2050 NOW LA MAISON | SDA Bocconi SCHOOL OF MANAGEMENT

REGENERATING NATURE MEANS REGENERATING THE ECONOMY.[1]

by
SYLVIE GOULARD
SDA BOCCONI

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REMINDER

This study builds on the transformations undertaken by **2050Now partner companies**[2], as well as other private sector initiatives. It also incorporates **research by Bocconi University, in particular by the SDA Bocconi "Sustainability" team**, the scientific partner of 2050Now. It also draws lessons from the work of the **International Panel on Biodiversity Credits (IAPB)**[3].

It is **the second study** prepared for 2050Now, following the one published in January 2025, *"Destroying Nature is Destroying the Economy.*[4]*"* It is designed as a complement to the previous report. It reaffirms that combating climate change and preserving nature are intrinsically linked and mutually beneficial.

To avoid repetition, the general considerations of the first study are not included again here, notably Part I on the state of science, the work of IPBES[5], or "planetary boundaries", nor is the international or European legal framework revisited. Readers are invited to refer back to the first study where appropriate. **Nonetheless, the study rests on the unchanged conviction that science invites us to action, without delay.**

ACKNOWLEDGMENTS

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KEY MESSAGES

01

Faced with transformations in living systems, businesses have every reason to act with a sense of urgency. Beyond ecological and public health concerns, the goal for companies is to safeguard value chains, reduce financial risks, and ultimately maintain production capacity. The accelerating degradation of biodiversity, the scarcity of resources, and the multiplication of climate crises—scientifically documented—are all weakening the economic fabric. **Businesses are also likely to provide solutions, especially when their very purpose is pollution control, water treatment, or offering low-carbon transportation, for example.**

02

The study recommends an integrated approach to climate and nature issues, notably through the use of nature-based solutions, which offer an effective lever for adapting to climate disruption. In a context where extreme weather events are expected to multiply, the regulatory role of nature—such as carbon sequestration or the prevention of erosion—must be rediscovered. The study highlights, for example, the potential of regenerative agriculture, which relies on more sustainable management of soil and water, as well as awareness of the role of oceans.

03

Resilience has to be seen as a whole. The ecological transition cannot be separated from issues of security, defence, and sovereignty. The destruction of living systems makes us vulnerable, as it erodes resources, territories, and social cohesion.

04

Measuring dependencies and impacts requires reliable data and robust methodologies, some examples of which are provided in the study. While good communication remains essential to engage and persuade, resilience falls under management and the company's strategy.

05

Success depends on inclusion. It is essential to engage all stakeholders—citizens, employees, and consumers—and to maintain dialogue with public authorities, drawing on the scientific analyses needed to counter misinformation. Local communities and Indigenous peoples are the primary guardians of nature. Neuroscience and positive communication can help overcome inaction and make moderation and regeneration desirable.

CONCLUSION

Regenerating nature means building our economy on a long-term foundation—one based on sustainable businesses, a more resilient society, and prosperity that does not deplete life itself. Nature is humanity's most precious capital. But we must remember that we are an inseparable part of it.

Introduction :

Why is it in companies' best interest to consider "business in nature[6]"?

The global context makes the management of businesses more and more delicate. Open conflicts with uncertain outcomes (notably in Ukraine and Gaza) are compounded by geopolitical tensions, while the framework of global economic activity is profoundly challenged and transformed. Concepts such as collective security, multilateral cooperation, and an open economy are now being undermined by those who, since the Second World War, had proclaimed themselves their champions. This is particularly evidenced by the methods used by Donald Trump to alter the conditions of global trade, the reception he gave to the Russian President, or the withdrawal from the Paris climate agreements, or from the OECD framework on the minimum taxation of multinational corporations.

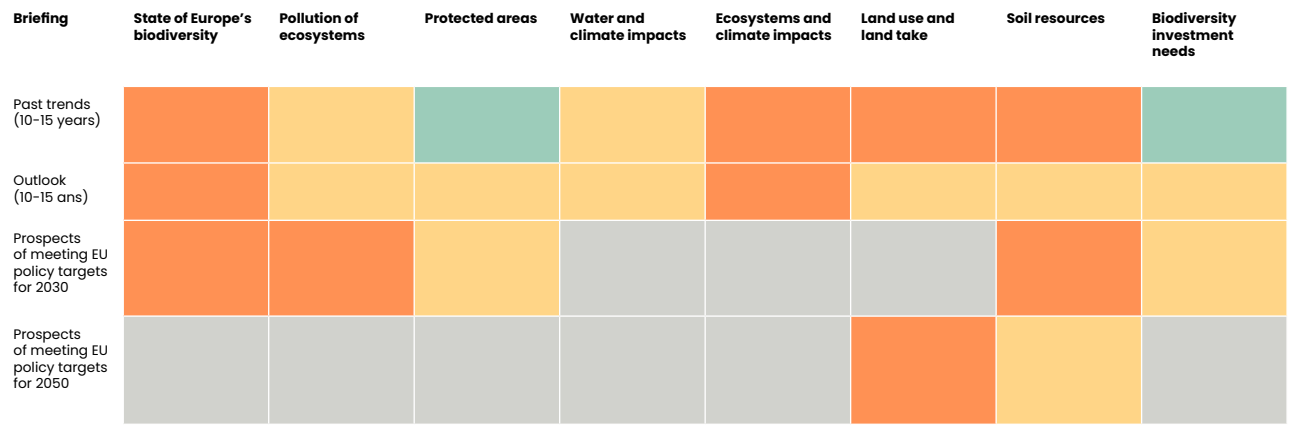
However, the rise of nationalism and authoritarianism, along with environmental denial, are not confined to one country. On the contrary, they are spreading, as shown by the failure of global negotiations on plastics last August. Even the European Union, which in 2019 sought to be at the forefront of the fight against climate change, is watering down its ambitions[7]. This is all the more worrying since climate and nature issues know no borders and, on the contrary, call for cooperative approaches based on agreed rules of the game.

Nature is indifferent to human illusions and quarrels. If we continue to mistreat it, extreme climate events will multiply, and resources will dry up. We are an integral part of nature; we are not its masters. According to WWF's Living Planet Index, biodiversity has declined by 60% in four decades. Renowned scientists even speak of a sixth extinction event, the last one being the period when dinosaurs disappeared[8]. "We are in a vortex, a collapse of species[9]"(Grandcolas).

The *Report on the state of the environment*[10] by the European Environment Agency, published in September 2025, presents an unequivocal assessment: "significant progress has been made in reducing greenhouse gas emissions and atmospheric pollutants, but the overall state of the environment in Europe is deteriorating, particularly that of ecosystems, which continue to suffer from degradation, overexploitation, and biodiversity loss. The effects of accelerated climate change also constitute an urgent problem (...)"

The outlook for most environmental trends is concerning and presents major risks to economic prosperity, security, and quality of life in Europe. The following table, extracted from this report, shows that the trends are not favourable for biodiversity and ecosystems.

Overview of assessment results on biodiversity and ecosystems



- Improving trends (are expected to) dominate/largely on track to meet policy targets
- Deteriorating trends (are expected to) dominate/largely not on track to meet policy targets
- Trends (are expected to) show a mixed picture/partially on track to meet targets/highly uncertain
- No specific policy targets

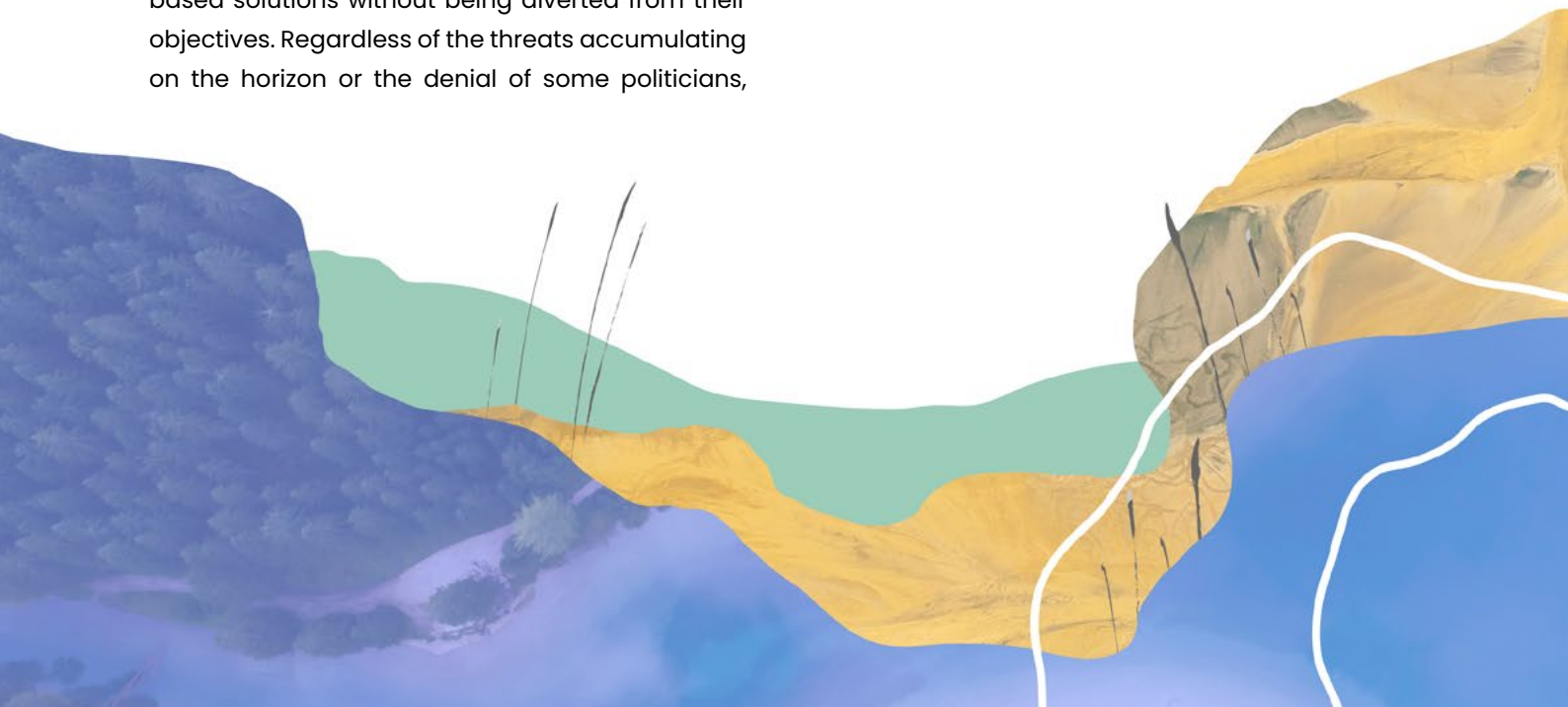
Source : Biodiversity and ecosystem briefings of *Europe's environment 2025.*

The European Agency also emphasizes that "climate change and environmental degradation pose a direct threat to Europe's competitiveness."

The message of the first study for 2050Now last year remains valid: **destroying nature means destroying the economy. This year, on the positive side, we issue a call to action**.

This is why companies have an interest in addressing the sustainability of their production methods, and in adapting, by using nature-based solutions without being diverted from their objectives. Regardless of the threats accumulating on the horizon or the denial of some politicians, a balance must be found in risk management that calls for ignoring neither investments in security or technology (notably AI) on one hand, nor the preservation of natural resources on the other. There is no alternative to a combined approach to these challenges.

The issue is not only ecological; it is about continuing to create value by making the best use of energy and natural raw materials, securing a workforce while preserving human health, and thus sustainably providing the goods and services we all need.



This is not a new realization.

Business in nature

Back in 2013, Professors Stefano Pogutz (SDA Bocconi) and Monika Winn published reflections on the links between "Business, Ecosystems, and Biodiversity: New Horizons for Management Research[11]." These researchers noted that the need to safeguard value chains, to engage with local communities as well as internationally, should lead companies to focus on the sustainable management of ecosystems, integrating conservation and restoration of natural spaces into their business models. The article encouraged business leaders to work with specialists to transpose key concepts of ecosystems, biodiversity, and ecosystem services into the management world, thereby enriching research in sustainability management, organizational theory, and corporate strategy.

Within the activities of the Sustainability Lab at SDA Bocconi, this research avenue has been developed over many years, aiming to integrate the concepts of nature and ecosystem services into management theory. Particular emphasis has been placed on the interrelated notions of impact, dependence, and resilience. Framed through the lens of socio-ecological systems as complex adaptive systems, and articulated in terms of Business in Nature[12], this perspective reconfigures the relationship between organizations and ecosystems, with significant implications for competitive strategy, value chain governance, and the design and delivery of goods and services[13].

In this context, a managerial orientation narrowly focused on minimizing negative externalities proves insufficient. Instead, there is a growing need for business models that explicitly address firms' dependencies on increasingly scarce natural resources, and that reduce exposure to ecological risks. Such models should advance regenerative practices and contribute to the conservation and enhancement of natural capital, thereby aligning organizational strategy with the dynamics and limits of socio-ecological systems. A business leader like André Hoffmann, Vice Chairman of Roche Holding, an international pharmaceutical company, invites people to discover "the new nature of business," by placing the company's activities in a longer-term perspective and showing greater respect for nature[14].

Strengthening the connection with nature is particularly relevant when moving toward an integrated climate–nature agenda. Addressing the climate emergency in isolation risks overlooking the ecological foundations upon which long-term resilience depends. In this regard, the Sustainability Lab has undertaken several streams of research—ranging from the role of oceans in sustaining planetary stability[15] to the transformation of agricultural systems—that illustrate how reconnecting business with natural system boundaries opens new pathways for both risk mitigation, innovation and value creation.

This is all the more important since nature is "our best ally" in addressing the climate transition. It is therefore encouraging that some leaders are beginning to think in these terms[16]. The joint nature/climate approach is more fruitful, since nature-based solutions are proven (Part I); companies benefit from designing resilience in the broadest sense and from precisely measuring impacts, risks, and opportunities (Part II). The vitality of local initiatives and the importance of convincing households, subcontractors, and local actors invite us to focus once again on mobilizing what the jargon calls "stakeholders," that is, all of us (Part III).

01

Driving Transformation through Nature-based Solutions

For companies, as for public decision-makers, households, and citizens, the issues linked to the destruction of nature deserve greater attention. It is even staggering that awareness is not more advanced, given both the urgency and the availability of solutions.

Proven Risks

Studies are multiplying, with aligned conclusions. We will mention only a few, without claiming to be exhaustive.

A 2023 PwC report[17] calculated that "more than half of global GDP is exposed to nature-related risks that, without immediate action, could materialize." Activities with high or moderate dependence on nature represent an estimated value of around USD 58 trillion. The World Economic Forum (Davos) publishes an annual study of risks[18]; in the 2025 edition, the top four out of ten ten-year risks are nature-related: (1) extreme natural events; (2) loss of biodiversity; (3) critical change in the Earth system; (4) scarcity of natural resources. Strikingly, despite the geopolitical context, the WEF places these above threats linked to disinformation, cyber risks, or AI. In AXA's 2025 Future Risks Report, which is very rich in detailed analyses, climate comes first, and biodiversity ranks sixth[19].

The EIB, for its part, has calculated climate change risks for the agricultural sector. Today, in the event of significant damage, losses would be around 28 billion (17 from crops and 11 from livestock); by 2050, the amount could rise to 57.5 billion[20].

