



Sustainable Finance

Introduction to the EU Taxonomy on Biodiversity and Ecosystems

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About FÖS

Forum Ökologisch-Soziale Marktwirtschaft (FÖS) has been researching and disseminating information about the potential and benefits of environmental fiscal reform (EFR), the application of market-based instruments (MBI) and the removal of environmentally harmful subsidies for more than twenty years. FÖS is widely recognized among policy-makers, NGOs, companies

and trade unions for its expertise in fiscal instruments, environmental and climate policy and foremost for its capacity to evaluate and develop policy proposals in the field of EFR. Over the last years FÖS has led and participated in numerous research projects and has a proven track record in the development, analysis and evaluation of environmental policies.

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Introduction to the EU Taxonomy on Biodiversity and Ecosystems

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Executive Summary

This report is an **introduction to the EU Taxonomy**, its relevance, primary goals and design. Its purpose is to help environmental experts **to understand the development, structure and mode of operation of the EU Taxonomy**. The EU Taxonomy is a classification system for sustainable economic activities. Its overall goal is to **create transparency and disclose the impact of investments**. The Taxonomy aims **to enable the financial system to guide investment decisions into a more sustainable direction**.

The European Commission is currently translating the environmental objective of protection and restoration of biodiversity and ecosystems (and three other objectives of the Taxonomy) into criteria upon which the sustainability of an investment is evaluated. Therefore, it develops criteria to measure substantial contribution to the objective of biodiversity and ecosystems, as well as for significant harm (“do no significant harm” (DNSH) criteria). This report uses examples from key sectors to illustrate the application of the Taxonomy and highlights tasks in the further development of the Taxonomy. Its intention is not to make recommendations to the ongoing process within the EU-Sustainable Finance Platform or to present in detail all issues involved in the development of criteria, but **to enable readers to follow and engage in the ongoing development of the Taxonomy**.

The topic of biodiversity and ecosystem protection and restoration is complex and depends on local contexts. Therefore, it is difficult to define a specific overarching goal, which guides the development of points of references and criteria. It might make more sense to define several more specific goals for different levels of biodiversity.

This report outlines **seven key industries and sectors** in which challenges and opportunities of protection and restoration of biodiversity and ecosystem

are highest. We use one of them (**the agriculture sector**) as example to point out key questions regarding the development of criteria for significantly distribution and DNSH.

WWF (2020) proposes that economic activities can contribute substantially to the biodiversity/ecosystem objective in three ways: 1. **Enhancing the preservation and restoration** of biodiversity and ecosystems, 2. **Reducing pressures** on natural resource consumption **or threats** to biodiversity and ecosystems or 3. **Enabling other activities** to reduce environmental pressure. This report points out examples for economic activities in the agriculture sector falling in these categories and presents proposals made by the TEG or environmental organisations for the definition of points of reference for substantial contribution and DNSH criteria.

In a last step, it gives examples of activities that might be excluded from consideration under the Taxonomy as they are incompatible with the biodiversity/ecosystem objective. The examples and suggestions presented in this report serve as a starting point for the continuous engagement with the taxonomy. It does not present a list of recommended criteria.

The ability of the Taxonomy to successfully guide economic activities into a more sustainable direction is dependent on whether the criteria for being taxonomy-compliant are ambitious and science-based. **Ambitious enough to lead to greater sustainability** than the status quo and **yet rooted in science and recent authoritative scientific research**.

It will be a critical task for readers and the non-governmental community to accompany the development of the Taxonomy and make sure that the application criteria, thresholds and benchmarks are actually in line with science, and are being **regularly reviewed and strengthened over time according to newest research**.

Zusammenfassung

Dieser Bericht ist eine **Einführung in die EU-Taxonomie** und geht auf ihre Bedeutung, ihre Hauptziele und ihren Aufbau ein. Er soll Umweltexpert*innen **als Hilfestellung dienen, um ein Verständnis für die Entwicklung, Struktur und Funktionsweise der EU-Taxonomie zu entwickeln**. Die EU-Taxonomie ist ein Klassifizierungssystem für wirtschaftlich relevante Aktivitäten. Ihr übergeordnetes Ziel ist es, **Transparenz zu schaffen und die Auswirkungen von Investitionen** offenzulegen. Die Taxonomie soll das Finanzsystem in die Lage versetzen, Investitionsentscheidungen in **eine nachhaltigere Richtung zu lenken**.

Die Europäische Kommission arbeitet momentan daran, das Umweltziel des Schutzes und der Wiederherstellung von Biodiversität und Ökosystemen (und drei weitere Ziele der Taxonomie) in messbare Kriterien zu übersetzen, anhand derer die Nachhaltigkeit einer Wirtschaftsaktivität bzw. Investition bewertet werden kann. Dazu werden Kriterien entwickelt, die den **substantziellen Beitrag** einer Wirtschaftsaktivität zum Ziel des Biodiversitätsschutzes erfassen können. Zudem sind Kriterien notwendig, um einen **signifikanten Schaden** für das Ziel des Biodiversitätsschutzes abzubilden ("do no significant harm" (DNSH) Kriterien). Dieser Bericht stellt anhand von Beispielen aus relevanten Sektoren die Anwendung der Taxonomie dar und zeigt Potenziale für ihre Weiterentwicklung auf. Dabei sollen weder klare Empfehlungen für den laufenden Prozess innerhalb der EU-Sustainable Finance Platform ausgesprochen werden, noch auf alle Aspekte der Entwicklung von Kriterien in Detail eingegangen werden. Der Bericht soll den Leser*innen vielmehr ein Grundverständnis der Taxonomie ermöglichen, um sich in Zukunft in den weiteren Ausgestaltungsprozess einbringen zu können.

