different implementation stages of restoration projects.

NetworkNature supports restoration actions by gathering tools and resources which provide useful experiences and guidance to actors directly involved in restoration, contributing to increasing restoration efforts and maximising their impacts. Further useful resources linked to the NetworkNature semester theme on ecosystem restoration can be accessed here.

The UN Decade on Ecosystem Restoration

The United Nations Environment Programme and the Food and Agricultural Organisation have come together to create the UN Decade of Restoration. From 2021 to 2030 the call for action aims to reverse the degradation of ecosystems in every ocean and on every continent. The decade can help to combat climate change, end poverty, and prevent mass extinction.

By declaring the UN Decade on Ecosystem Restoration, an urgent plea is made to everyone to play a part in preventing, halting and reversing the degradation of ecosystems worldwide. The Decade has laid out 10 principles to ensure the maximum impact within this decade towards restoration actions. The affiliated partners UNEP and FAO have released an Ecosystem Restoration playbook which describes approaches to restoring ecosystems and highlights how all individuals, community groups, businesses and governments can become part of #GenerationRestoration. Several actors have joined in as global partners to the UN Decade for Ecosystem Restoration, including ICLEI and IUCN (authors of this factsheet) and have contributed to the UN Decade organisers by giving inputs to the UN Decade flagships concept as well as the draft of the Action Plan to support their strategy.

In the interest of practitioners, researchers and in general interested individuals, the World Restoration Flagships of the UN Decade are promising exemplars of large-scale and long-term ecosystem restoration in any part of the world, integrating the 10 Restoration Principles of the UN Decade. The selected restoration areas will be featured prominently on the UN Decade's Digital Hub and be linked with knowledge products, advocacy and communication tools. To learn more about the flagships and how to nominate as well as understand the rationale behind it, you can read this manual.

Please do not forget to use the UN Decade visual identity.

Network Nature

This factsheet was produced building on the outcomes of the last NetworkNature semester theme on Nature-based solutions for Ecosystem Restoration.

How can you help?

Join the NetworkNature community! Becoming a member of NetworkNature will enable access to special features of the website:

- Share and promote your events, case studies and resources
- NetworkNature biannual newsletter
- Find out more about the work of the H2020 and Horizon Europe NBS projects

Access the NeworkNature website: networknature.eu

How can you help raise awareness about nature?

- Sharing this fact sheet
- Mapping where your work connects

Networknature.eu
hello@networknature.eu
NetworkNatureEU
NetworkNature
NetworkNature

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 887396.