Finance Watch

Making finance serve society

Nature's Return

Embedding environmental goals at the heart of economic and financial decision-making

A Finance Watch report

#EUGreenDeal

#Biodiversity

May 2020

"The economy is a wholly owned subsidiary of the environment, not the reverse."

– Herman E. Daly

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MAVA
FONDATION POUR LA NATURE

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Executive summary

Human activities are putting the environment under unsustainable pressure, through climate change and by degrading the earth's natural systems.

Up to a third of economic activity depends directly on ecosystem services provided by nature. Yet human activities are degrading the land, the oceans, and the atmosphere that sustain these services and the health of our natural capital continues to deteriorate.

Three types of project can help to halt this deterioration: **conservation** projects, for example designating areas as national parks and nature reserves; **restoration** projects, such as depolluting, renaturalising soils, or rewilding; and **transition** projects to adopt sustainable processes, such as switching to renewable energy or less intensive agriculture.

All these project types lack funding and as a consequence Europe is failing to meet its environmental targets. In this report we ask what type of finance could best fill the funding gap and which regulatory changes could mobilise private finance and unlock public finance for nature.

Recognizing the Limits of Private Finance

The funding gap for environmental projects in Europe, conservatively estimated at €400bn, has been hard to fill, despite abundant private liquidity. The nature of private investment is to focus on financial risks and returns and revenue streams, but **many nature-related projects have no revenue source**. Indeed, nature tends to benefit when there is less economic activity. Conversely, it can be easier to finance businesses that keep their costs low by harming nature. Attempts to create revenue sources from nature projects using innovative financing models have produced mixed results: ecotourism remains a niche; biodiversity offsetting has major conceptual flaws and a poor record of protecting nature; and Payments for Economic Services (PES) schemes such as conserving biodiversity or maintaining watersheds are, in reality, public subsidies.

What has worked well is where **existing businesses use funding to switch to sustainable processes** and create financial value through price premiums, adding to land values, or reducing the use of natural resources. Regulation can accelerate these effects. In agriculture, there are special problems such as balancing sustainability with crop yields or delivering finance for sustainability improvements to the world's 450 million smallholders.

Nature projects are often too small for institutional investors to invest in directly. They are complex to understand, illiquid and take a long time to mature. Global capital markets provide an indirect way for investors to invest with instant pricing and liquidity. However, the industry's reliance on CAPM and other structural factors mean that fund managers have little appetite for alternative or long-term investments.

Consumer demand for sustainable or ESG investing is on the rise and EU regulations now require funds to say how they integrate sustainability factors. By some estimates, sustainable investing represents around €22 trillion of assets under management in Europe, but the numbers and the impact depend on which sustainable investing approach is taken. Nearly half of these assets are subject to 'negative screening' which does not screen for nature loss and cannot directly change harmful behaviour. Other sustainable investing approaches may have greater impact.

Regulation could help to harmonise the different methodologies for assessing ESG factors, especially for biodiversity where techniques are less developed. But difficulties remain with obtaining and comparing underlying data on companies' environmental impacts.

Overall, preferences among capital market participants for liquidity, a market price and benchmark-hugging mean that few mainstream funds have the freedom to invest in nature projects. It seems that **sustainable investing is not yet ready to tackle biodiversity and nature loss,** or at least to have an impact on a significant scale.

Doing More Within the Limits of Private Finance

The EU has responded to the private financing gap for nature with two initiatives. The first is **the Sustainable Finance agenda, which aims to create a chain of ESG information** to help private investors invest sustainably. This chain includes a taxonomy to define what is sustainable, updated rules on non-financial reporting that govern how companies report on the sustainability of their activities, and a set of labels and standards to say which financial products support sustainable activities. The focus is on improving information flows, not on making projects more bankable.

The second is **the European Green Deal Investment Plan, which among other things provides a framework for blended finance,** where public money is used to make projects more attractive for private finance. The approach has been used in development finance, in funding the SDGs, and in the EU's 'EFSI' and 'InvestEU' programmes. It works by taking risks onto the public balance sheet through guarantees, grants and liquidity measures and is intended for projects that would not otherwise go ahead. Its main limitations are that it needs a revenue stream, which rules out a lot of nature-projects, and it can increase the reporting burden. Blended finance is already available for EU biodiversity and nature projects from the Natural Capital Financial Facility (NCFF) but has had a limited take-up.

Another way to protect nature is through **economic instruments that send price signals** and so shift profitability towards more sustainable activities. These include instruments to 'marketize' ecosystem services, such as creating claims linked to carbon sequestration, and cap-and-trade systems, which set an upper limit and then let the market decide who can pollute, fish, harvest etc. The failure of the EU's Emissions Trading System shows the importance of configuring these correctly and resisting the use of offset markets, which create new allowances that dilute the cap. There has been relatively little EU use of fiscal levers, such as Denmark's pesticide tax, or fiscal transfers for activities that benefit the environment, such as compensation for farmers who switch to organic methods.

Integrating Economic and Environmental Governance through the Green Deal

Given the scale of the problem, both private and public solutions are needed. **Public finance is especially useful for projects that provide public value without being financially bankable themselves**. The public value that nature brings is already targeted by the EU's comprehensive body of direct environmental regulations. These seek to ban harmful activities, limit pollution, protect land etc. but have not been fully implemented. The opportunity cost of not implementing them, in terms of foregone environmental and other benefits, is estimated at up to EUR 80bn a year.

Public sector investment has the freedom and scale to address nature-loss and create positive externalities, such as ecosystem services, in ways that private finance cannot. But in Europe, public investment is constrained by the fiscal framework among other factors and

has been declining as a proportion of GDP for decades.

Despite efforts to exempt public investment from the fiscal framework, there is no consensus yet for a proposed **"green golden rule" to exempt green public investment**. The rapid suspension of fiscal rules during the COVID-19 crisis showed, at least, a recognition that accounting rules are not an objective in themselves and can be treated with flexibility.

The EU's use of "Rio Markers" to **track its public investment in biodiversity** overstates the amount invested. More accurate numbers could be obtained with tracking based on the BIOFIN approach or by developing new markers based on the EU green taxonomy.

The EU itself has dedicated very little public funding for nature projects, only EUR 5bn under the LIFE programme and various other pots that protect biodiversity as a secondary objective. On the other hand, it continues to provide very large subsidies for harmful farming processes under the Common Agricultural Policy, as well as subsidies for fossil fuels and harmful fishing and forestry activities.

With limited firepower at the EU level, public investments in nature will have to be increased at national level. The EU Semester oversees national public investment for member states and there is **momentum for aligning the EU Semester process with environmental goals**. Several tools exist for this, including embedding the SDGs and environmental metrics in the EU Semester process; using information on countries' implementation of environmental laws as inputs for EU Semester country reports; and including countries' biodiversity policies as inputs to EU semester country reports, alongside their energy and climate plans.

Conclusion

Finding the money to tackle the emergency of nature-loss will need a fresh mindset that looks beyond the markets-only approach of yesterday and combines public and private financing. Nature-loss is a far bigger threat to human wellbeing than COVID-19 and the response to this global pandemic shows what can be done when there is a will to tackle a crisis.

Well-directed private finance can help businesses to become more nature-friendly and there is much that regulators can do to encourage this. But policymakers should not expect too much; **private finance is at best a partial solution**. It is viable only when there is a source of revenue and many, if not most, nature projects do not provide one, even when the value they bring to the economy and the environment is enormous.

Public finance will be needed at a scale that calls for national as well as EU budgets to invest directly and alongside private capital. The EU has tools to make this happen and the investment will be far less than the cost of responding to the COVID-19 crisis, indeed it could and should be part of the EU's post-Corona recovery plan, perhaps framed as a **"Recovery and Transition Plan".**

We look forward to the EU adopting a strong target-led nature strategy that will maximise the private sector's contribution without relying too much on it, and unlock national and EU public funding at a scale that can reverse the damage that our economy has been inflicting unsustainably on nature.

Recommendations

The **EU 2030 biodiversity strategy** expected in Q2 2020 will set out the EU's objectives for nature. In Finance Watch's view, it is essential that this strategy promote ambitious targets and seek to integrate biodiversity into the EU's economic governance. We hope it will inspire changes in agriculture and trade policy and lead to a more complete and better enforced body of EU environmental regulation. The Commission's **EU Sustainable Finance agenda** is already well advanced and should now be completed with a taxonomy of unsustainable activities, robust rules on ecolabels and green standards, and measures to align environmental and prudential goals, among other things.

This report looks at ways to increase the funding available to protect and restore the EU's natural environment. It considers how the EU can maximise the private sector's contribution to nature investment, without relying too much on it, and unlock national and EU public funding at the scale needed. Finance Watch highlights four actions that we believe could help with these goals:

A. UNLOCKING PUBLIC FINANCE

The amounts of blended finance and direct public financing available at national and EU level could be increased by setting targets, easing certain constraints on public spending, and tracking public spending on nature and biodiversity more effectively. In order to promote an increase in financing for biodiversity and nature from all sources; to ensure that EU funding (including under the Common Agricultural Policy) does not undermine biodiversity goals; to lay the groundwork for a **"Green Golden Rule"** to reduce fiscal constraints on public investment in biodiversity and natural capital (for example by exempting Member States' spending under the Natura 2000 programme or restoration activities from the EU's fiscal framework); and to update the system of 'Rio Markers' so as to better track the impact of public budgets on biodiversity and nature; **we recommend that EU institutions:**

1 **Fully integrate and prioritise environmental objectives, including biodiversity, in the EU Semester** (see page 70)

2 **Review the EU's system for tracking the impact of public budgets on nature and biodiversity** (see page 67)

B. MOBILISING PRIVATE FINANCE

Sustainable investors can influence corporate behaviour more easily if **businesses' interactions with nature and biodiversity** can be measured. In order to support the EU's efforts to mobilise standardised approaches to compare business sustainability; to help businesses assess and reduce their negative impacts on biodiversity; to mobilize and increase private investments for biodiversity; to help make all private and public financial flows consistent with the post-2020 Global Biodiversity Framework; to prepare for future legislation on the measurement and disclosure of nature-based metrics; to embed double materiality (inside-out non-financial impact and outside-in financial risk) in the process; and to complement EFRAG's mandate to develop non-financial reporting standards; **we recommend that the Commission:**

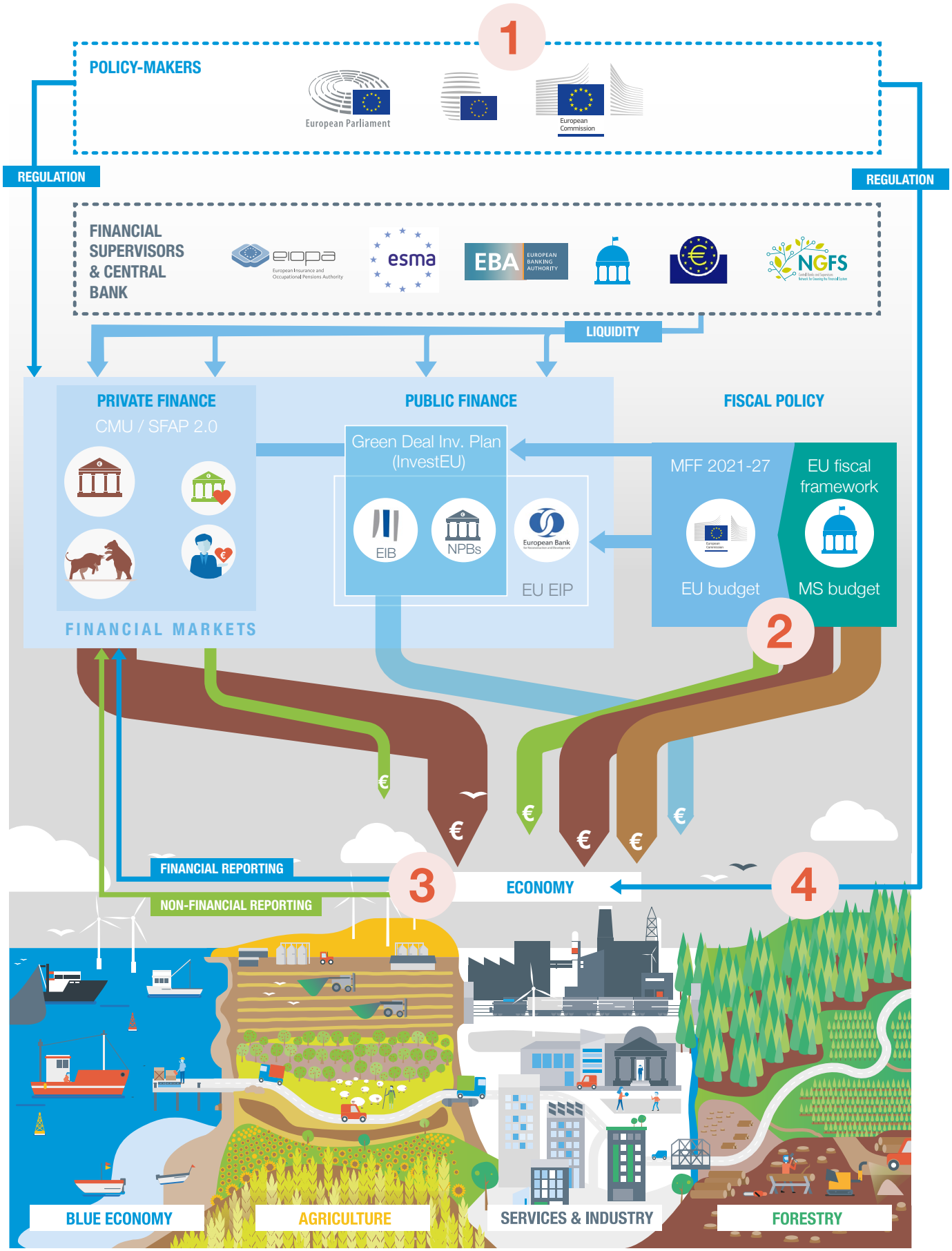
3 **Mandate the Sustainable Finance Platform to develop a harmonised system of metrics and methodologies to assess the impacts, risks, and dependencies of economic and financial activities on biodiversity and nature** (see page 42)

Economic instruments can help sustainable businesses to attract private finance by shifting profitability to sustainable activities, but they have had mixed results (such as biodiversity offsets, cap-and-trade, and other instruments). In order to ensure that only the most effective economic instruments are used; that they are calibrated to nature's limits; that they are not deployed in the place of more effective measures; and are not captured or diverted from their purpose; **we recommend that policymakers:**

4 **Assess the effectiveness and suitability of existing and new economic instruments against their environmental objectives** (see page 56)

Finance Watch

Mapping



Introduction: a new era

> ***Europe's environment is at a tipping point. We have a narrow window of opportunity in the next decade to scale up measures to protect nature, lessen the impacts of climate change and radically reduce our consumption of natural resources."***
>
> **Hans Bruyninckx, European Environment Agency (EEA) Executive Director - 2019**

Human activities are putting the environment under pressure

Over the last decade, an increasing amount of scientific evidence has been pointing to the pressure that human activities are putting on the environment, thereby endangering the sustainability of our planet's environmental and economic systems.[1]

Waking up everyday to this existential threat, our societies are facing difficult questions: How has this happened? Is there a way to reconcile prosperity, fairness and sustainability? Are we moving quickly enough? If not, how can we harness rapid changes in the narrow window of opportunity afforded us?

In response to rising public awareness and unprecedented mobilizations across civil society and youth, European Commission President Ursula von der Leyen presented **the European Green Deal** on December 11th 2019. Recognising that coping with environmental issues is our "generation's defining task",[2] this flagship proposal is expected to set a path for the EU to transition towards a low-carbon, circular and resource-efficient economy, based on the sustainable use of natural resources and including the conservation and restoration of biodiversity.

Nature itself is at risk, not only the climate

But are the scope and ambition of the Green Deal up to the task? The debate and policy proposals so far have largely focused on **climate change**, but the preservation and restoration of **nature as a whole** is no less urgent and deserves just as much attention.

This is the **second report from Finance Watch exploring options to make finance serve nature.**[3] In this paper, we ask:

1) Is private finance up to the task?
2) Are current regulatory proposals able to scale up the mobilisation of finance for nature?
3) If not, what interventions can bring deep and lasting changes to the provision of finance for nature?

The first chapter of this report describes **the problem of nature loss**. The second chapter **explores the limited ability of the private financial sector to fill the finance gap**. The third chapter assesses the EU's **attempts so far to fix this** by improving the chain of information for investors, and by reducing the perception of risk through regulation and the use of public funds. The last chapter of the report discusses some elements of the Green Deal, and the case for **integrating environmental objectives in economic governance and public funding of nature-related projects.**

1 e.g. IPCC, IPBES, Planet boundaries

2 European Commission, 'The European Green Deal', COM(2019) 640 final

3 The first paper was "Making finance serve nature", Finance Watch, May 2019

Chapter 1

An Unsustainable Economy

1 An Unsustainable Economy

After decades of worrying reports and lack of sufficient action, **global awareness of climate change is rising rapidly**. While there are undoubtedly positive trends, scientists warn that we are reaching climate tipping points,[4] raising doubts about the ambition of the tools used so far and the speed of the transition towards a resilient and low-carbon emitting economy.

But climate change is only one of the processes that undermines the 'safe space for human development'. **Three other planet boundaries**[5] **have also been crossed:** biodiversity integrity, land-system change and biogeochemical cycle (nitrogen and phosphorus cycles).[6]

We have crossed the planet's natural boundaries

Regarding **biodiversity**, recent studies conclude that there is a massive decline in both the numbers and sizes of populations of vertebrate[7] and invertebrate species that contribute to vital ecosystem functions, such as pollinators, earthworms or fungi,[8] leading scientists to speak of a sixth mass extinction: of an estimated eight million animal and plant species (75 percent of which are insects), around one million are threatened with extinction – more than ever before in human history.[9] As far as agriculture is concerned, a recent report from the Food and Agriculture Organization of the United Nations (FAO) shows that plant diversity in farmers' fields is decreasing, that nearly a third of fish stocks are overfished and a third of freshwater fish species assessed are considered threatened.[10] Furthermore, 85% of coral reefs are under direct threat as a result of human activities.

> *"In our view, the evidence from tipping points alone suggests that we are in a state of planetary emergency: both the risk and urgency of the situation are acute."* [11]
>
> **T. M. Lenton, J. Rockström et al.. Researchers. 2019**

When it comes to **land and marine areas**, the 2019 report of the International Platform on Biodiversity and Ecosystem Services (IPBES) concludes that "Seventy-five percent of the land surface is significantly altered, 66 percent of the ocean area is experiencing increasing cumulative impacts, and over 85 percent of wetlands (area) has been lost".[12] According to IPBES, land degradation has reduced productivity in 23 percent of the global terrestrial area.

Capital-intensive agriculture is a major cause of altered **biogeochemical cycles**, including large-scale nitrogen and phosphorus-induced ecosystem disruption due to the use of fertilizers. At the planetary scale, the additional amounts of nitrogen and phosphorus activated by humans significantly disturb the global cycles of these two important elements

4 A tipping point is defined by the Intergovernmental Panel on Climate Change as a "large-scale discontinuity" in one piece of the Earth's climate. See more: LENTON, T.M., ROCKSTRÖM, et al., "Climate tipping point - Too risky to bet against", Nature, Comment, 27 Nov 2019

5 While the global perspective of the planetary boundaries approach sheds light on the interconnectedness of environmental issues, it does not reveal critical local or regional thresholds of resource stress, such as for freshwater and phosphorus use, which may have serious consequences long before showing up at the planetary scale.

6 In 2009, 29 leading Earth-system scientists proposed a set of nine critical Earth-system processes with biophysical thresholds called 'Planetary boundaries'. Crossing such thresholds could lead to irreversible environmental change, undermining the 'safe space for human development'. Source: ROCKSTRÖM et al, "A safe operating space for humanity", Nature, 2009

7 CEBALLOS, G., EHRLICH, P. R., DIRZO, R., "Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines", 2017, PNAS, 114 (30)

8 FAO, The State of the World's Biodiversity for Food and Agriculture, 2019, 576p.

9 DIAZ, S., et al, "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services", May 2019

10 FAO, The State of the World's Biodiversity for Food and Agriculture, 2019, 576p.

11 LENTON, T.M., ROCKSTRÖM, et al., "Climate tipping point - Too risky to bet against", Nature, Comment, 27 Nov 2019

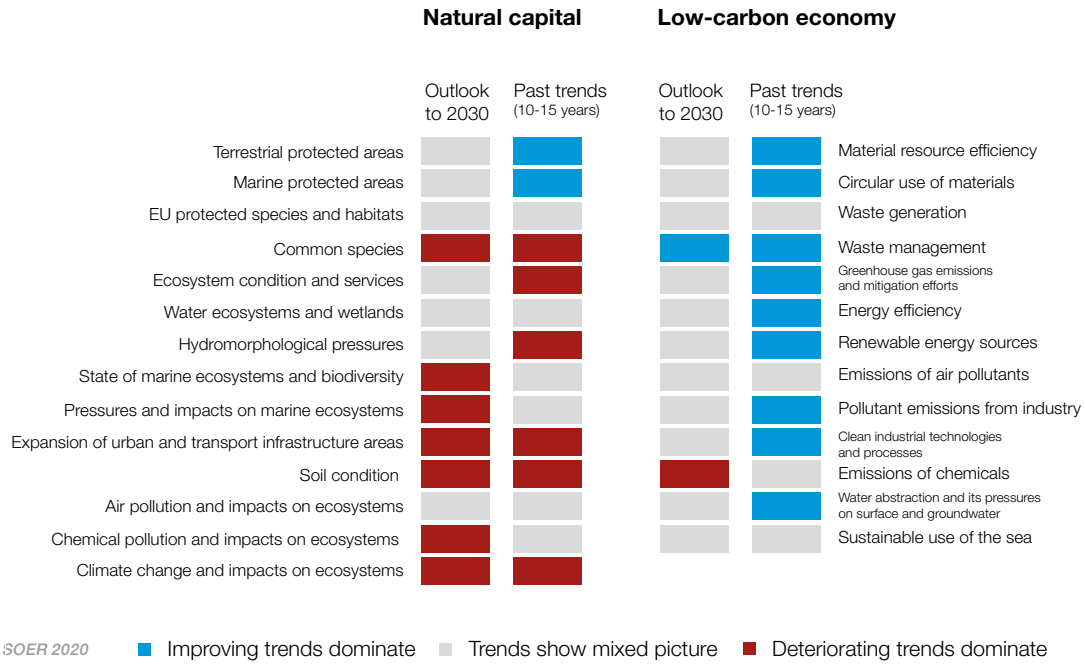
12 DIAZ, S., et al, Op cit.

– especially under conditions of poor water retention due to local deforestation – resulting in the pollution of waterways (a process known as eutrophication) and coastal zones, declining oxygen in the ocean and coastal waters,[13] and in additional contributions to the greenhouse effect via the release of N_2O.[14]

The health of Europe's natural capital is deteriorating

According to the recent State and Outlook of the European environment 2020 (SOER 2020) conducted by the European Environmental Agency, **similar unsustainable patterns exist in Europe**[15] with deteriorating trends in most aspects related to the health of our natural capital (e.g. biodiversity, ecosystems, soils, chemical pollution):

Figure 01 – State and outlook of Europe's environment in 2020



Source: EEA, SOER 2020

As the issue of unsustainability is so much broader than just the climate crisis, there is undoubtedly **a need to adopt a broad perspective** that captures the holistic nature of our interaction with nature, prior to discussing the tools that could be used.

This first chapter will briefly introduce the context of the discussion, by addressing the following points:

I. What are we talking about?
II. Our economies rely on – and deplete – the natural world
III. What actions are needed?
IV. Finance is needed to achieve internationally agreed targets, but not only

13 In the past fifty years, there has been a four-fold increase in the number of dead-zones (i.e. areas in which levels of oxygen are too low to support most marine life) and a tenfold increase of very low oxygen sites near coasts, with drivers such as rising nutrient loads coupled with climate change—each resulting from human activities. In: BREITBURG, D., A.LEVIN, L., et al., "Declining oxygen in the global ocean and coastal waters", Science, vol. 359, Issue 6371, Jan 2018

14 GERBER, P.J ., et al., Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities, Food and Agriculture Organization of the United Nations report (FAO), 2013, Rome, 7p.

15 "Small proportions of protected species (23%) and habitats (16%) assessed are in favourable conservation status [...] 62% of Europe's ecosystem area is exposed to excessive nitrogen levels, causing eutrophication", "only 40% of European surface water bodies were found to be in a good ecological state", Source: EEA - SOER 2020,11-12p.

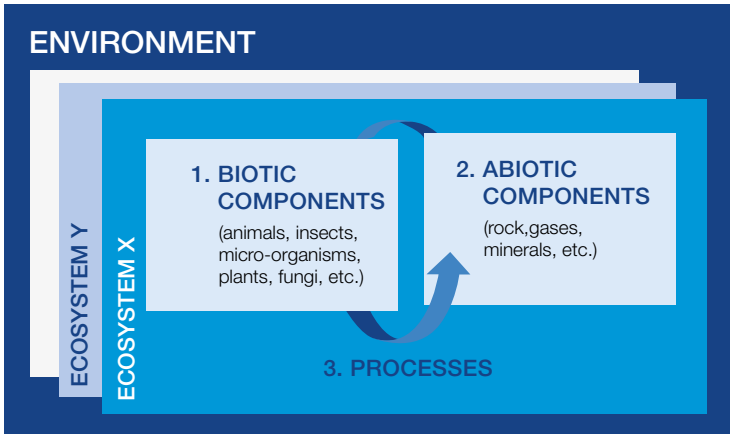
I. What are we talking about?

The term **biodiversity** is often perceived as limited to animals and plants but it covers a much broader scope of life forms such as fungi, micro-organisms (present in soil and marine area), and their interactions in specific ecosystems. The CBD's agreed definition is much broader – to the point where it even creates some confusion – as it refers to "the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems." [16]

The problem needs us to take a holistic view of nature

In this report we prefer to use more holistic concepts such as nature, environment or natural capital,[17] which may give a more complete picture as they can encompass interactions in and between ecosystems, which are themselves composed of living (biotic) and non-living (abiotic) components[18] and processes – climate regulation being one of these processes.

Figure 02 – Environment, ecosystems and their components



II. Our economies rely on – and deplete – the natural world

A deeper focus on the interaction between the environment and human activities is needed because human well-being and economic activities both depend on the environment, with **economic activities often being the main driver of environmental destruction** (see figure 03).

The ecosystem services that nature provides support our economy

The variety of ways in which nature contributes to human well-being and economic activities is often described as **ecosystem services**[19] of which 18 categories have been identified and organised in four groups:

- **Provisioning services**: material outputs from nature, e.g. food, water, fossil fuel, timber, raw materials;

16 Convention on Biological Diversity, 1992, Article 2

17 The concept of natural capital is a metaphor illustrating the role of nature in the economic system: production in the economy should be considered as a function of human capital (L), physical capital (K) and natural capital — much in line with the 18th century economic vision that included (physical) capital, labour and land.