Der **Biodiversitäts- und Ökosystemschutz** ist komplex und stark geprägt von lokalen Gegebenheiten. Daher ist es schwierig, ein übergreifendes Ziel zu definieren, von welchem solche Kriterien abgeleitet werden können. Anstatt ein einziges, übergreifendes Ziel definieren zu wollen, könnte es im Rahmen der Taxonomie daher sinnvoller sein, mehrere spezifischere Ziele für die verschiedenen Ebenen der biologischen Vielfalt zu definieren.

Dieser Bericht skizziert sieben Industrien und Sektoren, in denen die Herausforderungen und Chancen für den Schutz und die Wiederherstellung der biologischen Vielfalt und des Ökosystems am größten

sind. Anhand eines dieser Sektoren (dem Landwirtschaftssektor) wird beispielhaft auf Schlüsselfragen bei der Entwicklung der Taxonomie-Kriterien hingewiesen.

Der WWF (2020) schlägt vor, dass wirtschaftliche Aktivitäten **auf drei Arten substantiell zum Biodiversitäts-/Ökosystemziel beitragen können**: 1. Durch eine aktive Förderung von Erhalt und Wiederherstellung von Biodiversität und Ökosystemen, 2. Durch eine Verringerung des Drucks auf den Verbrauch natürlicher Ressourcen oder der Bedrohung von Biodiversität und Ökosystemen oder 3. Durch das Ermöglichen anderer Aktivitäten zur Reduzierung von Umweltbelastungen.

Beispielhaft wird darauf eingegangen wie wirtschaftliche Aktivitäten in der Landwirtschaft in diese drei Kategorien eingeordnet werden können. Zudem werden **Vorschläge der TEG sowie von Umweltorganisationen** zur Entwicklung der Taxonomie-Kriterien in diesen beiden Sektoren dargestellt. In einem letzten Schritt werden Beispiele für Aktivitäten genannt, die von der Taxonomie grundsätzlich als „nicht-nachhaltig“ eingestuft werden sollten, da sie mit dem Ziel der Biodiversität/des Ökosystems unvereinbar sind. Die in diesem Bericht vorgestellten Beispiele und Vorschläge dienen als Ausgangspunkt für die weitere Auseinandersetzung mit der Taxonomie. Sie sind ausdrücklich nicht als Liste von Empfehlungen gedacht.

Inwiefern die Taxonomie wirtschaftliche Aktivitäten erfolgreich in eine nachhaltigere Richtung lenken wird, hängt davon ab, ob die Kriterien für die Taxonomiekonformität ambitioniert und wissenschaftlich fundiert sind. Die Kriterien für die Einhaltung der Taxonomie müssen **ehrgeizig genug** sind, um tatsächlich eine nachhaltige Entwicklung vorantreiben zu können. Gleichzeitig müssen sie **in der Wissenschaft und neueren maßgeblichen wissenschaftlichen Untersuchungen** verwurzelt sein.

Es wird eine herausfordernde Aufgabe für die Leser und die nichtstaatliche Gemeinschaft sein, die Entwicklung der Taxonomie zu begleiten und sicherzustellen, dass die Anwendungskriterien, Schwellenwerte und Benchmarks **tatsächlich im Einklang mit der Wissenschaft stehen und im Laufe der Zeit entsprechend der neuesten Forschung regelmäßig überprüft und verstärkt werden**.

1 Scope and goals of this report

This report is an **introduction to the EU Taxonomy**, its relevance, primary goals and design. Its purpose is to help experts from various environmental fields and other interested readers **to understand the development, structure and mode of operation of the EU Taxonomy**.

The report discusses how the environmental objective of the protection and restoration of biodiversity and ecosystems is translated into criteria – both for a substantial contribution to an environmental objective as well as for the assessment of the “do no significant harm” (DNSH) principle. It uses examples from key sectors to illustrate the application of the Taxonomy and to highlight tasks in the further development of the Taxonomy. This shall **enable experts to take part in the political debates on the development of the Taxonomy** in 2021 and in the future.

Its **purpose is not** to outline **what the Taxonomy**, its points of reference and criteria, **should look like in key sectors**. Even attempting to do so would overwhelm the scope of this paper¹. It aims at helping readers to understand the Taxonomy’s mode of operation and enable them to follow and engage in its further development.

2 Introduction to the EU Taxonomy

2.1 Overall goal of the Taxonomy

The EU Taxonomy is a classification system for sustainable economic activities. **Its overall goal is to create transparency and disclose the impact of investments**. It is part of the EU Action Plan Financing Sustainable Growth (European Commission 2018). The Taxonomy aims **to enable the financial system to guide investment decisions into a more sustainable direction** and thus **accelerate the transition to a circular economy** in Europe and beyond².

The EU Taxonomy will affect a number of actors directly or indirectly. **Companies** that are already required to provide non-financial information (under

the CSR-Directive) will have to disclose the share of their Taxonomy-aligned activities. For them, the EU Taxonomy is improving access to capital for investments in (more) sustainable economic activities. It helps them measure the sustainability of a particular investment and gradually increase the share of a company’s sustainable economic activities (i.e. in line with the Taxonomy). In order to serve these purposes, the Taxonomy needs to define sustainable economic activities. It is very important to note that it does not assess companies but only economic activities³.

Further, the Taxonomy affects **financial market participants** who are offering sustainable finance products. It will help them to avoid investments in greenwashing and support institutional investors (such as insurance companies or pension funds) to invest their long-term capital in sustainable economic activities, thus accelerating the transition to a more sustainable economy. For private persons interested in how “their money” is invested, the Taxonomy makes it easier to identify which banks or funds are most compliant with the Taxonomy. It enables them to move their capital to banks with the highest level of sustainability (i.e. highest taxonomy compliance). In essence, the taxonomy can spur a “virtuous cycle”⁴ toward greater sustainability.

Further, the EU Taxonomy could be used to define green financial products via the EU Ecolabel or EU green bond standards (DIW 2020).

In total, the EU Taxonomy has six environmental objectives, which help to define sustainable economic activities (see Figure 1).