An Allianz Research note from July 2025[21] analysed the impact of heatwaves on GDP, and in particular on worker productivity. The impact was summarized as follows: "a single day of extreme heat (>32°C) is equivalent to half a day of strike action." More broadly, the adaptation of cities to climate change is crucial, in the long term, to maintain working (and resting) conditions that safeguard human health and thus economic activity—knowing that the consequences of rising temperatures are not linear, which highlights the importance of acting early and upstream. WHO already developed the "One Health" concept, linking the state of nature, animal health and human health.

It is important to emphasize that these analyses do not come from environmental circles or "activist" NGOs, but from the business world, focused on value creation, or medical experts. Hence the importance that the highest management level, the corporate board, finance departments, risk services, and production engineers feel as concerned as ESG teams, as in the 2050Now companies. For a long time now, damage to nature has ceased to be a matter of reputation; while good communication remains essential for mobilizing and persuading, resilience determines the continuity of the business, as it pertains to strategy and management.

Solutions and Opportunities

Nature-based solutions are now considered essential for climate change mitigation and, even more, for adaptation in a warming world. Many researchers[22] and international organizations—notably the International Union for Conservation of Nature (IUCN)—have worked to develop robust standards[23]. A motion at the IUCN Congress in Abu Dhabi in October 2025 highlights the role of businesses in combating biodiversity loss[24]. The IUCN stresses that nature-based solutions must be designed to deliver measurable positive outcomes. They cannot work miracles if, at the same time, CO2 emissions are not reduced at the source. It is not about alleviating guilt by planting a few fast-growing monoculture trees to capture CO2, without regard for biodiversity or local populations. Their consent and active participation are essential to conservation efforts. An initiative like ENCORE (Exploring Natural Capital Opportunities, Risk, and Exposure), led by the United Nations (UNEP Finance and UN Environment) and Global Canopy, notably through their open database, can help companies that want to work in this direction[25].

The use of quantified objectives, independently verified over time, is crucial to avoid "greenwashing." Unfortunately, some companies that had set ambitious environmental commitments have rolled them back—either due to leadership changes (e.g., Unilever[26]) or for other reasons that are difficult to untangle (short-term calculations? tragedy of the commons? lack of awareness of the state of science? or fear of reprisals given the new political context? Coca-Cola reduced its environmental goals in December 2024[27] and then eliminated all reference to climate change in its communications; Walmart, American Airlines, and Meta did the same in 2025[28]. The world of finance has also recently abandoned certain commitments (notably the Net Zero Glasgow Alliances of bankers, insurers, asset managers, etc.).

At the same time, the need for transformation creates opportunities across many sectors. Veolia and ENGIE, to mention only 2050Now partners, are active in providing pollution-control, water-treatment, and fossil-fuel-reduction solutions. Bouygues promotes more sustainable construction methods, while SNCF Voyageurs leverages the low CO2 emissions of rail transport and makes additional efforts to decarbonize fossil traction and promote efficiency for electric traction to attract customers. The Taskforce on Nature-related Financial Disclosures (TNFD)—a private initiative supported by the United Nations, NGOs, and some governments to promote voluntary disclosure of companies' dependencies on natural ecosystems, as well as their impacts—encourages them to measure both risks and business opportunities (see infra).

Even though some countries have done more damage—or conversely, more to preserve—their environment, the entire planet is affected. The regions richest in biodiversity ("mega-diverse") are largely located in the Global South (around the Amazon, the Congo Basin, the Indian Ocean, or Oceania), but they produce many raw materials consumed every day worldwide, hence the involvement of developed countries through value chains. Coffee and chocolate are clear examples. In the Global North, intensive agricultural production and urban sprawl also exert pressures on ecosystems, including in "mega-diverse" countries (e.g., the United States, Australia).

Europe, cradle of the industrial revolution with its high population density, is not necessarily well placed. According to a coalition of NGOs and scientists, the United Kingdom suffers from one of the most severe biodiversity losses in the world. The number of species present in British territories is estimated to have declined by a further 20% over the past 50 years[29].

Towards a Comprehensive Approach

The entire economy depends on preserving life and adapting to climate disruption. Even service companies that do not use natural raw materials cannot operate without water and a healthy workforce. To give a sense of scale: "a single data center consumes more water than the equivalent of six Olympic swimming pools per day[30]."

In a report published in December 2024, commonly referred to as the *Nexus Report*, researchers from around the world grouped under IPBES[31] urged action to "jointly address the five crises of biodiversity, water, food, health, and climate change". Empirically, each of us now experiences in daily life the fatigue linked to heat peaks (see Allianz study above) or the proliferation of invasive species (chikungunya[32] or dengue epidemics). These are not anecdotal issues. For example, due to jellyfish clogging the cooling-water intake of the Gravelines nuclear power plant (northern France), several electricity production units had to be shut down[33]. Shipping companies also face the consequences of the transfer of algae, shellfish, and other exotic species carried on ship hulls or in the ballast water of countless container vessels traversing the globe. According to the International Maritime Organization (IMO), ballast water is responsible for transferring around 7,000 to 10,000 different species across the world every day[34].

To illustrate the issues, and to show that progress is being made and solutions exist, this year we have chosen to highlight three specific areas: soils, water, and oceans. This choice may seem reductive, but in addition to the constraints related to the format of this study, we encourage placing these 'compartments' in a broader context. For example, scientists have demonstrated the interaction between the Atlantic Ocean and the Amazon rainforest[35].

SOILS

Mother Earth

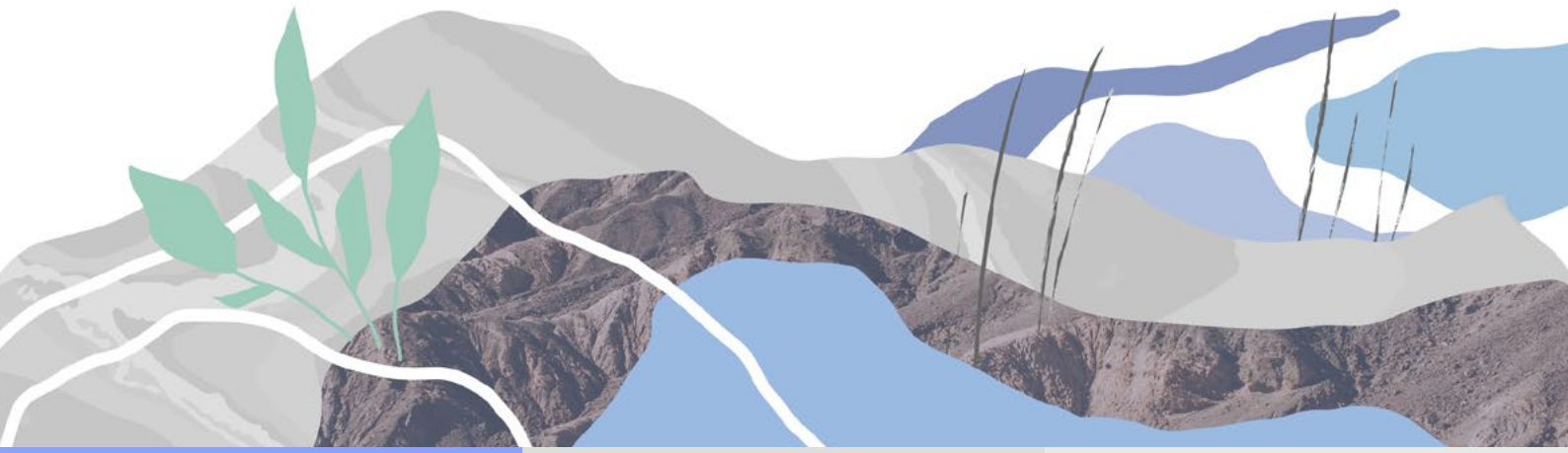
It may seem obvious, but it bears repeating: soil quality is essential for food production and for obtaining a wide range of plant-based resources, whether for construction and transport (wood) or for clothing (cotton, flax). Animal production also depends on sound ecosystem management[36].

Awareness of the fragility of soils has led several companies to invest in regenerative agriculture. How can it be defined? There is currently no regulatory definition, nor a single clear perspective.

In the first study, we mentioned the initiative of Illy Caffè President Andrea Illy, who created the Regenerative Society Foundation (RSF) with the aim of "systemically addressing the complex, interrelated systems of environment, climate, society, nutrition, health, and lifestyle." The company is already seeking to implement this vision in supplier plantations.

Hence this definition of "regeneration", according to RSF: "all the processes to keep living things healthy through the preservation, renewal, and restoration of natural assets." Applying to all living organisms in an ecosystem, from microorganisms to humans, regeneration is based on "the 4 'r's of a complete circular economy cycle: 'reduce, reuse, recycle, regenerate.'" For Philippe Grandcolas, given the proliferation of non-standardized labels and references, it is crucial to know whether so-called "regenerative" practices include the organic standard, notably by prohibiting the use of pesticides, considering inputs, or converting environments. That is why he prefers the scientific term "agroecology." In his book "La Biodiversité, Urgence Planétaire" (point 69)[37], he describes it as follows: "Agricultural practices with fewer negative externalities, using fewer inputs, more respectful of landscape diversity, and integrating biodiversity."

A June 2024 study by the Rockefeller Foundation[38] attempts to present a summary of the distinguishing criteria; their small table below shows that, at this stage, there is no consensus on what constitutes agriculture living in harmony with nature.



Farming and ranching in harmony with nature and communities

Versions of Regenerative Agriculture	Royal Agricultural Society of England	California State University Chico	Project Drawdown	IUCN	Rodale Institute
Limit Disturbance	X	X	X	X	X
Cover the Soil	X	X	X	X	X
Living Roots	X	X			X
Diversity	X	X	X	X	X
Integrate Animals	X	X		X	X
Social Fairness					X
RESTRICTIONS					
Limit Chemicals			X		X

Regenerative Agriculture according to LVMH

For LVMH, "Regenerative agriculture is defined as agriculture capable of restoring soil health and ecosystem functions (biodiversity, water cycles), while ensuring socio-economic stability for stakeholders (farmers, communities) and the production of quality raw materials." LVMH has selected several raw materials for which the Group intends to deploy regenerative agricultural practices: grapes for Wines & Spirits; cotton, wools, and leather for Fashion & Leather Goods; and palm, beet, and iconic ingredients for Perfumes & Cosmetics.

In 2022, LVMH joined the organization One Planet Business for Biodiversity (OP2B), dedicated to regenerative agriculture and the preservation of high-value ecosystems. LVMH has developed practical implementation guides, surrounded itself with a network of experts (Biosphères, Renature, Earthworm, Circular Bioeconomy Alliance, Pour une Agriculture du Vivant, Hectar), and set up an external and independent scientific committee that validates approaches and projects on an annual basis. Practice and performance indicators have been defined for each raw material. Suppliers are beginning to roll out certifications such as RegenAgri and ROC.

Moët Hennessy also regularly organizes, in connection with ChangeNow, a World Living Soils Forum that allows various stakeholders (start-ups, farmers, scientists, NGOs, etc.) to exchange ideas in an international setting on best practices and innovations for preventing soil degradation.

It is striking that a globally recognized luxury group headquartered on Avenue Montaigne in Paris has chosen to embrace a form of agriculture sometimes caricatured as the domain of eco-idealists unconcerned with production. In reality, the increasingly unrealistic approach is intensive agriculture, which depletes soils, abuses pesticides, and destroys pollinators—a model that is, quite literally, not sustainable.

The importance of preserving non-artificialized soils

Beyond agricultural use, soils play an important role for the environment. They absorb water, preventing erosion and landslides. The maintenance of vegetation and its diversity is necessary to allow thousands of animal species to thrive. Artificialization, such as the fragmentation of plots, reduces the available habitat. In Africa, several NGOs and governments are working to create cross-border "corridors" allowing protected species to move from one natural park to another, in search of water, for example[39]. The same logic applies in our regions to the creation of dedicated passages that facilitate crossing highways and other infrastructures that divide habitats

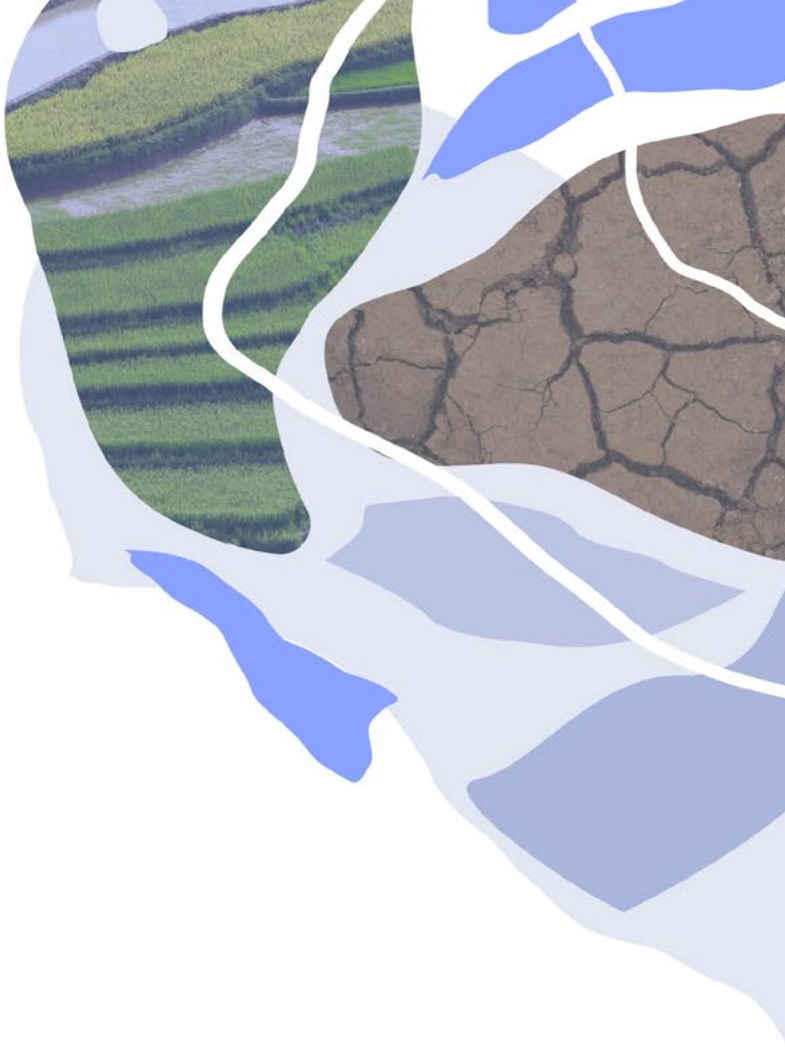
The irreversible consumption of land continues, however, at an extremely high rate. An investigation by a consortium called Green to Grey, composed of journalists from across Europe, reveals that "the artificialization of land is likely far higher than the figures reported by European authorities[40]."

Since 2011, a non-binding EU roadmap theoretically aims to limit land artificialization to 800 square kilometres per year. However, according to this research, it appears that more than 1,000 square kilometres are being exceeded annually. The investigative work is based on satellite images revealing the extent of urbanization linked, for example, to the construction of logistics centres, hotels and leisure centres, industrial and commercial areas surrounded by large parking lots. According to these journalists, small-scale artificializations are added, which most often escape statistical counting. The sprawl of our city outskirts is also visible to the naked eye, with relative indifference. Thus, instead of approaching the goal of net zero land artificialization (ZAN) by 2050, European countries are moving away from it. Recently, France followed the trend by abandoning rules that had previously been voted on. It is concerning to see elected officials, and particularly local officials, the Senate having been at the forefront in dismantling ZAN rules), defend positions that expose their constituents to likely future suffering from more floods and unbearable heat, with impermeable surfaces slowing the drainage of rainwater and contributing to rising temperatures.