18 Such as gases, minerals, rocks and most of the raw materials used by industry.

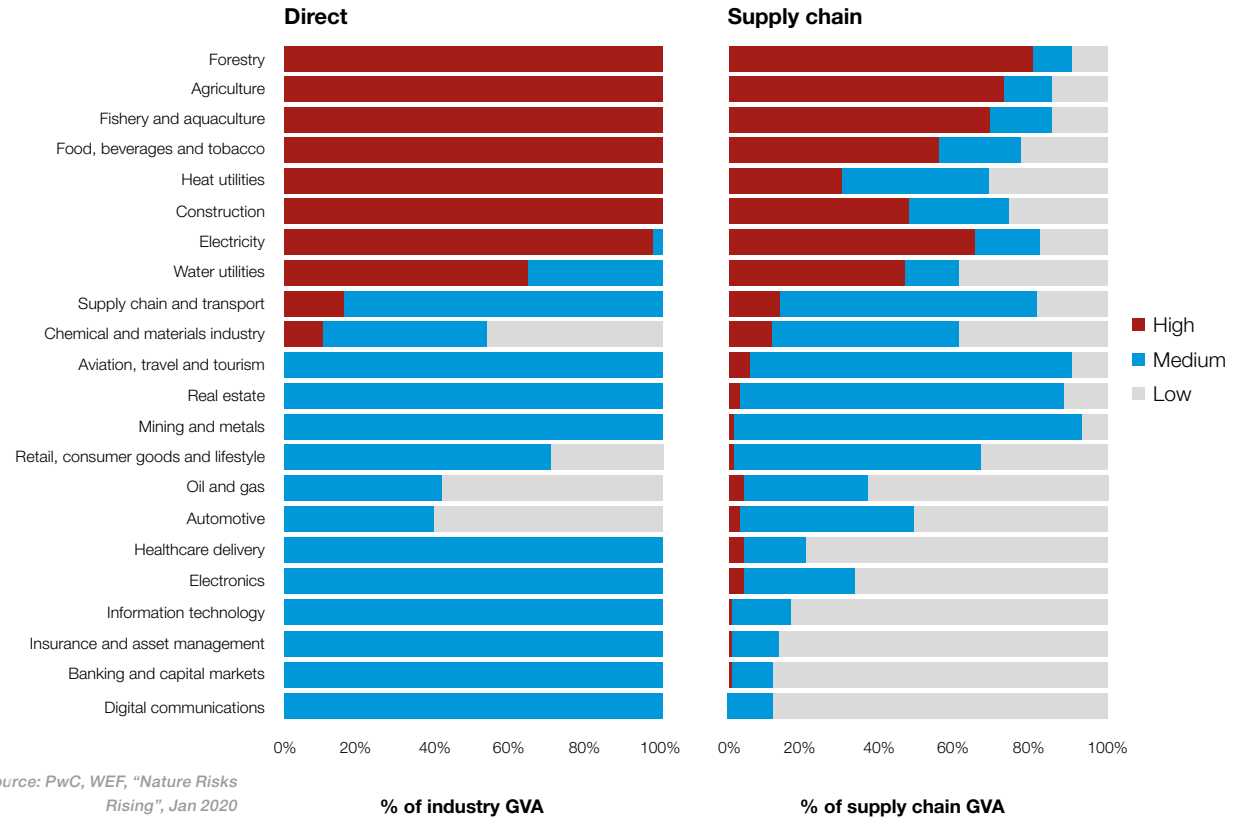
19 "Ecosystem services are the ecological characteristics, functions or processes that directly or indirectly contribute to human well-being: that is, the benefits that people derive from functioning ecosystems" in: COSTANZA, R. et al., "Twenty years of ecosystem services: How far have we come and how far do we still need to go?", Ecosystem Services 28-A, 2017, 3p.

- **Regulating services**: indirect benefits from nature generated through the regulation of ecosystem processes, e.g. climate regulation/ carbon sequestration, water purification, pollination, control of pest proliferation, protection against floods, etc.;
- **Cultural services**: non-material benefits from nature including the recreational, aesthetic and spiritual dimensions of ecosystems;
- **Supporting services**: fundamental ecological processes support the delivery of other ecosystem services and that allow the development and reproduction of life, e.g. nutrient cycling, soil formation, provision of habitat.[20]

Up to a third of the economy depends on nature and ecosystem services

While the intrinsic value of nature and its importance for human life is a straightforward idea, most businesses are still relatively **blind to the dependencies and impacts of their activities on nature and ecosystem services**. The extent of their connection with nature is huge: some 15% and 37% of global GDP (USD 13 and 31 trillion) is generated by industries that are, directly, either highly or moderately dependent on nature (see figure 03).[21]

Figure 03 – Percentage of direct and supply chain GVA with high, medium and low nature-dependency, by industry



Source: PwC, WEF, "Nature Risks Rising", Jan 2020

But nature's ability to contribute is getting weaker…

The paradox is that these economic activities are well-documented to have caused more extensive and rapid changes to the environment in the last 50 years than at any other time in human history: the last report of the IPBES found a **sharp decline since 1970 in 14 of the**

20 COSTANZA et al. 2017, Loc. cit., pp. 5-6; PELENC, J., BALLET, J., "Strong sustainability, critical natural capital and the capability approach", Ecological Economics 112 (2015), 38p.

21 PwC, WEF, "Nature Risks Rising: Why the crisis engulfing nature matters for business and the economy", January 2020 34p.

18 established categories of nature's essential contributions,[22] with human economic activities cited as the main sources.

The most significant **direct drivers** of damage to ecosystems and biodiversity loss are:

…because human activities are degrading the land, the sea, and the atmosphere

- **Land and sea-use change** (i.e. deforestation, urban development, agriculture) leading to habitat loss, with half of all habitable land used for agriculture and livestock.
- **Natural resource use and (over)exploitation** (e.g. soil, fish, mineral) at rates faster than natural populations can recover. Since 1970, annual extraction of natural resources has increased three to four-fold – with the rate of extraction accelerating since the year 2000.[23] Resource extraction and processing is said to account for more than 90% of global biodiversity loss and water stress impacts, and for approximately half of global climate change emissions.[24]
- **Climate change**, even ~1°C rise in mean global temperatures is causing serious and often unexpected impacts on species, affecting their abundance, genetic composition, behaviour and survival.[25] Coral reefs are projected to decline by a further 70% to 90% at 1.5°C of warming.[26] Increasing weather variability and climate shocks will also negatively affect agricultural yields. It is worth noting that feedback loops go both ways as the loss of biodiversity can substantially reduce the capacity of ecosystems to sequester carbon and so reduce the ability of nature to self-regulate.
- **Pollution** which originates from many economic activities, e.g. industry, agriculture.
- **Invasive alien species**, i.e. animals and plants that are introduced accidentally or deliberately into a natural environment where they are not normally found, with serious negative consequences for their new environment.

> *"Human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted"*
>
> **UN's Millennium Ecosystem Assessment (2005)**

Those direct drivers are supplemented **by a series of interlinked indirect drivers such as population change, economic growth and science and technological change.**[27] All these drivers have negative impacts on the environment, human health and wellbeing, whose costs are not included in the price of goods and services consumed (negative externalities).

22 DIAZ, S. et al., "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services", 2019, 10p.

23 IRP, "Global resources Outlook 2019: Natural resources for the future we want", Report of the International Resource Panel, United Nations Environment programme, 2019, 162p. Extraction reached 92 billion tons in 2017, compared with 27 billion tons in 1970.

24 IRP, Ibid.

25 IUCN, "Species and climate change", Issues brief, December 2019, 2p.

26 IPCC, "Summary for policymakers of IPCC SPecial Report: Global warming of 1.5°C", Cited in: WEF-PWC, Ibid.

27 While world population has doubled in the past forty years (IRP, Ibid., p.7), global economic activity has increased nearly seven-fold in the last 50 years and was closely coupled to substantial increases in the extraction and consumption of natural resources. The impact on ecosystem services is most evident in the case of food production: much of the increase in agricultural output over the past 40 years has come from a technical-induced increase in yields per hectare (e.g. wheat yields rose 208%, rice yields rose 109% in the past 40 years in developing countries) rather than an expansion of area under cultivation.

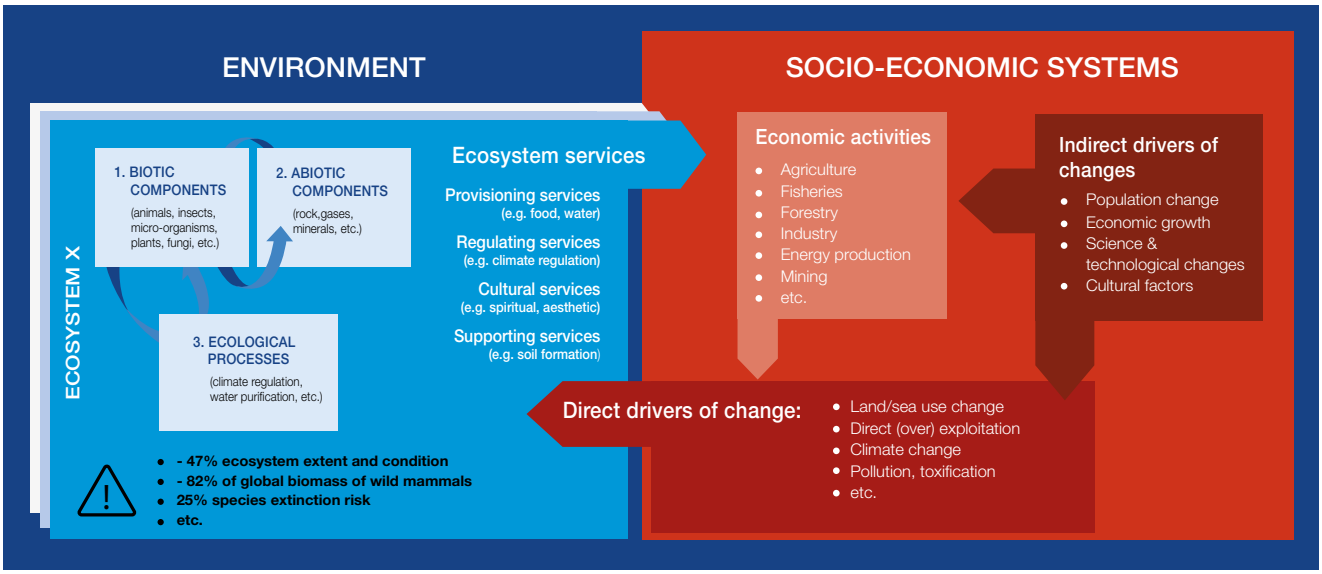
Nature is the ultimate 'public good'

This situation reflects that **nature is the ultimate global public good**[28] **and is subject to the tragedy of the commons**, where agents act independently in their self-interest in ways that, collectively, deplete or spoil the shared resource to the detriment of the common good.

We ignore nature – loss that takes place elsewhere

Much of the damage occurs out of sight of consumers: globalisation and the international division of labour often mean that consumption in one part of the world is responsible for environmental damage in another - usually lower income - part of the world. It also explains why claims by developed economies to have decoupled their growth from overconsumption of natural resources and GHG emissions are **misleading**:[29] these economies have reduced their production footprint by outsourcing it to other countries, but their consumption footprint remains just as high.[30]

Figure 04 – Relation between the environment, human well-being and human activities



Source:Authors, adapted from: IPBES, 2019[31]

III. What actions are needed?

Three types of project to respond to nature loss:

There are three main categories of actions for coping with the consequences of economic activities on nature: conservation, restoration, and adopting sustainable processes. These actions can be materialised in a wide range of projects, economic activities and regulations.

1. Conservation – or limiting the extent of economic activity

Conservation – such as national parks and nature reserves

Conservation comprises a broad category of actions directly aimed at preserving the variety of life on the planet by protecting species and habitats from harmful economic

28 A public good is a good that can be consumed by anyone (non-excludable) and no one has an exclusive right over its consumption (non-rivalrous). Public goods also create externalities (positive or negative). In theory, externalities occur when economic transactions have effects on individuals not directly involved in that transaction. Left to themselves, markets do not include effects and costs of externalities.

29 While there is a desire to decouple GDP from resource use and emission (i.e. Green growth), it is still to be proven achievable. In: PARRIQUE, T., BARTH, J., and al., "Decoupling debunked: Evidence and arguments against green growth as a sole strategy for sustainability", European Environmental Bureau, 2019, 80p.

30 HICKEL J. and KALLIS G. "Is Green Growth Possible?", New Political Economy, 2019; WIEDMANN, T. O., SCHANDL, H., et al., "The material footprint of nations", PNAS, 2015, 112 (20), p. 6271-6276

31 "Report of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the work of its seventh session", IPBES, Paris, 29 April–4 May 2019, 45p.

activities.[32] While several categories of in-situ protected areas exist,[33] the categorization mainly refers to attempts to limit interactions with human activities:

- **Nature reserves**, where human visits are minimized and controlled;
- **National parks**, where both biodiversity and recreation/ecotourism are promoted;
- **Managed areas for habitat and species**, which aim to protect or restore specific species or habitats;
- **Protected areas with sustainable use of natural resources**, where human exploitation is carefully controlled (either as result of regulatory restrictions on land use or voluntary agreements — such as conservation easements).[34]

2. Restoration – or repairing the effects of economic activity

Restoration – such as rewilding, soil renaturalisation or bringing back lost species

If conservation aims to preserve biodiversity, **restoration** aims to help ecosystems recover after being degraded, damaged or destroyed.[35] Projects can be designed to:

- **Regenerate soils and forest** (e.g. soil renaturalization, regenerative agriculture, reforestation);
- **Decontaminate soils and water runoff** (e.g. filtering the excess of fertilizers, chemicals, heavy metals);
- **Remove the disturbance factor** to allow the independent recovery of the ecosystem (i.e. passive restoration);
- **Reintroduce native species** which were lost (e.g. coral reefs restoration by "planting" corals);
- **Eliminate or control invasive alien species**.[36]

Restoration and conservation often go hand in hand. In rewilded areas for example, lost wildlife is both restored and protected from human and economic activities. Similarly, conserving a forest also allows a natural restoration of ecosystems.

3. Transition – or adopting sustainable processes

Transition – switching to sustainable processes, such as renewable energy or less intensive agriculture

In addition to the conservation and restoration of nature, **economies will have to adopt sustainable processes in order to align with nature and planet boundaries.** In the words of the European Environmental Agency (EEA), "Europe will not achieve its sustainability vision of 'living well, within the limits of our planet' simply by promoting economic growth and seeking to manage harmful side-effects with environmental and social policy tools."[37] Reversing nature loss requires transitioning sectors of the economy towards the sustainable use of natural resources and biodiversity components. Some possible examples are:

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32 While the in-situ conservation projects protect the species in their natural habitats, ex-situ conservation projects target the conservation of specific plants and/or animals outside their natural habitat (e.g. botanical gardens, seed or DNA storage). ZEGEYE, H., "In situ and ex situ conservation: complementary approaches for maintaining biodiversity", International Journal of Research in Environmental studies, IJRES 4, 2017, 1-12

33 According to the IUCN Protected Areas Categories systems

34 Private property subject to a conservation easement remains in private ownership, with only some of the use rights being restricted. The agreement may require the landowner to take certain actions to protect land and water resources, such as fencing a stream to keep livestock out or harvesting trees in certain ways; or to refrain from certain actions, such as developing or subdividing the land. While mostly used in the USA, conservation easements have been increasingly promoted in Europe, notably in France and the UK. Source: RACINSKA, I., VAHTRUS, S., " The use of conservation easements in Europe. Final report", 2018, 248p.

35 Society for Ecological Restoration Science and Policy Working Group, "The SER primer on ecological restoration", 2002, Society for Ecological Restoration,

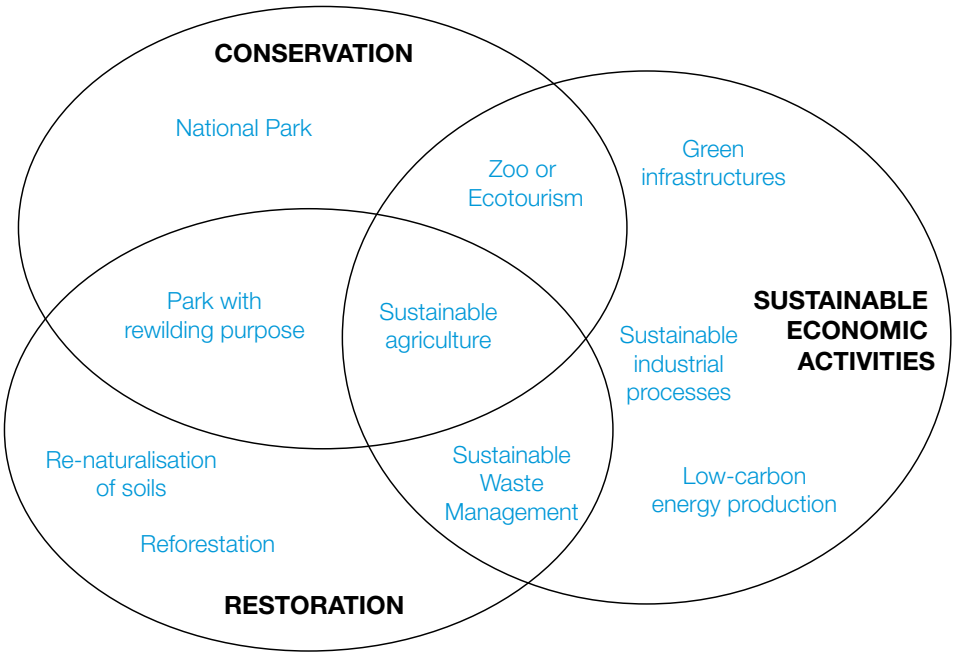
36 "The SER International Primer on Ecological Restoration", Society for Ecological Restoration International, Science & Policy Working Group, October 2004, p.1,

37 EEA, "European environment - State and outlook 2020. Knowledge for transition to a sustainable Europe", SOER 2020, December 2019, 499p., p.17

- **Sustainable agriculture** practices (e.g. permaculture, polyculture, organic agriculture, regenerative agriculture, low-intensivity pasture systems) that stop the overexploitation of soils, and reduce pollution;
- **Sustainable forestry and aquaculture** management, whose aim is to maintain the area's long-term health instead of overharvesting;
- **Low-carbon emitting economic activities,**[38] e.g. renewable and low-carbon energy production, energy efficiency processes and buildings. While mitigating climate change can reduce the risks of biodiversity loss, healthy ecosystems also participate in climate mitigation by storing carbon;
- **Resource-efficient activities** (e.g. circular economy); it has been estimated that at least USD 1 trillion more investment in the resource system is needed each year worldwide to meet future demand for commodities and natural resources (e.g. steel, water, agricultural products and energy) in ways that can reduce pressure on the environment. [39]

Conservation and restoration actions relate to specific projects where economic activity is often prevented. Meanwhile, adopting sustainable processes concerns existing economic practices that need to shift towards environmental sustainability — or be banned. While the **transition of many economic activities will also involve conservation and restoration processes** (see figure 05),[40] the distinction between those concepts is important as they represent different types and degrees of constraints to economic activity.

Figure 05 – The ecosystem of preserving nature



38 We must stay aware of potential trade-offs between both objectives (e.g. the tension on the production of biofuels), and the necessity to align the climate objective with biodiversity objectives.

39 DOBBS, R., et al., "Resource revolution: meeting the world's energy, materials, food and water needs", McKinsey Global Institute, 2011, Seoul, 224p.

40 Issues of biodiversity conservation are for example at the centre of sustainable agriculture when it comes to debate techniques of land-sparing vs land-sharing.

IV. Finance is needed to achieve internationally agreed targets

Conservation targets were internationally agreed during the 2010 Convention on Biological Diversity,[41] and have been translated into more precise requirements and mechanisms in EU legislation such as the Habitats and Birds Directives – which established the Natura 2000 network of protected areas. The EU also defines a **restoration target** as part of its Biodiversity strategy 2020.[42] More recently, the EU settled its **ambitions to transition** towards a sustainable, low-carbon and resource-efficient economy.[43] Although some of these targets are not ambitious enough, they have only partly been achieved which begs the question – why?

A lack of funding means nature-based targets are being missed

One of the main reasons is the **lack of adequate or sufficient financing** toward nature-related projects and activities. Significant amounts of funding are indeed required to conserve (e.g. settle protected areas, pay for maintenance), restore (e.g. renaturalize soils) and for businesses to transition towards sustainable practices (e.g. low-carbon and resource efficient processes). At the same time, efforts in that direction are being undermined by **counterproductive incentives which drive flows of public and private money towards activities** with negative impacts for nature – such as deforestation.[44]

Other policy areas must also play their part

Meanwhile, transitioning is not only about finance, it is also about directly limiting corporate harmful behaviours. This calls not only for an **increase in funding but also for a coordinated response** from several policy areas: environmental, economic and also financial regulations.

The underlying questions are therefore:

a) What type of finance, and from which actors, should be mobilised to achieve conservation, restoration and sustainable activity targets?
b) Which regulatory changes could scale up the process of both mobilising private finance and unlocking public finance for nature?
c) How to bring deep and lasting transformative changes?

The following chapter will explore the ability of the private financial sector to provide the necessary funding. We will see that, given the structural features of both private finance and of most nature-related projects, private finance alone is not adequate to meet the financial challenges surrounding nature.

41 Aichi Target 11 requires by 2020 that at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas is protected

42 The Target 2 of the Biodiversity strategy 2020 requires the restoration of at least 15% of degraded ecosystems.

43 COM(2019)22, "Reflection paper - Towards a Sustainable Europe by 2030", 30 January 2019

44 The production of four major commodity supply chains – beef, soy, palm oil and pulp & paper – worth roughly USD 180 billion annually across the tropical forest regions. Estimation suggests that 50-80% of these current production is linked to past deforestation (WEF, TFA, "The role of the financial sector in deforestation-free supply chains", 2017). While the EU imported and consumed 10% of the global production of crops and livestock products associated with deforestation over the period 1990-2008, a recent Global Witness report shows that EU-based financial institutions were one of the main sources of funds and had backed six of the main agribusiness linked to deforestation to the tune of EUR 7 billion between 2013 and 2019 (Global Witness, "Why EU action to tackle deforestation should not let finance off the hook", March 2020).

Chapter 2

Recognizing the Limits of Private Finance

2 Recognizing the Limits of Private Finance

The increasing level of awareness around climate change risks has triggered intense debate around how to fund the transition towards a low-carbon economy. At the same time, there is a growing understanding of the risks relating to biodiversity loss, environmental degradation, planetary boundaries, and the depletion of raw materials, which is expanding the debate towards a broader objective, which can be summarized as:

Transitioning towards a sustainable, circular and low-carbon economy, while **conserving** all elements of nature and **restoring** degraded ecosystems.

The funding gap for the EU to meet its environmental targets is around €400bn

For Europe to meet its environmental targets, the European Commission recently estimated the **funding gap to be EUR 360-410 billion a year** until 2030 (comprising EUR 260 billion for climate and EUR 100-150 billion for the other environmental targets).[45] While estimating aggregate financing needs remains challenging and the result therefore debatable,[46] they can be taken as a reference to estimate the order of magnitude.

Based on the fact that in recent years we have lived in a world of abundant liquidity and private capital[47] but constrained public purses (e.g. harmful tax competition and evasion, fiscal framework), **many calls have been made in the past decade for private finance to fill this gap.**

It is hard to match abundant private funding with projects to fill this gap

Despite its apparent logic – and leaving aside the fact that private finance finances plenty of unsustainable activities – this assertion has one important limit: the main challenge to financing nature-related projects and the transition to a sustainable economy is not the quantity of capital to be mobilised, but the **difficulty of matching sound nature-related projects to private finance as we know it.**

In the first section, we will see that most nature-related projects and activities are not meant to generate the necessary level of revenues required by private finance. In the second section we elaborate on the further limitation of private finance with a focus on capital markets and the current limitations of sustainable investing.

I. The nature of private finance
II. Capital markets and nature
III. Conclusions on limits of private finance

45 EC, "Sustainable European investment Plan, European Green Deal Investment Plan", 14th of January 2020.

46 Discussing the fundamental question of the adequacy of the level of ambition of these targets would be out of the scope of this report.

47 As illustration, and following European Central Bank (ECB) post-crisis unconventional monetary policy, excess liquidity (i.e. holdings of central bank reserves in excess of minimum reserve requirements and holdings of equivalent central bank deposits) exceeded EUR1 900 billion or 17 percent of euro-area GDP, in September 2018. Source: DARVAS, Z., PICHLER, D., "Excess Liquidity and Bank Lending Risks in the Euro Area - Monetary Dialogue September 2018", European Parliament - Policy Department for Economic, Scientific and Quality of Life Policies, Septembre 2018, p.44

I. The nature of private finance

The bulk of commercial private finance[48] provided to economic projects or enterprises consists of lending – coming mainly, but not exclusively, from **banks** — and *investments in securities*[49] – coming mainly, but not exclusively, from **asset owners** (essentially institutional investors such as insurance companies and pension funds) and invested by **asset managers.**[50]

Whilst some characteristics and practices are specific to each category of actor, others are shared:

Financial investors are concerned with financial risks and returns

- **The search for an appropriate risk-return ratio** – Risk and return form part of any investment decision. Even in sustainable investing (see Chapter 2. II. 2.) the extra-financial dimension (e.g. environmental factors) must be considered alongside the traditional financial risk/reward analysis.
- **The need for clear and predictable revenue streams** – Private commercial finance creates financial obligations: when an organisation takes out a bank loan or issues a bond, it will have to pay interest and repay the principal, and will be expected to remunerate equity capital with dividends. To meet these financial obligations, investees must earmark a part of their income stream for the payment of interest, loan repayments or dividends. These flows may be priced into secondary markets but all investment returns are ultimately based on future revenue streams, real or expected.

The need for a financial return creates an incentive to monetize environmental benefits

- **The incentive to monetize environmental benefits** – While positive environmental outcomes can occur without generating any revenue stream, the use of private commercial finance creates an incentive for both the investor and the project manager to find ways of monetizing these environmental outcomes in order to remunerate the capital. In some cases this will not be a problem, for example where there are cost-savings from resource efficiencies or income streams from renewable energy, but if these are not enough the use of private financing may create a trade-off between the financial and the environmental outcomes of the project (see Chapter 2. I. 1.1. and Annexes 1 and 2).
- **The needs for precise and reliable metrics** – The risk/return approach inherent to private finance implies that financiers can measure the financial risks and returns. In other words, they need precise and reliable financial metrics before they can allocate capital. Adding an extra-financial dimension (i.e. environmental impacts) will also require precise and reliable metrics, which would support the monetization of environmental benefits.

1. Fixing nature-loss is not meant to generate revenue

The **risk/return approach** and its metrics implications are valid regardless of the form of private capital provided, i.e. debt or equity. They also hold for all the various forms of so-called sustainable, responsible, or ESG investing, which seek to add an environmental or ESG profile to projects or enterprises for which there is already an underlying financial investment case.

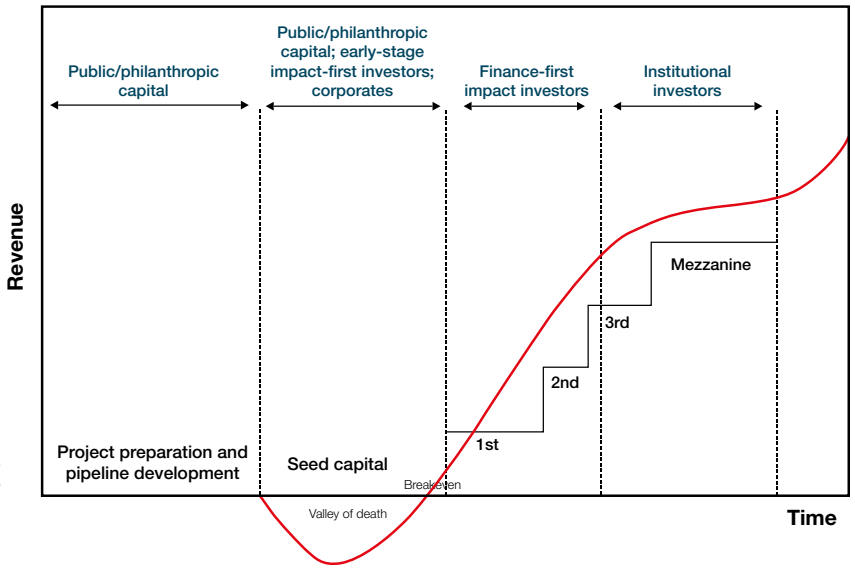
48 In this section we focus on commercial private finance.