¹ The nearly 600 page technical annex outlining technical screening criteria for the substantial contribution and DNSH to the environmental objectives of climate change mitigation and adaptation in all relevant sectors is an indicator for the complexity of the matter.

² While the Taxonomy’s reach is by definition European, it aims to ensure the harmonization of taxonomies worldwide. To that end, the EU has initiated with

the IMF & World Bank the International Platform on sustainable finance (European Commission).

³ This is important as the gradual transition is taking place within a company.

⁴ Opposed to the concept of „vicious cycle“ of competition based on lower environmental standards, the Taxonomy’s transparency approach promises competitive advantages for those companies, banks, etc. that act more sustainably.

Figure 1: Six environmental objectives established by the Taxonomy (Article 9 of the Regulation)



Source: EU Technical Expert Group on Sustainable Finance (TEG 2020a)

2.2 Process and timeline

The EU Taxonomy is a two-level regulation: it consists of the Taxonomy regulation (level 1) and subsequent delegated acts (level 2). Figure 2 presents the timeline of the whole process.

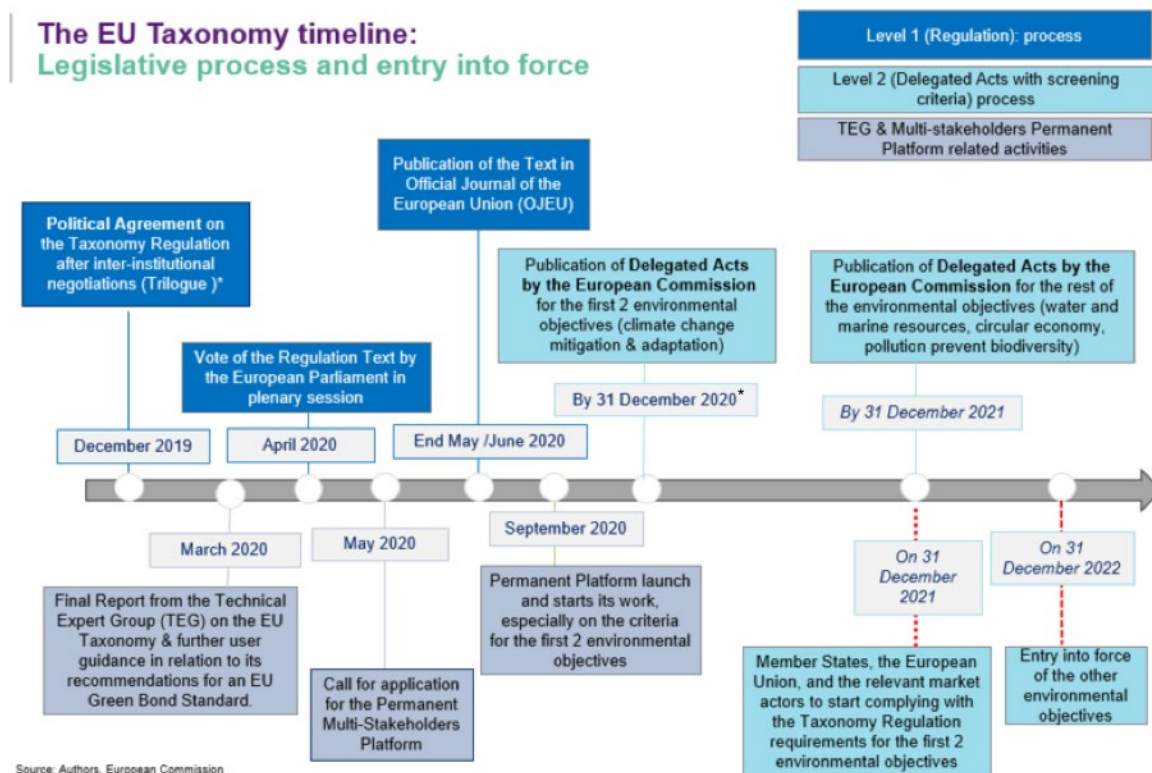
The Taxonomy Regulation was published on 22 June 2020 and entered into force on 12 July 2020. The environmental objectives are translated into criteria (technical screening criteria) to evaluate the sustainability of an economic activity. The development of these criteria requires a lot of attention to detail. They are subsequently developed and adopted as delegated acts.

The draft delegated act for the first two environmental objectives (climate change mitigation and adaptation) was foreseen to be published by the European Commission in December 2020 and is now, with a delay of four month foreseen to be published in April 2021, The Technical Expert Group (TEG) on Sustainable Finance played a crucial role in this process and published recommendations for criteria for these two objectives in March 2020 (TEG 2020a).

The draft delegated acts for the remaining four environmental objectives are expected to be published in December 2021. The Platform on Sustainable Finance is advising the European Commission in this process. This platform is composed of a wide range of stakeholders from the private and public sector including private stakeholders from financial, non-financial and business sectors, academia, NGOs, civil society and public institutions (European Commission 2021).

The Taxonomy is expected to go into force for the first two environmental objectives by the end of 2021, and for the remaining four objectives by the end of 2022 (see Figure 2), the Taxonomy will be fully operational by 2023.

Figure 2: The EU Taxonomy timeline



* The delegated act for the first two environmental objectives was foreseen to be published by the European Commission in December 2020 and is now foreseen to be published in April 2021.

Source: (NATIXIS 2020)

2.3 Development of criteria

According to the Taxonomy Regulation, an economic activity is considered taxonomy-compliant if it:

- makes a **substantial contribution** to at least one of six environmental objectives,
- **does no significant harm** (DNSH) to the other environmental objectives (where relevant),
- and meets **minimum safeguards**, e.g. with regard to social and human rights.

Figure 3: Requirements for compliance with the Taxonomy



Source: own depiction based on Article 3 of the Taxonomy Regulation

In order to evaluate an economic activity, criteria are necessary to assess whether it contributes substantially to an environmental objective and to ensure that such an economic activity does not create significant harm to another objective at the same time.