As for the phenomenon of clay soil shrink-swell caused by climate change and variations in soil moisture, 10.4 million houses in France are already exposed to it[41]. It is the costliest climate risk for the sector.

Finally, one might ask what the effects of these changes will be on human health, and particularly on the mental health of individuals. Among the services provided by Nature to humanity, IPBES has identified the recreational function (the joy of rejuvenation, rest, and artistic inspiration, and for some communities, even sacred aspects)[42].

Do not oppose business and responsibility



Furthermore, the Group has committed to "regenerating, preserving, or restoring the equivalent of five million hectares of wildlife habitat by 2030," either within its supply chains (through regenerative agriculture programs for strategic agricultural raw materials such as grapes, cotton, wools, or leather) or through contributions to collective efforts to regenerate and preserve ecosystems and protect endangered plant and animal species. Similarly, BNP Paribas financed for example a large regenerative project in Poland (for potatoes).

For Philippe Grandcolas, the three actions (regenerate, preserve, and restore) form an essential triptych, provided that it is also accompanied by appropriate ratios in implementation, and a concern for maintaining this balance over time so that "regeneration" does not justify less preservation or restoration. It is also important to reduce the use of pesticides, which is particularly high in vineyards.

LVMH and UNESCO have also launched a €5 million, five-year program to address the drivers of deforestation in the Amazon, targeting the root causes of forest loss and water pollution in the Amazon Basin, in collaboration with eight biosphere reserves across Bolivia (Pilón-Lajas, Beni), Ecuador (Yasuní, Sumaco, Podocarpus-El Cóndor), Brazil (Central Amazon), and Peru (Manu, Oxapampa-Asháninka-Yanesha). Similar programs are being carried out by the Group and its Maisons in Africa, Asia, and Oceania.

This dual approach—business and philanthropy—is crucial as it helps avoid the trap of dividing society along simplistic lines, even if vigilance is always required regarding the implementation of such commitments. The IAPB panel on biodiversity credits has adopted a similar approach by combining various possible uses of nature credits (voluntary contribution, strictly regulated offsetting, and value-chain preservation) rather than setting them in opposition.

The crucial role of ...earthworms

Focusing on soils also highlights that nature protection is not limited to majestic mammals like whales or tigers, nor even to bees. Most biodiversity, invisible to the human eye[43], consists of less glamorous but essential organisms: fungi on tree roots, bacteria, insects, and earthworms. Scientists increasingly stress the critical role of these "soil engineers"[44]. Yet, they remain invisible and underappreciated. Their contribution to soil aeration and drainage (visible in the "casts" they produce in healthy soils) is fundamental.

Philippe Grandcolas and Claire Marc's concise educational book[45] emphasizes the importance of natural soil regeneration: "Over the past 50 years, farmers have replaced the ecosystem's natural biological regulation with external controls: massive use of chemical inputs (fertilizers, pesticides), elimination of natural habitats (hedgerows, groves), and mechanization of agricultural practices." The authors lament the abandonment of free biodiversity services in favour of artificial solutions that are more costly and harmful to soils in the long run. For those wishing to explore these issues in an informed yet accessible way, Gaspard Koenig's novel *Humus*[46] provides valuable insights.

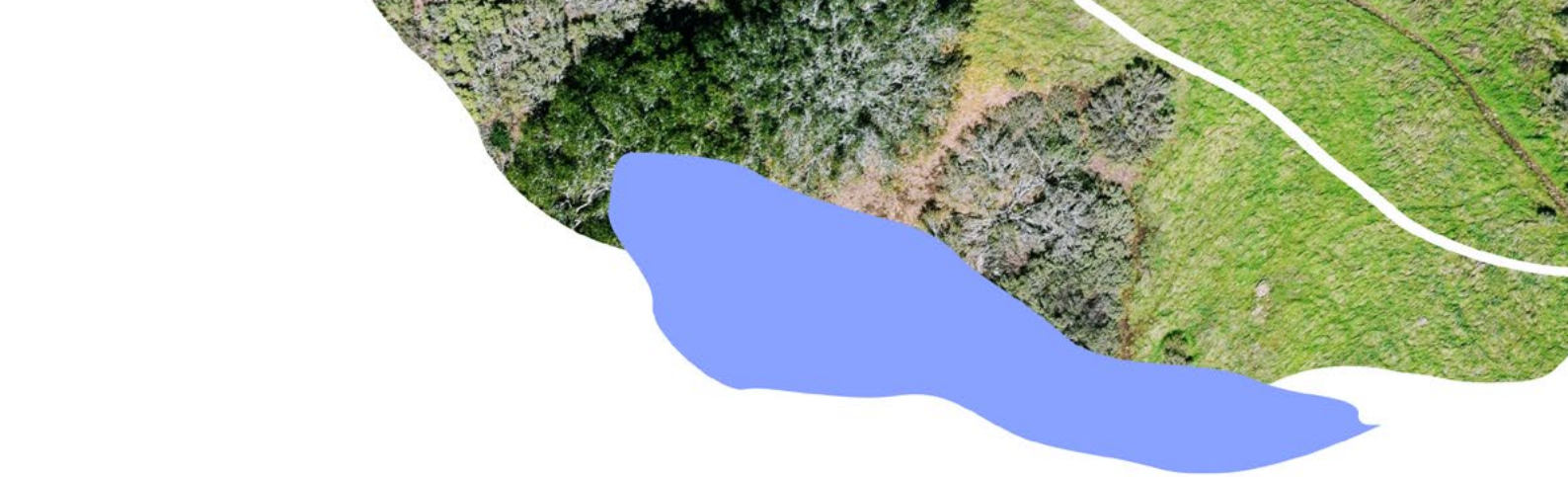
Carbon sinks

Soils also serve as crucial carbon sinks. As the French Ministry for Ecological Transition notes[47]: "Soil organic carbon mainly results from the transformation of plant debris into organic matter and nutrients (nitrogen, phosphorus, potassium). On average, composed of 58% organic carbon, organic matter binds with soil minerals in its most advanced forms. This property enables soils to buffer water, air, subsoil, flora, and fauna: trapping contaminants, regulating greenhouse gases, and improving fertility, stability, water retention, and soil biodiversity."

Here again, soil type and health are decisive. According to the Ministry, "lower carbon stocks are found in vineyards (34 t/ha) and highly intensive crop zones, medium stocks in large cultivated plains (around 60 t/ha), higher stocks (80–90 t/ha) in meadows, forests, and natural pastures, while mountain soils (Alps, Ardennes, Jura, Massif Central, Pyrenees, Vosges) contain the highest carbon stocks (over 130 t/ha), due to climatic conditions that are not favourable to microorganism activity."

Some companies are striving to preserve and regenerate soils. One example is the World Living Soils initiative by Moët Hennessy (part of the LVMH group, a partner of 2050Now), mentioned above and in the first study. The Living Soils Forum bring together a variety of stakeholders—startups, farmers, scientists, NGOs, and others—to share best practices and innovations aimed at preventing soil degradation, within an international framework. One of the goals is to define science-based KPIs and robust methodologies. Naturally, this is a long-term endeavour, and there is still a long way to go, as an estimated 40% of the planet's soils are already degraded.

The case of Nestlé Waters (Perrier, Vittel, Hépar) illustrates *a contrario* the risks faced by companies exploiting a natural resource ("natural mineral water") that failed to sufficiently protect the surrounding land, despite the legal obligation to sell water without treatment or filtering. The matter is now before the courts, due to arguably excessive exemptions granted by public authorities, leading to a French Senate inquiry[48]. This underscores that while prevention may seem costly at first glance, reputational damage or product withdrawals carry an even higher price. In this case, the very continuation of natural mineral water exploitation is at stake.



Existing solutions

Some solutions involve rediscovering ancestral practices abandoned when agriculture was mechanized, but whose wisdom is increasingly recognized today.

Hedgerows[49]

From the 1950s, land consolidation was encouraged to facilitate the use of agricultural machinery, leading to the uprooting of hedgerows and removal of groves. Roadsides were also cleared to prevent car accidents. At the same time, private gardens were increasingly planted with standardized nursery species, offering less biodiversity. As a result, 70% of hedgerows disappeared in France, with the remainder poorly maintained or abandoned. Even though new plantings have resumed (around 4,000 km per year), they do not offset removals (–23,500 km between 2017 and 2021).

Other solutions are technology-driven. The German company The Landbanking Group proposes using AI to assign soils a value based on their quality, across a set of indicators (water, soils, biodiversity, carbon), tracking their evolution over time with satellite assistance.

The Landler THE LANDBANKING GROUP

This company has developed a tool called "Landler," publicly presented on 15 August 2025, which uses artificial intelligence to measure and update data reflecting the vitality of a given plot. It serves both as a management and decision-making tool and facilitates reporting. Once a reliable value is established, certificates can be issued and recorded on a landowner's balance sheet or transferred as credits to investors. Each natural attribute of the soil is listed as units and thus becomes an asset, termed nature equity.

For European farmers, CAP funding could even be linked to measured and verified biodiversity preservation. In the longer term, the idea could be to create a sort of "Cadastre 2.0" or "Natural Capital Cadastre," managed by public authorities, not only recording parcels in hectares like a traditional cadastre, but also serving as a qualitative register.

In all cases, it is now possible to recognize and remunerate preservation actions that have long been neglected.

In Africa, The Landbanking Group is working with the AMES Foundation to verify conservation outcomes in nature reserves, quantifying them into "biodiversity units." This includes the Dabchick Reserve in South Africa, where giraffes, rhinos, crocodiles, and other endemic species have been reintroduced, in cooperation with local communities (IAPB project).

For now, as its name implies, Landler focuses on measuring soil quality. One day, it may be possible to design tools suited to marine ecosystems, particularly in coastal areas, even if the MRV approach (Measuring, Reporting, Verification) is far more complex to apply at sea.

Regardless of the tools that are ultimately adopted, the transformation of the CAP, which until now has encouraged intensive production without always measuring the negative externalities on the environment and human health, should be on the agenda. Indeed, the EU and the 27 Member States party to the 2022 Montreal Kunming agreements have committed to 'identify and reduce harmful subsidies' (target 18). The stakes are high: the CAP is currently the EU's largest policy in terms of budget (€387 billion for the 2021-2027 period, or roughly a quarter of the total European Union budget).

Finance as a lever

Awareness is also growing in finance. Hubert Keller, Lombard Odier's Senior Managing Partner, expressed his concern in clear terms[50]: "We have exploited too much of the earth's habitable space." For investors, this is not only about environmental virtue signalling, but about better assessing the risks that soil degradation poses to the returns of the companies they finance.

For insurers, both sides of their business are affected. On the one hand, they face rising claims from extreme weather events exacerbated by land degradation and artificialization—physical pressures that damage people and property. On the other, they must factor these new risks into investment policies and help mitigate them. For example, Generali's agricultural subsidiary, Gruppo Leone Alato, supports projects to restore degraded farmland (with replanting financed through a 30-year carbon offset mechanism – IAPB pilot project).

With AXA Climate, the AXA Group has developed pioneering expertise to support companies in managing climate-related risks. As Thomas Buberl, CEO of AXA, stated during an event organized by 2050Now, *"A company that has not developed its adaptation plan will soon no longer be insurable."*

The issue now emerging is indeed that of the **end of "insurability"[51]**, with all the social consequences that the absence of coverage could entail. In the United States, for instance, insurers have stopped covering homes located in certain hurricane-prone areas of Florida.

At some point, the principle of **risk pooling**, on which the insurance model is based, may reach its limits. In France, while public authorities currently provide exceptional protection through a natural disaster fund, questions remain about how long this system will remain viable—given the state of public finances and the rising cost of disaster-related premiums.

The **European Central Bank (ECB)** and **EIOPA** (the European Insurance and Occupational Pensions Authority) have taken up the issue, proposing a combination of public and private risk pooling at the European level[52]. And should we even continue to call events caused at least in part by human activity natural disasters?

Sovereignty, really?

Proponents of intensive agriculture often invoke sovereignty. They are right to emphasize the importance of independent food production to cover at least the vital needs of the population.

However, on the one hand, industrial agricultural land is not always dedicated to essential food production. Our highly meat-based diet results in animal feed consuming 40% of the cereals produced, not to mention the tons of grapes, sorghum, and rice used to make spirits; similarly, significant quantities of sugarcane, beets, and rapeseed are used to produce fuel. One of the paradoxes in the debate around reintroducing a toxic pesticide intended for sugar beet production is that the question of whether this production was worthwhile to the point of being irreplaceable by anything else has not been addressed. It would, however, be interesting to ask whether this production "promotes human health," as highlighted by Fabrice DeClerck, coordinator of the food chapter in the latest IPBES report[53]. According to him, sugar, an overproduced commodity, is largely responsible for the rise in obesity. Conversely, the production of fruits, vegetables, legumes, and nuts is notoriously insufficient. "Agriculture has a tremendous opportunity to produce more of what is necessary for human health." He concludes by pointing out that "international research finds no evidence that an agroecological transition is incompatible with maintaining productivity. In fact, it's the opposite."

On the other hand, for this reason why not prioritize natural regeneration, which reduces dependence on imported fertilizers, pesticides, and the fuel needed to apply them? Environmental protection and concern for competitiveness / sovereignty can converge. In its weekly *Warm* newsletter, 2050Now Media has already described “geopolitics in the age of transitions.[54]” Encouraging the transition to regenerative agriculture is not a step backward, nor a renunciation, but the will to continue producing while integrating new knowledge about hedgerows, agroforestry, beneficial insects that reduce pesticide use, and natural fertilization through species diversity. These methods would also protect farmers’ health, as they and their children in rural areas are today the primary victims of toxic products[55].

And what about Europe?

In the European Commission's "Strategy for the Common Agricultural Policy" (CAP), adopted in early 2025, it reiterates that "the European agricultural sector plays an important role in the transition to a low-carbon economy" and that "this vision of agriculture and food highlights the need to meet climate objectives by 2040." The document affirms that agriculture must comply with EU climate goals, protect and restore biodiversity, and preserve natural resources through measures such as healthy soils, clean water and air, and reduced CO2 emissions.

We have already noted that the EU and the Member States, parties to the 2022 Montreal-Kunming agreements, are committed to reducing and respecting their commitment to 'identify and reduce harmful subsidies' (Target 18).

It remains to be seen how much of these good intentions will survive negotiations over the EU's multiannual budget. Neither the Commission nor governments have yet indicated how the prospect of Ukraine and about ten other countries (Moldova, the Balkans, etc.) joining the EU will impact the CAP (maintaining a productivist vision? promoting short supply chains and another agricultural model?).

WATER

A Shared Challenge

Of all the services nature provides, the supply of water is among the most vital. Everyone knows this, of course, but in developed countries we no longer fully appreciate the miracle represented by safe water flowing from our taps. Even today, billions of people are consigned to time-consuming water-fetching chores and lack sanitation and orderly waste management, which makes them more vulnerable to disease.

It is above all a public health issue, but it is also one of the conditions for quality of life and economic activity.