49 Those securities are shares and bonds or economically similar instruments, which may or may not be listed and traded on exchanges.

50 Beside their main activities, asset managers are also lending to the economy through bonds, and banks are also active in securities since they frequently have asset management departments.

For decades, numerous attempts have been made to mobilise private finance to support nature-related projects. Today, we have **very little evidence of projects succeeding in getting beyond the seed investment stage** (see figure 06).

Figure 06 – Financing stage



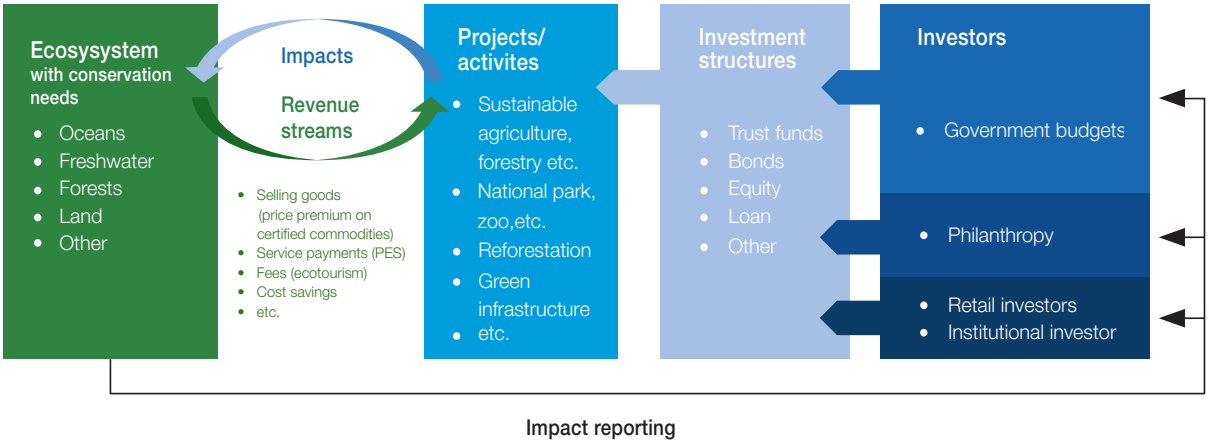
Source: KOIS, "Financing Sustainable Land use", 2016

Environment projects are likely to disappoint if judged only on financial metrics

The question is therefore: are nature-related projects capable (or intended) to produce sufficient revenues to meet financial obligations? This is the nub of the issue: while the nature benefits of a conservation, restoration or sustainable processes project may be evident, **a financial return is not always possible, desirable or sufficient to attract for-profit investors.** Indeed, McKinsey reported in 2016 that the investment risks and expected returns for conservation projects are often misaligned, with a level of risk comparable to venture capital but with returns closer to those of a stake in a successful, established company.[51]

We will conduct a more granular analysis of different types of revenue-generating mechanisms in order to better understand this fundamental barrier.

Figure 07 – Type of nature-related projects and revenue streams



51 DAVIES, R., ENGEL, H., et al., "Taking conservation finance to scale", McKinsey, 2016, p.5.

1.1 Restoration and conservation revenue sources are either too small or problematic

Nature tends to benefit when there is less economic activity

At first sight, projects that seek to conserve or restore nature seem unlikely to produce revenues. Protecting a natural habitat through the creation of protected areas or rewilding zones and renaturalizing degraded soils are not activities that inherently produce incomes. Few exceptions belonging to (ex-situ) conservation can be noted: zoos are the best example of business with conservation purposes that manage to generate revenues through entry fees. However their impact remains limited considering the effort needed to reach European conservation targets.

Beside this example **the majority of conservation and restoration processes imply low or zero economic intensity.** So what sorts of revenue sources could nature-related projects have and would they even be desirable?

The three most common attempts to make nature pay:

The three main categories of **revenue-generating mechanisms** for conservation and restoration projects are Ecotourism, Payment for Ecosystem Services (PES) and Biodiversity offsetting. Their revenue streams come mainly from the payment of entry fees, payment for the benefit of an ecosystem service, and the selling of biodiversity offset credits to companies (including as a result of regulation, as with habitat banking in the US).

The next section looks at these mechanisms in more detail but, as discussed in annexes 1 and 2, it seems unlikely that they can produce private financing at the level needed for the conservation of European nature.

> *"The main constraint in matching a theoretically infinite pool of capital with conservation-driven ventures is creating bankable projects."*
>
> **UNDP's Biodiversity Finance Initiative (2019)**

1.1.a Ecotourism

Ecotourism (or sustainable tourism) can be a revenue generator for conservation projects through, for example, the payment of **entry fees** (e.g. to national parks, Natura 2000 sites), accommodation and other tourism-related goods, services. There are several limitations to this approach.

Ecotourism – a niche market, sometimes counterproductive

To start with, ecotourism has a **mixed track record**: while in some cases ecotourism has a positive impact on the conservation area/project, it can distract landowners from conserving the whole ecosystem by encouraging them to invest in specific aspects of the area instead.[52] More fundamentally, not all conservation or restoration projects have the features needed to attract tourism.

Ecotourism can also contribute to **'over-tourism'** by adding to the pressures that drive nature-loss, including climate and habitat change, overexploitation, pollution and waste, and introducing invasive species.[53] Ecotourism therefore requires, at least, sound and enforceable sustainable management standards.

52 HEIN, L., MILLER, C.D., GROOT, R., "Payments for ecosystem services and the financing of global biodiversity conservation", Current Opinion in Environmental Sustainability, Volume 5, Issue 1, March 2013, p.87-93.

53 HALL, C.M., "Loving Nature to death. Tourism consumption, biodiversity loss and the anthropocene.", in: GREN M., HUIJBENS, E.H. (dir),Tourism and the Anthropocene, 2018, Routledge.

Finally, **ecotourism is a marginal** activity, representing only around 1-2% of revenue in the tourism sector (with a potential market estimated around USD 100 bn[54] in 2020 versus USD 5.29 trillion (2017) for the global industry). From an investor's point of view, the market for ecotourism in Europe is further constrained by the fact that not everyone is willing to pay an eco-premium, many medium-to-high income ecotourists choose to visit other regions than Europe,[55] and many zones of high-biodiversity value in Europe are protected areas or publicly owned, such as national parks.

1.1.b Payment for ecosystem services

Payments for Economic Services (PES) - most are in effect public subsidies, rather than voluntary private schemes

Payment for ecosystem services (PES) is defined as **payments to land owners or managers to provide or protect an ecosystem service.** The most common examples are payments for carbon storage, payment for biodiversity conservation or payments for watershed services (see Annex 2 for more details).

While much faith has been placed in PES as a potential source of voluntary private financial transfers (i.e. the Resource Mobilization Strategy agreed at the COP CBD 2010), a decade of practice shows that PES schemes are in fact mostly **another form of public subsidy**, with more than 90% being funded through public sources,[56] with mixed track records.

The lack of voluntary private schemes is not surprising considering that **most ecosystem services could not be sold on a market** because they have the characteristics of public or complex goods. That is to say, they can be consumed by anyone (non-excludable), no one has exclusive rights over their consumption (non-rivalrous), and there is no one-to-one correspondence between a service and a benefit (complex goods).[57] This is without even mentioning the measurement challenges.[58]

Thus, PES can hardly be seen as a way to build a robust business with revenue streams that can meet financial obligations. It is therefore no surprise that such schemes are rather used as an additional source of subsidy or revenue for activities that are already being carried out, such as agriculture and forestry.

1.1.c Biodiversity offsetting

Biodiversity offsetting is a controversial mechanism in which a company or another actor can compensate for its ecological impacts by making payments to a conservation or restoration project at a different place and time. In some cases, the scheme may be overseen by public authorities, for example where offsets play a role in planning decisions.[59]

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54 UNDP-Biofin, "Moving mountains - Unlocking private capital for biodiversity and ecosystems", 2019, 65p., p.7.

55 According to GlobalData's Q4-2016 consumer survey, the countries that present the biggest interest in ecotourism are Malaysia (76%), followed by China (67%) and Turkey (65%).

56 GÓMEZ-BAGGETHUN, E, MURADIAN, R., "In markets we trust? Setting the boundaries of Market-Based Instruments in ecosystem services governance", Ecological Economics 117, 2015, p.217–224.

57 Simple goods are discrete and separable (e.g. a pizza or a haircut) and are easy to trade. With ecosystem services there is often no one to one relationship between a 'service' and a benefit: several ecological features or processes may be needed for one benefit (e.g. recreation). Alternatively one ecological feature (water quality) may give rise to multiple benefits (wildlife watching, drinking, fishing, health).

58 Measurement uncertainties arise from incomplete knowledge (epistemic uncertainty) and from the inherent randomness and variability in complex natural systems (aleatory uncertainty). This creates difficulty when assessing the human benefits of natural processes. We may be certain that woodland restoration will result in significant benefits to water quality, climate, air quality and recreation, but measuring such benefits is far too complex.

59 Where a market exists (such as the Conservation Banking schemes operating in the US), the government plays a key role in enforcing mandatory policies, determining the supply and demand of biodiversity units, supervising the transaction or granting legitimacy to the compensation site.

As biodiversity offsetting has **no institutionalized market in Europe**, the value of transactions in Europe is small, estimated at USD 15.1 million in 2016, compared with a global annual market of USD 4.8 billion.[60] This reflects the fact that offsetting is mainly a US practice, notably as Europe has seen a strong wave of opposition[61] – which has rightly depicted offsetting as buying a right to destroy nature – when the Commission discussed including offsetting in Habitat and Birds directives in 2014.[62]

Biodiversity offsetting - has a record of failing to protect nature

Aside from the moral aspects, biodiversity offsetting has some practical drawbacks including a **bad track record** of environmental impact, concern that it creates a financial dependency on harmful activities, and the **lack of equivalence between different ecosystems.** For example, while a ton of CO2 in one place can arguably be equivalent to a ton of CO2 elsewhere, the same does not hold for biodiversity (see Annex 1). The case for creating a market for biodiversity offsets is therefore not easy to make and the search for conservation funding should perhaps look elsewhere.

1.2 Revenue sources from sustainable process projects

While most conservation and restoration projects imply limiting economic activity, sectors of the economy which are fundamental to sustain human society also need to transition to sustainability. As **these sectors already produce sufficient revenue streams**, there is more chance that they will continue to do so once they transition towards using sustainable processes than ad hoc conservation and restoration projects which have difficulties to generate cash flows (see section 1.2.a. below).

Where there is already a business and sustainability improvements increase its value, finance is not hard to find

In fact, the **sectors that currently produce the most negative impact on the environment** (e.g. agriculture, forestry, extractive industry, energy generation) **also have clear and sufficient revenue streams**: the selling of goods (e.g. foods and non-foods commodities, industrial goods), services (e.g. energy production). Furthermore, shifting towards sustainability and resource-efficiency also brings cost-savings.

We will briefly discuss the main sectors, and their revenue streams.

1.2.a Sustainable production of food and fibre

In the case of sustainable production, the additional revenues come primarily wfrom **price premiums** on products certified as sustainably produced,[63] in some cases topped up with revenue from ecotourism and PES schemes, such as the selling of certified carbon credits. Over the longer-term, sustainable practices can also increase yields, avoid restoration costs, and add to land values.

Consumers are demanding more sustainable food and fibre

With environmental awareness and markets for sustainable products both growing (see box 01), it is not surprising that **most present and planned nature-related private investment** is targeted in this area (see figure 08).

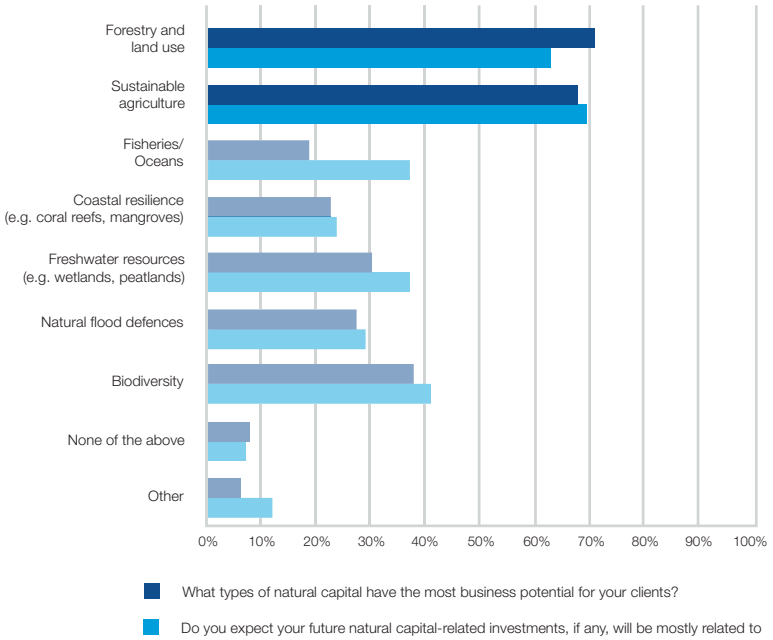
60 With the US and the Asian markets respectively of USD 3.8 billion and 937 million. Source: BENNETT, G., GALLANT, M., "State of Biodiversity Mitigation 2017. Markets and Compensation for Global Infrastructure Development", October 2017.

61 See for example, the work of the coalition of NGOs "Nature Not for Sale" (ATTAC, Counter Balance, Friends of the Earth, Re:Common, Food and Water Europe, etc.). Url : http://naturenotforsale.org

62 https://ec.europa.eu/environment/enveco/taxation/pdf/Habitat_banking_annexes.pdf

63 e.g. Forest Stewardship Council (FSC) wood, Rainforest Alliance Certification for sustainable agriculture practices, etc.

Figure 08 – Type of nature-related investment with the most business potential and attracting most interest[64]



Source: NatureConservency 2019

But consumer demand alone will not drive change fast enough; the market is still very small

To the extent that sustainable practices replace the unsustainable practices that have been driving biodiversity loss, these trends appear to be good news. It leaves only the question of whether **a purely consumer-driven approach** will be enough to make these trillion-euro sectors transition towards sustainability, or if sustainable production remains a niche market for higher-income consumers.

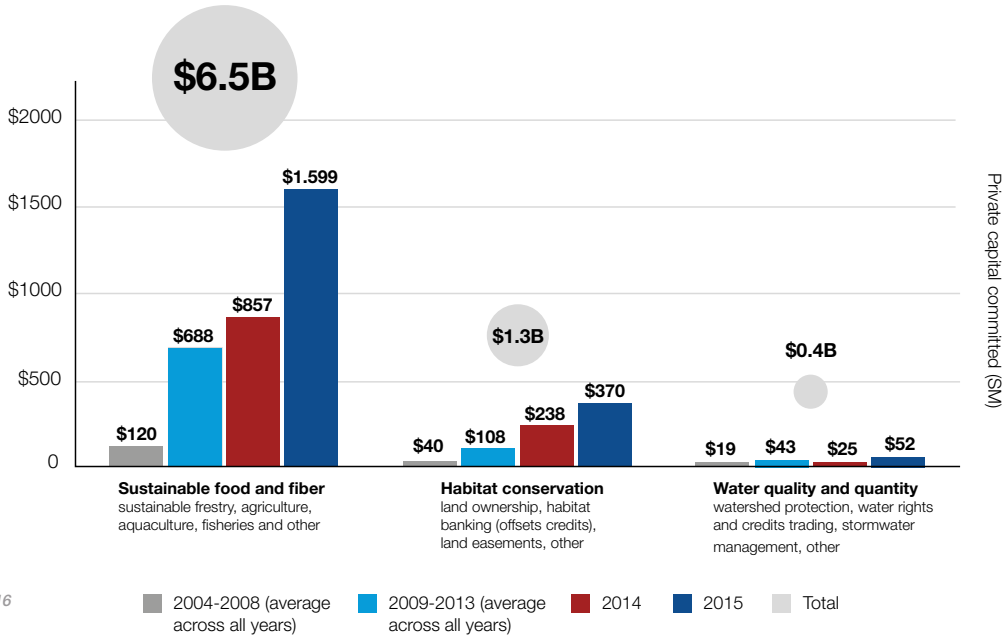
The small size of the market so far suggests the latter: **only USD 6.5 billion of private capital was invested worldwide in sustainable food and fibre production** between 2004 and 2015,[65] while private flows towards biodiversity-related projects overall were estimated in 2018 at only USD 14 billion a year worldwide.[66]

64 In 2019, NatureVest surveyed 168 individuals owning or managing assets, working in a bank or in specialised consultancy firms.

65 HAMRICK, K., "State of Private Investment in Conservation 2016 - A Landscape Assessment of an Emerging Market", 2016, Ecosystem Marketplace, 80p.

66 With USD 6.84 billion from impact investing for conservation (GIIN, "Annual impact investor survey", 2018, 76p.), USD 4.8 billion from biodiversity offsets (Bennett, Gallant and Ten Kate, 2017) and USD 2.29 billion (OECD 2019) from biodiversity-relevant fees and charges (e.g. related to ecotourism). We excluded the ~12 billion for PES scheme from the 'private' section part, as they are in most cases subsidy-like payments from the governments (97-99% according to some sources: VATN, A., "Markets in environmental governance. From theory to practice", Ecol. Econ., 2015; HAHN, T., et al., "Purposes and degrees of commodification: Economic instruments for biodiversity and ecosystem services need not rely on markets or monetary valuation", Ecosystem services 16, 2015, p.74-82)

Figure 09 – Funding by type of investment/projects



Source: JPMorgan, natureVest et al. 2016

The world's 450 million smallholders need access to loans and better prices if they are to farm sustainably. They don't need capital markets

But when looking at the characteristics of the agricultural sector, these small amounts depict another picture: there are an estimated **450 to 500 million smallholder farmers in the world**[67] **and they mostly rely on loans** (i.e. microcredit or commercial loans) or on private resources (e.g. relatives, friends), rather than on capital markets.

The picture applies also in Europe, with **94% of farms being micro enterprises** (i.e. with less than 10 people permanently employed).[68] While **nearly 40% of EU farms have an annual turnover below EUR 25 000**, only 42% of them have an annual turnover of more than EUR 100 000.[69] These facts explain the agricultural sector's reliance on loans by banks, rather than on financial markets.

That being said, a part of the European agricultural sector is experiencing **difficulties in accessing short-term and long-term loans**,[70] with 15.6% of applications being rejected (mostly small farms). These are directly related to the generally low level of farmers' income and to levels of risks perceived as too high by most commercial banks. Transitioning towards sustainable agriculture will not happen without addressing these issues (see box 01). This will require a minima improving farmers' living conditions – and therefore their creditworthiness – and bridging the funding gap.[71]

67 GOLDMAN, L., et al., "Inflection point: unlocking growth in the era of farmer finance", Dalberg Global Development Advisors, Initiative for Smallholder Finance, and Rural & Agricultural Finance Learning Lab, April 2016

68 For only 5.2% of small enterprises, 0,7% of medium, and only 0.1% of large enterprises. Source: FI-COMPASS, "Survey on financial needs and access to finance of EU agricultural enterprises", DG AGRI, EIB, 2019, 58p., p.7

69 Ibid, p.9

70 In a recent report, DG AGRI and EIB estimate that 65000 to 172 000 financially viable agricultural enterprises are not obtaining a loan in the EU 28, which represent a global EU agricultural sector financial gap between EUR 7.06 and 18.6 billion (iIncluding EUR 1.56 to 4.12 billion for short-term loans and EUR 5.50 to 14.48 for long term loans). Source: FI-COMPASS, "Financial gap in the EU agricultural sector", DG AGRI, EIB, 2018, 21p.

71 The EIB Group has developed a wide range of financial products targeted towards agriculture and bio-economy including loans, equity, advisory services and guarantees, recently strengthened by a EUR 1 billion on-lending facility for young farmers. However, it is too early to assess whether it will be sufficient to meet the funding gap.

Box 01 – Sustainable agriculture (1) : the economic-financial issue

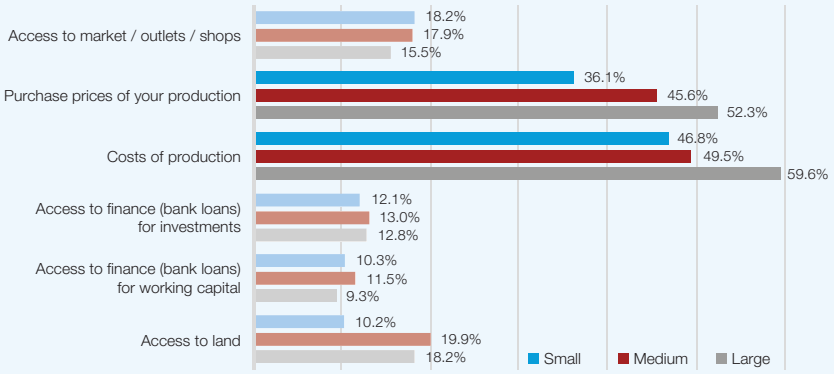
European agricultural sector will not become fully sustainable without its difficulties being recognised and addressed by policymakers (see figure 10).

Firstly, while the agriculture sector represents 4.4% of total EU employment and more than 10% in some member states (e.g. Greece, Poland, Romania, Bulgaria)[72] and is dominated by small family farms,[73] **income is generally low**[74] with huge differences between regions, size classes and sectors.[75]

While there are many reasons for this, three factors stand out: while the EU has a positive agri-food trade balance with the rest of the world,[76] **EU production costs are comparatively high**. This is due to higher input factor costs (labour, land, capital), and environmental and sanitary standards.[77] While labour and environmental costs in fact ensure high social and ecological standards, capital costs can be offset/lowered by reduced dependency to capital-intensive farming (see below). The sector is also frequently threatened by **high price volatility** stemming from world prices, globalisation of agro-food value chain, and harmful financial market practices.[78] Finally, **agricultural income is generally low**, largely as a consequence of low farmgate prices resulting from intermediaries and free-trade agreements with countries of lower ecological or social standards.

All these elements contribute to the difficulties that this sector faces **accessing finance and loans in particularly**,[79] which is directly related to the generally high level of risk. This in turn explains the prevalence of private resources (e.g. friends, relatives) for investment.

Figure 10 – Difficulties experienced by farmers in 2018



Only 7% of EU agricultural land is farmed organically

These issues are even more striking considering the need to move towards more sustainable farming practices such as organic farming, involving substantial transition costs. **Organic agriculture is growing in Europe** with 7% of total EU agricultural land being farmed organically in 2017, representing a growth of 70% in the past ten years. In

72 Eurostat, "Farmers in the EU - Statistics", August 2017

73 The vast majority of the enterprises (94%) are micro enterprises (i.e. with less than 10 people permanently employed), 5.2;% are small enterprises, 0.7% are medium, and only 0.1% are large enterprises.

74 While 42% of farms have an annual turnover of more than EUR 100 000, nearly 40% of the farms have an annual turnover below EUR 25 000 (while keeping in mind that it doesn't mean the same thing across member states)

75 FI-COMPASS, "Survey on financial needs and access to finance of EU agricultural enterprises", DG AGRI, EIB, 2019, 58p.

76 With a positive agri-food trade balance of EUR 19 billion in 2016, for EUR 131 billion of exports.

77 The total costs of production increased by 13% in real terms between 2000-2002 and 2013-2015. Cost of compliance is 1-3.5% for crop farms, but 5-10% of production cost for pig and poultry farms. Source: EC, "Modernising and simplifying the CAP - Economic challenges facing EU agriculture", December 2017, DG agriculture, p.17

78 See: LALLEMAND, B., "Investing not betting. A position paper on MiFID2/MIFIR", Finance Watch, 2012, 67p., p.38-46

79 In a recent report, DG AGRI and EIB estimate that 65 000 to 172 000 financially viable agricultural enterprises are not obtaining a loan in the EU 28, which represent a global EU agricultural sector financial gap between EUR 7.06 and 18.6 billion (including EUR 1.56 to 4.12 billion for short-term loans and EUR 5.50 to 14.48 for long term loans). Source: FI-COMPASS, "Financial gap in the EU agricultural sector", DG AGRI, EIB, 2018, 21p.

The EU agricultural sector suffers from low income, high production costs and difficulty accessing finance. These must be addressed if the sector is to become sustainable.

2021, the new legislation on organic production[80] will enter into force and is supposed to both simplify and reduce certification costs (which remains a barrier), and level the playing field between EU countries, but also vis-à-vis extra-EU competitors. With a global market for **organic food reaching USD 89.7 billion in 2016**,[81] experts argue that organic farming is no longer a niche.[82] However, the 50.9 million hectares of agricultural production certified as organic in 2015 still represent only 1.1% of agricultural land worldwide,[83] and the current upward trend in Europe might not be sufficient to meet EU sustainability goals.

Box 02 – Sustainable agriculture (2) : the agronomic issue

Farming without pesticides and fertilisers reduces yields, which can put pressure on other land. However, mixed farming can increase yields

As yet, there is no generally accepted definition of sustainable agriculture. Terms such as 'smart agriculture', 'precision agriculture', 'agroecological farming' and 'organic farming have specific and sometimes overlapping meanings that can, nevertheless, fall short of being fully sustainable.

Nevertheless, while organic farming does not sum up sustainable agriculture,[84] it remains a good proxy as it implies compliance with **environmentally-friendly standards on the use of chemicals** (e.g. no synthetic fertilisers and pesticides,[85] stricter rules on animal medication),[86] the use of positive practices such as crop rotation, polyculture, substitution of manure for synthetic fertilizers, higher human labour input and less recourse to mechanized techniques, etc.

The disadvantages include that organic production is characterised, on average, by a **significantly lower yield than conventional production**[87] - offset to a degree by larger exploitation,[88] (sometimes) higher producer prices[89] and comparatively more subsidies[90] in Europe - and a need for more land, which may occur **at the expense of other essential ecosystems** such as forests. However, Europe in particular is an excellent candidate for this transition thanks to its prevalence of **mixed farming** (integration of livestock to arable cultivation). Indeed, mixed farming systems have been shown to allow much higher yields by providing important inputs of manure,[91] and to be among the best systems for soil biodiversity, due to the large proportion of livestock being fed on grasslands.[92]

Meanwhile, the forthcoming EU Farm-to-Fork Strategy is expected to set a target to reduce the use of synthetic chemical pesticides and fertilisers by 2030 and to increase the EU's land area dedicated to organic farming. The post-2020 CAP is expected to play a role in meeting these objectives.

80 Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007

81 LERNOUD, J., POTTS, J., SAMPSON, G., GARIBAY, S. et al., "The State of Sustainable Markets – Statistics and Emerging Trends 2017", ITC, Geneva, 196p.

82 IFOAM, "Organic farming drives sustainability in global agriculture", organics international press release, April 2019.

83 LERNOUD, J., et al., Ibid.

84 While organic farming can generally be classified as sustainable agriculture, organic products can be produced on large industrial farms that are not sustainable while farming which are not certified as organic (e.g. because of the difficulty to be certified) can produce food using methods that will sustain the farm's productivity for generations.

85 Limitations and targeted application of fertilizers and pesticides can be achieved through the use of drones or other detection systems, see: SOLONAKIS, N., "Agriculture technology: is 'new' always better?", HQ Passports 1, 2020, pp. 8-9.

86 E.g. TUOMISTO, H.L., et al., "Does organic farming reduce environmental impacts? A meta-analysis o European research", Journal of ENvironmental Management, ol. 112, pp.309-320.

