Network Nature

Nature-based Solutions

How are we restoring our relationship with nature in Europe?

To achieve a sustainable future we should work with, not against nature to achieve global goals. Nature - based Solutions (NbS) are a great pathway forward.

Who should read this?

Have you heard about the term ‘nature-based solutions’ but would like to find out more about their role, what they look like and their applications? This Factsheet is for you! The Factsheet provides an overview of some of our current societal challenges in different sectors and practical, on the ground examples of how NbS are used to tackle them.

The Situation

The nature we live in, whether it is farmland, forests, cities, riversides, mountains or coasts, supports our livelihoods and wellbeing. The degradation of nature harms people.

Each year Europe loses 3% of GDP due to the loss of biodiversity.[1]

In a world experiencing unprecedented changes in biodiversity and climate, the nature we depend on is threatened. We cannot address climate change without addressing biodiversity loss.

Striving for solutions

By restoring nature that we have damaged, in a socially inclusive manner, we can address some of the biggest challenges we face.

Nature-based solutions (NbS) play a crucial role as approaches to reduce environmental vulnerabilities, as well as to bring social and economic benefits to society.

If diverse sectors, from infrastructure to architecture, fishing to forestry, identify the NbS they are already operating and where they can be scaled up, we can reverse the harm we have done to nature.

In Europe, 4.4 million jobs are directly dependent on the maintenance of healthy ecosystems sites.[2] By using nature-based solutions we can ensure these jobs are preserved.

Restoring our relationship with nature

Nature-based solutions: Working with nature to address climate, disaster, food, water, health and community problems, by benefiting both nature and people. This can entailprotecting, sustainably managing and/or restoring ecosystems.

Ecosystem Restoration: reversing the harm to natural spaces, regaining the services that healthy ecosystems provide us with such as clean water or storm protection.

EU's biodiversity strategy for 2030[3]:
A comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems.

Learn about **4 successful examples** showing what NbS can achieve and how they look like when applied in different contexts.

1 WWF (2016). Facstheet - EU nature Facts and Figures
2 European Commission. (2013).
3 Biodiversity Strategy to 2030

Towards sustainable agriculture

What are the challenges?

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).

More than half of the Earth's habitable lands is currently used for agricultural production, making farmers and food producers important stewards of our ecosystem (FAO, 2021).

How can nature help?

Nature-based solutions applied to agriculture can help improve the quality and availability of water, restore ecosystems and soil, enhance biodiversity and mitigate climate change effects, while generating returns for farmers, investors.

Case study: ***Agriculture of the future? The case of Montpellier***

Description:

The agriculture sector in Montpellier is affected by high temperatures and frequent draughts. Cultivating a mixture of crops and trees (agroforestry) can increase resilience to climatic changes. As part of the SAFE project, an agroforestry scheme was adopted in Montepellier, based on a combination of walnut trees and wheat cultivation.

Objective:

To make the Montpellier agricultural systems more resilient to the effects of climate change

Benefits:

Environmental

- Reduced vulnerability to climate change, as trees provide shelter to crops and reduce damages caused by temperature
- Creation of diverse habitat where wildlife species can thrive
- Controlling pests and enhancing pollination
- Carbon sequestration
- Improved soil quality

Social

- Increased farmers' products diversification
- Higher farmers' income
- Maintaining land for future generation

Economic

- 40% increase in productivity
- Continuous revenue generation for farmers
- Decreased dependence on crop subsidies

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Reducing disaster risk through restoration

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What are the challenges?

In the past 20 years, 90% of major disasters have been caused by weather-related events such as heatwaves, storms, floods and droughts (UNISDR, 2015). An analysis by (Munich Re, 2019) revealed total losses from natural disaster events have reached more than US$ 5,200bn since 1980.

How can nature help?

Nature-based solutions can help communities prepare for, cope with, and recover from disasters, in particular for sectors that depend on ecosystems and natural resources. Nature can offer a cost- effective solution to reducing risks from disasters, increase the resilience of exposed communities, and reduce vulnerabilities to future events.

