

Getting our land back for good:
**The role of Nature-based Solutions
(NbS) for the successful
deployment of the EU Nature
Restoration Law**

YES-Europe Policy Brief

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When elaborating on the adverse effects of climate change and carbon-intensive industries, the main focus is often on the effects on human living conditions. However, in many cases, **the long-term impact on nature** is overlooked, as it is not widely viewed by every stakeholder. This impact, in the long term, is far more devastating, as it involves land degradation, biodiversity loss, and air and water pollution that can push several flora and fauna species closer to extinction, which can be considered as a point of **no return for nature**.

This is why, **in June 2023, the EU moved forward with a Nature Restoration Law**, which in November culminated in its final form. According to the Nature Restoration Law, **all EU member states are obliged to restore 20% of degraded lands by 2030, 60% by 2040 and 90% by 2050**. While this has been a very welcome measure and a conversation starter on what can be done to reverse this catastrophe that our ecosystems are facing, there is **no clear roadmap with precise policy steps on how this can take place, predominantly due to the lack of efficient financial mechanisms at the moment**.

A great alternative to increase nature restoration in Europe and set the example for the rest of the world are **nature-based solutions (NbS) and biomimicry**. Both encompass the utilisation of features and processes that nature **uses to tackle socio-economic, as well as environmental issues**, altogether. If deployed in an adequate manner, both have the potential to rapidly increase green urban spaces, reduce food insecurity and convert virtually all landscapes within the EU into active carbon sinks.

What are NbS?

Nature-based solutions (NbS), involve the **sustainable management** of natural resources through the use of creative and innovative means to **incorporate natural landscapes in the urban and rural realm**, with a high societal, environmental and economic value. Sectors include water security, food security, air quality, biodiversity preservation and human health. They can be divided into 3 categories.



1) Improvement of sustainable use and protection of **marine ecosystems**, like circular fisheries and marine permaculture



2) Sustainability and multi-functionality of managed ecosystems - innovative planning of **agricultural landscapes**



3) Design and management of **new ecosystems**, creating artificial ecosystems, such as **green spaces within buildings**

What is biomimicry?

Similarly, **biomimicry** is a practice that essentially **resembles processes seen in nature**. Real-world examples have been prevalent for several decades, with cases such as feather insulation on coats, spider web glass and beetle water collection. Correspondingly, three types of biomimicry policies can be utilized.

1) **Imitating a function in nature**. An example of that would be perfectly fit for arid and semi-arid regions, such as South Europe and includes the function of the desert beetle, which can convert moisture into water. Additionally, this technique has predominantly been utilized in Australia thus far and presents an excellent opportunity for advancement through comprehensive policy implementation at the EU level.

2) **Imitating natural processes**. In this case, the process of how the slime mould finds its food would be an adequate example. In Japan, it was used to develop an adaptive and sophisticated rail network and it can be adapted in the EU context to create the next generation of smart city networks.

3) **Imitating natural systems**. This goes beyond the way a certain process happens and there is an effort to imitate the whole system. A perfect example to showcase that is the way prairie ecosystems maintain an equilibrium between grazing (by buffaloes) and having sufficient grain to feed the local population. It was first used in Kansas and it can easily be encouraged through the right set of policy levers elsewhere.

How are they relevant to the Nature Restoration Act?

1

The first and most important point for why NbS should be a top priority for the legislation is that types 1 and 2 of the aforementioned solutions are **directly correlated with actual land restoration**. The utilization of dams or industrial sludge for the generation of topsoil amendments is a perfect example, which can be used even in deserted lands and bring them back even in the shape of agricultural land. Similarly, marine permaculture deals with immediate marine biodiversity restoration, as algae species that will be restored will become home to fish and other marine species in each region that are currently close to extinction. This is of uttermost importance to EU Mediterranean member states, as biodiversity loss has been occurring at an alarming rate and the basin is close to losing its capacity as a major carbon sink, as more than 40% of its species, including marine mammals, have been lost and overfishing practices resume.

2

The second reason that makes NbS one of the driving forces of the restoration law is its capacity to increase the instability of restoration projects rapidly. The development of NbS is gradually converting them into business models or complements existing ones in agriculture, aquaculture, energy and beyond. The choice, for example, of drought-resistant and nitrogen-fixing crops, such as bambara nuts, that are not invasive, and their imports into European ecosystems create a new source of food, raise productivity for farmers which is currently on a decline, and even power the vegan, energy and water-efficient food industry. This can generate new attractive businesses that will raise investment in the sector, while effectively performing land restoration.