Figure 4 below illustrates how **environmental objectives** are translated into precise criteria to assess economic activities.

First, environmental objectives are translated into overarching goals, such as the “net-zero CO₂-emissions by 2050 and a 50-55% reduction by 2030” goals on EU-level for climate mitigation (cp. TEG 2020a). These serve as the basis for the development of specific criteria.

Secondly, **sectors** are identified that are of particular relevance for each environmental objective. In these sectors, criteria are developed that can measure the contribution of economic activities to the overarching goals in this particular sector.

The third step differentiates how an economic activity contributes to the overarching objective. It distinguishes different **types of substantial contribution**. For the objective of climate change mitigation, the

TEG (2020) differentiates between three types of substantial contribution:

1. **“Green activities”**: These activities directly contribute to the overarching target as they have already very low or no greenhouse gas emissions.
2. **“Greening of activities”** or “transitional activities”: These activities support the transition to a carbon-neutral economy as there does not exist an environmentally sustainable activity yet⁵.
3. **“Enabling activities”**: These activities enable another economic activity to contribute to climate mitigation. An example is the production of certain product components, which improve the environmental performance of an activity.

In a fourth step, **points of reference** are developed to distinguish different aspects that are relevant to a type of contribution. They also serve as a basis for the selection (or development) of specific criteria.

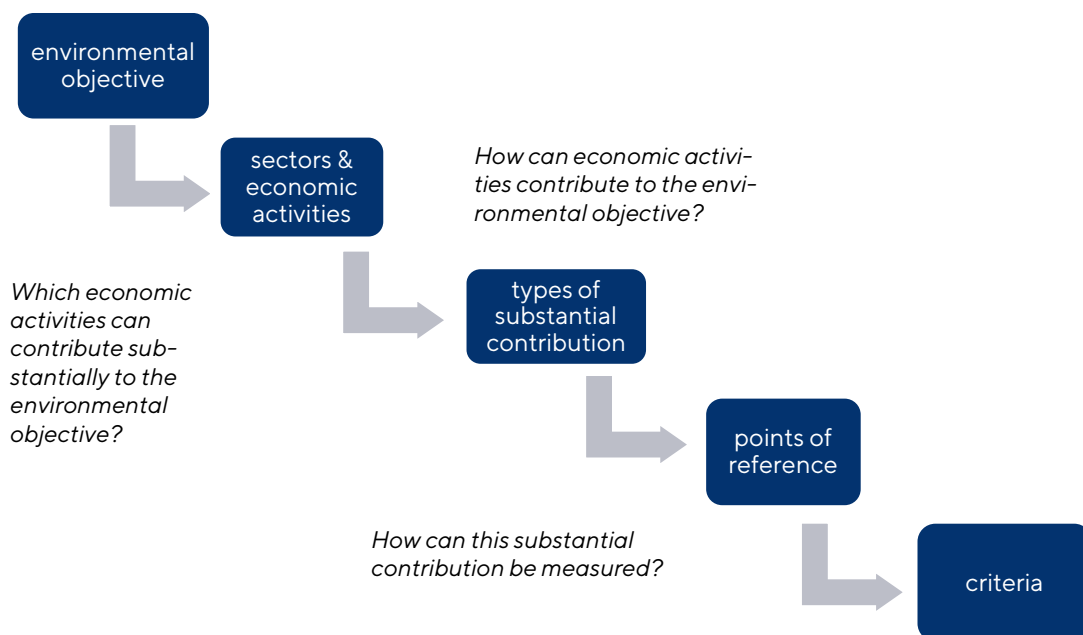
Fifth, the **criteria** derived from the previous steps allow answering the question whether an economic

activity can be considered compliant with the Taxonomy. Criteria can be either qualitative or quantitative. Typically, they consist of three components: principles, metrics, and associated thresholds. An example on climate mitigation in cement production is outlined in (Germanwatch, E3G 2020):

1. **Principles**: The emissions from cement production must be minimized
2. **Metrics**: Specific emissions of production (in tCO_{2e} per ton of cement produced)
3. **Thresholds**: 0,498 tCO_{2e} per ton of cement produced for substantial contribution⁶

Whereas the threshold for substantial contribution must ensure that economic activities significantly enhance the environmental objective in question, the DNSH threshold is set lower. Its purpose is to ensure that economic activities, which substantially contribute to another environmental objective, do not do significant harm to other environmental objectives (as defined by the DNSH criteria & thresholds).

Figure 4: Development of criteria



Source: own depiction

⁵ Examples are activities that still produce greenhouse gases, but significantly lower than with previous technologies and lead to a transition towards climate-neutrality – e.g. in cement production or car manufacturing, etc.

⁶ For DNSH, the criteria are not quantitative, but qualitative. The technical annex stipulates that economic activities would need to be either: (1) proven to be

aligned with an internationally recognised method for determining low carbon transition pathway or (2) (...) lower than the average global emissions (based on emission performance standard determined by internationally recognised data) for that economic activity (EU Technical Expert Group on Sustainable Finance 2020)

2.4 Review and strengthening of criteria over time

The Taxonomy shall serve as a tool to distinguish sustainable from non-sustainable economic activities. For companies, it should serve as a transition tool to increase the sustainability of their operations over time. This idea of continuous improvement toward greater sustainability underscores the need to regularly review and update the Taxonomy's criteria⁷. Criteria that are connected with political goals that have a certain date (e.g. to achieve a certain threshold by a certain year) can require an updating the criteria. Similarly, as overarching goals for environmental objectives are strengthened over time, the criteria to assess economic activities must be updated accordingly. There is no fixed schedule for the review of criteria, but the TEG has signalled a recommended trajectory for many of the quantitative climate change mitigation criteria.

The TEG emphasised the need for the Taxonomy to be predictable and therefore suggests to review criteria that are relevant for "transitional activities" every third year (Platform on Sustainable Finance 2020).