Evidently, the southern regions of the Northern Hemisphere are particularly exposed. As in the tragedies seen in Los Angeles, Athens, or Portugal, the major wildfires in Aude, France in August 2025 showed “to what extent vegetation and water have ambivalent relationships” (Grandcolas). Due to fallow land linked for example to the uprooting of vines, there is less vegetation, less green water, more drought or runoff in the event of extreme climate. But the proliferation of certain scrublands also means more vegetation, more risk of fire especially if conifers or Eucalyptus are planted as rapid “reforestation". In any case, these tragedies show the importance of thinking about plant cover, the ravages of drought, aggravated by the proliferation of wasteland, the absence of concerted management of the resource including urban planning, the prevention of artificialization and erosion, etc.

The days are over when water issues concerned only southern regions. This is no longer the stuff of Marcel Pagnol folklore, but a vital challenge. Public authorities should communicate more directly and more clearly about the value of water and the need to preserve it, starting with combating leaks and stopping wasting water.

Manon des Sources is now happening everywhere. Even in Germany, barge transport on the Rhine is already affected by low water levels[56]. The consequences are real: they do not concern irrigated agriculture alone but also industrial enterprises. In 2023, the French Court of Auditors[57] had already sounded the alarm, with a frank report on water quantity management in a time of climate change: we risk running out of water, and the seriousness of the problem requires more than just building "basins."

Several 2050Now companies have made specific commitments to reduce their water consumption. It would be tedious to list them all, but the announced effort is "-25% by 2035" for the SNCF group[58]; for Veolia, "1.5 billion cubic meters of freshwater preserved by 2027 through the reuse of treated wastewater, desalination, and the reduction of leaks in the network." Train passengers, for example, have little idea that a huge basin is hidden beneath the Gare de Lyon in Paris to collect rainwater.

Beyond the ecological benefits, the fight against waste is part of good management. Certainly, the very low cost of water, especially in large industrial facilities, does not necessarily make it a major profitability issue. Nevertheless, tracking leaks or using reclaimed water for certain purposes, for example, reduces fixed costs and helps convey a message of environmental respect to employees. The increased obligations to publish non-financial data, often criticized, may have led companies to better measure the extent of waste that had never been recorded before, due to a lack of systematic approach[59].

EDF and Water for nuclear power plants

We invite sceptics to read the consistently pertinent and forthright statements of Catherine Halbwachs, EDF's ESG Director, regarding nuclear power plants: "our first problem will be water."[60] During the summer of 2025, the Golfech plant had to be shut down for a time because the Garonne's water was already so warm that ecosystems would not have tolerated the discharge from the cooling systems, whose temperature is high.

This is why EDF is also engaged in pilot projects such as the one carried out with the IAPB and La Belle Forêt in the Chambord estate. The objective is to conserve healthy trees capable of withstanding rising temperatures, allowing the forest to continue playing its role: maintaining soil moisture and ensuring, downstream, sufficient river flow for cooling power plants. Financing for these efforts could be provided through the issuance of carbon credits with biodiversity "co-benefits," since the Chambord estate has committed to preserving 811 hectares of forest and to working to conserve biodiversity across 4,280 hectares. Performance will be measured every five years, with an impact on the value of the credits purchased by EDF.

Leading climate scientists such as Johan Rockström of the Potsdam Institute for Climate are beginning to emphasize water's importance for the economy[61]. Even the European Central Bank has started to warn of the economic and financial implications of water scarcity. In a recent blog, ECB teams stressed that the European economy is "drought-proof[62]."

These analyses help explain why building "mega-basins" to irrigate crops ill-suited to climate change (notably protein crops for livestock), without a comprehensive reflection on protecting wetlands and woodlands, replanting hedgerows, using the resource sparingly, or rebalancing overly meat-heavy diets, amounts to a short-term, easy way out.

Innovative solutions exist.

By virtue of their business, in this context, certain companies face new opportunities. France even counts world leaders in water treatment and pollution control, such as Veolia. The acquisition of Suez, for example, brought GE Waters into the group—specialized in filtration membranes, which are crucial for seawater desalination[63].

A coalition of CEOs eager to take action was born under the aegis of the UN Global Compact[64]. The Water Resilience Coalition aims to mobilize businesses to preserve water. Actions are focused on 100 priority basins, and progress is monitored annually.

VEOLIA and Water preservation

"When we talk about climate-change adaptation, the first issue is water—too much, too little, at the wrong time, or of the wrong quality," says Veolia CEO Estelle Brachlianoff[65].

This is why the range of solutions is diverse: it involves preserving resources by improving network efficiency, reusing wastewater, and reducing the water footprint of customers; and promoting access to essential water and sanitation services for populations. Parallel efforts to limit waste and pollutant transfers also have a positive impact on water resources, as does the serious collection and management of refuse. Naturally, implementing sophisticated solutions sometimes runs up against local living conditions (informal settlements), governance failures (endemic corruption, illicit hookups). This is the challenging environment Veolia faces in India, which has nonetheless not prevented it from bringing potable water to thousands of people"[66].

Quantity, Quality, Sovereignty

The quality of drinking water is becoming an increasingly acute issue, including in Europe. The presence of "forever chemicals" and pesticides in groundwater is now established at worrying levels. It would be impossible to cite all the scientific and journalistic articles on the subject, but there is no doubt: deterioration in water quality is massive and widespread[67].

Hence the importance of plans for transformative changes where water agencies and municipalities subsidize new practices such as agroecology, with numerous co-benefits, prevention costing infinitely less than decontamination.

After years of formal notices and nudges, in 2025 the European Commission decided to bring infringement proceedings against France before the Court of Justice of the EU for chronic exceedances of nitrate levels in seven French regions. While companies such as Veolia state they can decontaminate these resources, the task is immense, and once again, prevention would curb costs that risk becoming staggering.

The Battle for Water[68]

A heightened awareness of sovereignty and security issues once again urges us to focus on preserving water resources—their accessibility and their quality. The battle for water is only just beginning[69]. One of President Trump's motivations when he says he wants to incorporate Canada into the United States could well be that country's vast water resources[70], given that American lakes (for example, Utah's Great Salt Lake or California's Owens Lake) are drying up due to warming and excessive agricultural and mining consumption. As a *Le Monde* journalist wrote, for Donald Trump, "a very big tap" runs from Canada to the United States. The U.S. president has notably expressed interest in the Columbia River, which he hopes to divert. He has suspended talks toward an international treaty on the matter, opting for an offensive approach over a cooperative spirit.

Elsewhere, dams are being built to appropriate water resources, resulting in tensions between Egypt and Ethiopia[71], for example, or between India and Pakistan[72]. We should not underestimate the risk of conflicts that will intensify with rising

temperatures and the spread of AI—voracious in both energy and water. For downstream Pakistan, unilateral Indian measures are “an act of war.”

Finally, it is time to recognize that glacier melt is not merely sad for mountaineers and alpinists; glaciers are the planet’s “water towers.” Our most precious freshwater reservoirs are under threat and, with them, our supply of drinking water. Provençals know well that the Craponne Canal, built in the 16th century to bring water from the Alps, is never as full as in summer when the snow melts on the peaks. And it is an incomparable joy to see this abundance of living water on sweltering days.

Tipping Points?

The UN has already warned of the “tipping points” feared by scientists—events that could lead to the collapse of the ice sheet, to the rise in sea level or even, in the long term, to the transformation of the Amazon rainforest into savannah or the reversal of ocean currents[73].

Some researchers challenge this approach, while admitting that the direction the planet is taking is unsustainable. In a study of this format, we will not delve into the controversy. In the face of such warnings, it is human to look away, so powerless do we feel. We hesitated to recall them here because “catastrophism” does not work. But it would be irresponsible to play ostrich. The studies exist, as does empirical experience, as shown by the two heatwave episodes of summer 2025. When we speak of preventing the planet as a whole from reaching +2°C, we are talking about averages. Locally it can be much higher, and official scenarios in France envisage +4°C within a few decades. As for the Mediterranean, it is the fastest-warming sea.

The only responsible attitude is to roll up our sleeves and do everything that is possible. Business leaders, managers, and policymakers also have a duty of clarity. Many people around the world refuse to give up. The United Nations Ocean Conference, held in Nice in June 2025, was, in this respect, a valuable moment of collective mobilization in a constructive atmosphere.

OCEANS

When we Speak of "Biodiversity," many think of Forests. Alongside forests, however, the oceans represent an equally crucial issue—both ecologically and economically, given the importance of the "blue economy."

The ECB's Analysis

In a speech delivered in Monaco at the *Blue Economic and Finance Forum*, opening the above-mentioned UNOC conference[74], European Central Bank President Christine Lagarde emphasized the oceans' vital role. The seas ("95% of the biosphere") are simultaneously a reservoir of species (many still unknown to us) and an economic resource, providing hundreds of millions of people with protein, raw materials used in pharmacology, and employment. The ocean is also "our ally in the fight against climate change," due to its CO2 absorption.

For this reason, she urged finance and business leaders to measure humanity's dependence on these ecosystems and to limit their impact. Today, 80% of coral reefs are affected by rising temperatures—yet entire ecosystems, and many local populations, depend on these reefs. Scientists have recently warned about crossing a first "tipping point," due to their widespread decline[75].

Not to mention the sea-level rise caused by melting glaciers: according to the ECB, more than 600 million people worldwide live in coastal zones less than 10 meters above sea level. Stopping greenhouse gas emissions is imperative, but given ongoing transformations, we must above all "prepare," she argued, stressing that "the cost of inaction would be higher" than the hundreds of billions of dollars in annual climate-related costs projected around 2050. Among the solutions, she cited "innovative approaches to converting natural capital into financial capital," referencing the work of Ralph Chami's *Blue Institute*.

It is in Monaco, moreover, that the annual *Monaco Blue Initiative* takes place each March, bringing together global stakeholders convinced that "the blue economy" is essential and that the oceans must be preserved, including by companies based far away from the coasts.

A student group from SDA Bocconi, enrolled in the Master in Sustainability Management, analyzed the case of the Pirelli Group and the broader tire industry, focusing on the implications for aquatic ecosystems. Tires are produced from a mix of natural and synthetic rubbers, polymers, and chemical additives designed to provide durability, elasticity, and grip. However, during their use, abrasion against road surfaces generates micro-particles that are released into the environment. These particles are transported by runoff into surface waters, canals, and rivers, eventually reaching coastal areas and the sea. The project highlighted the complex link between tire materials, abrasion, the generation of micro-particles, and their cascading impact on aquatic ecosystems. In particular, through the Pirelli case, students examined the strategies the company is implementing to make its products more sustainable and circular, while reducing their environmental footprint on freshwater and marine systems.

Finance Leading the Way

Other financial actors have invested in research on marine issues. BNP Paribas, for example, published a report during UNOC reviewing five years of action for ocean protection[76]. The report highlights pressures on marine ecosystems—especially climate change and overfishing—and presents various projects, including innovative start-ups financed by the group. BNP Paribas is also working on methodologies to measure the marine biodiversity footprint of its financial portfolios.

Insurance company Axa co-chairs the *Ocean Risk and Resilience Action Alliance (ORRAA)*, created after the 2018 Ocean Risk Summit to bring together finance, insurance, governments, and non-profits. BNP Paribas joined ORRAA during UNOC. The goal is to stimulate investment in marine and coastal natural capital, reduce oceanic and climate risks, and strengthen the resilience of coastal communities. Axa also offers specific products in Central America and the Caribbean, accounting for the fact that coral reefs provide protection against tropical cyclones. After such events, premium payouts are intended to be used by clients for restoration activities such as debris clearing and reef rebuilding.

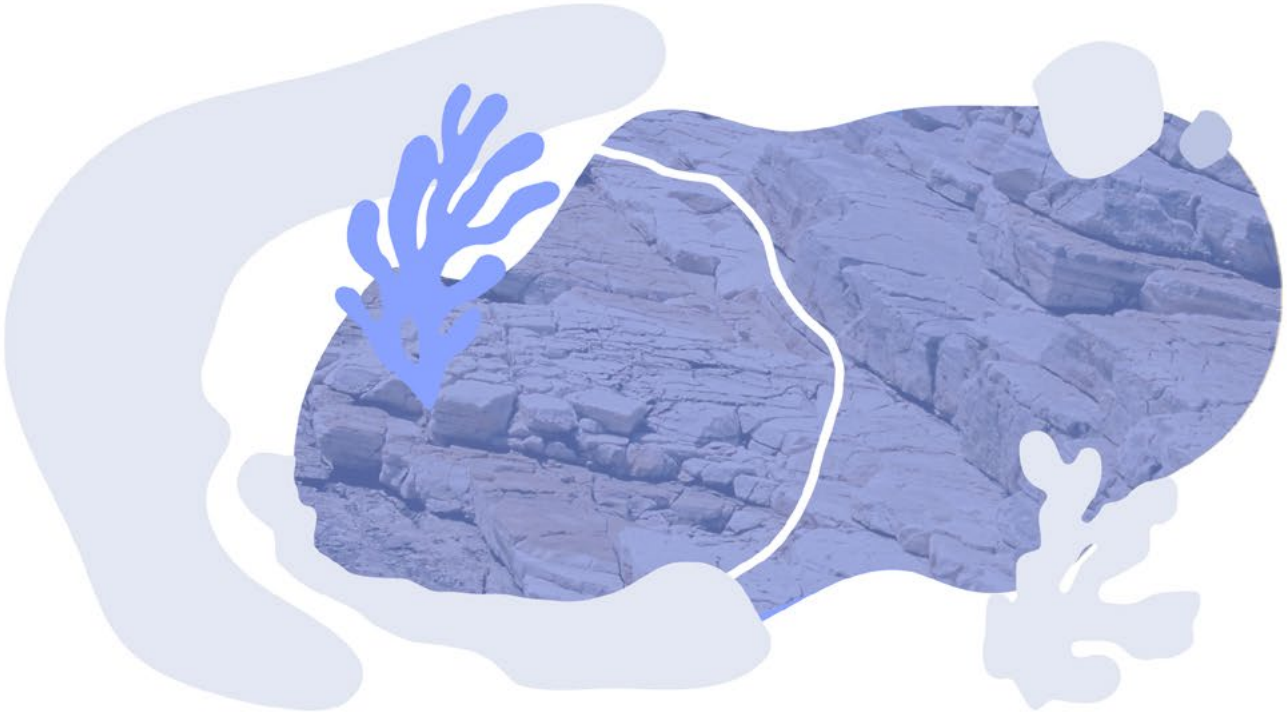
Despite these innovations, contradictions persist in our approach to the sea, even in Europe. Greece recently announced the creation of two new marine protected areas in the Ionian and Aegean Seas, where trawling will be prohibited. While enforcement remains to be seen, this is more ambitious than in other EU countries (France, Italy,

Spain), where trawling continues to be tolerated[77]. Despite scientific analyses and NGO advocacy for bans, such practices even receive public subsidies[78]. Yet trawling devastates ecosystems by scraping the seafloor and indiscriminately catching not only marketable fish but also turtles, inedible species, dolphins, algae, corals, and more. This destructive and wasteful combination is powerfully documented in Sir David Attenborough's magnificent film *Oceans*[79], screened at UNOC in Nice. Fortunately, the British filmmaker also shows that the sea is capable of regenerating—if only we give it the chance.