87 The gap is particularly important for wheat, with a yield ranging between 40% in Germany and 85% in Italy of conventional yields. Meanwhile, this gap strongly differs in function of location, agricultural practice management or type of crop. This leads to strong variability in profitability of organic production. This also suggests that research and innovation could eventually bridge the gap. Source: EC, "Organic farming in the EU: a fast growing sector", EU Agricultural Markets Briefs, No 13, March 2019

88 Organic farms are on average almost two times larger than average farms (30 ha compared to 17 ha) - which could be linked to the extensive and grassland-based production systems in the organic sectors. Source: EC, "Organic farming in the EU: a fast growing sector", EU Agricultural Markets Briefs, No 13, March 2019.

89 As an extreme example, organic wheat producers in Germany received up to 150% price premium over conventional prices. Source: EC, loc. Cit., p.7.

90 Under the CAP 2014-2020, organic farmers can benefit from several support measures, notably under agri-environment and animal welfare subsidies, Rural Development, and Green payment.

91 ALBIZUA, A. et al., "Crop rotations including ley and manure can promote ecosystem services in conventional farming systems", Applied Soil Ecology 95, 2015, pp. 54-61.

92 SOLONAKIS, N., "Sustainable agriculture in Europe: sorting the wheat from the chaff", HQ Passports 1, 2020, pp. 6-7.

1.2.b Resource efficiency and low-carbon economy

The last category of activities that can have a positive impact on nature and biodiversity are related to the transition towards a more efficient use of commodities and other natural resources, as well as low carbon emitting processes.

It is possible to finance projects that reduce natural resource usage and therefore costs

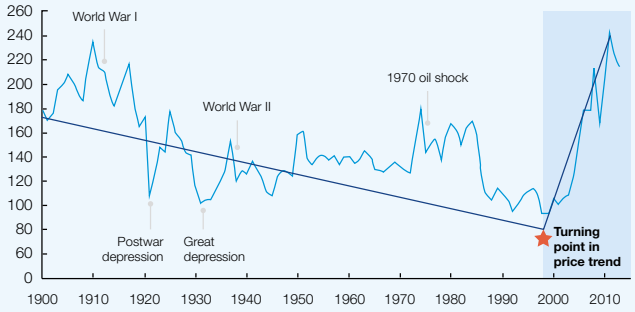
Many such resource-efficiency projects have **clear revenue streams**, including cost savings or payments from energy provision, as well as **attractive returns**. Projects with the potential for scale and, first-mover advantage, helped by demand and regulation (see box 03), should have no difficulty attracting private investment. That being said, there are still investment gaps: the amount of **investment needed to bring the building sector up to meet EU climate targets is still estimated at between EUR 132bn and 344bn** depending on the ambition of the scenario, of which 90% is expected to come from loans.[93]

Box 03 – The business case for resource efficiency

Resource efficiency can be encouraged by regulation

McKinsey reports that between 2000 and 2013, the **average price for natural resources more than doubled**. At the same time, individual resource prices have become more closely correlated. In nominal terms, food prices rose by almost 120 percent, non-food agricultural commodities such as timber and cotton rose by 30 to 70 percent, energy rose 260 percent and metals on average 176 percent.[94]

Figure 11 – Resource prices since the turn of the century



Source: McKinsey Commodity Price Index; McKinsey 2013

While some surges can be explained by supply-side shocks such as droughts, floods and political crises, the trend is mostly driven by structural factors, such as **increasing demand** from emerging economies and a slow down in yield increases in agriculture. While the debate is open on the risks of shortages in some strategic resources such as rare earth metals, increases in the marginal costs of supply appear pervasive and will probably put a floor under the prices of many commodities.[95]

This structural trend may **push industry towards resource efficiency.** And in fact, while there is a long term trend in rising prices of commodities, resource efficiency and technological changes is said to have recently reduced the path of this so-called commodity supercycle,[96] alongside slowing growth in China. While the end of the commodity supercycle is still a matter of debate, investors estimate that India's potential for growth, coupled with rapidly growing East Asian economies, will reactivate demand-driven rising commodities prices.

93 ALESSI, L., BATTISTON, S., MELO, A.S., RONCORONI, A., "The EU sustainability taxonomy: a financial impact assessment", JRC Technical reports, EUR 29970, 2019, p.40

94 DOBBS, R., OPPENHEIN, J., et al., "Resource revolution: tracking global commodity markets", 2013, McKinsey Global Institute, 44p., p.2-5

95 DOBBS, R., OPPENHEIN, J., et al., Ibid.

96 BUGHIN, J., MANYLKA, J., WOETZEL, J., "Beyond supercycle: how technology is reshaping resources", McKinsey Global Institute, February 2017, 116p.

> *"Companies in all sectors need to prepare themselves for a world where raw materials may be in short supply."*
>
> **KPMG, Expect the Unexpected (2012)**

Furthermore, there is a growing expectation that **regulatory measures will amplify this trend** as policy makers will require both the internalisation of negative environmental externalities (e.g. carbon pricing, water pricing) and an increase in resource efficiency (e.g. new circular economy action plan). As a flagship program for the new Commission, the European Green Deal has the potential to accelerate this movement. According to some estimates, the externalised environmental costs (i.e. greenhouse gas emissions, water, and waste) of 800 companies in 11 key industrial sectors was as high as 41% of their earnings (EBITDA) in 2010.[97] The impacts of growing regulatory measures on the profitability of unsustainable activities should therefore not be underestimated (i.e. transition risks).

In such a context, investments in resource efficiency should increasingly be seen by companies as a means of mitigating a future source of revenue risk.

Green infrastructure, a term used to refer to the physical networks of natural and semi-natural features that link green spaces in the built environment such as parks, verges, rivers etc., is also an area that can have a positive impact on nature while generating some revenues. For instance, green roofs (involving the presence of vegetation) can reduce the energy consumption of buildings, or revenues could be generated by creating a green premium on real estate prices.

A greener built environment can provide financial returns – but it is a niche

However, it is still a voluntary and niche practice that would require some regulatory intervention to scale up to a level which could make a real impact on the environment.

2. Projects are too small and too long term for mainstream private finance

As shown in the previous section, a successful environmental outcome from a nature-related project does not mean it will create a sufficient risk-adjusted return for investors.

But it is not the only dimension that matters: **the size and timeframe of a project also play an important role in the decision to invest.** Indeed, they can affect both the choice of financial instrument (e.g. bonds, equity, loans)[98] and the type of investor likely to be interested. Large asset managers may prefer large liquid investments, while venture capitalists and impact investors may prefer smaller, more specialised investments.

2.1 Projects are too small for many investors

The average size of nature-related projects remains small both in Europe and worldwide. While a significant share of projects related to climate mitigation can match the size requirement of large asset owners (e.g. large energy production sites, clean energy grids), the analysis of a wide and representative sample of nature-related projects shows a mean average value of EUR 7.4 million per project in Europe – with a maximum of EUR 66.5 million and a minimum of EUR 0.1 million.[99] The same holds worldwide with only a few projects being scalable beyond the USD 5 million threshold.[100]

Nature projects are often too small for institutional investors – on average only EUR 7m

97 DE BOER, Y., VAN BERGEN B., "Expect the unexpected: building value in a changing world", KPMG, 2012, 92p.

98 While project/green bonds usually fit to projects above EUR 100 mln, due to high marketing and underwriting costs, loans are more appropriate for small scale projects; Maturities of bank loans are shorter than debt capital markets and typically do not extend beyond 5 to 7 years.

99 HIMES, S. et al., "Study to support an ex ante assessment for a natural capital financing facility", KPMG, Final report, March 2014, 111p.

100 HUWYLER, F., KÄPPELI, J., TOBIN, J., Conservation Finance - From niche to mainstream: The building of an institutional asset class, Credit Suisse, IUCN, Rockefeller Foundation, McKinsey, 2016, 25p.

In sum, **nature-related projects rarely match the size requirements of most large asset managers.** Projects of small size can match specific criteria of small funds specialized on impact investing (the median impact investor AUM is USD 29 million),[101] but they represent a niche market for most asset managers. As far as project finance is concerned, **the banking sector is theoretically more at ease with the size of nature-related projects.** This is particularly the case for small ethical, regional and local banks. Yet, the banking ecosystem is mainly dominated by large too-big-to-fail banks for whom small projects are not economically attractive due to a cost of project appraisal proportionally higher than for larger deals.

> *"Investors often seek to invest larger amounts of impact capital than investee need, leading them to pass over smaller deals".*
>
> **Crédit Suisse, IUCN, McKinsey (2016)**

2.2 Projects are too long-term for many investors

Secondly, **most nature-related projects also take time to generate revenue streams** due to complex contractual arrangements which involve a high number of contracts[102] and result in relatively high transaction costs (see figure 12). The funding timeframe can also impact the attractiveness of the project by impacting the liquidity of the related assets.

As financial investments, nature-related projects can be complex, illiquid and slow to mature

While making a positive environmental impact is generally a long-term effort that requires long-term perspective and funding, this may not meet financial stakeholders' expectations of seeing both environmental and financial results within a certain time frame.[103]

As discussed below, most asset managers offer the possibility to fund holders to sell the funds they own and get their money back at short notice, in most cases on a daily basis. Obviously, this characteristic does not match the underlying economic reality of **long-term nature-related projects** – and can furthermore be counterproductive. The banking sector is in this regard probably better suited to handle a long-term funding timeframe. Indeed banks' loans can be long-term and flexible in terms of repayment. However, the current context of low (or negative) interest rates may deter the banking sector from being involved in nature-related projects. Once again, regional and local banking actors may be more suited for this task than mainstream banks even if the business case of long-term nature-related projects is not necessarily easy to fine-tune even for them.

101 MUDALIAR, A., DITHRICH, H., "Sizing the impact investing market", Global Impact Investing Network, April 2019.

102 LAPEYRE, R., LAURANS, Y.. "Innovating for Biodiversity Conservation in African Protected Areas: Funding and Incentives", 2016, Study summary, ministère des Affaires étrangères, IDRI and France-IUCN Partnership, Paris., p.12

103 WWF, "Guide to conservation finance - Sustainable financing for the planet", 2009, 54p, p.4.

Figure 12 – Estimation of funding timeframe

Project / revenue generation mechanism	Funding timeframe
Ecotourism (e.g. park)	Over two years of preparation
Biodiversity offsetting (e.g. conservation sites)	From one to several years of preparation for very long-term funding
PES (additional funding)	Between two to five years of preparation for very long-term funding
Selling sustainable timber (i.e. sustainable forestry)	Around 30 years before clearfelling. If under continuous cover forestry (CCF), harvesting then takes place at 4-year intervals.
Selling sustainably produced food (i.e. sustainable agriculture)	Between 0-5 years (large primary producers) to 10-20 years (sustainable smallholder agriculture without off-takers)

Source: GOBON, C, LANDREAU, B., "Innovating conservation finance in West Africa and the Mediterranean", 2019, 39p., p.34-37; SLM, "Investing in Continuous Cover Forestry", 2016; KOIS, "Financing sustainable land use", 2016

II. Capital Markets and Nature

As previously discussed, private investments in nature conservation, restoration or transition may be restricted to those economic activities that are already linked to existing activities and that could transition to more sustainable practices. This concerns mainly (but not exclusively) sustainable agriculture, forestry, resource-efficiency, low carbon energy production and processes, and green infrastructure.

Global capital markets are beginning to focus on sustainability – but how well do they fit nature-related projects?

With a total value of USD 177 trillion in bonds and stocks,[104] capital markets — where investors provide capital and trade related securities — are one of the main areas of private finance. When it comes to nature, the trending assumption is that capital markets can both provide capital and influence the governance and decisions of listed companies toward more sustainable practices.

As we will show in the first subsection, for investments in securities listed on a stock exchange, there are further **capital market-related considerations that affect the investment's suitability for nature** conservation, restoration or transition to sustainable processes. The second subsection examines **the potential of sustainable investing** to overcome the status quo in financial markets.

1. Characteristics of capital markets

The world of financial investment is governed by a number of principles that, taken together, drive the asset allocation process. Among those principles, two are particularly relevant here:

Capital markets aim to give investors instant pricing and liquidity

- **Providing liquidity to end-investors incentivizes the holding of liquid assets** – The bulk of the asset management industry operates, among other things, on the principle of providing liquidity to investors, whether retail or institutional asset owners. This means that asset managers offer the possibility to fund holders to sell the funds they own and get their money back at short notice, in most cases on a daily basis. Concretely, when fund holders redeem all or part of their holdings, asset managers must sell a fraction of the assets they manage for a corresponding amount. This liquidity obligation relies therefore on the assumption that the assets held by the fund are themselves liquid enough to be sold at short notice.

104 The global equity market capitalization and global bond market outstanding were, respectively, USD 74.7 trillion and USD 102.8 trillion in 2018. Source: SIFMA 2020

- **Mark-to-market valuation requires a market** - Mark-to-market valuation is very much linked to liquidity provision. Obviously, if the shares of funds can be redeemed at regular intervals, and most of the time on a daily basis, they must also be given a value on a daily basis as this value will underpin the redemption price of the fund. As its name indicates, mark-to-market valuation consists of valuing the assets held by the fund at their market value. It therefore requires the existence of a market.

More generally, the mission of professional investors is to calibrate their investment decisions in order to derive the best possible risk/reward ratio. But the words "risk" and "reward" have a very specific meaning in the world of professional money management: by and large, the asset management world is governed by a theory called "capital asset pricing model" (CAPM – see box 04) which has a series of very concrete implications for the asset management industry. In particular, CAPM can encourage so-called "closet indexing" or "index hugging", where investment managers stay close to a benchmark in order to reduce their tracking error. When done at a large scale, this has consequences for the ability of investment funds to allocate capital to alternative stocks supporting the transition to a sustainable economy. This phenomenon is due to the following reasons:

- **Performance is determined in relation to a benchmark/stock market indices** – Under CAPM, the risk is defined as the possibility of amplifying market fluctuations, conventionally determined in relation to a stock market index (e.g. MSCI World, STOXX 600, etc.). Professional investors compare the performance of the funds they manage with an index they use as a benchmark and they measure a "tracking error" between their portfolio and the chosen benchmark.

Fund managers tend to follow stock indexes to reduce their 'tracking error'…

- **Investors have limited freedom to invest through a qualitative process** – the tracking error objective that asset owners give to asset managers limits their ability to invest through a qualitative process in the economic projects they believe in as opposed to "buying the index". At one extreme, with a tracking error equal to zero, asset managers replicate their benchmark index (so called passive investing) and, at the other extreme (absence of tracking error constraint), asset managers have the freedom to invest following a qualitative process (active investing). The reality of the asset management industry is that, even in the world of so-called active asset management, very few players can invest without linking their portfolio to a benchmark index and most of them have relatively low tracking error objectives to follow, implying little freedom to invest qualitatively away from the benchmark index.

… this leaves little appetite for alternative or long-term investments

- **The rise of passive investment means that less capital will be available for projects or companies that are not linked to a benchmark/indices** – While active investing is still dominant,[105] a growing proportion of the asset management industry is evolving towards passive investing, which gives managers no latitude to allocate capital away from the benchmark they are replicating.

- **Financial markets have a short-term bias** – asset managers can be blind to long-term risks such as climate and environment-related financial risks for several reasons. As long as asset allocation decisions are based on a historical view of risk, they will struggle to take into account future systemic events, while the tendency for performance to be assessed on a quarterly basis disincentivises long-term thinking. While asset owners such as pension funds might have liabilities beyond 20-30 years, asset managers' investment horizons are much shorter, as assessed by the rate of

105 Worldwide, active management outweighs passive by a ratio closer to 15-to-1 in dollar investments. In: Barry Ritholtz, "Passive investing hasn't taken over the world", Oct 2019, Investment News

Fund managers turn over their portfolios every 1.7 years, making longer-term risks seem less urgent

turnover of their portfolio[106] (admittedly an imperfect indicator). Recent evidence[107] shows that long-only equity fund managers turn over their portfolios on average every 1.7 years, with 81% of them doing so within three years. Sustainable investing is not much better as SRI fund managers turn over their portfolios every 2.5 years. From a risk perspective, the materiality for most environmental risks appears significantly longer than the investment horizon and risk analysis of average fund managers, SRI funds included.

Box 04 – The capital asset pricing model (CAPM) and its implications

Developed in the 1960's by William Sharpe, Eugene Fama and Harry Markowitz, CAPM is used by financiers in almost all dimensions of their activity: estimating the cost of capital of a company, evaluating its value or building an investment portfolio. CAPM tells us that the expected return of an equity investment is the sum of a risk free rate and of a second rate resulting from the multiplication of a so-called market risk premium (defined as the return expected by the market in general to compensate for the risk taken above the risk free rate) and a risk factor called beta (β) measuring the specific risk of the investment in relation to the market. This specific risk is defined by CAPM as **the propensity of the investment to amplify or not market fluctuations**: an investment that amplifies market fluctuations ($\beta > 1$) is considered as risky, an investment replicating market fluctuations ($\beta = 1$) is considered as neutral in terms of risk, and an investment that fluctuates less than the market ($\beta < 1$) is considered as less risky than the market in general.

$$Ri = Rf + \beta \times (Rm - Rf)$$

Where:
Ri = Expected return of asset i
Rf = Risk free rate
β = Covariance of asset i and market divided by market variance
Rm = Return of market portfolio

This equation is the centre of gravity of the investment world which, by and large, has very little latitude not to stick to the definition of expected return given by Ri.

Two further points to bear in mind are that CAPM defines risk not as the fact of losing money but of amplifying market fluctuations (β). Also,there is the question of how the market is defined; in the world of asset management, a proxy has been found by creating an equivalence between "market" and "stock market indices" such as MSCI World, STOXX 600, Euro Stoxx 50, S&P 500, CAC 40, FTSE 100, DAX 30, NIKKEI 225, etc.

These points have important consequences for the ability of the asset management industry to invest in alternative asset classes. In most cases **a project that does not satisfy CAPM will not be invested in.**

106 Naturally, index funds tend to have lower turnover while actively managed funds are likely to have much higher turnover (e.g. Pax World Small Cap Fund Individual Investor Class (PXSCX) – Actively managed – 167% – 1.24%; Vanguard 500 Index Admiral Shares (VFIAX) – Index – S&P 500 – 2.7% – .05%; Vanguard PRIMECAP Fund Admiral Shares (VPMAX) – Actively managed – 10.8% – .35%)

107 BERNHARDT, A., DELL, R., AMBACHTSHEER, J., POLLICE, R., "The long and winding road: how long-only equity managers turn over their portfolios every 1.7 years", MERCER, Tragedy of the Horizon program, 2°ii, 2017, 60p., p.41

2. Sustainable investing

Investors are increasingly shifting towards a range of sustainable investing practices. This section investigates the potential for those practices to make a difference in the transition of economic activities towards nature-friendly practices.

There is a growing family of sustainable investing approaches

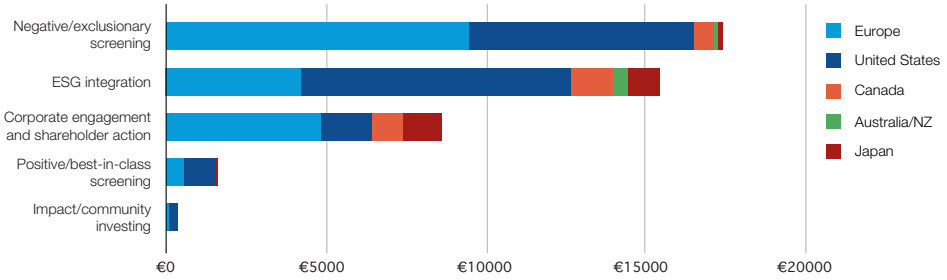
Sustainable investing is **an umbrella term** that covers approaches to investment where environmental, social and governance factors, in combination with financial considerations, guide the selection and management of investments. As popularly used, it encompasses more specialized approaches (e.g. ESG investing, responsible investing, impact investing) and is often loosely interchanged with other terms such as "green", "clean", "ethical", or "socially responsible" investing. These investment approaches are generally classified according to **the prevalence of either the financial or the impact component** (see figure 13).

Figure 13 – The spectrum of capital

	Finance first ---------- Impact first					
Investment approach	Traditional investing	Sustainable investing: ESG investing	Sustainable investing: Socially Responsible investing (SRI)	Sustainable investing: Impact investing (finance first -- impact first)	Philanthropy	
Financial goals	Deliver competitive risk-adjusted financial returns			Tolerate higher risk / Tolerate below market returns	Partial capital preservation	Accept full loss of capital
Impact goals	Do not consider (may have negative impacts)	Mitigate ESG risks and avoid harm (when possible)	Benefit all stakeholders (positive externalities)	Contribute to solutions (material effect)		
Investment practice/ strategy		• Negative/ exclusionary screening • Norms-based screening • ESG integration	• Negative/ exclusionary screening • ESG integration • Positive/ best-in-class screening • Corporate engagement • Sustainability themed investing	Impact investing requires: (1) Intentionality; (2) Additionality; (3) Measurement.	Grants and donations	

While there is a lack of commonly agreed definitions in this area, there is some harmonisation of the different **investment practices and strategies** that these approaches entail, which can be seen in the data for assets under management (AUM) (see figure 14).

Figure 14 – Sustainable investing assets by strategy and region 2018



Note: Asset values are expressed in billions of Euro - Source: GSIA 2019

We will briefly discuss some of the main investment strategies to see what they encompass and their suitability for nature-related projects and activities.

2.1 Negative/exclusionary screening does not include nature

Negative screening is the biggest approach with EUR 9.4 trillion AUM in Europe. It does not generally screen for nature-loss

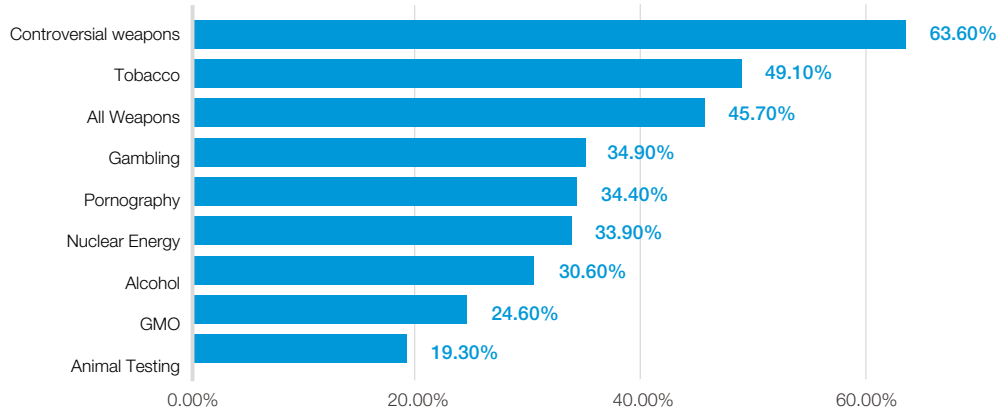
Negative/exclusionary screening means the exclusion from a fund or portfolio of certain sectors, companies or practices based on norms or specific ESG criteria.[108] This approach is the most widely developed one with approximately EUR 17 trillions of assets managed under this strategy worldwide, including EUR 9.4 trillion in Europe.

The exclusion approach is sometimes presented as a way of mainstreaming divestment but **an analysis of the top exclusion criteria shows a disappointing picture** (see figure 15): most of the exclusions are either based on respect for international conventions (i.e. controversial weapons) or on relatively consensual issues (e.g. tobacco, gambling) and generally not on criteria that relate to nature, climate or biodiversity.

> *"The effect of an individual investor's decisions depends on how many others invest according to the same non-financial preferences"*
>
> **Julian F. Kölbel, MIT Sloan, 2018** [110]

While it would be desirable to develop exclusion criteria based on nature, the strategy could arguably **only be effective if applied by a critical mass of market participants.** Otherwise, an exclusion by one investor simply remains an opportunity for another investor.

Figure 15 – Top exclusion criteria



Source: EUROSIF, 2018

2.2 Impact investing is limited in size

Impact investing is an investment approach that intends to create positive social and/or environmental impacts that can be actively measured alongside financial return (market-

108 This approach is also referred to as ethical- or values based exclusions, as exclusion criteria are typically based on the choices made by asset managers or asset owners - with underlying motives such as religion, personal values, or political beliefs. A variation is 'Norms-based screening' where screening of investments based on compliance with international norms and standards (e.g. those issued by the OECD, ILO, UN and UNICEF).It may lead to exclusions of investments that are not in compliance with norms or standards or over and underweighting. While generally framed separately, this strategy often overlaps with 'negative/exclusionary screening'.

109 KÖLBEL, J.F., HEEB, F., et al., "Beyond returns: Investigating the social and environmental impact of sustainable investing", MIT, Cambridge, University of Zurich, University of Hamburg, 2018, 29p.

or sub-market-rate). Key elements of this definition are the **intention** to produce a positive impact and the **active measurement** that shows it has actually been produced – which remains challenging.

Impact investing is comparatively small in Europe at EUR 100bn

While **impact investing** was estimated at USD 502 billion AUM globally as of the end of 2018,[110] it represented only EUR 100 billion in Europe in 2017. Specific investor portfolios vary widely in size but are comparatively small, with the median investor holding USD 29 million AUM for a mean average of USD 452 million.[111]

2.3 Is ESG investing applicable to nature and biodiversity?

Before it looks at its environmental impact, ESG investing is concerned by the impact of the outside world on financial returns

ESG investing aims for asset managers to integrate environmental, social and governance (ESG) factors in their asset management practice on top of financial considerations. By focusing only on ESG factors **that may have a material impact** on the financial risks and opportunities of that investment, this strategy targets financial performance first and does not necessarily imply a positive environmental impact.

But how do institutional investors and financial advisors consider ESG factors in their investment decisions and advice? Legislation is increasingly demanding more transparency about ESG methodologies (see box 05) but it is far from clear that agents have all the tools, knowledge and ability to measure and take account fully of ESG factors adequately, especially biodiversity. We will discuss the question of the tools in the forthcoming section.

Box 05 – Clarifying how ESG is taken into account

France's Article 173 will apply to biodiversity from 2021

Implemented in 2016, **Article 173-VI** of the French "Energy Transition for Green Growth" law marks the first time that climate-change and more general ESG reporting requirements were imposed on institutional investors, even though the duty was eventually introduced on a 'comply or explain' basis. Article 173 sets three requirements: i) providing a general description of the investor's ESG policy, ii) disclosing the resources allocated to ESG analysis, and iii) explaining the methodology and the results of the climate risk analysis. While it is said to have had an important signaling effect for French asset managers, it will still require time to make its full contribution.[112] Article 173-VI will apply to biodiversity from 2021 onwards.

EU law requires fund managers to say how they integrate ESG risks and how those risks could affect investment returns

As part of the Sustainable Finance Action plan, the EU adopted the new **Disclosure Sustainability Regulation (DSR)** in May 2019. Applying the spirit of France's Article 173, but going further on a European scale, the purpose of this legislation is to increase transparency on how institutional investors, asset managers and financial advisors consider sustainability risks in their investment decision-making or advisory processes, and to provide the ESG information needed to inform investment decisions and recommendations by enhancing the comparability of financial products. According to the DSR:

- All the financial market participants concerned (e.g. investment firms, IORP, AIFM) will have to describe how they integrate **sustainability risks**, what impact sustainability risks might have on the return of the investment or financial product, and whether the remuneration policy is consistent with integrating sustainability risks.

110 Note: This aggregate number should be taken carefully, as it comes from self-reporting: while some investments could be underreported, others could be overreported (e.g. some organizations include all their green or climate bond investments as impact investments, others include some and many don't include any).

111 MUDALIAR, A., DITHRICH, H., "Sizing the impact investing market", Global Impact Investing Network, April 2019.

112 A recent report of the french financial supervisors shows that after two years of application only half of the institutional investors targeted by the legislation appropriately disclose all the required information. Source: "Bilan de l'application des dispositions du décret n°2015-1850 du 29 décembre 2015 relatives au reporting extra-financier des investisseurs", Juin 2019.