2.5 How to use the Taxonomy

When assessing economic activities and their compliance with the Taxonomy, it is key to keep in mind possible trade-offs between different environmental objectives (for substantial contribution and DNSH). An economic activity might substantially contribute to one environmental objective, and yet causes significant harm to another. Such activities do not comply with the Taxonomy-Regulation.

We use two sets of examples to illustrate how the Taxonomy helps to identify sustainable economic activities in practice. The first two are examples on climate mitigation, for which criteria have already been developed by the TEG (EU Technical Expert Group on Sustainable Finance 2020). The latter two are hypothetical examples that illustrate possible trade-offs and how the Taxonomy logic would be consequently applied to them. The criterion of minimum safeguards is not explicitly addressed in this report.

⁷ Thus, the TEG report describes it as a dynamic, flexible tool: "The Taxonomy design includes quantitative criteria wherever possible so that solutions can be specified by the market and evolve over time. Criteria which

2.5.1 Practical examples on climate mitigation

Manufacturing of cement

A company produces cement in five plants. Two of the five cement plants emit less than 0,489 tons of CO₂ on average in the production of one ton of cement. Therefore, they operate below the relevant threshold value and **contribute substantially** to climate change mitigation.

In order to be taxonomy-compliant, these two plants must **do no significant harm** to any of the other five environmental objectives. One of these plants is located in an area with a precarious water situation. Due to its high water consumption, cement production of this plant is detrimental to the goal of sustainable use of water resources and thus not taxonomy-compliant, while the other plant, being located in an area with sufficient water supply, does not significantly harm this environmental objective.

In conclusion, one of the five plants is considered a sustainable economic activity according to the Taxonomy. Depending on how much this plant is producing and contributing to the company's sales, this percentage of the company's sales would be taxonomy-compliant (BMW 2020).

Production of offshore wind energy

A company produces offshore wind energy. According to the Taxonomy, this economic activity **is substantially contributing** to climate change mitigation.

However, the production and operation of offshore wind energy may do **significant harm** to biodiversity, especially if badly sited (NABU/BirdLife 2020). The company must ensure that underwater noise emitted during the construction and operation of the wind turbines stays within permissible limits to ensure protection of local marine biodiversity and avoid negative impacts on ecosystems such as the bird habitat (regarding the biodiversity/ecosystem-goal) (Germanwatch, E3G 2020).

2.5.2 Hypothetical examples related to the circular economy and biodiversity

The following examples are hypothetical examples intended to illustrate how economic activities that are substantively contributing to one environmental objective may conflict with others. They illustrate why it is necessary to evaluate the substantive contribution of

should be tightened later have been signalled in advance to provide predictability to markets, while offering a clear review mechanism for the future Platform on Sustainable Finance." (TEG 2020a)

an economic activity as well as whether it harms other environmental objectives.

Greater use of materials from biomass

One approach to advance the circular economy is the wider use of biomass materials as substitutes for conventional materials that are environmentally harmful and hard to recycle (e.g. timber in construction). Their use could make a **substantial contribution** for the transition to a circular economy.

However, expanding the production of such materials puts stress on ecosystems such as forests or croplands⁸. Therefore, this could also negatively impact ecosystems and violate the **do no significant harm** criteria regarding the protection of biodiversity and ecosystems.

An app for more clothes sharing

Digital tools that enable us to use products collectively, for a longer time or more intensively, can be important components of and make a **substantial contribution** to a circular economy in line with the EU Waste Hierarchy. A number of digital tools for sharing or re-selling already exist. In the apparel sector such digital tools are already established.

While such platforms are likely to contribute to a more circular use of clothes, they could also support the “fast fashion” trend and thereby cause an even higher speed of circulation of clothes along with increased resource needs for packaging and transport emissions. Therefore, a thorough assessment of such an app would have to consider both its contribution to the circular economy and the fulfilment of the **do no significant harm criteria**.

3 The Taxonomy on biodiversity and ecosystems

Resilient ecosystems and healthy biodiversity are important to prevent threats to society and the global economic system. A recent study estimates that **around US\$ 44 trillion of economic value generation is directly dependent on ecosystem services**. This is more than half of the world’s current total GDP (World Economic Forum/PwC 2020).

Protecting and restoring biodiversity and ecosystems contributes **to climate change mitigation and adaptation**. Conversely, actions to mitigate climate change also contribute to the stability of ecosystems. Agricultural systems, which are affected by climate change and therefore face losses in resilience, show these links

clearly (UNEP 2020). Economic activities contributing significantly to resilient ecosystems and biodiversity are in many cases direct investments in climate change mitigation and adaptation.

This paper aims to contribute to informing environmental experts to better understand the development of criteria for significant contribution and DNSH for the environmental objective of ecosystems and biodiversity. We closer examine key questions for an example sector from crucial relevance (agricultural sector).

3.1 Overarching goals

The Paris Agreement formulates the overarching goals on climate mitigation and is being referenced in the Taxonomy Regulation and the development of criteria for the climate objectives.

For the protection of biodiversity and ecosystems there also exist overarching goals on a global level. Such overarching goals are the UN Convention on Biological Diversity (CBD) expired Aichi Biodiversity Targets and its post-2020 framework, the EU-Biodiversity Strategy, the UN Sustainable Development Goals (SDGs), especially Goal 14 and 15, or the EU Habitats and Birds Directive. This paper categorizes some of the most important goals exemplarily according to the different levels of biodiversity, reaching from the ecosystem level to the species level to the granular level of genetic variability.

On the ecosystem level, which include marine ecosystems (oceans, coastlines, mangroves and coral reefs), terrestrial ecosystems (tropical, temperate and boreal forests, grasslands, heaths and bushes, ice and rock areas or human made croplands or urban ecosystems) and freshwater ecosystems (inland wetlands, peatlands, lakes and rivers) many overarching goals focus on **area protection**:

- „By 2050, all of the worlds ecosystems are restored, resilient and adequately protected' (Overarching Vision for 2050 in the EU Biodiversity Strategy, European Commission (2020))
- „By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people“ (post-2020 framework draft, CBD (2020a))
- “By 2030, at least 30% of the land and 30% of the sea should be protected in the EU.” and „10% of EU land and 10% of EU sea should be strictly protected“ (Key Commitments of the EU Nature Restoration Plan in the EU Biodiversity Strategy, European Commission (2020))

⁸ In the case of food crops, higher demand for material uses could also intensify conflicts between different uses

of biomass (material, food, feed, energy, as ecosystems) (EEA 2018).