*

These brief spotlights on soils, water, and oceans are not intended to cover all aspects of the action needed to preserve nature. The social dimension of any action in favour of nature, as well as waste management or circularity or pollution and even noise, would have deserved to be part of this work. Choices were made only to keep the format of the study manageable. These three fields do, however, confirm the urgency of acting with an integrated understanding of the interactions between natural ecosystems.

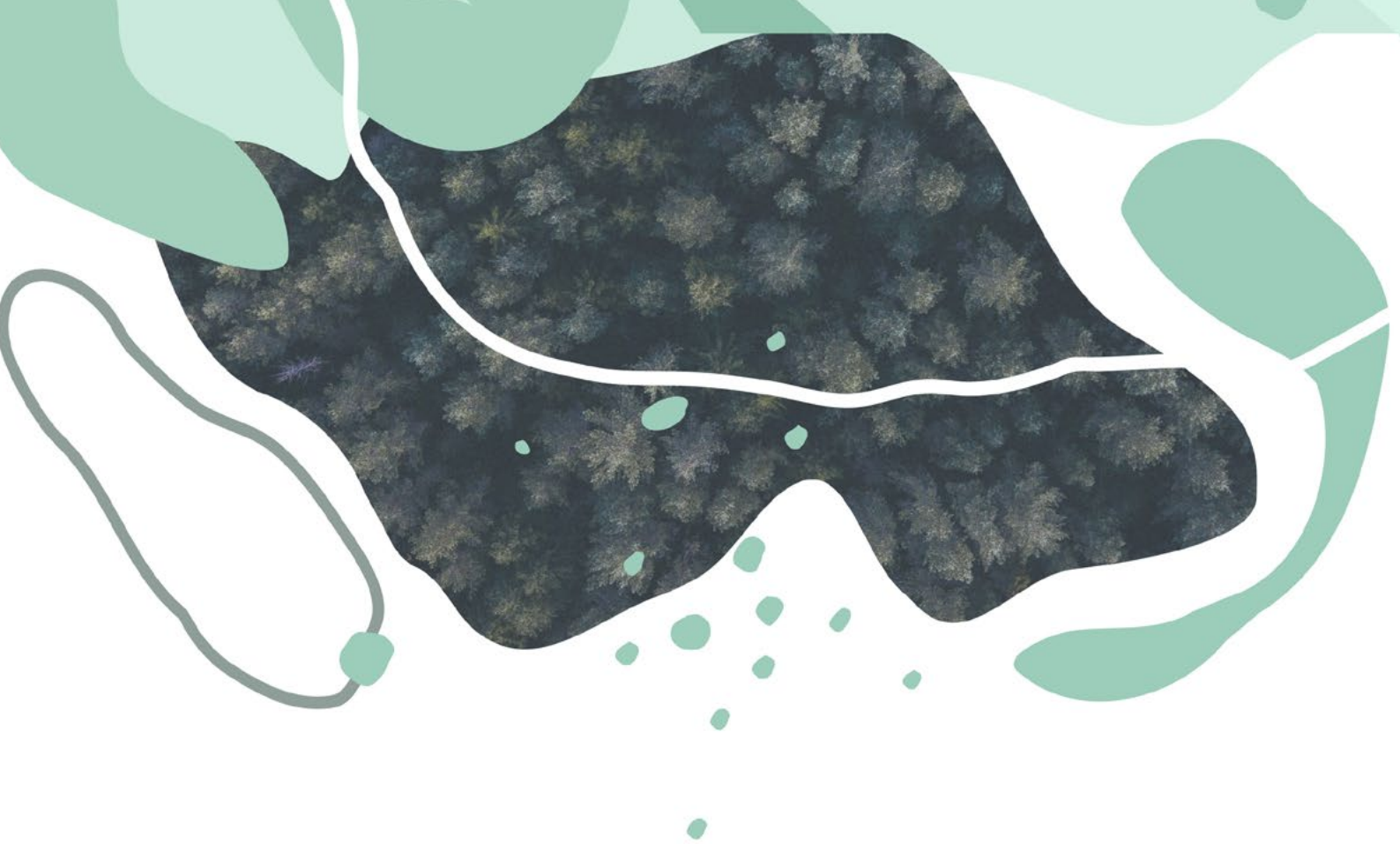
They remind us that if we stop abusing it, nature knows how to repair our mistakes. Virtuous circles exist: for example, healthy seagrass meadows, coral reefs, and mangroves protect coasts from erosion while absorbing carbon. We have no alternative but to repair the damage born of our past arrogance toward nature—by relearning how to work with it, rather than against it.



02

Centring Resilience on Nature

Facing up to reality, becoming more resilient, and working to curb climate change are the challenges before us. There is no point in lamenting that environmental policy is “punitive,” or in blaming “bureaucrats” and “their rules.” Major transformations of the living world are underway before our eyes. Scientists must be heeded all the more because the longer we wait, the costlier the solutions become.



BNP Paribas published a paper in 2025 urging alignment between the pursuit of economic value and sustainability[80]. To that end, the bank's researchers advocate building resilience through four vectors:

1 - **adaptation to climate change** (e.g., withstanding pressures on agri-food systems);

2 - **nature conservation** (energy efficiency, investment in natural ecosystems, circularity, etc.);

3 - **the climate transition** (financing low-carbon solutions, for example); and

4 - **societal resilience**, with equity and social resilience viewed as drivers of economic resilience.

Practically speaking, how should we proceed? For Philippe Grandcolas, even though there are many specific cases, the golden rule is to understand that a complex ecosystem will always be more resilient than an impoverished one. This consideration is fundamental both for the management of productive ecosystems and for restoration or compensation.

Resilience also requires more precise measurement of ecosystem services, as well as of biodiversity gains and losses. A comprehensive risk approach is also needed—one that does not pit environment against security/defence, or competitiveness against the environment. Even if the task is immense, solutions exist that combine greater frugality, recourse to ancestral methods, and support from modern technology.

MEASURE WELL TO ACT BETTER

In the previous study[81], we already underscored the importance of assessing companies' dependencies on nature and their impacts. Sound decision-making—in public policy as well as corporate management—requires reliable, comparable data. The complexity of nature-related questions cannot (in good or bad faith) be invoked to justify inaction, especially since measuring biodiversity gains and losses is possible.

"Material" Risks

High-quality work increasingly shows that nature-related risks are material for investors and companies. The TNFD, in cooperation with the University of Oxford and Global Canopy, recently published a study leaving little room for doubt[82]. Drawing on interviews with company and financial-institution representatives, case studies, public sustainability reports, and academic research (over 360 sources), the work demonstrates that, due to business impacts and dependencies, nature-related risks are non-negligible and potentially carry financial consequences—warranting better information for investors. Although habits shaped by the past and calls for "simplification" tend to minimize or ignore them, TNFD's message should serve as a wake-up call. Reporting is not (only) a regulatory exercise. It is a strategic tool meant to transparently guide the choices of investors and financial institutions.

The retreat from CSRD ambitions is all the more regrettable because—even if, in the first year, effort outweighs benefit—data collection enables valuable analyses and comparisons over time.

Some lament that there is no nature equivalent to the "ton of CO2" valid *urbi et orbi*. It is true that the diversity of life and local ecosystem specificities do not lend themselves to a single metric. But we should not be misled by the apparent simplicity of the "ton of CO2." It has not erased national barriers—still the main obstacle to mobilization—nor yielded a global carbon price. Indeed, if an all-purpose indicator made matters so easy, why do we still struggle to halt climate disruption?

Absent a single indicator, it is entirely possible to determine criteria that verify the rigor of an approach. An IAPB working group has done so, proposing the following conditions: measurement must be conducted transparently (publication of calculation methods and results), under the control of a qualified, independent third party, at the project scale; with precise targets; and with assurance that efforts yield an actual improvement relative to inaction. These (cumulative) conditions apply regardless of ecosystem and of the tools used (satellite monitoring, on-site human inspection, concealed cameras to count animals, genetic sampling, etc.)[83].

The **French Council of Economic Analysis (CAE)** also recently published a study aimed at "integrating the various services provided by forests into national accounts and informing public policies by making visible the costs and benefits—previously implicit—of actions in favour of forests."[84]

"Questions a Manager Should Ask"

In 2025, the TNFD designed and published, for boards and senior executives, a list of twelve straightforward questions to begin defining a strategy.

For managers who want to ask the right questions ...

1. ***Relevance of nature to our business***
   - *How and where is our activity dependent on nature, or does it impact nature?*
   - *How might our dependencies and impacts on nature create financial and non-financial risks?*
   - *How might they create opportunities?*
   - *What is the relationship between climate-related dependencies/impacts/opportunities and those related to nature?*

2. ***Decision-making***
   - *How do we assess and measure potential nature-related risks and opportunities, and what data do we produce and use?*
   - *How do we engage with local populations, Indigenous communities, and other stakeholders? Do we know how to involve them effectively?*
   - *How does management factor nature into short- and long-term decisions?*

3. ***External context (markets, standards, regulation, investor expectations)***
   - *How are we preparing to account for nature's evolution in the regions and markets where we operate?*
   - *Do we track regulatory developments and investor expectations—including voluntary approaches—across all regions where we are active?*

4. ***Capabilities and organization on nature-related topics***
   - *Do the executive team and the board possess the competencies required to carry out the necessary transformations?*
   - *Has the company organized and secured, over time, the capabilities and resources to address nature-related topics, including assessment and training?*

5. ***Board oversight***
   - *Are we certain we are fulfilling all our duties with respect to nature in every region where we operate—and if so, on what basis?*

This list is just an example. This concrete approach is an invitation to "get started." We are aware of its somewhat dry nature, and of the fact that it gives more weight to risks than to positive messages such as opportunities for new markets, strengthening team cohesion within the company, reputational gains, etc. In any case, there is no shortage of tools for this purpose.

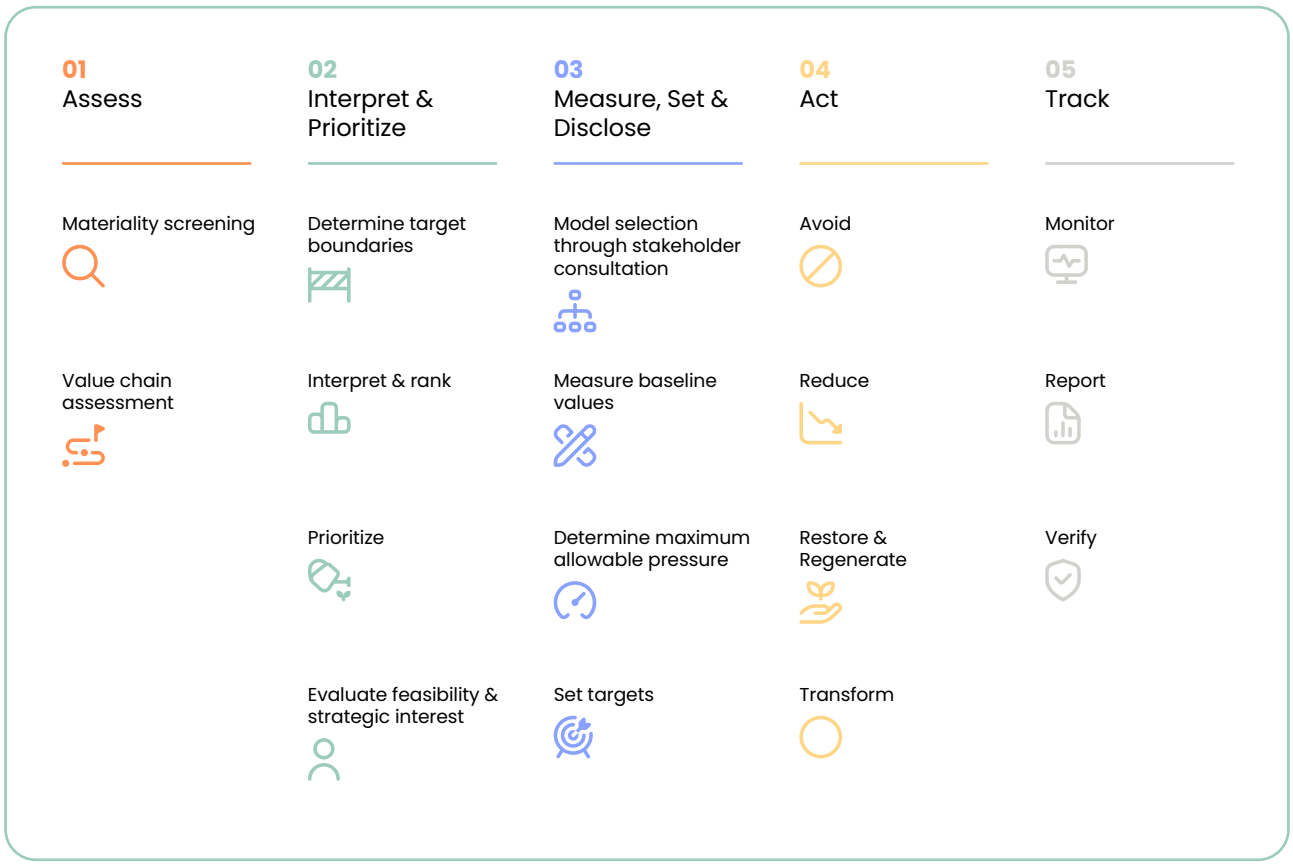
Many Tools at Hand

We do not claim to list them all here. Even if these instruments are imperfect, setting precise, verifiable, quantified objectives with KPIs is feasible—and they can be refined, improved, or complemented progressively. A few suggestions follow.

The *Fondation pour la Recherche sur la Biodiversité* (FRB)[85] has made available to companies a guide to expert methods. Some of these instruments, developed with scientific support from the *Office Français de la Biodiversité*, enable managers to "decide in full knowledge of the facts."

We can also mention a global effort: the framework recommended by SBTN (Science Based Targets Network).

Methodological steps in the SBTN framework



The SBTN target-setting process is divided into five steps: Assess, Prioritize, Set Targets, Act, and Track. For each step, methods, tools, and additional resources are available to guide companies through the process. The first two steps help companies measure and prioritize their environmental impacts; the third enables them to set targets, starting with freshwater and terrestrial ecosystems. Ocean-related targets will be available in 2025, and climate targets are set through SBTi. Detailed technical guidance is currently available for the first three steps. Further publications covering the last two—Act and Track—are expected during 2025.

Its promoters define it as follows: "We define science-based targets for nature (SBTN) as measurable, actionable, and time-bound objectives, based on the best available science, that allow actors to align with Earth's limits and societal sustainability goals." SNCF, for example, has begun the step-by-step process planned to comply with it.

Naturally, approaches differ. For example, the UK's *Biodiversity Net Gain* legislation—requiring infrastructure developers to offset their local impacts—has chosen habitat as the measurement level for improvements. Others recommend a more granular, species-level measure. We must stop assuming that uncertainties arising from such debates are deeper than those found in other management domains. Industrial processes fail; mergers go awry; HR decisions can miss the mark. Running a company is, by definition, engaging with risk. The unknown is unsettling but must be faced. New tools, developed in part thanks to AI's analytical capabilities, are promising in this regard.