Case study: ***Restoration of the Isar River Basin, Germany***

Description:

The Isar river is one of the main affluents of the Danube and crosses the Bavarian capital Munich. With large parts of the catchment area in the Alps, the Isar River has high discharge variability throughout the year influenced by snowmelt in the mountains in spring, high annual precipitation, and regular orographic lifting situations with resulting intense rainfall and major flood events. As part of the PHUSICOS project, in order to reduce such hydro-meteorological risks, 8 km of the river were restored in the city through collaborative planning and a co-design approach, involving a broad range of stakeholders and the civil society to co-design a new, natural riverscape providing a variety of benefits.

Objective:

Decrease flood risks and the river incision rate, improve recreational quality and ecological status

Benefits:

Environmental

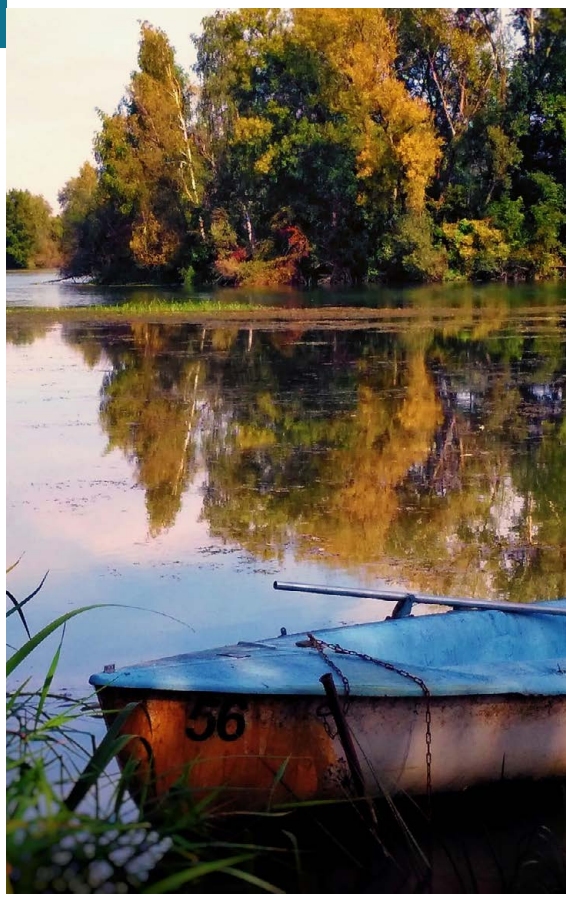
- Enhanced flood protection
- The restored riverscape can handle 100 year flood events without damage to the city
- The restored river can now mitigate a 1,200 m^3/s flood
- Creation of a variety of new habitats typical in and along alpine rivers

Social

- Creation and improvement of outdoor recreation opportunities
- Public participation in the project with over 100,000 citizens involved with workshops, collecting ideas, providing information

Economic

- New and enhanced sources of income through more and better recreation
- opportunities along the river.
- Increased real estate value compared to other river sections



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Climate proofing cities

What are the challenges?

Today, more than half of the world population lives in cities. This number will likely increase to 68% by 2050. 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 (WEF, 2020).

How can nature help?

Urban nature-based solutions can prove effective in addressing biodiversity loss, climate-related challenges including high temperatures, flooding, water, food security and disaster risk. Further, urban NbS can lead to multiple benefits to society and the economy, including in relation to health and well-being, increased social cohesion and tourism revenues, increasing the livability and resilience of cities.

Case study: ***Urban parks for water management in Åarhus, Denmark***

Description:

The SPARK project contributes to the world's first city park that handles excess rainwater and supports healthy lifestyles. The project comprises the installation of parks and (semi) natural urban green areas with sustainable urban drainage systems in Aarhus, around the Marselisborg Rehabilitation Center, for water management.