- Financial market participants who offer a financial product (e.g. AIF, UCITS, pension product) targeting **sustainability objectives** must disclose what these objectives are and the **methodologies used** to assess, measure and monitor progress against these objectives, and conduct an assessment of the overall impact on ESG factors that the financial product itself might have through the activities it is financing.
- Following the **'complain or explain' approach**, financial market participants who do not consider the sustainability-related impacts of their investment decisions should publish clear reasons why they have not done so.
- Furthermore, all financial institutions exceeding 500 employees, or the parent company of a group exceeding that threshold, should publish a statement on their due diligence policies relating to possible **adverse impacts of their investment decisions** on sustainability factors (Art. 3gamma, §4).
- The DSR also creates a series of obligations for **financial advisers** (i.e. credit institutions, investment firms, etc. that provide advice on investment) to consider, when giving advice, any adverse impact on sustainability factors. If they do not, they should explain why not.

A legislative review is planned after 36 months (Art. 11) that will look at the obligations of large financial market participants and whether a lack of quality ESG corporate reporting is inhibiting the DSR. Considering the potential push-back from market participants, it will be important to monitor the evolution of this regulation.

3. Where do we stand with ESG information?

ESG integration requires reliable ESG information, research and ratings. With the growing interest in sustainable investing, data providers and ratings agencies have **increased their efforts to gather and report ESG indicators** (e.g. the work done by Sustainalytics, MSCI, Refinitiv, Trucost, VIGEO-EIRIS, ISS ESG, etc.).

However, there are **barriers to providing reliable ESG ratings and research**, especially in the relatively new territory of nature and biodiversity: the lack of reliable corporate information, the lack of tools for measuring corporate impact on nature and biodiversity, and the lack of common definitions, principles and methodologies among data providers and ESG raters. As a result, **ESG ratings differ significantly among ratings providers**.[113]

ESG investing cannot be comprehensive when there is no consistency in non-financial corporate reporting. ESG ratings agencies and data providers generally argue that their role is to engage actively with companies to gather sufficient data that they complement with other sources to fill the remaining information gaps.[114] This is precisely where the issue lies: there is a potential wide variability in the scope and quality of ESG disclosures and, in consequence, a lack of comparability.

Regulation could help by harmonising the different methodologies for providing ESG information, ratings and research

While several ESG raters include a malus on companies that fail to disclose ESG information to incentivize transparency, it cannot compensate for an absence of regulatory harmonization. As competition cannot bring harmonisation, **there is a role for regulators to step-in**: first, to lead companies toward sufficient and harmonised disclosure (see Chapter 3. I. 2.) and, second, to increase transparency in the ESG rating processes. The latter could eventually lead to a regulatory-led alignment on a minimum set of best practices.

113 A recent report points to a low level of correlations of 0.61 between the ESG ratings of the five main ESG raters. For comparison, credit ratings from Moody's and Standard & Poor's are correlated at a high 0.99. Aside from the lack of reliable and comparable corporate information, the other explaining factors are the diverging views on what is the appropriate scope of the assessment (i.e. which ESG factors is material), its measurement and the relative weight to give to each ESG factor. Source: BERG, F., KOELBER, J.F., RIGOBON, R., "Aggregate confusion: The divergence of ESG ratings", MIT Sloan School Working Paper 5822-19, August 2019, 42p.

114 TREVOR, D., "ESG ratings: A Rebuttal of Prevailing Criticisms", Sustaynalytics, Blog post, June 12, 2019.

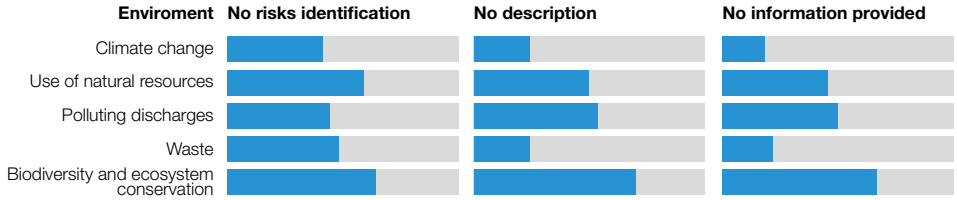
3.1 Lack of quality extra-financial information

But the underlying data is still difficult to get and compare

The last important barrier to the private financing of nature-related projects is the lack of reliable and comparable ESG information. Several factors make it challenging to find consistent data:[115]

- **Project level** – lack of a proper environmental impact assessment for example, due to technical and measurement difficulties, a lack of impartiality by the assessor,[116] different quality data across countries;
- **Activity level** – lack of shared understanding of what is a sustainable activity and what is not (until now);
- **Corporate level** – lack of harmonized and comparable information on investee companies' impacts and dependencies on nature and biodiversity. While this is true for all sustainable investment, there is another layer of complexity with biodiversity, because the general level of understanding and awareness is still lower than for climate and GHG emissions (see figure 16).

Figure 16 – Lack of disclosure of environmental information as part of ESG reporting



Source: Alliance for corporate transparency, report 2019

- **Financial product level** - As a consequence of this lack of information and lack of an agreed definition, is it difficult to distinguish between assets that finance sustainable activities (green investment), those that do not (brown investment), and those that have an impact on their environment (impact investment). Some impact investment funds and ethical banks (e.g. institutions from the GABV and FEBEA networks) have therefore developed their own methods to qualitatively assess the sustainability of projects.

3.2 The evolving measurement of corporate impact and dependencies on nature

Metrics and methodologies are needed to assess how businesses impact biodiversity

Sustainable investing requires an understanding of the **interaction between ESG factors and economic activities**, and this requires indicators and methodologies. While such indicators and methodologies are relatively well advanced and mainstream for climate risks and impacts — helped by the existence of a single metric (tCO2eq), and initiatives such as the Task Force on Climate-related Financial Disclosures (TCFD) or the European Commission's Guidelines on reporting climate-related information— the same cannot be said for biodiversity and nature.

We have a TCFD for climate, what about a TNFD for nature?

While there have been increasing calls to create a Taskforce on Nature-related Financial Disclosure (TNFD),[117] an increasing number of initiatives are trying to fill this gap by developing indicators and methodologies to **capture the direct and indirect impacts**

115 NAEEM,S., INGRAM, J.C., et al., "Get the science right when paying for nature's services", 2015, Science347

116 EIAs are often carried out by consultants that are supposed to be independent but are actually paid for by the developer. Assessors who conduct stringent EIAs may be blacklisted by other developers in the future.

117 IONESCU, C., BLUET, H., "Into the wild. Integrating nature into investment strategies", May 2019, 41p.

of business on biodiversity, and to help decision-makers to take environmental issues into account. These initiatives can be divided into at least five categories according to their main features:[118]

Various methodologies and tools are emerging to assess biodiversity impact

- **Biodiversity footprint tools**,[119] which help assess the impact generated by an economic activity (e.g. the Global Biodiversity Score developed by CDC Biodiversité, the CISL's Biodiversity Impact Metric, the UNEP-WCMC's Biodiversity Indicators for Extractive Companies, the Product Biodiversity Footprint),
- **Mapping tools**, which show the location and differentiation of ecosystems (e.g. Integrated Biodiversity Assessment Tool (IBAT)). Some tools also provide comparative assessment of the impacts of different management scenarios (i.e. Co$ting Nature),
- **Qualitative and quantitative tools** which help organisations to identify and describe their impacts and dependencies on nature (e.g. Natural Capital Protocol),
- **Absolute ecological performance tools** which take a wider ecosystem perspective to promote ecological conservation (e.g. One Planet Approaches (OPA),[120] Science based Targets Network initiative), and
- **Integrated accounting tools** (e.g. Integrated reporting, Comprehensive Accounting In Respect of Ecology (CARE - TDL)).

To avoid fragmentation, these methodologies need to be harmonised

There is a real risk that this mix of different approaches leads to a decade of fragmentation and ultimately a lack of authoritative standards. To help avoid this, UNEP-WCMC in 2019 launched the project "Aligning Biodiversity Measures for Business" (ABMB).[121] This project focuses on building a typology of existing approaches, indicators, scope (e.g. corporate, portfolio, supply chain, project levels), targets, data sets and reporting frameworks, as well as common vocabulary and principles, clarifications on the use of baseline data, etc.

The project has not yet concluded but it is clear that **regulators will need to step in to promote harmonization** so that the appropriate methodologies can be scaled up and financial institutions can take full account of nature in their decisions.

118 For an in depth and up-to-date overview of tools available to economic actors, see: IONESCU, C., GNIDULA, E., et al, "Natural capital and organizations strategies: an overview of available tools", WWF France, Octobre 2019.

119 For a comprehensive review of existing methodologies for calculating biodiversity footprint, see: LAMERANT, J., MÜLLER, L., KISIELEWICZ, J., "Critical assessment of biodiversity accounting approaches for businesses and financial institutions", Discussion paper for EU Business @ Biodiversity Platform, 76p.

120 SHAW, J.B., GLADEK, E., et al., "One planet approaches: A guide for companies to set science-based targets", Metabolic, Commissioned by WWF Netherlands, 2017.

121 This project aims to bring together indicator developers and key stakeholders (e.g. the EU commission's EU Business @ Biodiversity coalition, NCC, Cambridge Institute for Sustainable Leadership, the CBD, CDC Biodviersité, IUCN) in a series of workshops to align views on the measurement, monitoring and disclosure of corporate biodiversity impact and dependence and to build a set of commonly agreed indicators.

III. Conclusions on limits of private finance

Private finance undoubtedly has a role to play in the transition to a sustainable economy, but not for all types of projects. We should keep in mind the **intrinsic limitations** on where private money can flow: **the search for risk-adjusted returns and the need to monetise environmental impacts, the need for reliable metrics for both financial and extra-financial information**. As we have seen, many of the proposed revenue-generating mechanisms are not able or sufficient to overcome these hurdles (see figure 17).

Are capital markets a good fit for nature projects?

When considering the role that financial markets could play in financing nature-related projects, we must keep in mind the implications of capital markets investment rules and, more specifically, of using CAPM as the dominant asset allocation engine: Firstly, **the quest for liquidity** means a bias towards some type of projects and liquid assets.[122] Secondly, asset managers are mostly blind to projects and assets that do not have a **market value**, such as most nature-related projects.[123] Lastly, only the small proportion of funds that have freed themselves from **benchmarking constraints** will be in a position to allocate capital to conservation or restoration projects.

Mainstream funds need liquidity, market prices, and to stay close to their benchmarks. This means few can invest in nature projects

These three dimensions have significant consequences on the ability of capital markets to provide funding to most nature-related projects. The number of investment funds that can participate in nature-related projects and activities **will remain relatively limited** and therefore the total amount of capital coming from investment funds available for such projects will remain marginal.

Does sustainable investing make a difference?

Sustainable investing is based on the assumption that applying ESG filters to the investment process will push companies towards more sustainable operational and development processes. While the principle is to be welcomed and encouraged, it still has to be proven sufficiently effective.[124] Furthermore, **its limitations described above make it a tool that cannot be expected to make a significant difference on nature loss in the foreseeable future**.

> *"So far, there is no empirical evidence that the capital allocation decisions of sustainable investors have affected corporate activities."* [125]
>
> **J. F. Kölbel et al. (2018) - MIT Sloan, University of Zurich**

In summary, sustainable investing needs to go further to tackle biodiversity and nature loss

To the question 'can ESG investing make a difference for nature and biodiversity?' the answer could be **'yes' in the long-term** because the market is moving in that direction but **'no' in the short-to medium-term**, because the mechanics and volumes have not yet evolved to a point where they can have a significant impact.

122 While asset managers can manage most of their redemption risk by keeping a cushion of liquidity or restricting redemptions (very much like they do in real estate funds) but the bulk of capital market investors will be barred from doing so.

123 As discussed, most asset managers rely on the CAPM model and the investment logic deriving from it, and therefore on market-to-market valuation which requires, by definition, a market value.

124 For discussion on the impact of different sustainable investing approaches on the environment, see: KÖLBEL, et al., "Beyond returns: Investigating the Social and Environmental Impact of Sustainable Investing", 2018.

125 Ibid., p.12

The problem is that **the planet does not have the luxury of waiting to save its biodiversity** or, at the very least, start inverting the current trend of destruction.

Figure 17 – Type of biodiversity-related activities and revenue streams

Category of action	Type of activities	Potential revenue streams	Environmental impacts
Conservation *In-situ*	Strict Natural Reserves	Public	
	National Parks	Public	
	Protected areas with sustainable use of natural resources	• Entrance fees (ecotourism) • Secondary activities (e.g.sale of products and services)	
	Other areas of high biodiv value but not PA	• Entrance fees (ecotourism) • Secondary activities (e.g.sale of products and services)	
Ex-situ	Botanic garden; Zoo	• Entrance fees (ecotourism) - But often publicly owned	
	Seed or DNA storage	Should stay public (public goods)	
Restoration	Land, soil, watershed restoration	• Long-term: payment services (e.g. carbon, biodiversity, water and other offset markets - when exists) • Long-term: potential yield increase in green commodities (e.g. food and non-food labeled products)	High
	Forest restoration	• Long-term: payment services (e.g. carbon offsets) • Long-term: selling of green commodities (e.g. labeled timber)	High
Transition	Sustainable agriculture, forestry, fishery & aquaculture	• Primary: Price premium on green commodities (label) • Long-term: potential yield increase • Secondary: Selling of certified carbon credits (and other PES)	High
	Sustainable infrastructure (Green and hybrid)	• Cost savings (no need for man-made substitution) • Cost savings (long-term resilience) • Price premium (i.e. building with green wall/roof)	TBD
	Low-carbon emitting economic activities	• Price premium on low-carbon goods and services (e.g. low-carbon technologies, energy production); • Cost savings (energy efficiency);	
	Resource-efficient processes	• Cost savings • Price premium • New markets for resource-efficient processes and technologies	High

Chapter 3

Doing More Within the Limits of Private Finance

3 Doing More Within the Limits of Private Finance

There are inherent limits to the use of private finance in the field of nature

There are **inherent limits to the intervention of private finance in the field of nature**: most conservation and restoration projects do not generate (sufficient) revenue streams to meet financial obligations, and are too small and long-term oriented for most financial market participants. On top of that, current allocation process' practices in capital markets refrain investment in most nature-related sustainable economic activities — even from a sustainable investing perspective.

The EU has responded with: the Sustainable Finance agenda, the European Green Deal Investment Plan

Against this background, the European Green Deal Investment Plan[126] recently released by the European Commission's President Ursula von der Leyen, is notably intended to incentivise the financial system to do more within its limits. Ursula von der Leyen pledged to complete the Commission's 2018 "action plan on financing sustainable growth" as part of a "renewed sustainable finance strategy".

The first objective of the action plan is to build a **credible chain of ESG information** through the establishment of the EU taxonomy, ESG reporting, green labels and standards for financial products and climate benchmarks.

The Sustainable Finance agenda aims to create a chain of ESG information for private investors

A second objective of the European Green Deal Investment Plan will be to **scale up private investment through blended finance mechanisms** built on the EU budget. The centrepiece is the InvestEU programme which will merge 14 existing investment instruments, including the European Fund for Strategic Investments (EFSI)[127] and the Natural Capital Financial Facility (NCFF) — which is aimed at financing scalable nature-related projects.

The European Green Deal investment Plan promotes, among other things, blended finance

In this chapter, we look at those ongoing developments through the lens of nature conservation, restoration and transition to sustainable processes. The first subsection will briefly introduce the main blocs of the forthcoming chain of ESG information, while the second one will discuss potentials and limits of blended finance under the Green Deal. The third part of this chapter analyses other policy instruments that could fix the fundamentals of the economy, therefore **shifting profitability away from unsustainable practice** while incentivising sustainable ones.

I. Fixing the chain of information (sustainable finance)
II. Fixing issues of risk and reward (blended finance)
III. Fixing the fundamentals (economic instruments)
IV. Conclusions on doing more with private finance

126 Also referred to as Sustainable Europe Investment Plan

127 Aka the Juncker Fund

I. Fixing the chain of information (sustainable finance)

The chain of ESG information includes the EU taxonomy, non-financial reporting, and green labels and standards for financial products

If sustainable investing is to transform underlying economic activities then it must reach scale. A major barrier to this is **the fragmented chain of ESG information and lack of consistent standards**. Fixing this flow of information should help fund managers to invest in companies with a good ESG record, eventually creating market pressure for companies to improve their ESG performance. However, as shown in the previous chapter, there is still no comprehensive methodology for investors to use in making their assessments.

The Commission's 2018 action plan therefore aims to build a credible chain of ESG information that could encourage more private investment in sustainable activities. The main components of this information plan are an EU taxonomy, the reform of non-financial reporting, the creation of green labels and standards for financial products.

> *"While a European reporting standard is one obvious tool, a powerful behavioural incentive for corporates to provide quality ESG data is for them to understand that they may otherwise suffer a higher cost of capital"*
>
> **Alain Deckers - DG FISMA, head of unit**

1. Defining sustainability: the taxonomy

The EU taxonomy defines what a sustainable activity is

The taxonomy aims to define a **common language on sustainability**. As a cornerstone of its Action Plan, the Commission proposed a regulation to establish a framework that would over time create a unified classification system (i.e. the taxonomy) to define what can be considered as an environmentally sustainable economic activity.[128] To be defined as sustainable, an activity will have to meet technical screening criteria for substantive contribution to one of the six environmental objectives of the taxonomy[129] — including conservation, restoration and transition projects — while not doing significant harm (DNSH) to the five other objectives.

The taxonomy will serve as the basis for other **sustainable finance initiatives** including EU labels and standards for financial products[130] and ESG benchmarks. In addition, the taxonomy will likely be used to build environmental tax incentives, green public procurements and the sustainability-proofing of public investments.[131]

While **the taxonomy has the potential to be a powerful tool** in bringing consistency to the way private and public actors assess sustainability, it is, by construction, not a neutral one as it is expected to drive, in the long run, the cost of capital of those activities as well as their

128 Ensuring harmonisation is expected to reduce transaction costs, send a signalling effect to market participants, and reduce risks of greenwashing.

129 i.e. climate change mitigation, adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention control and protection and restoration of healthy ecosystems

130 e.g. the EU Green Bond Standard and EU Ecolabel for financial products currently under discussion

131 As recently outlined in the Green Deal Investment plan

ability to attract public subsidies or funding. It has therefore attracted intense lobbying and debates – which are not yet over. Amongst the main issues, two are particularly important for our discussion:

- **Technical screening criteria for biodiversity and nature** should be carefully framed to avoid promoting biodiversity offsetting and markets for ecosystem services, because these are highly likely to fail (see Chapter 2 and the annexes).
- **The shades of green could lead to subsidising brown activities** - In an attempt to broaden the scope of the sector covered, the taxonomy has expanded beyond fully sustainable activities to include two other categories: enabling activities, and transition activities. They embody activities that could make a substantial contribution to the transition, or enable it, but are not sustainable themselves. If the taxonomy is effectively used as a basis for public incentives,[132] it will be essential to consider carefully how they should apply to activities that fall into these two categories.

More fundamentally, we will have to ensure that subsidies applied via the taxonomy do not end up funding bankable green investments that would have been financed anyway by the private sector (the issue of additionality).

2. Comparing corporate dependencies and impacts on nature

The Non-Financial Reporting Directive helps companies report their sustainability performance but it needs strengthening

In 2014, the European Union implemented the Non-Financial Reporting Directive (NFRD), which applies to roughly 6,000 large companies and groups across the EU. The objective was to help with the **evaluation of the non-financial performance of large companies** and at the same time to incentivize a responsible business approach. According to its rapporteur, this legislation "was deliberately 'light touch', principles-based"[133] to allow for a wide range of different frameworks/standards to be able to comply. NFRD was then complemented by a series of non-binding guidelines – the last one being on climate-related disclosures.[134] In the fast-evolving landscape of sustainable finance, it became increasingly clear that **non-financial reporting had to ensure comparability**.

The current review of the NFRD is a chance to improve the harmonisation, transparency and comparability of ESG standards and disclosure

If the first step is to settle a common language via the EU taxonomy, the second is therefore to make it usable by **ensuring data availability and comparability** through harmonized non-financial corporate reporting. The upcoming reform of NFRD, and the creation of unified European ESG reporting standards[135] will need to succeed in providing **harmonisation, clear key performance indicators (KPIs) by sector that match the environmental objectives, categories and relevant metrics of the taxonomy**,[136] in order for the latter to be really effective. This is an opportunity for Europe to gain leadership, and this requires building an appropriate and dedicated governance system to propel the future EU ESG standards. The European standards could become a blueprint for a global standard on non-financial reporting, while ensuring that they provide the information needed to implement the European environmental agenda.

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132 e.g. tax incentives for EU Green Bonds earmarked for taxonomy-compliant activities, or reduction in capital requirement for banks in proportion of their allocation of capital to green activities (Green Supporting Factor) – which should be firmly resisted.

133 Alliance for corporate transparency, "2019 Research report - An analysis of the sustainability reports of 1000 companies pursuant to the EU NFRD", 2020, 108p., p.7.

134 Where the EC made interesting points such as: (1) financial institutions should disclose the impact and risks related to their core business of lending, underwriting and investing (Scope 3), rather than their operational emissions; (2) The application of its concept of double materiality to climate-related disclosure and (3) its suggestion that the company describes its dependencies on natural capitals (e.g. water, land, biodiversity) that are at risk because of climate change.

135 EC, "Remarks by Executive Vice-President Dombrovskis at the Conference on implementing the European Green Deal: Financing the Transition", Speech 28 January 2020, Brussels.

136 The taxonomy regulation opened the door to such alignment by requiring large undertakings to disclose their share of turnover, CAPEX & OPEX taxonomy compliant under the Non-Financial Reporting Directive (NFRD).

> *"Non-financial information is tremendously powerful as it describes the real world. It's the basis for financial risk and opportunity reporting, but much more, it describes human impact on people and the planet. The governance of the standards therefore needs to serve the public good which is key to ensure that "real world reporting" will help achieving public policy goals such as under the European Green Deal."*
>
> **Mirjam Wolfrum (Director Policy Engagement, CDP Europe)**

3. Increasing the demand for green assets: labels and standards

Labels and standards aim to identify financial products that have a positive environmental impact

At the other end of the chain, end-investors need to have and to make good use of this ESG information. To do so, financial advisers and asset managers will be **required to ask their clients about their ESG preferences**.[137] A growing amount of evidence points towards a strong preference among retail investors for ESG assets,[138] which is expected to boost demand. Furthermore, a recent survey discovered that a significant share of these retail investors would accept lower returns in exchange for positive impacts on the environment.[139] But barriers exist, including the fear of 'greenwashing'.

The next steps will be to **ensure that financial products which claim to fund sustainable economic activities are actually doing it**. One of the ways to achieve this result, albeit a partial one, could be to label them accordingly. The European Commission is working on a dedicated EU Ecolabel for financial products and on a set of EU Green Bond Standards, and could look at how to flag green mortgages. But these projects are far from being concluded and there are still questions about their robustness. Three issues are worth mentioning here:

Some discussion over whether labels should apply when the activities funded are not yet sustainable but are 'in transition'

- **What is a green financial product?** Should a green financial product be defined as one that funds only sustainable activities, or one that encourages companies to become more sustainable? The first view is based on the idea that companies with poor ESG ratings might face a higher cost of capital and this might encourage them to go green ('capital allocation' theory). However, it is hard to prove the benefits and the impact can be small when companies can easily access capital elsewhere, as is the case for large, well-established companies, or the benefits are outweighed by the costs of improving ESG performance, especially environmental considerations.[140] It is therefore hard to see how this could positively impact on nature and biodiversity. The second view, that green financial products can be used to fund activities in transition, is based on the idea of active shareholder engagement, which has a more identifiable record of success but also a risk of greenwashing.[141]
- **What are the appropriate criteria for granting the Ecolabel?** Financial products could be eligible for the Ecolabel if enough of the activities being financed

137 Through amendments to delegated acts under the Markets in Financial Instruments Directive (MiFID II) and the Insurance Distribution Directive.

138 More than ⅔ of retail investors in 22 countries consider ESG factors to be importants in their investment decisions. Source: Natixis 2019 (Natixis Investment Managers Global Survey of Individual Investors).

139 2°investing initiatives conducted a study showing that 65% to 85% of retail investors in Germany and France are willing to invest more sustainably when they are asked. The real innovation of this survey is the discovery that almost all respondents accepted some trade-offs between profit and impacts, and that a wide proportion of respondents (64%) would accept to sacrifice as much as 5% of the total amount of savings available at retirement for this. Source: 2°ii, "A Large Majority of Retail Clients Want to Invest Sustainably. Survey of French and German retail investors' sustainability objectives", March 2020, 33p.

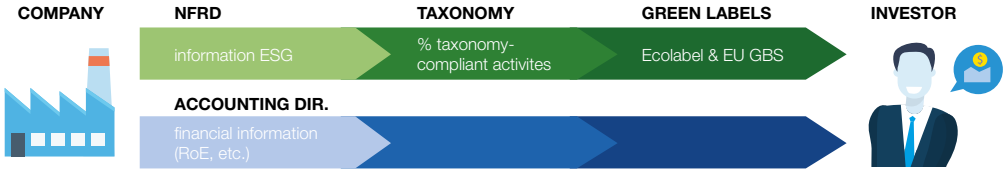
140 KÖLBEL, et al., "Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact", 2019, p.11.

141 While the European Commission and JRC follow the first view, 2°ii champion the second approach. See: 2°ii, "The Draft criteria of the Ecolabel on financial products and the second technical report are still misaligned with the Ecolabel Regulation. Feedback on the second version of the Ecolabel criteria for financial products (Draft v1)", March 2020, 30p.

are considered 'sustainable' and do not include excluded sectors. In its second technical report of January 2020, the Commission proposed to lower the threshold originally proposed for financial products to be given the Ecolabel – therefore expanding the estimated universe of eligible equity from 1% to 5-7% of the investment universe.[142] While this is still below the 10-20% market share targeted by the Ecolabel Regulation,[143] diluting the criteria to ensure that more financial products are eligible could undermine trust in the label and in sustainable investing in general.

- **Can all financial products be part of a sustainable finance toolkit?** A further debate could be had about what financial products are suitable to be included in a sustainable finance toolkit, perhaps based on their ability to allocate capital to sustainable activities or enable their holders to exert a positive influence on issuing companies. With that perspective in mind, complex or short-term financial products such as derivatives or money market instruments might not be suitable, for example.

Figure 18 – The chain of ESG information



The chain is only about information, it cannot make a project bankable

Through the various regulations discussed in this section, legislators can enhance the views of investors on companies' ESG performance. **However fixing the chain of information mostly applies to companies that are already on the radar of investors**: mainly large enterprises listed on stock exchanges. Some niche market businesses also have a transition potential and need to be revealed. In this regard, the following section presents another mechanism whereby public finance can interact with private finance in order to stimulate investments in projects perceived as too risky by investors.

II. Fixing the perception of risk (blended finance)

We saw in the previous chapter that private finance alone is not suitable for many nature-related projects: a lack of revenue streams, lack of scale, lack of ESG information, lack of relevant metrics to drive investment decisions, are some of the inadequacies. These barriers create a **potentially excessive level of risk perception** among would-be private investors.

Blended finance is the use of public money to mobilise private finance, usually by taking some of the risk

This is where **blended finance** is called to the rescue. For this report, we refer to blended-finance as the use of public finance to mobilize additional sources of funding in order to finance projects that lack structural investment.[144] The additional funding is expected to come from the private sector, with the benefits said to include:[145]

142 According to 2°ii analysis. See: 2°ii, loc cit., p.20-21.

143 The object of the EU ecolabel regulation 66/2010 is to "identify those goods that tend to be within the top 10-20% of the most environmentally friendly within their category", which would focus the consumer's attention on the best-in-class products. Applied to financial products, the objective is to award the best environmentally performing financial products.