- „Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss“ (Sustainable Development Goal 15, UNDESA (2021))
- „By 2030, [50%] of land and sea areas globally are under spatial planning addressing land/sea use change, retaining most of the existing intact and wilderness areas, and allow to restore [X%] of degraded freshwater, marine and terrestrial natural ecosystems and connectivity among them“ (Action Target 1 of post-2020 framework draft, CBD (2020a))
- „By 2030, protect and conserve through well connected and effective system of protected areas and other effective area-based conservation measures at least 30 percent of the planet with the focus on areas particularly important for biodiversity“ (Action Target 2 of post-2020 framework draft, CBD (2020b))
- „By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.“ (Aichi Biodiversity Target 5, CBD (2020b))

Biodiversity on species level devotes to the variety between plants, animals and microorganisms (NABU, BCG 2020). Some frameworks set overarching goals which affect **species level in general or set goals for specific species**:

- „The overall objective of the two directives is to ensure that the species and habitat types they protect are maintained, or restored, to a favourable conservation status throughout their natural range within the EU. It is therefore more than just halting their further decline or disappearance; the aim is to ensure that the species and habitats recover sufficiently to enable them to flourish over the long-term.“ (Birds and Habitats Directive (European Commission 2021b))
- „By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.“ (Aichi Biodiversity Target 9, CBD (2020b))
- „By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.“ (Aichi Biodiversity Target 12, CBD (2020b))
- „The number of species that are threatened is reduced by [X%] and the abundance of species has increased on average by [X%]“ (Goal A.2 of the

2030 Milestone Plan in the post-2020 framework draft, CBD (2020a))

- „By 2030, manage, and where possible control, pathways for the introduction of invasive alien species, achieving [50%] reduction in the rate of new introductions, and control or eradicate invasive alien species to eliminate or reduce their impacts, including in at least [50%] of priority sites“ (post-2020 Action Target 5, CBD (2020a))

The genetic variability is the smallest level, at which biodiversity occurs. **Genetic variability** means the distinctiveness of genes within a species or breed and defines the adaptability of a species to environmental changes and threats (NABU, BCG 2020).

- „By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.“ (Aichi Biodiversity Target 13, CBD (2020b))

The topic of biodiversity and ecosystem protection and restoration is complex and depends on the local context. In the context of biodiversity, it might make sense to define one broader overarching goal, from which several more specific goals are developed. These more specific goals could represent important points of references for the evaluation of economic activities.

The challenge for defining substantial contribution for the protection of biodiversity and ecosystems lies in an agreed ambition level for the evaluation and assessment of substantial contribution.

3.2 Identifying sectors with high relevance for biodiversity and ecosystems

Economic activities are of high relevance for biodiversity and ecosystems if they a) substantially contribute to the protection of biodiversity and ecosystems or b) have a negative impact on biodiversity and ecosystems and should be excluded with the DNSH-criteria.

A study by UN environmental programme et al. (2020) identifies five industries, which can have severe impacts on biodiversity and which receive a high number of financial investments in comparison to other industries. That makes them especially relevant in the context of the Taxonomy Regulation. The five key industries are:

1. **Agriculture:** IPBES (2019) identifies land use change and intensive agriculture as the biggest drivers of biodiversity loss globally. Similarly, an

analysis by NABU & BCG (2020), finds that farming is the economic activity with the highest share of pressure on biodiversity. It is responsible for approximately 26% of the pressure on biodiversity. The expansion of agriculture is the most important driver of biodiversity and ecosystem decline and is responsible for 80% of the global deforestation. Along with unsustainable, intensive cultivation systems, it is responsible for the near extinction of almost 40% of global insect species (NABU, BCG 2020).

2. **Distribution:** The distribution sector has a huge impact on biodiversity and ecosystems due to emissions of greenhouse gases and other air pollutants (as well as water and soil pollutants) from vehicles and ships, and the potential spread of invasive species through vehicles and ships (UNEP 2020).
3. **Mining and Extraction:** Mining activities exert high pressure on biodiversity at the local level because it causes habitat conversion and fragmentation, ecosystem degradation, and soil, water, and air pollution (NABU, BCG 2020).
4. **Oil and Gas Exploration and Production:** Oil and gas exploration and production have a high impact on biodiversity and ecosystems due to the use of land, marine area and freshwater as well as pollution (non-greenhouse gas emissions, water and soil pollutants and solid waste) and further disturbances (noise and light pollution) (UNEP 2020).
5. **Oil and Gas Storage and Transportation:** The industry uses terrestrial, freshwater and marine areas and thus can have a huge impact on the state of ecosystems and biodiversity through the spread of invasive species and its greenhouse gas emissions (UNEP 2020).

Other industries, like forestry and fishery also highly affect biodiversity and ecosystems (NABU & BCG 2020).

6. **Forestry:** Biodiversity loss through forestry results for instance from inadequate forest management, particularly from the overexploitation of local ecosystems due to conventional logging techniques or inadequate afforestation techniques (NABU, BCG 2020).
7. **Fishery:** Through effects of by-catch, habit alteration or altered energy flow, fisheries put direct pressure on biodiversity (Boehlert 1996). For example, fisheries change the composition of fish communities and their interactions, resulting in alterations of their genomes or changes in seabed biodiversity (Thrush et al. 2016).

3.3 Substantial contribution to the objective of biodiversity/ ecosystems

Article 15(1) of the Taxonomy Regulation establishes a framework for the definition for substantial contribution for the protection and contribution of biodiversity and ecosystems (see Figure 5).