A study by SDA Bocconi, led by Prof. Francesco Perrini[86], has examined the specific difficulties faced by SMEs for their risk assessment. In a context where, according to the ECB and the European Insurance Supervisory Authority, published in December 2024, damages related to natural disasters have cost around €900 billion and where damages are more frequent and more serious over the years, the vulnerability of SMEs should be a matter of concern: firstly, they have limited financial means to absorb shocks; secondly, they often have a single location, their suppliers and customers being in the same area as well, which concentrates the risk. Finally, they do not necessarily have access to sophisticated coverage products. While 75% of larger Italian companies are aware of climate risks, only 31% of SMEs are. However, those that have already adopted a sustainability strategy are better prepared (69%). Thus, the calculation of risk cannot be separated from the company's overall strategy. Risk calculation cannot be separated from the overall strategy of the company.

AI and the Sea — OII[87]

The Ocean Impact Initiative[88], developed by the One Ocean foundation with the support of SDA Bocconi, McKinsey & co. and the Spain's National Research Council (CSIC),—an effort recognized by the *Financial Times*[89]—offers a compelling example. It was praised as combining "solid academic research" with a very practical drive to raise awareness of an under-studied topic.

The Ocean Impact Initiative (OII)

Presented in Monaco on the sidelines of UNOC in June 2025, *the group convened by the One Ocean Foundation worked to equip companies with a tool for assessing their direct and indirect impacts on marine ecosystems. The framework enables organizations to understand their marine environmental footprint and act to reduce it. It encourages disclosure of ocean-related data in sustainability reports, in the spirit of what the Carbon Disclosure Project fostered for greenhouse-gas emissions or forest impacts.*

The oceans are the planet's largest ecosystem—vital to human survival and health. One of the UN Sustainable Development Goals (SDG 14, "Life Below Water") is dedicated to them, but it has long been the poor relation of sustainability debates, with only a minority of actors reporting on these issues (9% of economic actors). Since roughly 90% of pressures on the oceans originate on land, it is crucial to extend "blue" awareness to "non-marine" sectors. If achieved, this would mark a turning point for ocean preservation.

As often with innovation, the group's approach was iterative. The first idea was to design and send an ad hoc questionnaire to 2,500 companies, covering eleven criteria deemed pertinent to measuring an activity's impact on the ocean. This yielded limited results. The team then turned to "reverse engineering": rather than asking for specific new data (always burdensome), AI was used to extract from companies' existing sustainability reports—typically paying scant attention to the marine environment—the information needed to reconstruct their ocean footprint. Provided one filters out some initial AI "hallucinations" and start-up errors, and corrects for the usual bias of sustainability reports (showcasing companies in the best light), generalist reports proved sufficient to produce actionable data.

Because the underlying data are public, the project enabled creation of an online platform where companies can benchmark themselves against peers.

Next steps *essential to ensure that the "blue economy" prospers—i.e., that the ocean is used sustainably—include:*

- *Raising awareness in "non-blue" sectors responsible for marine pressures (plastics, agriculture, hydrocarbon users, etc.);*
- *Encouraging finance and business to seek innovative solutions so as not to lose time in combating climate disruption;*
- *Fostering transparency via a shared disclosure system and databases (Ocean Disclosure Initiative).*

COMBINING SAFETY, COMPETITIVENESS, & THE PRESERVATION OF NATURE

Addressing all threats

In a troubled geopolitical context, the renewed focus on security and defense issues is entirely justified. However, increased uncertainties should not obscure the seriousness of threats related to climate and nature. The fact that some politicians ignore or caricature them does not make them disappear, nor reduce their impact on human health. In France, the Article 1 of the *Environmental Charter*, which is part of the Constitution states that "everyone has the right to live in a balanced environment that respects health."

The dangers may even worsen due to a combination of geopolitical and environmental threat. A state that is well-equipped militarily but vulnerable to extreme weather events or sea-level rise would be exposed to destabilization. Scenarios are conceivable in which attacks are launched at moments of particular weakness (heat peaks, floods), as is the use of new means of harm (arson across multiple drought-stricken zones, cyberattacks on hospitals or sending stealth drones to disrupt emergency services).

Moreover, financing both the transition and defence efforts requires remaining competitive. That, in turn, demands adapting to climate change and finding new, more sustainable sources of revenue. For example, entire regions of Spain, Italy, or France risk losing tourism income—whether in snowless ski resorts, on coasts encroached upon by the sea, on beaches plagued by jellyfish, or, as in Spain in summer 2025, by venomous “blue dragons.”

Over the longer term, we must recognize that destroying a country’s often irreplaceable wealth— its natural endowment—inflicts deep, strategic damage. Soils exhausted by intensive agriculture will no longer support food autonomy or growth. When, in Italy’s Apulia region, an invasive bacterium destroys hectares of centuries-old olive groves, an entire historical heritage, a body of rural and gastronomic know-how, and a source of income disappear. Our terroirs are natural treasures. Without a preserved environment, there can be no agriculture that produces nutrient-rich, healthy food, no conviviality around the table,

no childhood memories in the kitchen with their wealth of emotions. Blending the most touching personal memories with the insights of a nutritionist, Erri de Luca's book *Stories of Familiar Flavours* reminds us of the importance of preserving soil quality for our health as well as for our prosperity and food security[90].

Heat also affects health and morale—civilian and military alike. The Allianz Research note cited above urges us to take the consequences of rising temperatures seriously. Armed forces, for instance, study "exertional heat stroke" suffered by soldiers undertaking intense effort under high temperatures while carrying heavy loads (with electronics now adding to the burden of weapons, helmets, body armour, etc.). U.S. medics recently managed to save a soldier whose core temperature reached 44.3°C—but such outcomes remain exceptional, for a young subject, with optimal care[91]. For the wider population—civilians and reservists—heatwaves (and deep freezes) equally mark periods of vulnerability. *Santé Publique France* has warned of heat's impact on the human body more generally.

We have already cited the *Warm* weekly newsletter, which incisively explores "geopolitics in the age of transitions." *Warm* has produced compelling dossiers—not only on water (#13) and agriculture (#14), but also on China's strategy to impose its decarbonized model globally (#11) and on vulnerabilities in Europe's power grids after Spain's blackout (#9), to name just a few recent examples.

All of this argues for addressing environmental and security issues head-on. Ongoing conflicts confirm as much. War inflicts not only terrible human losses; it also destroys cities and housing, energy and transport infrastructure, and harms biodiversity—thereby undermining quality of life and future economic outcomes. Images from Gaza—where starving people wander amid dusty ruins, with trees and cropland gone—are harrowing. In Ukraine, large swathes of territory are mined; soil is polluted with explosives and scarred by trenches. Beyond the grievous injuries and deaths, forest cover is destroyed; rivers, fields, and woodlands are durably degraded, with long-term consequences. Between Belarus and Poland, the largest primeval forest in Europe is now crossed by a wall and barbed wire.

New research seeks to map out *Sustainable Business Models* (SBMs) that "chart a path to redefining purpose, partnerships, and metrics in order to increase resilience and regeneration" (Prof. Pogutz). The reasoning has been applied, in work at SDA Bocconi, to the insurance sector "to incorporate sustainability into strategy and operations, using technology as a vector of success." Detailing this dense body of work here is not possible, but the model integrates the notion of planetary boundaries and employs measurement and disclosure tools such as the TNFD's. It invites companies to bring societal issues and community linkages far more centrally into the business model. Ultimately, the aim is to realign corporate governance with the objective of resilience.

These reflections should not suggest that once a company embarks on the path of sustainable business models, everything will become simple and profitable. Nevertheless, the imperative to strengthen resilience—both at the micro level

(firms) and at the macro level (society as a whole, our countries, Europe)—is undeniable. Current events show both the rise in risks and the multiplication of shocks linked to the stance of our competitors. For example, the Trump administration's reversal on climate has led many European investors to ultimately abandon efforts announced at COP26 in Glasgow in 2021 (e.g., the GFANZ alliance of insurers, asset managers, and banks). Do we truly believe the analyses that placed climate and nature risks at the top of our priorities? If so, is today's retreat merely tactical? This new "discretion" means detrimental choices for climate and nature are taken to avoiding incurring of the United States. What if they led us to abandon the fight? Scientists are unequivocal: natural phenomena are worsening. Climate denial poses a real challenge to reason.

Aligning governance with resilience goals

SBMs require strategic realignment of board structures and KPIs

- *SBMs in insurance require a transformation of governance - from narrow financial performance to multi-capital, long-term value creation.*
- *This includes treating **biodiversity, ecosystems, and community resilience** as financially material.*
- *The new governance logic is stakeholder-centered, forward-looking, and deeply intertwined with ecosystem health.*
- *Tools like TCFD, TNFD, CSRD are forcing this shift. Insurers that move now will build competitive advantage and regulatory alignment. Those that delay will face stranded assets, reputational risk, and a collapsing risk model.*

Governance Dimension	Traditional Insurance Model	SBM-Aligned Model
Strategic KPI	Short-term Return on Equity (RoE)	Long-term **Resilience KPIs** (e.g. Adaptation ROI, Risk Avoidance %)
Board Focus	Shareholder value & quarterly performance	**Stakeholder value** including ecological capital
Nature & Biodiversity	Treated as externalities	Treated as **material assets** requiring governance
Disclosure Alignment	Voluntary ESG reporting	Mandatory under **CSRD, TNFD,** and future solvency directives
Risk Governance	Loss history & actuarial forecasts	**Forward-looking,** ecosystem-informed risk mapping
Compensation Metrics	Sales targets, profitability	Inclusion of **impact, sustainability, and resilience** goals

Governing for resilience requires new metrics, new mindsets, and regulatory foresight

In a different register, China's leadership on transition (solar panels, electric vehicles) inevitably affects our own. While the Chinese approach is not a model in every respect, given that it includes practices of dumping or an aggressive diplomacy of appropriating 'rare earths,' it nevertheless remains an overall strategy based on both innovation efforts, massive investments, sacrifices (such as tolerating the pollution related to the extraction of these minerals in Chinese territory), and standards. It is wrong to claim that the EU is alone in imposing rules on itself. The Chinese, too, have adopted, for example, a green taxonomy and demanding disclosure obligations. On paper, the constraints exist. Yet, the Chinese have been able, better than us, to invest and, at the same time, develop competitive products and go further. Ms. MacGregor, CEO of Engie, mentioned at a 2050Now event the dilemma that Chinese dominance poses for Europeans striving to decarbonize, balancing competitiveness and sovereignty concerns.[92]

We cannot afford—as the Chief of Defence Staff of a major European country once told us—to "choose" the Russian threat over the climate threat. For a military leader, the reaction is understandable, but it simply occludes part of the challenge. At a time when Europeans readily decry the "naivety" that made them dependent on Russian gas or American weapons, it is just as naive to treat environmental issues as "green fads," when China has already turned its dominance into "a weapon of mass destruction" against European economies.

Bridging Civil and Military Spheres

Refusing to face climate disruption risks also means depriving ourselves of a powerful vector for mobilization across society, businesses, and public authorities. Last year, 2050Now's partners all underscored how nature-based initiatives can engage company employees (see the first study).

In European societies marked by twentieth-century wars—as seen particularly in Germany or Italy—the prospect of a return of security issues repels public opinion.

Be prepared!

In a report[93] to the European Commission at least as important as the work of Messrs. Draghi and Letta—alas, less publicized—former Finnish President Sauli Niinistö advocated a broad conception of resilience, including the capacity to "prepare" for the worst, whether the threat is civilian or military. At a time when we must rally our nations and, in Europe, restore meaning to the European project, the human dimension is often neglected. Our leaders have accepted raising military expenditure to 5% of GDP without explaining what we want to defend, or how—nor have they sought to convince those on whom a country's resilience depends. In Finland, citizens are involved in a decentralized organization to defend the territory against a possible Russian invasion but also in the event of pandemics or natural/man-made disasters. This model could inspire other European countries where the population does not know what to do in the event of wildfires, epidemics, and, more generally, the kinds of crises likely to become more frequent. What holds for society at large also holds for individual firms: preparedness is a factor of resilience because, in an emergency, everyone knows what to do.

In any case, if a company does not on its own grasp the importance of integrating nature-related issues, investors and banks may well push it in that direction.

In a study published in spring 2025, the WEF encouraged companies to recognize the amounts needed to maintain nature and repair already-incurred losses (estimated at around USD 1.2 trillion per year), even though "the majority of financial institutions continue to consider that data are missing or of insufficient quality to enable proper capital allocation to nature-related projects[94]."

New EBA guidelines **require the banking system to integrate ESG risks into governance and strategy.** This is a crucial step for financial stability and the green transition[95].

Even if the European legislator decides to lighten reporting obligations by narrowing the scope of the CSRD, corporate finance departments will still need data to convince investors and lenders that they are prepared for the coming transformations. As Emmanuel Faber (ISSB) forcefully pointed out in a LinkedIn post (see above), at the very moment when Europeans, in the name of "simplification," seek to free themselves from what they perceive as a constraint (environmental non-financial disclosure), Nepal—a developing country—is taking seriously its exposure to climate events, deforestation, etc., and equipping itself with ambitious rules. The reality of change cannot be ignored.

It is all the more regrettable that the EU is stepping back from ambitions set barely three years ago in the CSRD text, given the persistent lag in biodiversity awareness revealed by numerous analyses; an SDA Bocconi study from June 2025[96], examining the first reports in countries that have transposed the directive, shows as much. Awareness was only just beginning; the momentum will be broken. Other studies—public or not—by audit and consulting firms to which we have had access, lead to the same conclusion. On nature, data are lacking, and it is urgent to have more robust dashboards. Declaring these risks "immaterial" will not make their harm disappear.

It is true that questions of "materiality," until recently reserved for technical bodies, are taking on a new dimension. The United States is leading the battle for a narrow, purely financial conception of "disclosure" obligations, excluding any consideration of ESG.

Speech by Paul S. Atkins, Chairman of the SEC[97]

In this speech "in a personal capacity", the Chairman of the US Security and Exchange Commission recalls that American companies publish their financial reports in accordance with "U.S. GAAP, or Generally Accepted Accounting Principles" and that when he was a Commissioner in 2007, he voted in favor of the right for foreign companies to publish reports based on IASB and then IFRS standards (elimination of the so-called "reconciliation" obligation, thanks to the role of the International Accounting Standards Board (IASB). But this body must "promote high-quality accounting standards that are focused solely on driving reliable financial reporting and are not used as a backdoor to achieve political or social agendas*".*

Follows a thinly veiled threat:"I encourage the IFRS Foundation to meet its goal for "stable funding" that prioritizes the IASB and its focus on standards for financial accounting, rather than specious and speculative issues*. If the IASB does not receive full, stable funding, then one of the underlying premises for the SEC's elimination of the reconciliation requirement for foreign companies in 2007 may no longer be valid, and we may need to engage in a retrospective review of that decision".*

Far from acting on a divergence on the simple or double materiality, the American official does not hesitate to threaten foreigners to no longer accept reports from foreign companies, particularly European ones, whose conception of information is broader.

While central banks are more discreet than they were in the Mark Carney era and the major advances on climate (notably 2015–2021), or have withdrawn from cooperations (such as the Fed, which joined the Network for greening the financial System (NGFS), just after Joe Biden's election and left, when Trump came back), some continue to make efforts. In May 2025, the Banque de France launched a macroeconomic modelling consortium on nature-related risks. It also launched an experimental fund in December 2024 with the *Caisse des Dépôts et Consignations*. The NGFS has likewise published revised nature-and-climate scenarios and continues to share good practice and train officials in the Global South.