144 In some cases blended-finance also refers to a private-private partnership. The most current case is when philanthropic finance are taking care of non-recoverable funds to encourage commercial funding from private finance to crowd-in. This kind of investment is out of the scope of this report.

145 COUDERE, H., "To Blend or not to Blend - Towards a Belgian Blended Finance Policy", 2018, p13.

1) **Improving risk/return ratio** – The participation of public funds can lower an investor's perceptions of the underlying risks of an investment and signal to investors the business potential of projects.

2) **Leveraging limited public funding** – The participation of private funds can increase the impact of a limited pot of public money.

3) **Steering investments towards public goods** – The involvement of public institutions helps to direct private funding to projects with public good characteristics.

The public sector provides guarantees, grants and liquidity

In such mechanisms, **the public sector generally provides both grants and guarantees** to cover or lower the risks related to loans and equities: while a guarantee is usually provided in order to cover potential first losses, grants are used either to support early financial payments, to provide venture fundings, to undertake result-payments, or to furnish technical assistance (notably to assess the sustainability of the business model and regulatory compliance). Multilateral Development Banks and National Promotional Banks also happen to provide concessional commercial funding via financial intermediaries (i.e. on-lending), to financial intermediaries and directly to projects. Because of the generally excellent reputation of those banks (i.e. their AAA rating), this produces positive signalling effects towards (other) investors.[146]

Figure 19 – Blended finance instruments

Instrument	Description	Examples
Risk mitigation	Mechanisms to protect private investors from specific risks at business, program and/or country level	Guarantees (e.g. credit risk, political risk) Insurance
Direct funding	Concessional direct investment into a company or project delivering environmental benefits through the provision of equity, debt and/or grants	Equity (e.g. seed equity, junior equity) Debt (e.g. mezzanine, subordinated debt) Grants (e.g. technical assistance, design grant)
Indirect funding	A public financial institution (e.g. EIB, KfW, EBRD) lending through financial intermediaries in order to reach larger numbers of smaller borrowers than possible through direct lending. It consists in using the financial sector as an instrument to address public strategic objectives (i.e. development, transition, inclusion).	On-lending
Result-based incentives	Instruments that incentivise private investors or companies to invest in high impact sectors	Performance-based contracts Impact bonds

Source: Author, based on KOIS 2016

It has been used for development finance, funding the SDGs, and for the EU's 'EFSI' and 'InvestEU' programmes

While originally used to provide development aid funding, **blended finance mechanisms have been increasingly advocated to support the Sustainable Development Goals (SDG)**[147] and to propel conservation finance. Some 30 blended finance transactions for conservation projects have been recorded until 2019, representing an aggregate of USD 3.1 billion.[148]

146 Following this point, blended finance can take the form of a publicly managed investment vehicle, or can also refer to the participation of public institutions in privately owned funds.

147 OECD, "Making Blended Finance Work for the Sustainable Development Goals", 2018, OECD Publishing, Paris.

148 Convergence, "Blending in Conservation Finance", Data briefs, 2019.

Following multiple endorsements,[149] and the use of similar mechanisms to boost investment in the aftermath of the financial crisis (i.e. the EFSI, and its successor the InvestEU programme), **blended finance mechanisms have also penetrated the EU funding strategy for biodiversity and nature**. While the EU's funding of nature-related projects are still mostly channelled through grants under the LIFE programme, two financial instruments that use blended finance were introduced in 2014 in order "to improve the cost-effectiveness of the LIFE Programme through leverage and complementarity".[150]

Blended finance is available for EU biodiversity and nature projects from the Natural Capital Financial Facility (NCFF)

The Natural Capital Financial Facility (NCFF) is one of those instruments[151] and the European Investment Bank[152] has been entrusted to manage it. This facility provides financing from 2 to 15 million euros to nature-related projects and activities.[153] The NCFF does this by providing direct and indirect **commercial funding** solutions through debt and equity which are blended with **technical assistance grants** and **guarantees** from the EU budget.[154] This risk sharing mechanism is supposed to overcome the fact that the targeted projects are considered risky and "not compatible with the AAA rating of the [European Investment] bank".[155]

The NCFF blends commercial funding with technical assistance grants and guarantees. It has had limited take-up so far

By the end of 2018, only four projects had been signed via this investment facility,[156] compared with a target of nine to twelve.[157] **Incidentally, the financial performance of this mechanism has yet to be demonstrated**. Indeed, the EU made an initial commitment of EUR 50 million[158] to the facility with a leverage target of 2x to 4x (EUR 120-240 million). By 2018, only 50% of initial commitments were effectively provided by the EIB (EUR 32 million) through the NCFF, whereby investment made by final recipients and financial intermediaries amounted only to EUR 45 million (this gives a leverage of 0.5x).

If it is still early days to issue a definitive judgment, the still modest results of the interventions of the NCFF **raise questions about the effectiveness of blended-finance to fix the problems that affect nature-related projects**, namely lack of revenue streams, lack of ESG information, lack of relevant metrics, and lack of scale.

1. Blended finance risks adding another layer of opacity

The need to prove a public benefit adds administrative complexity to blended finance

Compared with purely private finance, the advantage of (most) blended finance schemes is that **financed projects are supposed to be directly linked with the public interest**, as defined by relevant regulations and international treaties. In our case, the projects financed by the NCFF are required to contribute to more than one of the LIFE objectives in order to get funding; thus nature-related projects must contribute to the Birds and Habitats Directives and/or to the biodiversity objectives of the EU Biodiversity Strategy to 2020.

But ensuring compliance with EU policies requires a proper monitoring and assessment of the (environmental) impact of the projects. This is where blended finance mechanisms

149 Notably within the communication of the EC about the "EU biodiversity strategy to 2020".

150 OJ L 116, 17.4.2014, p. 1–56. 2014/203/EU: Commission Implementing Decision of 19 March 2014 on the adoption of the LIFE multiannual work programme for 2014-17 Text with EEA relevance.

151 The other financial instrument running under the LIFE programme is the Private Finance for Energy Efficiency (PF4EE).

152 The EIB is also investing in privately managed funds such as the Land Degradation Neutrality Fund, the Althelia Sustainable Oceans Fund, the Althelia Climate Fund and the Arbaro Fund.

153 EIB, "NCFF eligibility criteria", Url.: https://www.eib.org/attachments/documents/ncff_terms_eligibility_en.pdf

154 European Investment Bank, "Investing in nature: financing conservation and nature-based solutions. A practical guide for Europe", 2019.

155 OJ. Ibid.

156 By early 2020, the NCFF financed one more projects.

157 European Commission, "Draft General Budget of the European Union for the financial year 2020", Working Document, Part X, June 2019, p. 22-23.

158 This amount relates to the EU guarantee. The EC also provided EUR 10 million of its budget for technical assistance.

can become counterproductive: **as a direct consequence of the involvement of many intermediaries, one of the biggest challenges of blended finance lies in transparency** and accountability, according to both the OECD[159] and several NGOs.[160] Blended finance thus suffers from the usual problem of the difficulty of assessing environmental impact, while at the same time adding a new layer of complexity.

2. The quest for a revenue stream

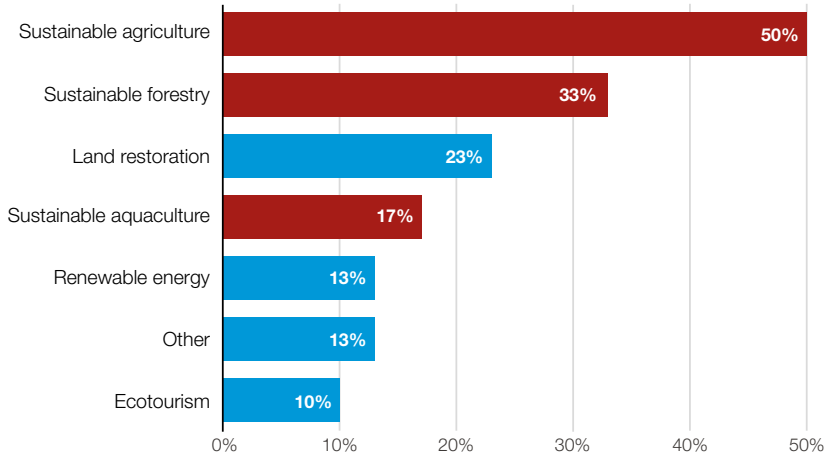
All commercial projects funded by private finance, either through debt or equity, require the existence of a predictable revenue stream in order for investees companies to be able to meet their financial obligations. No projects will be invested in if this simple requirement is not fulfilled.

As blended finance needs a revenue stream, it is often more challenging for restoration and conservation projects than for transition projects

As discussed in chapter 2, projects related to **conservation and restoration have a limited ability to generate revenues** on their own because the growth potential is limited (i.e. ecotourism), non-existent and non-desirable (i.e. biodiversity offsetting), or the scheme is in fact a type of public subsidy (i.e. most PES). This may explain the difficulties that the EIB/NCFF has had in finding suitable conservation and restoration projects to finance.

The only category that is suitable for NCFF support is sustainable processes and activities — such as sustainable agriculture, forestry and aquaculture — which remain niche activities (section Chapter 2. I. 1.2.). It is therefore not surprising that most blended finance transactions related to conservation are targeted towards sustainable agriculture and forestry (see figure 20).

Figure 20 – Blended finance transactions by conservation activities



Source: Convergence 2018 (on 30 blended finance transactions focused on conservation – 2010-18)

When a sufficient business case exists, blended finance can bring benefits by signalling to investors the economic sustainability of a project, de-risking it if necessary, and helping to develop the proof of concept for innovative projects – further helped by the use of grants.[161] In that sense, **blended finance can partly help to address both excessive perceived risks and information gaps** but can never compensate for an absent business case.

159 Ibid. pp.48-50

160 PEREIRA, J., "Blended finance: what it is, how it works and how it is used", Oxfam International, 13 February 2017; DONALDSON, Ch., HAWKES, S.,"Open books: how investments in financial intermediaries can be transparent and why they should be"; GILBERTSON, T., COELHO, R., "The Natural Capital Financial Facility. A window into the "green economy", Counter Balance. November 2014.

161 Notably grants covering venture capital expenses or first loan payments. In the same vein, the use of guarantees that cover first losses would help to push financial intermediaries to finance niche projects.

While not insurmountable, these aspects question the effectiveness of blended finance mechanisms to support public policies objectives relating to nature.[162]

Blended finance is an opportunity to improve localism, for example by involving neighbourhood banks

Box 06 – Local aspects

According to IPBES, nature is better preserved in areas where local communities maintain traditional practises that result from a deep understanding of the complexity of the local ecosystem.[163] On that basis, local intelligence may have a valuable role to play in the design and financing of nature-related projects. For example, the design of new commercial financial arrangements, such as those promoted by the EIB, could benefit from offering a central position for local stakeholders.[164]

The same could be said for any financial institutions that can demonstrate a connection with local social and economic dynamics. Well embedded local sustainable banks and microcredit associations can help to build trust with project makers.[165] In this regard they can provide a **tailored financial accompaniment that would better identify the financing needs and business opportunities of nature-related projects**. Bigger financial institutions such as the EIB could empower more of those actors by providing technical assistance to build capacity as well as guarantees and concessional loans to provide them with better financing conditions.

3. Some conclusions on blended finance

The NCFF will soon be absorbed by the InvestEU programme. InvestEU is supposed to give more coherence and scale to its predecessor, the European Fund for Strategic Investment (EFSI), by merging together all the blended finance funds of the EU (e.g. Innovfin SME guarantee, Private Finance for Energy Efficiency Instrument). **As a cornerstone of the Green Deal Investment Plan, this programme is expected to leverage EUR 279 billions of private and public money towards green investment over the period 2021-2030**. While the overall programme is targeted mainly at climate change, only the NCFF is specially dedicated to support nature-related investment.

It should only be used for projects that would not go ahead without it

The EU should be very rigorous in the way it uses public money for blended finance. **Besides ensuring transparency among all operations, the EU should also ensure strict additionality**. Leveraging private money with public money should only serve projects that would otherwise lack investment if the InvestEU is to avoid becoming another vehicle for the privatisation of profit and socialisation of risks.

Blended finance projects need revenue and so can only be a partial solution to finance nature-related projects

In sum, **blending public money with private financing does not appear to overcome the major inadequacies of private finance in the field of nature conservation and restoration**. At the same time, blended finance can be a useful tool to signal investors the potential of some economic activities that are perceived as too risky. However, this mechanism has some pitfalls and cannot, by itself, be the only solution to finance nature-related activities. As we show in the following section, public authorities have at their disposal an array of economic instruments that can push the economy to align with nature.

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162 Therefore, there are legitimate doubts as to whether the NCFF is an exception to the rule. In this regard, since 2014, no information has been publicly available to make a mid-term assessment of the environmental outcome of the NCFF even if the mid-term assessment of LIFE (2015) occurred too early in the lifetime of the NCFF. Furthermore financial statements of the NCFF are not available despite the EC's delegation act stating that the "EIB would be responsible for producing performance and financial reports in accordance with a format, content and periodicity to be agreed (initially on quarterly basis)". However in the LIFE MAWP 2018-2020 the reference to a quarterly monitoring has been deleted.

163 DIAZ. S. et al. 2019. "Pervasive human-driven decline of life on Earth points to the need for transformative change". American Association for the Advancement of Science, Science, 13 Dec 2019.

164 KOTHARI, A. et al. "Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies". Secretariat of the Convention on Biological Diversity, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64, p.74.

165 BILAL, S. Fostering the local dimension of blended finance: From principles to practice, 2019, ECDPM, 29p.

> *"Policymakers should be aware that without additional policy measures [Sustainable Investing] is unlikely to result in the dramatic transformation that is required [...] more fundamental changes also require policies that directly change the viability of economic activities, such as taxes on pollution or minimum standards."*
>
> **J. F. Kölbel et al. (2019) - MIT Sloan, University of Zurich**

III. Fixing the fundamentals (economic instruments)

Policy interventions can make sustainable projects more profitable and easier to finance, while making unsustainable activities less profitable and therefore unattractive

As previously discussed, there is no lack of available capital – quite the opposite – but there is a lack of sound green economics projects. **If profitability shifts away from unsustainable to sustainable economic activities, financial flows will follow**.

Public authorities have at their disposal **several policy instruments that can theoretically help achieve this goal**, with more or less success. We classify them on a continuum from fully market-based to fully public provision:

Figure 21 – Policy instruments for nature

	Market ---------- Public				
Type	Economic instruments*		Direct Regulation (CAC)		State intervention
Category	Market Based instruments	Non Market Based Instruments	Spatial planning and Property/ liability rules	Norms and Standards	Public Provision
Rationale	Rely on market mechanisms and involve transferable and tradable units	State driven financial incentive	Government-settled property rights and liabilities	Government-settled standards and licenses/ prohibitions	Public sector manages and finances nature-related public goods
Examples	Direct markets (e.g. genetic information about seeds, Offsetting), Cap-and-trade (e.g. EU ETS) / Tradable permits (e.g. mitigation banking, Individual transferable quotas for fisheries) Private PES Voluntary labelling (e.g. ecolabel)	Taxes and fees Subsidies (including public PES and tax relief) Fiscal transfers	Delineation of protected area Property rights (e.g. conservation easings) Liability rules (e.g. obligation to compensate, biodiversity offsetting)	Management prescription (e.g. EIA) Restriction of the use of product (e.g. ban of pesticide) Environmental standards (e.g. air quality) Protection of certain species (e.g. from hunting)	Protected areas (e.g. national park) National forest protection agencies
Conservation effectiveness[166]	Low to high – depending on instrument design	Medium to high	High	High	High

* Public auction can be seen as a mixed instrument.

While none of these instruments are new, **better and more ambitious economic instruments** are needed (e.g. taxes, quotas), given that economic activities are still the main

166 Built on: IPBES, "Chapters of the regional and subregional assessment of biodiversity and ecosystem services for Europe and Central Asia", 22 june 2018.

Direct intervention and regulation can have a major positive impact

drivers behind nature and biodiversity loss. At the same time, one should not overlook **the major role that public institutions can play through direct regulation and direct intervention** (e.g. adopting sound sectoral environmental standards, public provision of protected areas) – discussed in chapter 4.

The choice of policy instruments needs to be assessed on a **case by case basis**, taking into account the relevant environmental targets and potential side-effects of some mechanisms.[167]

Indirect intervention – through economic instruments – acts through price signals

Public authorities can discourage environmentally unsustainable activities and incentivize sustainable ones by using **economic instruments**. Compared with instruments of direct regulation that may seek to ban unsustainable practices, their main characteristic is to act through **price signals**, for example by inducing higher prices for unsustainably produced goods.

The following section briefly investigates and assesses the different economic instruments generally put forward to try and reconcile the economy with nature. While several typologies exist,[168] we consider two types of economic instruments: **market-based** and **non-market-based**. While the former aim to create market conditions in which the competition between economic agents is used to discover and integrate environmental externalities in prices (e.g. the EU Emission Trading System, where the carbon price is supposed to be discovered through the trading of theoretically limited amount of rights to emit), the latter imposes directly the cost of externalities on economic agents (e.g. a carbon tax that imposes a given carbon price directly on the economy).

1. Market-based economic instruments

Economic instruments include creating new markets such as claims linked to carbon sequestration, or cap-and-trade schemes such as carbon markets or fishing quotas

The main theoretical arguments for the use of market-based instruments are the provision of incentives, better resource allocation and efficiency, and their potential capacity to generate new sources of revenue stream. The two main categories commonly advocated to cope with environmental issues are direct market instruments and cap-and-trade schemes.

1.1 Direct market instruments

The first category of 'direct market instrument' refers to the creation of new markets and their legal frameworks. It involves **expanding the commodification of ecosystem services by creating transferable property and usage rights**. Examples might include creating rights over genetic resources such as seed DNA, or claims linked to carbon sequestration.

But care is needed – some new markets for ecosystem services can backfire and lead to monopolies or overexploitation

While such instruments appeal to some policymakers, **this approach can have adverse impacts**. For instance, the commodification of genetic information about seeds (through the patenting of plant varieties) has created a market that was supposed to strengthen the resilience of plants towards diseases and insects by empowering strong private actors[169] but has instead led to monopolisation with harmful consequences,

167 For example, in rural development policy it might be appropriate to use bonus/penalty systems to internalise externalities from agricultural activities, or in fisheries policy to target levels of fish stocks that produce the maximum sustainable yield.

168 In most of the literature, the market-based instrument's concept is used to define all instruments used by the state to influence cost-benefit analysis of actors. However, we believe this is important to make a distinction, within economic instruments, between those which are market-based and those which aren't. See: PIRARD. R. "Market-based instruments for biodiversity and ecosystem services: A lexicon". Environmental science & policy, 2012, and; VATN A. et al., "Payments for nature values. Market and non-market instruments", 2014, Norad Norwegian Agency for Development Cooperation.

169 See: MARTIN, A., "Seed Savers v. Monsanto: Farmers Need a Victory for Wilting Biodiversity", 2014 , vol. 24 DePaul J. Art, Tech. & Intell. Prop. L. 95 .

notably for farmers, and is directly responsible for a drop in genetic diversity.[170] In the same vein, the trend to commercialise non-timber forest products[171] can lead to overexploitation and therefore increase pressure on biodiversity if not carefully controlled.[172]

Furthermore, these attempts are likely to fail as most ecosystem services are public goods

More fundamentally, **most ecosystem services have public, common and/or complex goods characteristics and cannot, therefore, be easily sold** (see Chapter 2. I. 1.1.b. and Annex 2).[173] Attempts to create markets for such ecosystem services must be treated with caution as they are likely to fail and may be environmentally harmful.

In the end, the marketisation of new elements of nature often involves a trade-off between nature and the economy that should be properly thought through before solutions are implemented. In the unlikely event that no better alternative exists, such schemes should be **carefully regulated to establish standards and norms** that will keep markets in a "safe zone" and minimize possible adverse impacts.

1.2 Cap-and-trade systems

While the first category was about creating a new market through property/usage rights, a cap-and-trade system involves the **public authority issuing a limited number of annual permits to emit, pollute, consume or harvest** (i.e. cap), that are then allocated to companies on some basis (e.g. grandfathering, auctioning). Companies can then use the permits or trade them. The cap is set to attain a certain environmental target, such as allowing renewable natural resources to regenerate (e.g. quota for fisheries) or progressively reducing the emission or use of pollutants (e.g. NOx, GHG).

Cap-and-trade systems aim to set an upper limit and then let the market decide who can pollute, fish, harvest etc.

The amount of permits can be lowered each year, therefore creating artificial scarcity to increase their price on the market and reinforce incentives for companies to shift their behaviour and investment. While this approach is mostly used for GHG emissions, as with the EU emissions trading system, and individual transferable quota for fisheries (some 23 countries had at least one such system in place in 2018), it can also be used to reduce the use of nutrients in agriculture (e.g. the Flanders region of Belgium put in place a system of nitrogen and phosphorus emissions right for farmers).[174]

As the EU's Emissions Trading System shows, the limits must be robust – a carbon price up to EUR 28 a tonne has done little to change behaviour

In theory, the alleged benefit of such a system is to incentivise sustainable behaviour in a cost-effective way, by offering flexibility to the polluters/emitters on how to accomplish the environmental goal. In practice, **potential drawbacks and flaws require a strong regulatory framework to stand any chance of being effective**.

As a flagship example, **the EU emissions trading system (EU ETS) failed for years to properly incentivise transition** to low-carbon energy sources and processes, as the carbon price remains constantly lower (EUR 3-28 per ton) than the level required to reach this objective (USD 40-80 per ton). As widely acknowledged, this failure is due to

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170 "*consensus exists on the occurrence of genetic erosion as a result of the total shift from traditional production systems depending on farmer varieties to modern production systems depending on released varieties.*" in: FAO, "The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture", Rome, 2010, p.17.

171 Any product or service other than timber that is produced in forests, e.g. fruits and nuts, vegetables, fish, medicinal plants, resins, essences and a range of barks and fibres such as bamboo.

172 The current push towards ecotourism should also be assessed carefully.

173 A public good is a good that can be consumed by anyone (non-excludable) and no one has an exclusive right over its consumption (non-rivalrous). Simple goods are discrete and separable (e.g. a pizza or a haircut) and are easy to trade. With ecosystem services there is often no one to one relationship between a 'service' and a benefit: several ecological features or processes may be needed for one benefit (e.g. recreation). Alternatively one ecological feature (water quality) may give rise to multiple benefits (wildlife watching, drinking, fishing, health).

174 Trade is allowed but at each trading there is 25% reduction of the emission rights (except for complete company take over or trading between spouses or between descending relatives in the first degree, or when 25% of the manure is processed).

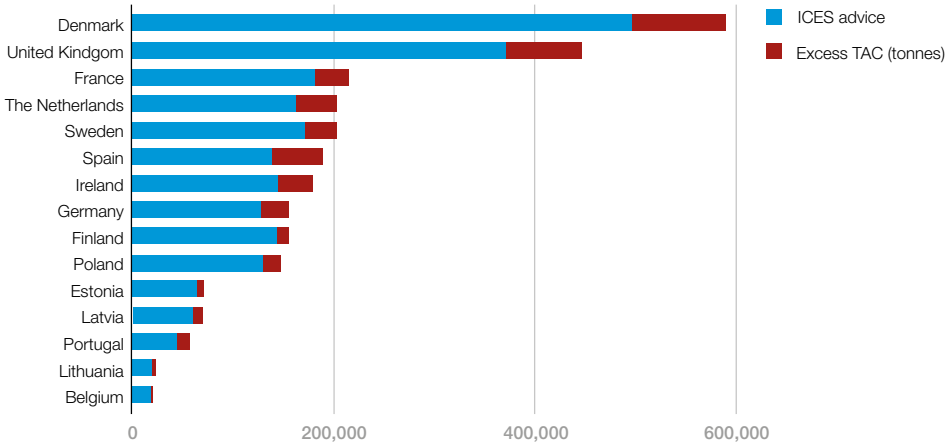
an **excess of free allowances reinforced by the creation of new allowances through carbon offsetting**,[175] both consequences of the prevalence of concerns over economic competitiveness and a lack of political consensus. Moreover, there are also concerns about price volatility, fraud and distributional effects.[176]

Offsetting markets are particularly problematic in this context because they **remove the cap of cap-and-trade markets by allowing the constant creation of new allowances** (e.g. such as in the case of the Kyoto carbon offset markets, which is mainly used by EU companies to create new Certified Emissions Reduction to comply with EU ETS without really having to diminished their own emissions).[177] This is just one of the problems with offsetting, which introduces a dangerous shift from a logic of 'avoiding doing harm' to a logic of 'cost-benefits analysis'[178] and has been shown to be ineffective, with an impact that has been strongly overestimated.[179] **More generally, nature and biodiversity losses are not problems that can be solved through offsetting because no two ecosystems are the same. For a more detailed critique of offsetting, see Annex 1**.

Offset markets undermine cap-and-trade schemes by creating new allowances

But carbon markets are not the only cap-and-trade scheme to face difficulties. For example, the system of Individual Transferable Quotas for fishing in North America led to unwanted rent-seeking behaviors and price volatility.[180] The key to any successful cap-and-trade or quota scheme is **to be aligned with the environmental objective it serves**. As an illustration, quotas for fisheries in the EU (total allowable catches – TAC) have been repeatedly set higher than the level advised by the International Council for the Exploration of the Sea (ICES),[181] resulting in overfishing.

Figure 22 – TAC vs ICES Advice by Member State (248 TACs from 2001-2019)[182]



Source: New Economics Foundation

175 Additional allowances generated through the Kyoto Carbon Offsets markets further reduce the chance to meet an appropriate carbon price. While ending in 2020, the main mechanism, the Clean Development Mechanism, will most likely be replaced by a new carbon market instrument.

176 For an in depth discussion of carbon markets: HACHE, F., "50 Shades of Green. Part 1. Carbon markets", 2019, 72p.

177 Carbon Market Watch, "Emissions trading and national carbon markets – Beware of past mistakes!", March 2013 Cited in: HACHE, F., Op. cit., p.14.

178 With the cost of compensating admittedly lower than benefit from the harmful economic activities.

179 "Overall, our results suggest that 85% of the projects covered in this analysis and 73% of the potential 2013-2020 Certified Emissions Reduction (CER) supply have a low likelihood that emission reductions are additional and are not over-estimated. Only 2% of the projects and 7% of potential CER supply have a high likelihood of ensuring that emission reductions are additional and are not Overestimated.", ÖKO INSTITUT, "How additional is the Clean Development Mechanism?" Study prepared for DG CLIMA, March 2016.

180 Ecotrust Canada, "A cautionary tale about ITQs in BC fisheries", Briefing, 2009

181 The ICES is an intergovernmental body founded in 1902 to conduct and coordinate research into the marine ecosystems of the North Atlantic. ICES provides advice to a number of governments and regional fisheries management organisations, including the EU.

182 Difference between science-based advices and actual level of total allowance catches (TAC) for fisheries by member states in the EU

In this regard, market-based economic instruments appear not to be the most effective options considering the numerous barriers they face when it comes to nature and biodiversity.