Figure 5: Article 15(1) of the Taxonomy Regulation

Article 15

Substantial contribution to the protection and restoration of biodiversity and ecosystems

1. An economic activity shall qualify as contributing substantially to the protection and restoration of biodiversity and ecosystems where that activity contributes substantially to protecting, conserving or restoring biodiversity or to achieving the good conditions of ecosystems, or to protecting ecosystems that are already in good condition, through:
 - (a) nature and biodiversity conservation, including achieving favourable conservation status of natural and semi-natural habitats and species, or preventing their deterioration where they already have favourable conservation status, and protecting and restoring terrestrial, marine and other aquatic ecosystems in order to improve their condition and enhance their capacity to provide ecosystem services;
 - (b) sustainable land use and management, including adequate protection of soil biodiversity, land degradation neutrality and the remediation of contaminated sites;
 - (c) sustainable agricultural practices, including those that contribute to enhancing biodiversity or to halting or preventing the degradation of soil and other ecosystems, deforestation and habitat loss;
 - (d) sustainable forest management, including practices and uses of forests and forest land that contribute to enhancing biodiversity or to halting or preventing degradation of ecosystems, deforestation and habitat loss; or
 - (e) enabling any of the activities listed in points (a) to (d) of this paragraph in accordance with Article 16.

Though this framework already gives an overview of which aspects are relevant for defining a substantial contribution, it does not offer a practical definition (e.g. how much, where or what type of biodiversity must be protected or restored for the objective to be met). This framework must be specified based on economic activities in relevant industries and sectors.

Economic activities and substantial contribution to biodiversity

As already pointed out in Chapter 2, the TEG (2020b) differentiates between three different types of substantial contribution to the goal of climate change mitigation (green activities, greening of activities and enabling activities).

Regarding the protection and contribution of biodiversity and ecosystems, there are also attempts to contribute to the discussion on different types of substantial contribution. WWF (2020) proposes that economic activities can:

1. **Enhance the preservation and restoration** of biodiversity and ecosystems (especially in areas that matter the most for the conservation of biodiversity). These activities improve the condition of ecosystems or maintain ecosystems in good condition.
 - examples: public (or private) investments in preservation of protected areas, the restoration of ecosystems or the remediation of infrastructure that is harmful to biodiversity
2. **Reduce pressures or threats** on natural resource consumption to biodiversity and ecosystems. These activities reduce or maintain the pressure or threats to a sustainable level or significantly reduce the pressure or threats compared to a business-as-usual development
 - examples: reforestation of buffer zones, the replacement of harmful agricultural techniques (like pollution via pesticides or nutrient loads, heavy machinery compacting soils) by more sustainable practices
3. **Enable other activities** to reduce the environmental pressure on biodiversity and ecosystems or to enhance the good status.
 - examples: development of machinery that support agriculture to operate in a more biodiversity-friendly way

Points of reference

The definition of points of reference derived from the overarching goal for economic activities in certain sectors can help to clarify what criteria for substantial contribution need to ensure.

Aspects for the development of criteria

According to IEEP (2020), two crucial aspects in the definition of criteria are: **1. the measurement** (can the result be measured to a reasonable degree of effort and accuracy?) and **2. the timescale** (is the result

measurable within a timescale relevant to the investment?). In the context of the biodiversity and ecosystem goal, IEEP (2020) suggests that the impact of economic activities on biodiversity/ ecosystems should be measurable by person(s), who implement it practically, or by a third-party certifying the results.

According to the Biodiversity Indicators Partnership (BIP), it is important that indicators are scientifically valid, based on available data, responsive to change in the issue of interest and easily understandable. Widely used metrics in biodiversity impact assessments are on a global level, for example, the “Mean Species Abundance” (MSA) metric and the “Potentially Disappeared Fraction of Species” (PDF) metric (PBAF 2020). Many biodiversity indicators refer mainly to species diversity – but not only the status of species is important, but also that of habitat types and the genetic diversity within a species.

It must be decided which indicators work best in the context of the Taxonomy. At a European level, for example, there exist a wide range of data sources and indicators, for example the SEBI indicator set, which provides data about the abundance and distribution of European species, livestock genetic diversity, the impact of climate change on bird populations, etc. (Biodiversity Information System for Europe).

To measure the impact on biodiversity, solid data on the situation before and after the economic activity as well as monitoring data would be helpful. According to IEEP (2020), the data should take habitat and species data of the certain area as well as overall ecological research data into account. Another practical approach are evidence-based criteria which dictate certain practices like biodiversity crop and indicate whether or not local biodiversity monitoring is in place. However, it needs to be seen in the discussions whether there need to be a threshold size of operations. Experts from the relevant fields might add other aspects that are currently missing in this report.

Whether or not results will be achieved during the period of the investment is important for **the timescale**. In many cases, the investment will run shorter than the state of biodiversity/ecosystems can improve. Consequently, a certain threshold or improvement might not be achieved until the end of the investment. For such cases, the evaluation of an economic activity must take into account these diverging timespans (e.g. by adapting thresholds or using more appropriate criteria) (IEEP 2020).

Example: Economic activities in the agricultural sector

The global and EU frameworks presented above highlight a number of areas where changes in agricultural

practices can reduce the negative impacts on biodiversity and ecosystems. Especially the EU Biodiversity Strategy and the Birds and Habitats Directives can help indicating how economic activities in the agricultural sector can contribute substantially.