Objective:

To handle excess rainwater and promote healthy lifestyles

Benefits:

Environmental

- Retainment of 892 m3 of water during a 1/2 year rain event, in which 14,2 mm will fall in 10 minutes
- During a 1-in-100 year rain event, the project can handle 3,427 m3 of water
- Protection of hospitals and surrounding buildings against floods
- Relieving pressure on the local drainage system

Social

- Around 15,000 citizens have access to new recreational spaces
- Public participation in the project activities with 900 people from local institutions
- Establishment of 11 internships and a range of educational workshops

Economic

- Creation of local jobs
- Increased capacity to facilitate a minimum of 2,500 outdoor rehabilitation courses every year

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Financing for the future

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What are the challenges?

Over half of the world's GDP, $44 trillion of economic value, is at moderate or severe risk due to nature loss (WEF, 2020). Investment in nature-based solutions needs to triple in the coming decade and increase four-fold by 2050 (UNEP, 2021). Both the public and private sector play an important role in fostering long-term sustainable investments to step up the action towards nature-based solutions.

How can nature help?

Transitioning to a nature-positive economy could generate up to $10 trillion in additional annual business revenue and cost savings and create 395 million new jobs by 2030 (WEF,2020). Nature-based solutions can also increase the resilience of businesses and livelihoods.

Case study: ***Financing coastal protection in Medmerry, UK***

Description:

Medmerry is located on the south coast of England. The area has been used extensively for intensive agriculture. This situation, together with the rise in sea level, has made Medmerry - until ten years ago – at high risk of flooding from the sea. The Medmerry scheme aimed at realigning a section of coast to better protect it from floods. This was achieved by creating a 7km-long new seawall well inland on higher ground. The project was funded through the Endangered Landscapes Programme.

Objective:

Protection from coastal flooding for local people and provision of habitat for nature.

Benefits:

Environmental

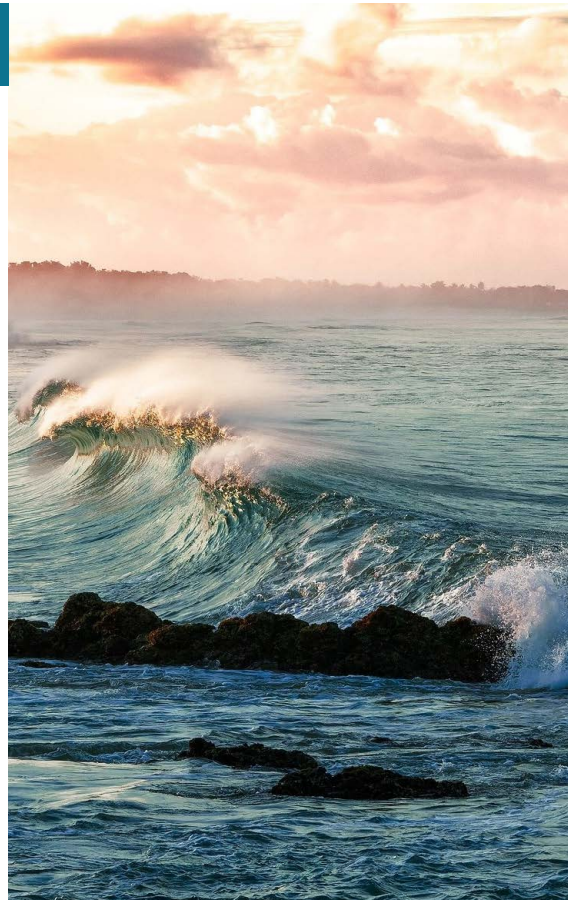
- Creation of 184 hectares of new intertidal habitats, giving a new habitat to many species
- Flood prevention

Social

- Protection of 364 homes previously under threat
- Increased recreational activities, through new footpaths, cycle paths, horse-riding routes

Economic

- Increased value for the local fisherfolk
- Boost to the local economy from an increase in green tourism
- Net increase in ecosystem service provision (excluding flood protection) was estimated to be £3.0m per year (from tourism and recreation, climate regulation, food, and the provision of new, varied coastal habitats to sustain biodiversity)



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With the contribution of the PHUSICOS, SAFE , SPARK and the Medmerry project for the selected case studies.

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 NbS projects

Access the NeworkNature website: networknature.eu

How can you help raise awareness about nature?

- Sharing this fact sheet
- Presenting these case studies
- Mapping where your work connects

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