2. Non-market based economic instruments

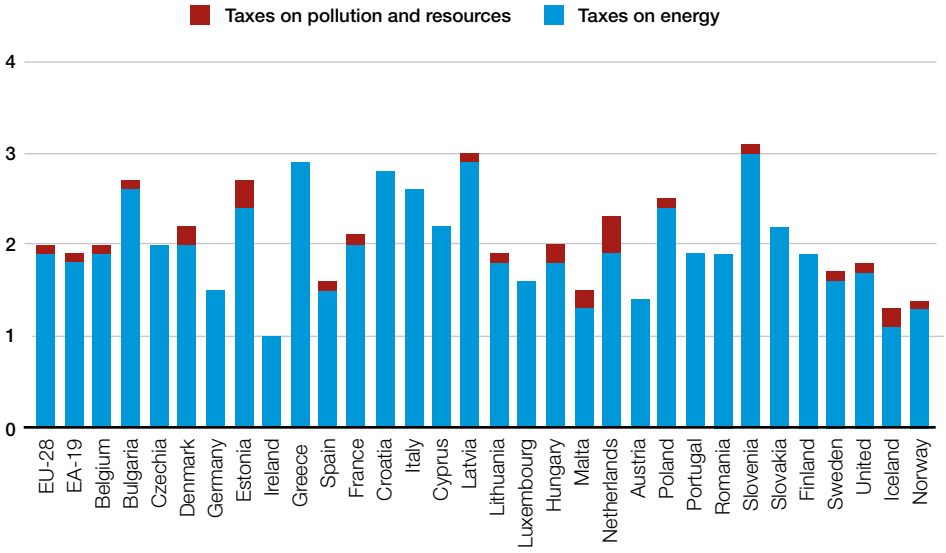
At the other end of the spectrum, non-market based economic instruments are mainly about fiscal policy and using top-down price signals to constrain markets and reveal environmental externalities.

2.1 Biodiversity-relevant taxes

Taxing activities according to their harm can be effective, as with Denmark's pesticide tax, but European countries levy very little in pollution taxes

According to the OECD, some 49 countries have some **biodiversity-relevant taxes** in place in order to disincentivize the use of pesticides, fertilizers and forest products.[183] The objective of these measures is to force production and consumption decisions to take into account the ecological damage associated with these practices and thereby promote a more sustainable use of natural resources. One example is Denmark's introduction of a tax on pesticides to support the development of less harmful pesticides.[184] Meanwhile, **environmental taxes in Europe only represent 2.4% of GDP in 2018, including 1.9% of taxes on energy and a marginal 0.1% on pollution and resources** (see figure 23).

Figure 23 – Environmental taxes in Europe in 2018 (as % of GDP)



Source: DG TAX, Eurostat

183 OECD, "Tracking Economic Instruments and Finance for Biodiversity 2018", Paris, 20p., p.5

184 SVENNINGSEN, L.S., et al., " The use of economic instruments in Nordic environmental policy 1990-2017", Nordic Council of Ministers, Policy Brief, 2018, 48p., p.14

2.2 Fiscal transfers

Fiscal transfers include compensation for doing activities that benefit the environment, such as switching to organic farming

Another approach is to use **fiscal transfers**[185] such as the Agri-Environmental Schemes (AES) in Europe to compensate farmers for income foregone due to the implementation of sustainable farming practices (e.g. organic farming) that contribute to biodiversity protection and benefit society as a whole. In particular, **results-based agri-environment payment schemes** are a specific type of AES where payments to farmers are only made if a specific environmental outcome is achieved. In any case, AESs should always be adapted to specific local conditions and can only contribute to achieving environmental objectives if adequately designed, with clear quantitative targets and a realistic timeline for their achievement.

According to the IPBES, **the environmental impacts of subsidies, taxes and transfers are more predictable than those of market-based instruments**.[186] However, those policy solutions are **not free of distributional and other adverse effects** and therefore need to be carefully designed. For instance, a tax on the use of pesticides in agriculture could lead people to poverty if fiscal transfers are not in place to accompany farmers in transition, or to help vulnerable consumers if food prices rise. The policy mix is also a way to ensure consistency in policy making.

3. Limits and challenges of economic instruments

The choice of a mechanism should, in the first place, be **guided by the environmental targets that need to be achieved and ensure that the incentives are strong enough to motivate economic agents** (companies and/or consumers) to change their behaviour in a way that is compatible with the environmental outcomes.

To be effective, economic instruments must be aligned with environmental goals and provide strong incentives

Whilst it needs to be understood that the instruments described above could support the achievement of the environmental objectives by promoting environmentally sustainable activities and penalising those which are responsible for environmental degradation, **they should not be considered as a replacement for the classic command and control mechanism**. The key to success is understanding that **not everything can be commoditised** – at least not sustainably. Policymakers must learn to distinguish between economic and natural outcomes and not turn to economic incentives as the default mode of intervention. This is particularly the case for in-situ conservation projects such as wild natural zones and national parks, where a command and control approach based on binding regulation may be far more effective in preserving nature than a system of voluntary, market-led incentives.

185 We did not integrate Payment for Ecosystem Services in market-based instruments as recent studies conclude: 1) PES are structurally not based on market dynamisms and; 2) most of them are financed by public institutions through fiscal resources which classifies these schemes in the category of subsidy.

186 With the notable exception of tax relief. Source: IPBES, 2019, Ibid.

IV. Conclusions on doing more with private finance

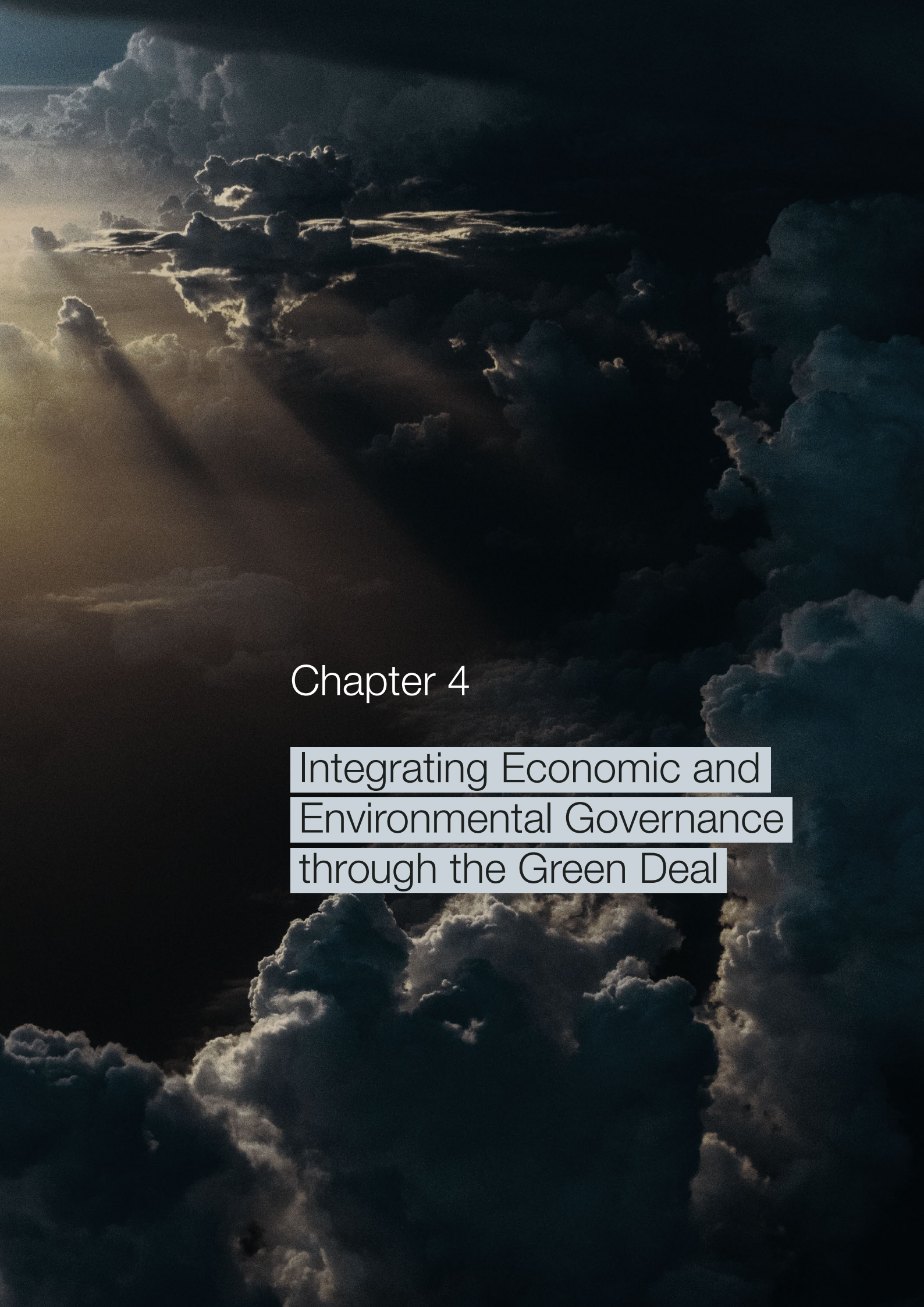
In this chapter, we went through a series of possible regulations that could push the private sector towards nature-related financing.

Fixing the chain of information by regulation is the only way for a proper, consistent and comprehensive integration of ESG information in sustainable investing activities. A taxonomy of sustainable activities, non-financial reporting rules and labels are essential tools to enable investors to voluntarily allocate capital towards a sustainable economy and potentially change gradually companies' behaviours. However important, such regulations **have a number of limitations**, among which the fact that the impact of ESG investing on the real world is slow to materialize, the fact that they do not apply globally and, finally, the fact that they only concern relatively large and mainly listed companies, leaving aside pure conservation projects or niche market businesses that have trouble going mainstream. For the latter, **blending public money with private finance could lower the risk perception level** of many investors in specific cases. More importantly, we saw that the use of **economic instruments** could be a strong way to incentivize economic agents to take into account environmental externalities, if properly designed.

These financial regulations and economic instruments have potential but also limitations. To meet its environmental goals, Europe will need more direct measures

In short, there are several ways for public authorities to provide nature-related incentives to the private financial sector and to economic agents. Those different ways are not exclusive from one another and they should be therefore promoted in parallel, particularly given the fact that, regardless of their respective merits, **none of them can be considered as the silver bullet** that will solve the problem humanity is facing with the accelerating destruction of biodiversity and nature.

While those actions are necessary, **they will not be sufficient to fulfil the environmental targets of the European Union**. To reach those targets, there is a need to set up pure conservation and restoration measures where economic activities either step aside or change deeply. To do so public authorities also have to do more than incentivize. In the next chapter we will see how **direct regulation** and **the financing and management of environmental public good by the public sector** is an essential part of the equation.



Chapter 4

Integrating Economic and Environmental Governance through the Green Deal

4 Integrating Economic and Environmental Governance through the Green Deal

In past decades, emphasis has often been given to the private sector and the use of market-based mechanisms to trigger the transition to a sustainable economy – with mixed success. As we have seen, private finance in its current form does not fit the characteristics of most nature-related projects. While some of the failings could be fixed by the regulatory agenda around sustainable finance, the use of blended finance mechanisms and economic instruments, it seems that market-based instruments are not an especially good fit for biodiversity (with the notable exception of some carefully designed quotas for specific elements that are already commodified).

An approach that gives primacy to private over public finance would be overly simplistic and would overlook the differences between public and private goods and between bankable and non-bankable projects. **The recognition that "the magnitude of the investment challenge requires mobilising both the public and private sector"**[187] **is thus a step in the right direction.**

The European Green Deal is a welcome and overdue first step to reconcile environmental and financial goals

Financing is not the only barrier, however. What has also delayed EU actions on climate and environment in the past is a mixture of silo-thinking, a tendency to prioritise economic and financial concerns over environmental ones, and opposition from some member states. **The European Green Deal is, therefore, a welcome first attempt to reconcile environmental, economic, and financial regulation**, recognizing the need to reflect on the interactions and trade-offs between these elements while giving primacy to the protection of the environment.

> *"It is unwise to view finance alone as a simple 'silver bullet', instead it should be seen as a necessary component amongst a multifaceted approach that incorporates issues relating to political economy and regulation as well as social, economic and environmental issues of production."*
>
> **George Scott, UNEP - 2019** [189]

In this section, we discuss the role of direct regulation, public finance at both the EU and the national level, and the role of the EU semester in the governance of the transition.

I. Direct regulation as the most effective way of halting nature depletion
II. Align public finance with the Green Deal
III. Governing the transition

187 European Commission, 'The European Green Deal', COM(2019) 640 final

188 SCOTT, G., "The challenge of achieving land-use transformation at scale. Mobilizing public and private finance for sustainable agriculture", Landscape News Editors, 2019.

I. Direct regulation as the most effective way of halting nature depletion

Direct regulation includes banning harmful activities, limiting pollution, and protecting land

Although sometimes overlooked, direct regulation is essential for dealing with the depletion of nature. **Direct regulation is the backbone of environmental state action and of the implementation of economic instruments**.[189] Through direct regulation, public authorities set limits to pollution (e.g. environmental standards for cars or other technology), prohibitions (e.g. chemical products, pesticides) and schemes of protection (e.g. endangered species). Public authorities can also delineate protected areas (spatial planning).

The EU has a comprehensive body of direct environmental laws but it is poorly enforced

Currently, the EU may have one of the most comprehensive sets of environmental regulations on the planet. However, it **still lacks sufficient enforcement to allow Europe to meet its internationally agreed targets**. According to the civil society network BirdLife Europe,[190] the targets for the Natura 2000 network have not been achieved and some protected areas, while protected on paper, are being routinely destroyed.[191] Moreover, member states are regularly failing to implement biodiversity-related directives.[192] Renewed political ambition is needed to tackle overfishing in member states' Exclusive Economic Zones, food waste, soil erosion, and to deal with pesticide use – notably by reviewing the Sustainable Use Directive which "is mostly not implemented", according to BirdLife Europe.[193] Much of the effort will need to come from a reform of the Common Agricultural Policy, which covers 48% of the EU's territory.[194]

New concerns emerge from **the new EU Commission's doctrine of "One in, one out"**, under which no new regulation should be introduced without removing an equivalent existing amount of regulation in the same policy area at EU level.[195] This latest avatar of the Better Regulation agenda should be watched carefully in case it leads to much needed regulation being avoided or replaced with inefficient or problematic market-based instruments.

More funding would help to implement environmental regulation and reach EU objectives

If one of the main reasons for the poor implementation of the EU's environmental regulation is the lack of **public financing for environmental public goods**, overcoming this will mean questioning commonly-held assumptions about public sector inefficiency. As we discuss in the next section, the preservation of biodiversity and ecosystem services is a core responsibility of public authorities and requires adequate funding.

II. Align public finance with the Green Deal

Most nature-related projects and activities do not fit the requirements of private finance, as they either cannot generate enough stable revenues, or attempts to do so are counterproductive, as with biodiversity offsetting. Nevertheless, these projects create indispensable and valuable non-financial outcomes for society as a whole (positive externalities).

189 Markets and economic agents are constantly framed by right and duties, property and liabilities defined by regulating authorities.

190 BirdLife Europe & Central Asia. "The EU Biodiversity Strategy to 2030". Position Paper. November 2019.

191 Ibid. "Only 23% of Special Protection Areas have management plans [...] and only 46% of the Sites of Community Importance".

192 The Water Framework Directive is a notable example.

193 Notably, BirdLife (Ibid) advocates a "ban the sale by EU based entities of pesticides, licences and patents on chemicals that have been banned in the EU, so that no one can profit from harming biodiversity in countries that do not have adequate (or any) pesticide regulation".

194 BirdLife Europe advocates that CAP payments should be conditional on member states providing green infrastructure ("landscape elements such as trees, hedge rows, flower strips"), on the protection of soil, and on organic agricultural production.

195 EC, Main principles of the working methods, Sep 2019, Principle 3 "...the Commission will develop a new instrument to deliver on a "One In, One Out" principle. Every legislative proposal creating new burdens should relieve people and businesses of an equivalent existing burden at EU level in the same policy area. The Commission will also work with Member States to ensure that, when transposing EU legislation, they do not add unnecessary administrative burden."

Conserving nature needs public investment and creates positive externalities, such as ecosystem services

In this regard, **the conservation of nature shares similarities with sectors traditionally associated with strong public involvement**.[196] For example, financing public education does not produce immediate returns,[197] but is essential for the good functioning of society and the economy (positive externality). Similarly, one-off payments for the establishment of conservation infrastructure, or regular payments for maintaining a protected area, may not create short-term market value but can provide invaluable ecosystem services.[198]

Public investment has the advantage of not having to follow the same logic as private investment. Where private investments are motivated by the opportunity to produce a (usually short-term) financial return, the public sector has more room for manoeuvre:

(1) Public bodies can directly incorporate the public interest into their decisions, and work with longer time horizons than most private agents, subject to fiscal constraints.

(2) Public authorities can use fiscal power, which can be large.

Public sector investment has the freedoms and scale needed to conserve nature as a public good

To sum up, states are able to operate with a longer-term horizon and are less risk-averse than corporations and households. This combination gives them the ability to integrate the preservation and promotion of public goods, including the preservation of nature, in the policies they conduct. Furthermore, their fiscal logic allows for resources to be allocated to non-revenue generating projects that nevertheless create social value, such as conservation projects.

1. Target public investment and avoid harmful subsidies

There are EU funds for biodiversity projects including the €5bn LIFE programme but many funding gaps remain

At the EU level, **the most dedicated budget line for biodiversity and nature is the LIFE programme**, which prioritises grant funding for the environment and resource-efficiency, nature and biodiversity, as well as climate change mitigation and adaptation (period 2014-2020). While the programme is mostly considered both essential and a success,[199] it remains **a niche in the EU budget**. Even with plans to raise it to EUR 5.45 billion in the next EU multiannual financial framework (MFF 2021-27), it will still represent only 0.43% of the total EU budget.[200]

Under the so-called 'integrative approach', **multiple EU funds are also more or less directly involved in biodiversity funding**, for example for the co-funding of the network of protected areas: Natura 2000.[201] But this funding is also limited: the resources were already judged to be insufficient for the period 2007-2013[202] and a recent report of the EC

196 Sectors where, among other things, the logic of competition does not apply, where "fee entry and fee exit in governmental services are often not possible", where "prices do not restrict supply, goods provided for free, sold at prices not economically significant. SEKERA. J., "The Public Economy in Crisis. A Call for a New Public Economics", Berlin: Springer, 2016, 128p.

197 Even if, as a second round effect, the salaries paid to public servants generate taxes, demand for goods and services… in short participating to the economy. Public expenses are not just costs but, as importantly, contribute to the functioning of the economy.

198 RING, I., "Ecological public functions and fiscal equalisation at the local level in Germany", Ecological Economics, Volume 42, Issue 3, 2002, Pages 415-427.

199 European Parliament resolution of 2 February 2016 on the mid-term review of the EU's Biodiversity Strategy (2015/2137(INI)). p13.

200 MFF, "Proposal for a regulation establishing a new life programme for 2021-2027".

201 The European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund have a thematic object of "preserving and protecting the environment and promoting resource efficiency". The fourth priority of the Rural Development Fund (EARD) – financial instrument of the CAP – concern the "restoring, preserving and enhancing ecosystems related to agriculture and forestry, with a focus on: a) biodiversity, including Natura 2000 areas […] b) improving water management, including fertiliser and pesticide and c) preventing soil erosion and improving soil management". The European Maritime and Fisheries Fund (EMFF) has two specific objectives consisting in the "protection and restoration of aquatic biodiversity and ecosystems, and - the promotion of marine protected areas such as Natura 2000 sites". Cf. KETTUNEN, M. et al. "Integration approach to EU biodiversity financing: evaluation of results and analysis of options for the future", 2017, Institute for European Policy (IEEP), Brussels/ London.

202 See: DROSTE, N., RING, I., SANTOS, R., KETTUNEN, M., "Ecological Fiscal Transfers in Europe - evidence-based design options of a transnational scheme", 2016, UFZ Discussion Papers, 10/2016.

found similar **funding gaps** for the period 2014-2020.[203] This underallocation of resources is attributed to several factors, including political issues, lack of concrete target setting, administrative burden, and bottlenecks due to the necessity of pre-financing projects under the LIFE programme.[204]

Meanwhile, there are large subsidies for unsustainable farming, fossil fuels, and harmful fishing and forestry activities

The paradox is that even as more public funding is needed to meet biodiversity and environment targets, a significant part of the EU's existing budget allocates funds to activities that actively harm biodiversity and ecosystems. The best example is **the Common Agricultural Policy (CAP)** – which corresponds to 36% of the MFF 2014-2020. The CAP has been accused of encouraging the extension of intensive agriculture which is said to be responsible for several drivers of nature and biodiversity losses.[205] For example, the farmland bird index has declined by 50% in the last 25 years,[206] and a massive loss of non-crop plants and invertebrates has been directly linked to the intensive use of fertilizers and pesticides. Despite a series of reforms, the CAP is still criticized for not delivering its promise of a sustainable European agriculture that respects the environment.[207]

This is not limited to agriculture. EU subsidies are also considered to have harmful consequences for nature and biodiversity in silvo-arable forestry, fishing practices (USD 6 bn/year of damage according to the IPBES), fossil fuel and extraction subsidies.[208]

2. Update the tools to track expenditure

The EU needs a better system to track its spending on biodiversity – it could switch from Rio Markers to the BIOFIN tracking system, or build a new one based on the taxonomy

One of the initiatives that emerged from the Rio Earth Summit in 1992 was a system to track the amount of development funding being used for biodiversity and various other environmental purposes, the so-called "**Rio Markers**". The EU applies this methodology to its own budget, giving each budget line a Rio Marker of 2, 1 or 0 according to whether the action targets biodiversity as a principal objective, a significant objective, or not at all. According to this methodology, EU biodiversity-related expenditure amounted to EUR 13.96 billion in 2016, or 9% of the EU budget 2016,[209] of which EUR 11.6 billion, i.e. 83% of this total, related to the CAP.

However, this ex-ante assessment methodology has been strongly criticized, in particular by the European Court of Auditors,[210] for among other things **overestimating the proportion of expenditure relating to biodiversity**. The risk is that overestimating the EU's funding for biodiversity sends a misleading signal to policymakers. This is in contrast with the best practice recommended by the joint climate finance group of the Multilateral Development Banks and the International Development Finance Club, which recommends a conservative approach, i.e taking the lowest estimation available for environmental evaluation when confronted with uncertainty.[211]

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203 European Commission, "Integration of Natura 2000 and biodiversity into EU funding (EAFRD, ERDF, CF, EMFF, ESF). Analysis of a selection of operational programmes approved for 2014-2020", 2016, p.10.

204 GEITZENAUER M., et al. "The challenge of financing the implementation of Natura 2000 – Empirical evidence from six European Union member states", 2017, Forest Policy and Economics, Volume 82,Pages 3-13.

205 IPBES, "Chapters of the regional and subregional assessment of biodiversity and ecosystem services for Europe and Central Asia", 22 june 2018, pp.992-999.

206 Secretariat of the Convention on Biological Biodiversity, "Regional Research in Support of the Second Phase of the High-Level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020", 2014, CBD Technical Series No.74.

207 IPBES, loc. cit.

208 IPBES, Ibid.

209 EY, "Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget", EY for the European Commission, June 2017, 232p., p 9.

210 European Court of Auditors, "Spending at least one euro in every five from the EU budget on climate action: ambitious work underway, but at serious risk of falling short", n°31, 2016, 86p.

211 Ibid.

The EU should develop new tools to track expenditure with more granularity. For instance, the Biodiversity Finance Initiative (BIOFIN) – launched by the EC and the UNDP – developed a more comprehensive tracking methodology.[212] Indeed, where the Rio Markers have three levels of granularity, the BIOFIN has six and has complementary tracking tools. For the time being, Ireland is the only European country where the method has been applied (on a voluntary basis).[213]

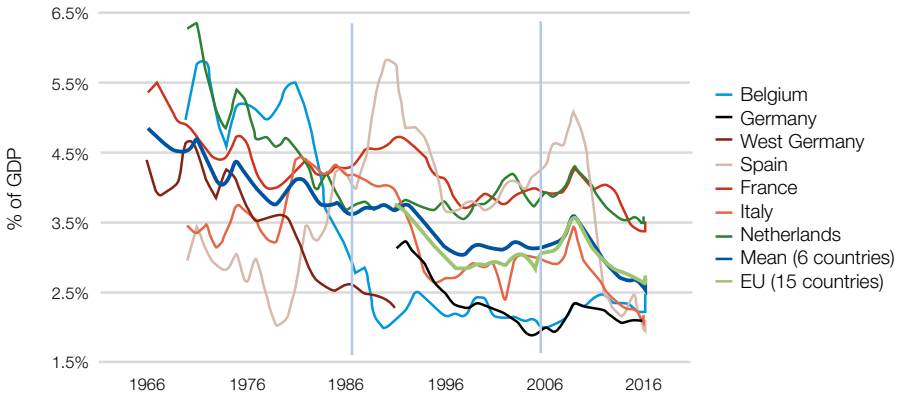
Ultimately, a quality assessment could be made using **the upcoming EU Taxonomy to establish a proper sustainability proofing system for the EU's biodiversity expenditure**.

3. Unlock public investment and adopt a Green Golden Rule

Public investment has declined steadily as a proportion of GDP, partly due to the restrictive European fiscal framework

The European Commission's recognition that "national budgets play a key role in the transition" is very welcome but **raises questions about whether national budgets can fill this investment gap**. While we agree that green budgeting practices and sustainability proofing will have an important role to play, we cannot overlook the fact that **public investment as a share of GDP had fallen to as low as 2.7% in 2017 in Western Europe, the lowest for 50 years** (see figure 24). While it is not the only cause,[214] the European fiscal framework is often described as having had a negative impact on public investment.[215]

Figure 24 – Public investment (General government gross fixed capital formation)



Source: AMECO

Public investment is known to have a higher positive impact when the economy is in recession and when interest rates are low,[216] leading commentators to recall the **'golden rule of public finance' to exempt public investment from the constraints of the**

212 UNDP, "The 2016 BIOFIN Workbook: Mobilizing resources for biodiversity and sustainable development", The Biodiversity Finance Initiative, United Nations Development Programme: New York, 2016.

213 MORRISON, R., BULLOCK C., "A national biodiversity expenditure review for Ireland. Tracking and Mobilising Finance for Biodiversity Conservation", University College Dublin, 2018.

214 Other factors commonly referred to are insufficient administrative capacity, weak monitoring institutions, tax evasion, etc. Philip Maystadt, former EIB president and former Belgian minister, also points to the negative impact of the new European system of accounts (ESA/SEC2010) that forced investment spending to be charged directly and entirely to the deficit of the year of expenditure. (In: MAYDSTADT, P., "Jump-starting investment", European Issues n°337, 16.12.2014)

215 ZEYNELOGLU, I., "Fiscal policy effectiveness and the golden rule of public finance", Central Bank Review, Vol. 18, Issue 3, September 2018, p.85-93.

216 In some circumstances, one euro of public spending leads to more than one Euro of economic activity. This positive dynamic is captured by what economist called the fiscal multiplier and evidence shows the level is high since the beginning of the crisis, 10 years ago. While literature shows that effect on activity is considerably higher for investment than for transfers (Source: GECHER, R., "Are fiscal multipliers regime-dependent?", IMK, 2014), evidence also shows that it is also "significantly higher (…) when interest rates are persistently low" as has been the case since the crisis and the change in the ECB's rates (Source: (BONAM, et al., "The effects of fiscal policy at the effective lower bounds", 2017.; AMENDOLA, A., et al., "The Euro-Area Government Spending Multiplier at the Effective Lower Bound", IMF Working Paper, WP/19/133, July 2019, 32p.

