

Working with instead of against nature is the only way out of the climate and biodiversity crisis

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If we thought we could build our way out of the climate and biodiversity crisis with more advanced human technology, the COVID-19 pandemic taught us that we are far more vulnerable to the powers of nature than we previously dared to admit, and that working with instead of against nature is the only way forward.

Planting vegetation along a coastline to prevent erosion and reduce flood risks is a solution with a much lower carbon footprint than building concrete breakwater blocks.

It's a solution that addresses the challenge of rising sea levels, while at the same time limiting our output of CO₂ emissions. By increasing the coast's capacity to absorb and store carbon in the plants and the soil below, this nature-positive approach is clearly a win-win for the environment and society.

Nature has a remarkable inbuilt mechanism to keep everything in balance. For example, ecosystems have an innate ability to adapt to changes in temperature and rainfall and shield us from the worst effects of climate change. Wetlands do this by absorbing and retaining water to prevent floods, while plants in [coastal areas](#) can reduce soil mobility and thereby prevent erosion.

Windfarms, solar panels, green hydrogen fuel and the like are important innovations to decarbonise our energy. To rebuild more sustainable societies we need to work with the vast powers already in place around us.

Despite the many examples of potential nature-based solutions across Europe, most of the projects have been small scale. "They've often been initiated by NGOs, and they have had as their objective to restore biodiversity or local habitats," said Dr. Bullock, an environmental economist from

University College Dublin. "They generally haven't looked at the human issues that we need to address in relation to adaptation to climate change."

Large projects are needed to address the social issues like flooding, coastal erosion and water quality, according to Dr. Bullock, who is coordinating research on wetland nature-based solutions under the [WaterLANDS](#) project. It's part of the European Commission's Green Deal ambition to make Europe the first climate neutral continent by 2050 with a sustainable economy that leaves no one behind. The project will officially launch in December 2021.

"To bring about fundamental changes in terms of climate change in particular, you also need large-scale projects. You are not going to be able to store huge amounts of water in small wetland areas to prevent large-scale downstream flooding," added Dr. Bullock.

Solutions also need to be cost-effective and address multiple benefits, not only for nature but also people, according to Daniel Hering, an expert in aquatic ecology and professor at the University of Duisburg-Essen. He lists four reasons why the uptake of nature-based solutions is slow. "It's a matter of money, of planning, public involvement and policy."

As the coordinator of the ambitious [MERLIN](#) project, which is one of four flagship [restoration](#) projects in the EU Green Deal, Prof. Hering will bring economic sectors into the game. He will show them why supporting [ecosystem restoration](#) can be a profitable investment while at the same time providing benefits for the climate, biodiversity and society.

"One of the main targets of the European Green Deal is to engage economic sectors in restoration and nature-based solutions. This is also at the heart of MERLIN: we will work very intensively with four [economic sectors](#) that we think are interested in restoration and can benefit from such activity."

This includes the agricultural sector, where there is a common interest with respect to organic agriculture and sustainable use of floodplains, for example. MERLIN will also work with water supply companies who can benefit from improved water quality that restoration activities bring. Also, the navigation and insurance industries will be engaged; the latter is especially relevant in light of the heavy floods that many European countries experienced in the summer of 2021.

Identifying common interests and benefits of restoration is one thing; recognizing that there is no easy fix or quick return on investment when you join forces with nature is another.

"Restoration and nature-based solutions need time to be implemented and time to develop," said Professor Agustín Sánchez-Arcilla of Catalonia University of Technology, who coordinates the new Green Deal project [REST-COAST](#), which looks at upscaling the restoration of coastal ecosystems.

In looking at coastal ecosystems as a whole, including the rivers, estuaries, and deltas that are connected to the coasts, the project is highlighting the importance of expanding cooperation when it comes to restoration activities in Europe.

"We can build a breakwater out of concrete to protect our coasts in a matter of months," he said.

"But if you need a coastal system to properly develop, with a seagrass meadow and vegetation protecting the beach, that may take some years. And then as it progressively grows, it will take more years to fully deliver the ecosystem services, which could be protection against erosion or against flooding."

Developing cross-border actions is also important. For instance, several REST-COAST pilot cases involve three countries, such as the Wadden Sea, which is between the Netherlands, Germany and Denmark. "More integration is one of the governance barriers we aim to overcome," said Professor Sánchez-Arcilla.

Such an integrated approach acknowledges the limitations of well-intentioned isolated local actions, and instead focuses on motivating change across a whole system, highlighting how actions across a chain affect each other.

This is not to say that local actions are not important. "Engaging with local communities is a critical part of restoration activities," said Dr. Bullock. "It is especially important since many of the benefits of restoration will not be felt directly in the communities where the actual restoration activities take place, and will therefore appear somewhat ill-defined to local people."

For example, benefits such as meeting specific targets on reduced emissions are abstract to most people, in the sense that they are not tangible or visible.

"Some local people will benefit from restoration because they actually enjoy the wetlands and take pride in where they live," explained Dr. Bullock. "But there will also be stakeholders who may feel threatened by restoration, such as local landowners who may be affected by changes in water supply. So, we have to demonstrate what the local benefits are to people, and this is going to require a lot of engagement."

No revolution here

For Dr. Elisabeth Pötzelsberger, who heads the new European Forest Institute's Resilience Programme, restoration actions start with the people who own and work the land.

Take plantation forestry, for example. It's a dominant practice in many western European countries, and a big asset for Europe's bioeconomy.

"This is not a practice that you can stop immediately just because we now say we need to restore and reintroduce biodiversity," said Dr. Pötzelsberger who is coordinating the Green Deal project [SUPERB](#), which focusses on forest restoration. "We need to start from the reality, from what the main practice is in a region, and work on how to improve that, instead of thinking we can completely change the system right away."

For Dr. Pötzelsberger, it's important to bear in mind that the aim of restoration efforts should not be to turn current practices upside down and completely revolutionize how things are done. "Rather, we need to slowly get rid of unsustainable practices and create an enabling environment where restoration and biodiversity positive management is the standard."

WaterLANDS, MERLIN, REST-COAST and SUPERB aim to make restoration a central plank of the drive to forge a more mutually beneficial relationship with the natural world. In the aftermath of the COVID-19 pandemic that demonstrated the vulnerability of economies and democracies to natural crises, establishing more robust and co-beneficial relationships with our natural surroundings will be paramount to building a sustainable future.

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