The engagement of independent public entities is all the more useful given that governments are falling behind on their biodiversity commitments—France in particular, the EU's laggard, as noted in a European Commission report published last July, covering biodiversity, water and air quality, waste, etc[98]: our country would need to double its investment in nature/biodiversity and spend an additional €21 billion per year (around 0.80% of GDP)[99]. That is enormous. Recent decisions—such as scrapping low-emission zones (ZFE) or the Duplomb law—run counter to recommendations. On biodiversity specifically, the Commission even writes that "the measures actually taken by France do not live up to its ambitions," notably due to intensive agricultural practices, land artificialization, and shortfalls in reforestation. No further comment.

LIVING NATURE / DEAD NATURE

To end on a less dispiriting note, it is important to remember that new avenues for valuing ecosystem services—services to which economics and markets have yet to assign a price[100]—are emerging.

Put simply: today, nature is worth more dead than alive. If someone fells a tree, they can earn income from the timber. In some areas, they may even be paid to replace it, under reforestation schemes (even if the felling devastated the surrounding nature, or if they replant only fast-growing monocultures with no regard for diversity). By contrast, the person who keeps that tree alive—so that it continues to sequester carbon, hold soil and moisture, shelter birds and insects beneath its branches and fungi beneath the surface, and offer precious summer shade and beauty—will not receive a cent.

We refer to the reading of Sir Partha Dasgupta's work published in the summer of 2025 'On natural capital,' in which the great British economist demonstrates how humanity is "living beyond its means." He sets out the equation $Ny/\alpha > G$, meaning he shows that global demand cannot indefinitely exceed the rate of nature's regeneration because the biosphere is not an unlimited quantity.[101]

The ideas of "natural capital" (Lagarde, at BEFF), "natural equity" (The Landbanking group), or "biodiversity credits" (IAPB) all tend, in one form or another, to reward the preservation of life in order to make its protection more attractive than its destruction. Contrary to what some detractors argue, this is not about putting a "price on nature" or turning it into a commodity, but rather about giving preservation value. Their concern is understandable in a world where humans have already amply demonstrated their greed—provoking a sixth mass extinction and ushering in the Anthropocene—not to mention abuses in carbon markets. Yet it is within the current economic system that people enrich themselves by appropriating natural resources without restraint or regard for regeneration—selling fish scraped from the seafloor by trawls, or bottling "natural mineral" water while depleting aquifers, or exhausting soils.

Hence the interest in “turning natural capital into financial capital” (Ralph Chami[102])—for example, by recognizing that the value of a whale is inestimable because its presence signals a healthy marine space capable of generating services with economic value. For more on marine ecosystems, see also *Building Equitable and Nature-Positive Blue Natural Capital Markets: Challenges and Solutions*. The authors[103] remind us that, while such markets can channel useful financing, many questions remain about product design, measurement of gains for nature, governance between project holders and financiers, and equitable distribution of funds.

In the background inevitably looms what Philippe Grandcolas calls "the thorny issue", that of “degrowth”; according to him, "this polysemic word must not hide the absolute necessity of reducing the production of many material goods, which is the sine qua non condition for a reduction in the footprint, without giving in to the naivety of proposing only recycling or sober production; this presupposes numerous transformations of activities." On the scale and systemic nature of the transformations to be accomplished, we completely agree with him. The reader of this study should have no doubts. Leading specialists like Sir Partha even dare to raise the question of demography and birth control to reduce man-made pressure on earth[104]. Moreover, what initially seems impossible to us might one day become necessary, even inevitable, by the force of circumstances. The notion of 'degrowth' is shocking, but isn't it at least as shocking that more than a third of agricultural production is lost or wasted, that our food contributes to obesity and causes other serious illnesses? Can we be proud of a 'growth' model that is not sustainable? The question at least deserves to be asked, without ideology.

At the UN Biodiversity COP16 in Cali (Colombia) in October 2024, the IAPB panel presented a set of principles to govern the creation of such credits for terrestrial or marine areas, in order to guarantee the integrity of the approach[105]. Around thirty pilot projects should test the implementation of these principles across very diverse countries and ecological/political contexts.

After months of global consultation, and in cooperation with the World Economic Forum and the Biodiversity Credit Alliance, the IAPB panel has identified several possible use cases for these credits:

1 - voluntary contributions by a company operating, for instance, in a country of the Global South and wishing to preserve nature around its industrial site;

2 - regulatory offsetting, when national rules oblige, for example, a highway developer to avoid and reduce impacts (the *éviter-réduire-compenser* mechanism in France, Biodiversity Net Gain in the UK) and, residually, to undertake positive actions near the affected site;

3 - value-chain preservation, when a company invests in regenerative agriculture so that its supply of coffee or cotton is less exposed to climate or natural shocks;

4 - hybrid carbon/biodiversity credits, as many carbon-sequestration actions have positive environmental spillovers, just as nature helps capture carbon.

This is the result of collective reflections to date. They are certainly perfectible, one of the avenues to explore being that of "co-benefits" for businesses that taxation and finance could encourage businesses to produce. New legal tools are also necessary. Potential sanctions

in the event of environmental degradation are often derisory for companies whose industrial projects involve billions. Finally, the courts intervene ex post, which, for natural depredations, is sometimes irremediably late.

Last June, the European Commission adopted the above mentioned "roadmap toward nature credits," broadly aligned with the instruments promoted by IAPB[106]. This is an initial step following a foundational speech by Ursula von der Leyen in Munich in September 2024[107]. The Commission, which has convened a working group on the topic, usefully clarified how conservation units can be designed: "certification provides assurance that specific high-quality, nature-positive actions are implemented in line with pre-defined criteria or principles." On that basis, a nature credit could be considered "a unit that represents a nature-positive outcome, derived from a certified and independently verified action and quantified using a recognized biodiversity metric or indicator."

At this stage, several outlets are conceivable for these certificates or credits. In its framework published in October 2024, IAPB took the view them they could be sold on a primary market or be part of "project finance", particularly useful for public development banks and investors. For now, the panel has ruled out trading these instruments on a secondary market, given biodiversity's specific and local character and concerns raised by abuses in carbon markets. The absence of global fungibility exists in other financial markets, such as real estate, which exists in every country but where units (say, an apartment) are traded locally.

In time, the question of how to encourage liquidity—which always supports market vitality—will arise, but we are not there yet. A study drafted by a group of CEPR economists *Designing and scaling-up nature based markets*[108], favour the same approach (to move from transactions to credits representing parts of a project). They consider that financial actors (such as pension funds for example) should get incentives to invest in these credits, instead of allowing compensation by corporates.

Among IAPB's pilot projects, various options coexist, from contribution to high integrity compensation and value-chain in-setting. For example, *Le Printemps des Terres* and Restore have developed a forest-protection project in Peru, supported by the EU, and are working to record conservation certificates on corporate balance sheets as intangible assets. This is a promising avenue that aligns with academic efforts. In France, the work of Professor Alexandre Rambaud—holder of the Chair in Ecological Accounting at Agro-Paristech[109]—also points toward valuing natural capital. He seeks to "analyse and study the links between accounting and sustainability," to "develop and model accounting systems capable of operationalizing strong sustainability," and to "promote the role of accounting in ecological transitions."

The French Senate has undertaken forward-looking work on the notion of "value." A recent report provides a clear explanation of the **CARE approach**[110].

CARE Framework (Comprehensive Accounting in Respect of Ecology)

The CARE model *"proposes an evolution in organizational accounting to integrate into accounting documents (charts of accounts, dashboards, balance sheets, income statements, management accounting, etc.) and related practices (performance measurement, management control, business models, etc.) the imperative of preserving not only financial capital, but also natural and human capital." In this model,* natural and human capital are not viewed as a set of assets serving as means of production *in the traditional economic sense, but as* "capital entities" to be preserved*. They are recorded on the* liability side *of the balance sheet as* debts to be repaid*, while the* asset side *reflects a* right of use *of these capital entities. They represent advances upon which the organization bases its operations; repaying the debt corresponds to restoring their integrity.*

Consequently, under the CARE approach, a company can only calculate its profit once the "repayment" of its "ecological debt" toward its natural and human capital is ensured*, much like the legal obligation to preserve financial capital.*

The valuation of natural capital *(for instance, a forest)* does not rely on the profits that could be derived from ecosystem services *(the market or economic value of nature),* but rather on the means implemented to preserve it—*that is, the cost of maintaining or restoring it to its original state".*

Ariela Caglio, Professor at SDA Bocconi, has participated—alongside ESSEC researchers—in a study on natural capital[111]..

It is likely that, over time, different models will coexist. Whatever path is chosen, the goal is to end the absurdity whereby destruction is remunerated while preservation is not—and to achieve this with high-integrity products that earn the trust of local communities and savers. In the first study, we emphasized the crucial human factor in nature restoration and conservation. This essential point bears repeating.

03

Being Inclusive and Cooperating

Human beings are part of nature. Even if some believe they can dominate it, they cannot detach themselves from it. This is why most research clearly shows the value and importance of engaging all “stakeholders”—in other words, all the people concerned, within and around the company.

More sustainable production requires joint efforts involving local communities (for example, in managing the water of a watershed), scientists (such as botanists, agronomists, or irrigation experts), as well as investors—not forgetting employees and subcontractors. Companies, particularly those employing thousands of staff, can also encourage organic canteens, clean service vehicles, reduced air travel, and similar measures.

Such efforts also require more conscious consumption. Without shorter showers or reduced detergent use for laundry—that is, without the cooperation of consumers, also essential for packaging sorting—companies' actions for nature will have less impact. This is the whole logic behind Scope 3 in climate accounting, sometimes mocked or misunderstood but nevertheless indispensable.

The human dimension is all the more important since, as we have noted, damage to nature—and conservation and restoration efforts—are necessarily assessed locally. One should keep in mind the fact that projects that are positive for nature, will often provide co-benefits; beyond being a carbon sink, protected nature provides jobs, protection against extreme-weather events, better access to water etc).

As a result of this imperative for mobilization, several questions arise. The first begins as soon as we wish to foster awareness.

HOW TO UNDERSTAND (KNOWLEDGE)?

Consultation of experts and citizens

Awareness of ecological issues in economic choices requires understanding, hence the need for expertise, often external to the company. As we wrote last year, 2050Now companies have forged many partnerships with scientists (e.g., the French Biodiversity Research Foundation, the Natural History Museum in France, Naturalis in the Netherlands), business networks (ORSE, OREE, EPE, TNFD, Act4Nature, ORRAA for the ocean, etc.), and exchange groups with public administrations ("Roquelaure" or IAPB).

Dialogue with society—essential for companies—may also take the form of cooperation with NGOs, as LVMH does for protecting the Congo Basin, which, alongside the Amazon, is one of the world's greatest biodiversity reserves, shared among six African countries. LVMH has also launched online consultations via the Make.org platform to "mobilize and raise public awareness in order to preserve and restore wildlife and flora." One consultation, held from June to September 2024, gathered "more than 374,000 participants and nearly 1.8 million votes." "Among the priority themes identified were sustainable land use, restoration of natural ecosystems, and resource management."

These themes will be explored further in workshops organized by the end of 2024. LVMH has also planned to extend this consultation to its teams in the United States and China.

The group's philosophy ("joining forces") "values the collaboration of all stakeholders in order to achieve economic development that preserves biodiversity." In this spirit, LVMH has committed to training 100% of its staff in sustainability issues by 2026.

Impacts on human health also invite broadening the circle beyond specialists in botany or animals, to include doctors, oncologists, and public health experts.

Lessons from the French “Duplomb Law”

The emotion aroused by the vote on the Duplomb law, passed in July 2025, which facilitates an intensive agricultural production method, is partly due to the fact that the legislator did not see fit to listen to the numerous scientists who warned about the harmfulness of pesticides and water scarcity as well as soil degradation[112]. An article states that the deputies and senators thus voted against "twenty-two medical learned societies, the League Against Cancer, the staff and administrators of the National Agency for Health Safety, the third largest agricultural union in France, the Foundation for Medical Research, twenty mutual insurance companies as well as the Federation of Mutual Insurance Companies of France representing several million policyholders, against the scientific council of the CNRS, against the Federation of Drinking Water Utilities, against hundreds of doctors and researchers who personally signed opinion pieces and open letter[113]."

A collective opinion piece, mainly authored by CNRS research directors including Philippe Grandcolas[114], points out that the very title of the law aiming to 'remove constraints on the practice of farming' is misleading to citizens: public health, starting with that of farmers who spray phytosanitary products, as well as respect for life on Earth, soil, insects (useful for agriculture), and access to water are all issues of 'common good.' The procedure followed has made things worse: proposed laws submitted by parliamentarians do not undergo impact studies, nor an automatic referral to the Council of State, unlike government-initiated projects.

A side note: it also highlighted how environmental debates shift into the legal arena. The law’s most controversial provision (authorizing a neonicotinoid) was struck down by the Constitutional Council, citing the Environmental Charter, part of the French Constitution. This episode confirms that society increasingly expects judges (constitutional, criminal, civil) to arbitrate political choices, as we noted in last year’s first study. It is doubtful whether this implicit transfer of responsibility is ideal in a democracy. It actually endangers the rule of law, as more voices denounce “government by judges” or seek to curtail legal remedies. Admittedly, some abuses exist in the use of legal channels by neighbours or NGOs determined to block projects. But serious companies, or small innovative firms entering markets, have nothing to gain from this set-back. The paradox is that some political parties loudly demand more authority and repression—except when it concerns their own “clients”. The open attacks (including by a French Prime minister) against the means of enforcement officers (Office français pour la biodiversité), armed under the law and control of the attorneys to enforce it in farms where serious violations occur, is a sad illustration.

Indigenous Wisdom

Knowledge is not limited to science as we understand it in the West. Indigenous peoples and local communities possess invaluable knowledge and experience. It is no coincidence that the TNFD included, among its twelve questions a manager should ask (see above), one on involving Indigenous peoples and local actors in corporate nature strategies. At IAPB, we ensured to **include—not merely consult—** representatives of these populations, who today manage 80% of global biodiversity and rightly reproach Westerners for the damage caused by ignoring ancestral traditions and wisdom. For companies, sidelining their knowledge and rights in favor of Western short-termism is a real risk.

Canada offers a recent example. Prime Minister Carney sought to fast-track legislation, justified by Donald Trump's threats to the country's integrity, aimed at fostering economic growth. Because the urgency risked undermining First Nations' territorial rights, controversy ensued, leading the head of government to convene a major meeting with their representatives in July 2025.

In our regions, the involvement of local communities (farmers, SMEs, public authorities for example) is no less essential.

HOW TO CONVINCE (PERSUASION)?

Knowledge and scientific findings alone are not enough to convince people to act. We must also understand how our brains react.

Beware Our Brains...

Neuroscience offers answers, as shown by the work of Albert Moukheiber, neuroscientist and psychologist, who has studied the "tricks our brain plays on us"—preventing us, for example, from recognizing our ignorance. His France Culture podcasts "Perception of Reality," available online, are illuminating for understanding mechanisms that obscure the seriousness of climate change or foster belief in conspiracy theories.

In order to try to resolve the "enigma" of our inaction in front of climate change, Frédéric Samama recalled in a very interesting book[115], that our brains – quoting prof. Stanislas Dehaene, from Collège de France, also reproduce habits. It is formed in childhood through observation and repetition. Many economists have noted that climate reasoning is difficult because we cannot rely on past series. The reasoning must look to the future, without historical benchmarks—an unprecedented challenge[116].