The idea of a "golden rule" to exempt public investment from fiscal constraints has been slowly gaining acceptance with recent support of the European Fiscal Board

fiscal framework.[217] This has been widely discussed for half a decade, but negotiations between EU leaders have led only to marginal flexibilities,[218] with conditions that are said to be far too restrictive to allow the scale of investment needed.[219] In its 2019 assessment of EU fiscal rules, **the European Fiscal Board notably proposed the introduction of a "Golden rule" protecting specific growth enhancing public investment**.[220]

In the current context, the 'golden rule' has been taken off the table and proposals have instead emerged for a sort of **'green' golden rule that would only favour green public investment**.[221] The importance of this change is beginning to be recognised but has not yet been able to overcome the dynamics that created the EU fiscal framework in the first place. The Commission has thus taken a cautious approach:

Could this become a "green golden rule" to exempt green public investment? The debate is open

"The review of the European economic governance framework will include ***a reference to green public investment*** *in the context of the quality of public finance. This will inform a debate on how to improve EU fiscal governance. The outcome of the debate will form the basis for any possible future steps including how to treat green investments within EU fiscal rules, while preserving safeguards against risks to debt sustainability."*[222]

The European Green Deal, 11 December 2019

More recently, the European Commission released its Economic governance review. In the associated Staff Working Document, the European Commission stated that:

"An effective framework needs to ensure the sustainability of public debt where it is most necessary, while ***allowing for macro-economic stabilisation in both good and bad times.*** *[...] In particular, it raises the question of the extent to which t****he fiscal framework could provide flexibility for the public investments needed to meet the broader ambition for a green and digital transformation of Europe****, in line with the objective of the European Green Deal."*[223]

5 February 2020

Fiscal constraints were relaxed during the coronavirus crisis, showing that accounting rules are of secondary importance

Interestingly, the European Commission announced on 20 March 2020, that it would be releasing its rules on public deficit by triggering for the first time the so-called "**general escape clause**" in order to give member states the fiscal flexibility to fight the economic fallout of the coronavirus pandemic. This important step is an unambiguous recognition of the fact that, when it comes to defending the public interest, accounting rules are of secondary importance and should be treated with a sufficient level of flexibility.

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217 BLANCHARD, O., GIAVAZZI, F., "Improving The SGP Through a Proper Accounting of Public Investment'', CEPR Discussion Paper Series N° 422, 2004; BOGAERT, H., "Improving the Stability and Growth Pact by integrating a proper accounting of public investments: a new attempt", Federal Planning Bureau, 2016, 40p.; TRUGER, A., "The golden rule of public investment – a necessary and sufficient reform of the eu fiscal framework?", Hans-Böckler-Stiftung, WP no.168, 2016; FEIGL, G., TRUGE, A., "The Golden Rule of Public Investment Protecting fiscal leeway and public infrastructure in the EU", ETUI Policy Brief N° 12, 2015.

218 EU COUNCIL, "Commonly agreed position on Flexibility in the Stability and Growth Pact", Brussels, 2015.

219 NBB, "Public investments - Analysis and recommendations", National Bank of Belgium, October 2017, p.21

220 EUROPEAN FISCAL BOARD, "Assessment of EU fiscal rules with a focus on the six and two-pack legislation", August 2019, 129p., p.7.

221 SUTTOR-SOREL L., et al., "Game-changer: Financing the European Green Deal", Civil society briefing on financing a faire ecological transition, September 2019, 16p., p.9-10; CLAEYS, G., "The European Green Deal needs a reformed fiscal framework", Bruegel, Blog Post, 10 December 2019; GRANDJEAN, A., COHEN, M., "Dossier- Libérer l'investissement vert!", Fondation Nicolas Hulot,Novembre 2018, 24p.

222 European Commission (2019), 'The European Green Deal', COM(2019) 640 final.

223 Report on the application of Regulations (EU) No 1173/2011, 1174/2011, 1175/2011, 1176/2011, 1177/2011, 472/2013 and 473/2013 and Council Directive 2011/85/EU accompanying the document "Communication from the commission to the european parliament, the council, the european central bank, the european economic and social committee and the committee of the regions, Economic governance review".

III. Governing the transition

Patchy implementation of EU environmental laws is costing up to EUR 80bn a year in lost benefits and it is storing up financial stability risks

The EU's environmental regulation, as distinct from its financial regulation, is already considered to be well structured to address the major nature-related issues, even if it leaves room for substantial improvement.[224] For example, much regulation is not fully implemented leaving gaps between targets and effective policies. The estimated cost and forgone benefits of the non-implementation of seven major policy areas[225] of the EU's environmental regulation range between EUR 29.7 and 79.6 billion per year.[226] However, **the longer we delay enforcing those pieces of legislation, the greater the costs are likely to be in the future**. Breaching tipping points for planet boundaries will have extreme consequences for the stability of the financial system and increase the risks to be borne by the public sector.

The EU's budget is too small to invest enough to meet environmental targets. National public finance is needed

In this regard, significant investments need to be made as quickly as possible to fully reach the environmental objectives of the EU. In a context where nature is a public good and where the short-termism of financial markets is not well-suited to dealing with collective problems, **there is a role for the public sector to be more active in initiating investments**. But even with a strong case for strengthening the scope of EU action, the EU's own budget is too small to fill the investment gap (even if the LIFE budget and overall biodiversity commitment could be reinforced). Therefore, there is also a case for **national public finance** to trigger a transition towards a nature-friendly and sustainable economy.

Triggering such a transition at the level of member states will mean unlocking public investment, but more specifically **it will require assessing the quality of the current public expenditure and ensuring a consistency** across sectors (e.g. avoiding that conservation policies be hampered by intensive agriculture national subsidies) and a coordination across member states.

The EU Semester oversees national public investment for member states

Traditionally, the EU Semester has been the tool through which the EC monitors what it hopes will be sound and coherent public finance (through the Stability and Convergence programme) and encourages structural reforms (through the National Reform programme). But the Semester could – and, we argue, should – achieve more than the narrow and short-term outcomes of 'economic stability and budgetary health'. There is a case for developing a **greener European Semester and for including environmental goals that are compatible with the overall objectives of the Semester**. Currently, environmental goals are included in the Semester but only in a marginal way. Yet the depletion of nature poses the gravest long-term risk for the future stability of national budgets both directly (as a significant part of the cost will be borne by the public sector) and indirectly through the risks to financial stability. Moreover, nature-friendly investments are, in the long term, a strong determinant of economic growth and financial stability.

There is momentum for aligning the EU Semester with environmental goals and several tools available to do so, including:

The idea of greening the European Semester emerged in 2013 when the EC gathered a first expert group. In light of the forthcoming EU Biodiversity Strategy 2030 and the ongoing review of the Semester, there is momentum to deliver a Semester that is aligned with the environmental targets of the Union. **The integration of environmental targets in the monitoring of EU countries' budgets is achievable**. Several tools and processes exist at both the EU and member state level that could be used to build an integrated and greener EU Semester:

224 The European Environmental Bureau in it's priority for the Green Deal and the 8th Environment Action Plan, make several proposals to strengthen the current target related to the preservation of the environment.

225 Namely: "air and noise, nature and biodiversity, water, waste, chemicals, industrial emissions and major accident hazards, and horizontal instruments".

226 MADSEN P. et al. "The costs of not implementing EU environmental law". COWI A/S and Eunomia Research and consulting Ltd. March 2019. European Commission.

...embedding the SDGs and environmental metrics in the EU Semester process;

- A significant amount of EU environmental legislation already contains **concrete and measurable objectives**[227] — e.g. regulations on water, waste and industrial emissions — that could serve as a basis. The Environmental Europe Agency has already developed indicators to monitor progress towards 29 environmental policy objectives.[228]

...using information on countries' implementation of environmental laws as inputs for EU Semester country reports;

- The two-yearly **Environmental Implementation Review**, which was settled in 2016, maps the implementation gap of the environmental regulation for each member state. The last report mapped 28 countries' progress towards environmental targets since 2017 and contains priority actions for each member state. It also contains several reviews and forecasts of "environmental funding and investments" with EU funds as well as "national environmental financing". An enhanced version of those country reports could serve as a basis for a Green EU Semester. This would allow the EC to test the coherence and consistency of budgetary commitments across sectors and across member states.

...including countries' biodiversity policies as inputs to EU semester country reports, alongside their energy and climate plans

- The **National Energy and Climate Plan** (NECP), implemented by the 2018 regulation on the Governance of the Energy Union and Climate Action,[229] requires member states to report their planned policies and measures to meet their national objectives as laid down in the regulations related to the EU Energy Union. According to the regulation, the NECPs should now feed into the EU Semester[230] and will form the basis of the EC's future climate action recommendations in its country specific reports. The idea is "*to maximise consistency and synergies between energy and climate policies and the European Semester, as a key tool to promote structural reforms*".[231] If nature and biodiversity are not included in the Commission's plan,[232] this mechanism provides a way for them to be integrated in economic governance.
- The most concrete achievement so far is the **integration of the 17 SDGs into the EU Semester**. The EU's SDG indicator set, which comprises around 100 indicators structured along the 17 SDGs, provides a framework to monitor the implementation of the SDGs and since February 2020 has been included in the country reports that the Commission publishes as part of the EU semester process.
- Other interesting proposals to reform the EU Semester include relaunching the EU's Growth and Stability Pact as a "Sustainable Development Pact" and creating a scorecard for the Sustainable Development Goals.[233]

227 The 7th Environmental Action Plan has been established on the basis of several targets. See: Annex 3 to the Environment Action Programme to 2020

228 European Environment Agency, "The European environment. State and outlook 2020. Knowledge for transition to a sustainable Europe", 2019; European Environment Agency, "Environmental indicator report 2018 In support to the monitoring of the Seventh Environment Action Programme", 2018.

229 OJ L 328, 21.12.2018

230 Ibid. notably Art.14

231 COM(2019) 285 final. "United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition". 2019.

232 However the Commission made it clear in its Communication that "The links between energy and climate strategies and biodiversity preservation, circular economy, bioeconomy and resource efficiency should be made explicit, identifying concrete measures, assessing their impacts and establishing corrective actions when appropriate.[...] The Commission can help member states to incorporate these aspects in their NECPs, through policy dialogues and sharing of best practice." Cf; COM(2019) 285 final.

233 FEIGL, G., "Economic Governance: Focus on Sustainable Development of Well-Being", AK Europa, Mar. 2020 ; SUTTOR-SOREL, L., GODINOT, S., et al, "Game-changer: Financing the European Green Deal", Finance Watch, WWF European Policy Office, et al, Sep. 2019 ; ERTL, M., FEIGL, G. et al, "THE IMPERATIVE OF SUSTAINABILITY Economic, social, environmental", independent Annual Sustainable Economy Survey, 7th Report, Jan. 2019

Conclusions

If we take care of nature, nature will take care of us

Putting nature on a path to recovery will require large investments in the economy and in conserving and restoring our landscapes. This financing challenge requires a fresh mindset that recognises the value of natural outcomes as much as financial outcomes. It will need policymakers to look beyond markets to public as well as private funding and to recognise the limits and opportunities in each sector.

Much hope is placed in the ability of well-directed private finance to steer businesses to more nature-friendly ways. Regulators are encouraging this process through the sustainable finance programme. Their next step should be to harmonise the way businesses' interactions with nature and biodiversity are measured to make it easier for sustainable investors to influence corporate behaviour.

But we cannot expect too much of private finance, even with better measurement and disclosure. Private finance is generally available only when there is a source of revenue and many, if not most, nature projects do not generate revenue, even if they bring great value to the economy and the environment.

Economic instruments may provide some of the missing impetus. If innovative policy tools and interventions can shift profits from nature-harming activities to more sustainable ones, private finance will soon follow. But evidence so far shows that economic instruments can have unexpected outcomes. It is essential that they are assessed against their primary objectives, which for nature means calibrating them to nature's limitations and screening out the instruments that do not work. This can avoid over-promoting instruments with a poor record of protecting nature, such as biodiversity offsets.

But economic instruments are also limited and often voluntary in nature. In some cases, direct intervention may be the only way to protect nature, for example prohibiting harm at source or using direct public intervention to designate wild natural zones and national parks.

This leaves an increased need for public funding, including blended finance and direct public financing. The EU has some own resources designated for nature but its biggest impact may be to unlock public funding at the national level, including through the EU Semester. To do this, the EU will need to update its system for tracking public spending on biodiversity and take a fresh look at its own constraints on member state spending. Allowing member states to exempt from fiscal rules some of their nature spending, such as spending on the Natura 2000 programme, would be a welcome first step towards a "green golden rule".

One of the lessons from the COVID-19 crisis (in addition to highlighting the fragility of our economy) **is that the EU's fiscal framework can be flexible when lives and economies are at stake.** The threat that our own activity poses to the EU's ecosystems, which support our industry, food and water supplies, is potentially much greater than the COVID-19 pandemic but may, paradoxically, cost a lot less to address if tackled in advance. A smart response to the COVID-19 recession, climate change, and nature crisis would be to address all three problems together in the EU's budget and fiscal framework, with

the emphasis on both recovery and transition. At the time of writing, the Commission and Parliament have already made calls in this direction.[234]

There is political will and public support to act on biodiversity. We look forward to **the EU adopting a strong target-led biodiversity strategy** that will maximise the private sector's contribution without relying too much on it, and **unlock national and EU public funding** at a scale that can reverse the damage that our economy has been inflicting unsustainably on nature.

234 A European Parliament Resolution of 15 April 2020 and speech by European Commission President Ursula von der Leyen on 16 April 2020 both called for the COVID-19 recovery measures to involve the European Green Deal; https://www.europarl.europa.eu/doceo/document/RC-9-2020-0143_EN.html; https://ec.europa.eu/commission/presscorner/detail/en/speech_20_675

Annexes

Annex 1 – Biodiversity offsetting

Biodiversity offsetting can be defined as a **compensatory mechanism used to deal with ecological impacts resulting from economic activities**. The aim is to compensate for biodiversity losses that have occurred at a different time and place. At the European level, there is no clear regulation of biodiversity offsetting yet,[235] although it does appear via the 'no net loss' strategy[236] as a potential tool for conserving the environment. In this context, offsetting is meant to be a last resort approach: a company should first seek to avoid harmful activities, and if that is not possible, it should seek to reduce the harm. In practice, this mitigation sequence is not properly applied.

> *"The first and most important step in the mitigation sequence, avoidance, is ignored more often than it is implemented"* [236]
>
> **Clare.S, Krogman et al., 2011**

Numerous articles have been written on the topic and even the most convinced advocates[238] admit that biodiversity offsetting has limitations, as outlined below, which leaves us rather sceptical about its usefulness as a tool to protect the environment.

Biodiversity offsetting schemes can be divided into three types:

1) **Direct offsetting**: where the company causing the biodiversity loss manages the compensating activity itself.
2) **Indirect offsetting**: where the company causing the biodiversity loss pays a third party to manage the compensating activity.
3) **Habitat banking**: where the company causing the biodiversity loss buys credits from some form of bank that manages the compensating activity. Through habitat banking, offsets projects are turned into assets that can be traded.

Offsetting is often presented as an innovative way of involving the private sector in restoration projects and discouraging companies from harming biodiversity. But there are serious conceptual and practical difficulties with this view.

Conceptual difficulties

- **The illusion of additionality** – in order to add value to biodiversity protection and restoration, offsetting projects need to provide additionality, in other words the compensating activity would not have been carried out otherwise. However,

235 SCHOUKENS, H., and A. CLIQUET, A. "Biodiversity offsetting and restoration under the European Union Habitats Directive: balancing between no net loss and deathbed conservation?". Ecology and Society 21(4):10, 2016.

236 European Aichi target. Action number 7: *"Ensure no net loss of biodiversity and ecosystem services".*

7b) "*The Commission will carry out further work with a view to proposing by 2015 to ensure there is no net loss of ecosystem and their services (e.g. through compensation or offsetting schemes)*"

237 CLARE, S., KROGMAN, N., et al. "Where is the avoidance in the implementation of wetland law and policy?" Wetlands Ecol Manage, 2011, 18p.

238 MCKENNEY, B., KIESECKER, J., "Policy Development for Biodiversity Offsets: A Review of Offset Frameworks", Environmental Management (2010) 45, pp.165–176.

biodiversity offsetting does not necessarily result in new contributions to biodiversity conservation.[239] As summarised by F. Hache[240] since we are unable to build a solid counterfactual scenario of what would have happened without the offsetting scheme, proving that conservation or restoration operations would not have been carried out without the offsetting scheme is very difficult, if not impossible.

- **No equivalence between ecosystems** – biodiversity offsetting schemes are based on the assumption that the area being harmed and the area being restored or conserved are equivalent in biodiversity terms. This assumption ignores one of the most fundamental features of ecosystems: their complexity.[241] Furthermore, biodiversity is, as the name implies, diverse, and therefore the notion of true equivalence between two ecosystems is simply unrealistic. In economists' terms, ecosystems are highly heterogeneous and can never be perfect substitutes for each other.
- **Reversibility** – A matter of concern is the hypothesis of reversibility, i.e the belief that we can properly evaluate losses, and reverse them to the same extent. However the assumption that we can precisely estimate the damages done, and then fully or partially restore them, is far from being proved.[242]
- **Proximity between the places involved** – one might argue that a close proximity between the harmful activity and the compensating activity reduces the harm, perhaps because the habitats are similar. However, this does not change the fact that the destruction and the compensation sites are different places and the particular biodiversity lost is gone forever. Even if the destruction and restoration were done in the exact same spot, the lost biodiversity could never be replicated exactly.
- **Time lag between damage and compensation** – biodiversity offsets are normally required after the initial damage has been done and assessed. It might be an improvement to call for compensation before any damage is done but, either way, destroying nature is much faster and easier to do than restoring it: there is a time lag that can take years between the destruction and restoration of nature.
- **Creating harmful dependencies** – a paradox of offsetting is that it can prolong the harmful activity it is designed to compensate for. This is because, in order to have economic value, biodiversity offsets need environmental damage to be occurring somewhere. The mechanism means that nature conserving activities become dependent upon nature destructive activities,[243] thus slowing the transition away from such activities.

Practical difficulties

Theoretical gaps are not the only problem with biodiversity offsets. There are several practical limitations on their usefulness.

239 "Burgin (2010) also found that 'there have been over 16,000 hectares of conservation banks developed under US mitigation schemes, but 75% or more would probably have been developed even without legislation to mitigate loss." HACHE, F., "50 Shades of Green : The fallacy of environmental markets", Green Finance Observatory, May 2019, 92 p.

240 "the same high scientific complexity, uncertainty and incomplete scientific knowledge that prevent us from measuring accurately ecosystem services also prevent us from setting up robust alternative biodiversity scenarios" Ibid

241 "most biodiversity offsets compensate for one or just a few dimensions of biodiversity, (...) it can be difficult to achieve full equivalence between the impact and the biodiversity offset" GONCALVES.B et al."Biodiversity offsets: from current challenges to harmonized metrics" Current Opinion in Environmental Sustainability Volume 14, June 2015, Pages 61-67.

242 SUDING, K., "Toward an Era of Restoration in Ecology: Successes, Failures, and Opportunities Ahead", The Annual Review of Ecology, Evolution, and Systematics, 2011, 42, pp.465–87.

243 O'NEILL, J., "Life Beyond Capital", CUSP essay series on the Morality of Sustainable Prosperity, No 6, 2017.

- **The unrespected mitigation hierarchy** – offsetting should be understood as the last step in a mitigation sequence: avoid the harm, then reduce the harm, and only then offset the harm. However, this hierarchy is often not respected.[244] In France, there is no binding regulation to enforce the first two steps of avoidance and reduction.[245] Even in the USA, where biodiversity offsetting and the idea of a mitigation hierarchy started, the "avoiding" and "minimising" steps are not enforced correctly.[246] By promoting offsetting through the Natural Capital Financial Facility (NCFF) without appropriate regulation, the EU is navigating in dangerous waters.
- **Very poor track record** – given these limitations, it is no surprise that studies find biodiversity offsetting an ineffective conservation tool. The results of offsetting experiences in Australia,[247] Canada,[248] and the USA[249] show clearly that biodiversity offsetting is useless, if not harmful, for nature conservation. The IPBES also questions the efficiency and relevance of biodiversity offsetting[250] and has made a strong statement on the topic: "Offsetting can give the illusion of effective prevention of land degradation. More broadly, there is a risk of giving the illusion that economic development can nearly always be reconciled with environmental protection. Indeed, compensation can be an ecological solution since the degradation of one land will be compensated by the restoration of another, despite the fact that, in any event, land will ultimately be degraded. Moreover, it is based on a short-term logic since it assumes that there will always be a quantity of land available to compensate for past degradation."[251]

> ***"The conclusion was, that despite attempts at offsets, the net loss of habitats was 99% of the ecological values of the impacted wetland environments"***
>
> **Nordic Council of Ministers [252]**

Faced with both conceptual and practical limits, we believe **biodiversity offsetting is, at best, an unreliable tool and should not be promoted**. Offsetting can be ironically described as a buyable right to destroy biodiversity.[253] Rather than a last resort solution, it usually becomes the first resort solution: reducing the harmfulness of projects by increasing their costs, environmental compensation becomes a license for projects to go ahead that would have been rejected under a robust system of environmental regulation.[254] This will

244 "However, the mitigation hierarchy is not always effectively followed [3,32]." and "Requirements for measures of impact avoidance were particularly overlooked" ,GONCALVES.B, et al. "Biodiversity offsets: from current challenges to harmonized metrics'', Current Opinion in Environmental Sustainability Volume 14, June 2015, Pages 61-67

245 QUÉTIERA.F et al. "No net loss of biodiversity or paper offsets? A critical review of the French no net loss policy", Environmental Science & Policy, April 2014, Volume 38, Pages 120–131 ;

246 CLARE.S, KROGMAN.N et al "Where is the avoidance in the implementation of wetland law and policy?" Wetlands Ecol Manage, 2011, 18p.

247 Nature Conservation Council "Paradise lost: The weakening and widening of NSW biodiversity offsetting schemes 2005-2016", pp.23-72 2016.

248 MOILANEN, A., and KOTIAHO, J., "Planning biodiversity offsets", Nordic Council of Ministers 72p.

249 GARA, B., et al, "Assessment of wetland mitigation projects in Ohio, Volume 1 : an ecological assessment of Ohio individual wetland mitigation", January 2011, 125p.

250 "As a result, the effectiveness of offsets or compensation mechanisms to stop biodiversity loss remains debatable" IPBES (2018): The IPBES regional assessment report on biodiversity and ecosystem services for Europe and Central Asia.

251 Ibid, p.615

252 MOILANEN, A., and KOTIAHO, J., "Planning biodiversity offsets", Nordic Council of Ministers, 72p.

253 "Essentially, biodiversity offset markets can be described as markets for real estate developers and infrastructure companies where they can trade permits to destroy biodiversity" HACHE, F., "50 Shades of Green : The fallacy of environmental markets", Green Finance Observatory, May 2019, 92 p.

254 BROCK, A.C., "Conserving nature power: An exploration of biodiversity offsetting in Europe and beyond", University of Sussex, May 2018, 271p .

not be solved by improving the regulation around offsets because the damage occurs when offsets undermine environmental regulation, such as birds and habitat directives.[255]

Hence, biodiversity offsetting should be strictly limited and used only as an emergency mechanism in specific cases, not as a mainstream instrument to restore and conserve nature. In any case, the priority should be to ensure that the mitigation hierarchy is respected and to challenge projects more directly before they cause biodiversity loss.

255 CLIQUET, A., "Biodiversity offsetting and restoration under the European Union Habitats Directive: balancing between no net loss and deathbed conservation?", Ecology and Society, 2016.

Annex 2 – Payment for ecosystem services

While there is no formal definition in literature, payment for ecosystem services (PES) can be defined as economic mechanisms to remunerate providers of ecosystem services. The underlying idea comes from classical economics with the will to reward positive externalities, such as the protection or conservation of ecosystems and its services. A report by EY describes the aim of PES as "*to incite environmentally-favourable practice by translating non-market benefits of environmental services (ES) into financial transfers from ES beneficiaries to providers*".[256] There is some debate around the voluntary and market-based nature of PES, which often involves governmental intervention and public payment schemes. Further, PES appears to suffer from some of the same pitfalls as biodiversity offsetting.[257]

- **Additionality** – as with offsetting, in order to prove that a PES leads to additional conservation activity (more than would have occurred without it) one has to construct a counterfactual scenario for which there is no consistent methodology.[258] Furthermore, PES are often implemented for land with a low potential return on investment.[259] In other words, PES are used more to create a revenue stream on land which would otherwise be unprofitable than to protect key endangered areas.
- **Lack of assessment methodology** – there is also no consistent methodology for assessing PES which means that they are not properly monitored.[260] They are often ineffective from an ecological perspective[261] and do not fulfil their primary objective to channel new funding toward restoration and conservation activities.[262]
- **Ignoring the complexity of nature** – by design, PES are focused on making ecosystem services economically viable and thus fail to understand the complexity of nature and the ecosystems on which these services depend.[263] Therefore, PES schemes can be more focused on economic income than on protecting biodiversity and may even have a negative impact on biodiversity.[264] They also encourage ecosystem services providers to focus on one specific ecosystem service, such as ecotourism, instead of understanding ecosystems from a broader angle.[265] The need to build a business case for the ecosystem service could lead providers to ignore the needs of the ecosystem itself.

256 EY, "Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget" EY for the EC, June 2017, pp.120-232.

257 However it should be noted that "the implications of biodiversity offsetting failure for biodiversity are stronger for biodiversity offsetting than for PES, given that the former entails a direct, and often locally irreversible frontloaded loss of biodiversity, while the latter can be flexibly be interrupted whenever the parties would no longer agree on a service provision contract". VAISSIERE, A.C., et al. "Biodiversity offsets and payments for environmental services: Clarifying the family ties" 2020, Ecological Economics, Volume 169.

258 "Additionality requires that payments are made only for actions over-and-above those which actors would generally be expected to undertake in a "business as usual" scenario. In reality, some real-world PES projects may lack additionality compared to baseline scenario.". Ibid p121.

259 "A strong driver of enrolment in PES programmes is the lack of profitable alternative uses for the land", MITEVA, D., PATTANAYAK, S., "Evaluation of biodiversity policy instruments: What works and what doesn't?" Oxford Review of Economic Policy · October 2012, 25p

260 " In practice, such monitoring and reporting is not adequately conducted in many PES cases which means the strict conditionality criteria is rarely met" EY report p121.

261 "Calvet-Mir et al. reviewed 30 articles assessing environmental effectiveness and/or equity outcomes in PES programs, and found widely-varying judgements of outcomes by authors of the reviewed articles, especially with regard to ecological effectiveness" Submission to the CBD consultation for perspectives on the Resource Mobilization Strategy, University of British Columbia.

262 "In other words, PES for biodiversity has been hampered by the same lack of funding that limits other strategies for biodiversity conservation, raising questions about its viability as a strategy for channeling significant new resources into this area" Ibid.

263 "PES programs tend to focus on a single ecosystem service (such as carbon sequestration or water regulation, or in cases of biodiversity, on a single charismatic species), which can undermine the complexity necessary to support biodiversity" ibid.

264 "where biodiversity is not the explicit goal of PES these programs may negatively impact biodiversity" Ibid.

265 " This means that ecologically significant but non-charismatic or geographically-remote species are unlikely to benefit from PES finance or ecotourism revenues" ibid.

Moreover, PES are in fact mostly public grants[266] or subsidies, which questions the need for such a new "fancy" word for traditional policy instruments. It only highlights the absence of a business case for private investors.

The same logic behind offsetting also underlies PES. The very name "payment for economic services" **creates the illusion that an economic market is possible** for ecosystem services provided they receive a boost from public institutions. Yet, as we saw, PES are mostly public subsidies because **without public intervention, no one is willing to pay for those services**. Public subsidies for positive externalities have always existed for perfectly good reasons, however, we should not muddy the waters by using a name that pretends to be something else. PES, like offsetting, is a way of hiding the trade-offs that exist between nature and resource-based economic growth, with the consequence that these trade-offs are not confronted. Subsidies should be called subsidies, and when a choice between environmental protection and economic activities needs to be made, it can be discussed openly, which would probably be to the benefit of nature.

266 "Research by Milder et al. (2010) (...) notes that the participation of public funding in PES schemes amounts to 90% and this figure rises to 99% in PES schemes oriented at public goods." GÓMEZ-BAGGETHUN.E, MURADIAN.R "In markets we trust? Setting the boundaries of Market-Based Instruments in ecosystem services governance", Ecological Economics 117, 2015, pp.217–224.

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