3

With regards to biomimicry, the connection cannot get clearer. Natural systems, the flora and fauna around us have been living in undistorted balance for thousands of years. This means that permaculture and sustainability are at its core, as well as the ability to restore an ecosystem to a point of balance. The last trait is highly relevant for the EU Nature Restoration Law, **as policymakers can learn from these functions to finance and incentivize practices by private, public and third sectors that follow biomimicry patterns**. Land and marine permaculture, as well as the introduction of technologies that help save water, thus restoring arable land, and helping purify water from toxic metals, can all become lessons learnt from nature and the Restoration Law can be conducive towards that direction.

— How can the EU Nature Restoration Law facilitate the process? —

The next steps on the restoration law will entail the adoption of the restoration law by all member states, but also seeking financing and ensuring that this will be able to meet the needs for the restoration levels envisioned by the EU. In both cases, NbS have a significant role to play. Firstly, with regards to the adoption by different member states, it will be largely useful that consultations with stakeholders in each country, involving local communities and research institutes, take place, with the ultimate objective of developing an NbS map where, for each country and region, the solutions with the highest economic, social and environmental impact will be implemented.

Local communities are already expected to be involved according to the restoration law, however little is mentioned for local research institutes, universities and entrepreneurs, all of which have a lot to add to the consultation process. This is especially important to be done in coordination with EU authorities and not be done by each regional and national government in isolation. The reason is that financing needs will be calculated at the EU-wide level and in order to have full knowledge of the needs to power the nature restoration law, EU policymakers will need to have the full context on what solutions can restore land in a cost-efficient and meaningful to local communities manner. What's most important, they will need to know both the amount of funds needed to be allocated for each region/project, but also the conditions under which they should be allocated. The latter is connected to the second way that restoration can be accelerated in a financially sustainable manner.

A very important part that can help raise financing and bridge any gap that can come during the implementation phase of the nature restoration law is the [investability component of different projects](#). If land restoration is brought under schemes that use NbS, there is a high chance that this requirement will be satisfied. An example is [waste to biochar \(or biostimulants\)](#). This can reduce the cost of farmers for expensive fertilizers in the long term and provide value to the whole community, even giving the local municipalities biostimulants for their horticulture activities. Thus, this is an investment with a return for the society and, if private capital is needed to be mobilized, it can also bring a return on the private investment as well. It also reduces waste in the process, which is responsible for 10% of emissions, mitigating the very phenomenon that is causing land degradation, namely climate change. Correspondingly, on the biomimicry front, [converting fisheries into circular ones](#) for the cultivation of seaweed, with marine permaculture potential, provides an additional source of income for fishermen, again of high value for projected investors as well, delineating that the EU never stops considering strengthening its national economies.

Finally, a point where NbS and biomimicry can also maximize their value is forestry. [Hybrid food forests](#) are a novel concept, where degraded or even burnt forest areas can be restored adequately to continue their function as a carbon sink, while at the same time increasing food security, providing further sources of income and supporting local communities. Similarly, biomimicry can add permaculture components to these approaches, combining pasture with farming for the regeneration of ecosystems. This is a concept that is at a nascent stage in many communities to receive societal acceptance and have a sound business model, there should be constant consultations with all stakeholders involved. However, it is one of the most promising solutions in the forestry sector.

The importance of finance and investment vehicles



A point relevant to the aforementioned recommendations is the development of different **finance vehicles** tasked solely with the mission to find, highlight and help scale NbS and biomimicry-based businesses with maximized impact on society, economy and environment and high probability for scaling.

For example, finding a frugal way to convert moisture into hydrogen, a technology that is already investigated in Australia, would be a game-changer for all renewable energy technologies.

For these financial vehicles, **interdisciplinary teams of experts in innovative finance methods**, such as DeFi and green bonds, but also technical experts on agriculture, forestry and energy, and finally connaisseurs on the local societal context, will be needed to be recruited in order to raise capital and channel it towards the right direction. This is expected to be one of the most impactful measures in the way of implementing the Nature Restoration Goals.

Conclusion

In effect, the Nature Restoration Law has been touted as one of the most impactful endeavours by the EU and with reason, as it touches upon multiple sectors, namely agriculture, forestry, energy and environmental policy. However, its implementation will be met with various environmental, societal and financial challenges. NbS and biomimicry have the potential to mitigate these risks and offer fresh solutions that can also help the European economy revive from stagnation.

The Nature Restoration Law has very well included provisions for adaptability in terms of geography and economy, as well as context, however, there are no provisions for consultations with all stakeholders in the stakeholder map. This is a legislative, policy and financial support scheme which, **if successful, can convert the EU into a central player in land restoration and its model of restoration into one that can be replicated worldwide**, to green deserts and regain land on a global scale, putting many farmers out of despair. It is, hence, imperative, to find the right mechanisms so that they can be deployed as efficiently as possible.