Consumer Contradictions

This year, the 2050Now partners had the opportunity to include advertising agency BETC and BCG.

Among BETC' s studies, one is particularly relevant: *"Frugality, an Appealing Reality?"* The study, based on 1,500 "prosumers" ("influencer consumers" representative of the population who have the particularity of having behaviors six to eighteen months ahead of the general public (referred to here as "mainstream") **highlights three lessons:**

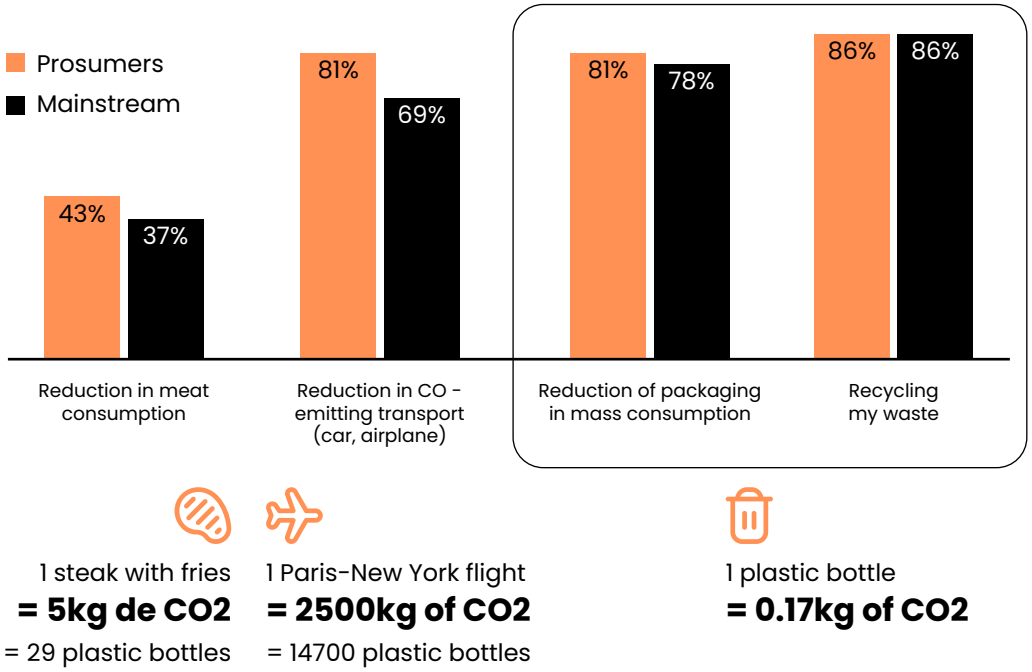
- **the gap between what people say and what they do,**
- **the gap between what they believe and reality,**
- **and the importance of language and tone in persuasion**.

Conducted after the French President's 2023 remarks on "the end of abundance," the study reveals tensions: while 90% acknowledge the climate challenge, only about 40% favour citizen-level action, and just 33% are ready to make sacrifices. A widespread perception exists of contributing "more than average" (88%), and sobriety does not inspire. For many, it is endured for economic reasons. Here lies one of the greatest misunderstandings between society and policymakers—summed up in the dilemma "end of the month vs. end of the world."

Tension also exists between the desire for sobriety and the desire for growth (seen as necessary by 72%, notably for preserving jobs). Hence the tendency to seek "quality" (63% favourable) or waste reduction (75% favour not wasting food, appliances, etc.) rather than outright renunciation of consumption. 68% are ready to buy better (local, second-hand). Giving up a few degrees of heating is easier (78%) than eating less meat (40%). Only 35% are willing to forgo air travel. Articles even show that the ecological nature of leisure activities affects personal relationships—for example, refusing to attend hen parties or holidays requiring flights or climate-indifferent food[117].

One difficulty is that people do not always evaluate orders of magnitude correctly, making it hard to calibrate their choices and "sacrifices" (source: BETC).

For me, actions that have a positive impact on the environment are:



Web traffic analysis shows that recipes based on meat attract more attention than vegetarian or vegan ones, and that visits to fast-fashion sites remain frequent—even among informed prosumers.

Making sobriety desirable requires several elements: measurement tools, such as applications that verify the carbon footprint of products or activities; a collective movement that provides solidarity so people do not feel alone in their efforts (a common perception); and positive messaging.

Expectations of the State (strict regulations) are high. 89% of prosumers believe that large companies can play a positive role in fighting climate disruption. They expect companies to produce in ways that better respect nature and to make sobriety appealing (92%), rather than saturating consumers with messages urging them to consume more (70% of prosumers agree).

The solutions involve inspiring people to enjoy simple things, to free themselves from the superfluous, and to reconnect with nature and with others—since social connection is important. Care must also be taken with vocabulary: messaging that is too abstract and concept-heavy may miss the point, when consumers are seeking concrete solutions and straightforward keywords.

In sum, sobriety must be made attractive by providing desirable reference models capable of counteracting influencers whose extraordinary lifestyles incite imitation. This task falls to both companies and the State.

The other studies conducted in France and worldwide on our relationship with biodiversity have similar findings.

Global Findings

At the global level[118], there is a strong need to reconnect with nature in daily life (86%), which is even viewed as a condition for future frugality (63%). While the need to protect nature is widely acknowledged (90%, with especially strong attachment in countries like Brazil[119]), biodiversity remains secondary to climate.

Among corporate actions in favour of nature, cosmetic brands are the most recognized (e.g., The Body Shop, Yves Rocher, L'Oréal). The two actions viewed as most important are reforestation (ranked first, 88%) and plastic reduction (87%)[120].

In France specifically, public awareness of biodiversity is very high (97% compared with 75% in the United States and 79% in Germany[121]).

However, the economic consequences of biodiversity loss are perceived by only 44% of respondents—a very low figure[122]. People are more inclined to see impacts on quality of life. Causes of degradation are well identified: human activity (78%)[123], pollution (63%), climate change (53%), agricultural pollution (47%), and overexploitation of resources (47%).[124] Respondents expect more from governments (64%) than from citizens (58%) or companies (57%).

These studies confirm the need for a clear, easily understood indicator to guide purchasing behaviour (81%)[125].

The View of EU citizens

Despite the gap between words and actions noted by BCG, the results of Eurobarometer survey 565, published on 30 June 2025 on climate change (conducted in February 2025 across the 27 EU member states), are encouraging as they represent a call for action[126].

Eurobarometer (European Commission source)

"Among respondents, 8 out of 10 (81%) support the EU's goal of climate neutrality by 2050. From an economic standpoint, more than three-quarters (77%) of Europeans agree that the cost of climate damage is much higher than the investments required for the net-zero transition.

Most Europeans (85%) agree that fighting climate change should be a priority for improving public health and quality of life. Similarly, 83% believe that better preparation for the harmful effects of climate change will improve the lives of EU citizens. Europeans also feel the impact of climate change in their daily lives: on average, nearly 4 in 10 (38%) feel personally exposed to environmental and climate-related risks. More than half of those who feel this way come from eight member states, mainly in Southern Europe but also Poland and Hungary."

It is true that the rise of climate-sceptic parties, particularly on the far right, somewhat relativizes this encouraging result, but the numbers remain high. A certain popular wisdom is evident, as well as demand for responses to concrete situations: housing, transport, civil security, etc.

This overview would be incomplete without mentioning the media's role in combating misinformation and ignorance. The work of 2050Now Le Média, with its newsletter of "joyful ecology," constructive in tone, aligns with public expectations: providing information, countering fake news, but also offering engaging content and practical advice—gardening tips, strengthening hedgerows, dietary choices, etc.

HOW TO ACT (OVER TIME)?

Long-term action benefits from being concrete and easy to implement.

In companies, as TNFD recommends (see above), top leadership must embrace the issue and persist. Stop-and-go is the worst approach; in this regard, the European authorities' rollbacks on several aspects of the Green New Deal are regrettable. Giving up when disclosure rules (CSRD) are first applied, or backtracking on deforestation-import regulations, sends the wrong signal. In France, the adoption of the Duplomb Law casts a shadow over efforts made by public authorities, companies, and financial institutions—efforts that were relatively advanced compared with peer countries.

Fortunately, many boards continue steadfastly, even if communicating less. This is the case for 2050Now companies, many Italian companies working with SDA Bocconi, as well as SMEs and mid-sized companies around the world[127].

For instance, ENGIE's 2024 report emphasizes the will to pursue a systematic approach, involve top-level decision-makers, and set measurable, quantified, third-party-verified objectives:

Excerpt from ESG at ENGIE 2024

"When industrial projects are reviewed, 10 criteria—including biodiversity, circularity, pollution, and stakeholder engagement—are examined. Results of the ESG screening are reviewed during decision committees at GBU, Group, and Board levels.

Nature: Conduct a prior impact study for each project, validated by an independent third party. Share the knowledge acquired on our wind farms and participate in efforts to understand biodiversity in France. Raise awareness of biodiversity issues among employees and local authorities where projects are located."

Local and Individual Action

Whether in isolation or at the community scale, actions for nature can be diverse.

Private individuals can contribute, and this is not insignificant —especially since the total surface area of private gardens in the UK exceeds that of nature reserves[128]. Moreover, private gardens avoid the overuse of public spaces, which suffer from foot traffic and dog waste. Each spring, articles in The Guardian highlight how municipalities urge citizens not to mow in May ("No Mow May") to support biodiversity—particularly pollinators, beneficial insects, and birds.

The cultural dimension of transformation should not be underestimated: for a long time, gardeners prided themselves on immaculate lawns, closely cut, with no "weeds" (a telling word). It is time to rehabilitate some spontaneity. In his book Agrophilosophie (2024), Gaspard Koenig humorously contrasts his Normandy plot—where he seeks to preserve biodiversity—with more traditional gardens and farms[129].

Some territories struck by disaster are working to overcome trauma through resilience. The commune of Barbentane, in Bouches-du-Rhône, reacted to the devastating Montagnette fire of 2022 by developing a comprehensive plan: the mayor promoted reforestation, improved the water network (whose deficiencies the fire had exposed), and, within available means, encouraged agricultural reconquest to avoid abandoned vineyards and olive groves being replaced by brush[130].

Use all existing rules

"Real Environmental Obligations"

Few people know that in France, under a law of 8 August 2016 ("for the reconquest of biodiversity, nature, and landscapes"), property owners can attach an environmental obligation to their land.

Concluded by contract with a public entity (e.g., a municipality or a conservation agency), the obligation is real in the civil-law sense—linked to the property itself, for 99 years rather than the signatory. Thus, the duty to preserve nature in the long run transfers with the land parcel. This legal instrument demonstrates progress in private law and property law, serving the public interest.[131]

Everyday Initiatives

Wetland preservation can also result from countless local, individual initiatives, sometimes guided by associations or municipalities. Creating ponds in private gardens, for example, is increasingly common[132]. While it may seem anecdotal, given the pace of amphibian decline, it is both useful and rewarding. Many testimonies mention the quite rapid return of species in gardens where humid space is created. The best way to "sell" this type of initiative is not with biodiversity slides, but with the poetry of frog songs at the bottom of the garden on May evenings. People who did create their pond become "hooked," and municipal websites encouraging such initiatives report soaring visits.

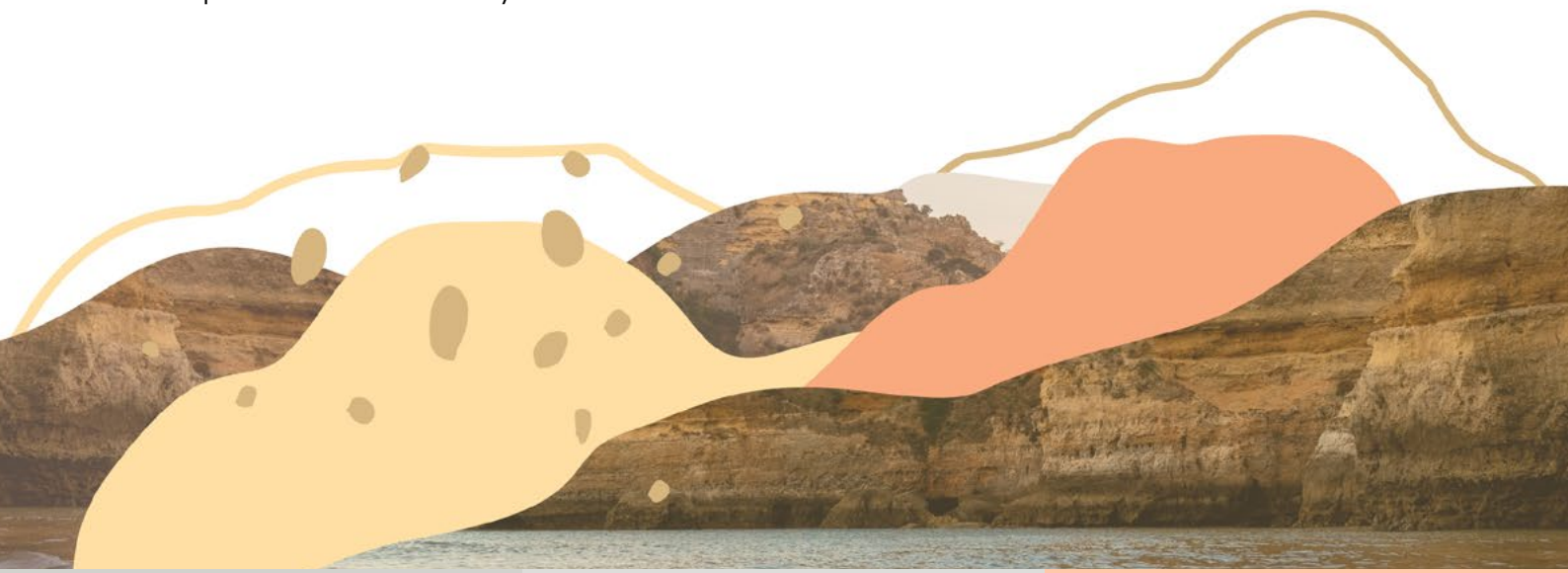
Another initiative has been highly successful: the Biodiversity Lottery, launched by La Française des Jeux on the model of the Heritage Lottery, to finance preservation efforts. Of the €3 scratch-card "Mission Nature," 43 cents are donated to the French Biodiversity Office. In 2025, 21 projects were selected across metropolitan and overseas France—from the Calanques National Park to Tahiti to the Normandy landing beaches.

Finally, the use of bio-sourced materials for home insulation shows that natural resources are the most effective defence against heatwaves, for example. Nature, far from resentful, helps humans compensate for the harm they have inflicted.

This note does not end with an artificially optimistic flourish, but with the recognition that as citizens, gardeners, consumers, we hold power. Naturally, these examples of "citizen's" action cannot replace the action of businesses, which have infinitely greater means of action. But one does not go without the other. The more individuals feel concerned as citizens, the more willingly they will also act as employees, self-employed people, farmers and citizens.

We can call demagogues to account and demand serious approaches from policymakers. We can support the most courageous business leaders: for example, the Expanscience laboratory has decided to stop producing wipes in 2027 due to their harmful impact on the environment, despite the high profitability of this product; we just need to make sure we stop buying them. Similarly, buying food through short supply chains, limited to seasonal, simple, unprocessed products, is the best way to stay healthy while also benefiting the environment.

The planet's future is in our hands. And nature is worth the effort—it rewards us, both in economic value and in joy of living.



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