On basis of these three EU frameworks and Article 15 of the Taxonomy Regulation, IEEP (2020) developed the following points of reference (p.9):

- *The population of all naturally occurring species particularly bird and insect pollinators on agricultural land are maintained and enhanced.*
- *A sufficient diversity and area (no less than [X%] of farmed land) of habitats for wild species population is preserved, maintained or re-established, allowing them to thrive within agricultural land.*
- *The genetic diversity of farmed species is increased.*
- *Soil fertility and soil organic matter is protected and enhanced, and erosion reduced – achieving land degradation neutrality.*
- *Invasive alien species are avoided or suitably and strictly contained.*
- *The use of natural resources and ecosystems for agricultural activities is sustainable and within parameters defined for planetary boundaries not covered by other objectives of the Taxonomy, specifically – No additional (natural) land take for agricultural production.*
- *Point source and diffuse pollution from agriculture is eliminated.*

However, the proposed points of reference do not cover all relevant aspects in the agricultural sector. For example, they do not consider the ecologically connectivity of areas, which are used for farming, or reducing livestock density. Experts from the relevant fields might add other aspects that are currently missing in this report. The Platform on Sustainable Finance is currently discussing this issue.

The points of reference for substantial contribution should be in line with existing global and EU standards on the protection of biodiversity and ecosystems. But it is important that they go beyond baseline compliance with existing legislation and assure that economic activities really contribute substantially to the overall objective.

Activities in the agricultural sector and substantial contribution to biodiversity

The majority of agricultural activities can probably contribute substantially by reducing pressure on natural resource consumption or threats to biodiversity and ecosystems (second type for substantial contribution). Such activities include agricultural practices that support a greater variety of locally sourced crops and seeds, the cultivation of mixed crops and intercrops like

legumes to regenerate the soil or the creation of wider field margins (NABU, BCG 2020).

However, activities that are somehow less harmful to biodiversity (better than a business-as-usual scenario), but not fully biodiversity-friendly must not be defined as substantially contribution to the protection of biodiversity and ecosystems.

Economic activities that end the conversion of natural habitats and maintain or re-establish land for wild species can enhance the preservation or restoration of biodiversity directly (first type for substantial contribution). Yet continued agriculture can also be a precondition to the protection of certain habitats like grasslands.

Economic activities that enable agricultural activities to contribute substantially create the preconditions for economic activities of the first and second type of substantial contribution.

But not all these activities contribute automatically to the preservation of biodiversity and ecosystems in a significant manner. The criteria must assure that these economic activities have a positive impact on ecosystems and biodiversity in a measurable way.

3.4 “No significant harm” to the objective of biodiversity/ ecosystems

Whereas criteria for substantial contribution must ensure that economic activities significantly enhance the protection and restoration of biodiversity and ecosystems, DNSH criteria ensure that economic activities are not detrimental to the good condition and resilience of ecosystems or the conservation status of habitats and species. The DNSH criteria represent red lines for compliance with the taxonomy.

We do not discuss economic activities that contribute to the objective of biodiversity protection here – the focus lies on economic activities that contribute substantially to one of the other five environmental objectives. They must not harm the objective of biodiversity protection and restoration.

Example: Economic activities in the agricultural sector

For economic activities in the agricultural sector, DNSH criteria have been developed in the Technical Annex of the Taxonomy Report (TEG 2020b, p.124-125) (see Figure 6).

IEEP (2020) suggests that activities further must not lead to an **increased use of natural resources and ecosystems**, which would go beyond planetary boundaries that are not covered by other environmental objectives in the Taxonomy.

Figure 6: DNSH criteria for the agricultural sector developed by the TEG

- Activities ensure the protection of soils, particularly over winter, to prevent erosion and run-off into water courses/bodies and to maintain soil organic matter.
- Activities do not lead to the conversion, fragmentation or unsustainable intensification of high-nature-value land, wetlands, forests, or other areas of high-biodiversity value. This includes highly biodiverse grassland spanning more than one hectare that is:
 - i. natural, namely grassland that would remain grassland in the absence of human intervention and that maintains the natural species composition and ecological characteristics and processes; or
 - ii. non-natural, namely grassland that would cease to be grassland in the absence of human intervention and that is species-rich and not degraded and has been identified as being highly biodiverse by the relevant competent authority.
- Activities should not:
 - i. result in a decrease in the diversity or abundance of species and habitats of conservation importance or concern;
 - ii. contravene existing management plans or conservation objectives.
- Where activities involve the production of novel non-native or invasive alien species, their cultivation should be subject to an initial risk assessment and on-going monitoring in order to ensure that sufficient safeguards are in place to prevent escape to the environment.

3.5 Activities to be excluded

This chapter concludes with examples of economic activities, which might be generally excluded from an evaluation in the context of the Taxonomy as they significantly harm the environmental objective of protection and restoration of biodiversity and ecosystems. Note that the presented examples do not represent a final list, but should be seen as starting points and supplemented by experts from relevant fields.

(DIW 2020) proposes to add an “Exclusion List” for activities that are incompatible with the environmental objectives of the Taxonomy. Such a list could be valuable to identify easily which activities should be generally not taken into account for sustainable investments.

From the biodiversity and ecosystem perspective, **in general** economic activities that strengthen the main drivers of biodiversity loss (habitat loss and degradation through land and sea use change, over-exploitation and unsustainable use, climate change, pollution

and excessive nutrient load and invasive alien species) should be incompatible with the Taxonomy (WWF 2020).

Based on the DNSH criteria, the list could also be specified on certain economic activities in relevant sectors. As example, we look again at economic activities in the agricultural sector.

Example: Economic activities in the agricultural sector

Based on NABU, BCG (2020), the following activities could be examples for economic activities that could appear on a “Exclusion List” regarding the objective of biodiversity protection and restoration:

Intensive cultivation

Intensive cultivation practices (like narrow crop rotation, large scale surface irrigation or cultivation with heavy machinery) put pressure on soils leading to land degradation (NABU, BCG 2020).

- Homogenously cultivated areas with few field margins, no sufficient space for wild species
- Intensive cultivation like narrow crop rotation, preparation with heavy machinery

Activities including pesticides

Pesticides and other chemicals enter soils, waterways or the ocean and affect native organisms negatively or change nutrient balances, acidity and oxygen levels (NABU, BCG 2020).

- Synthetic fertilizers and pesticides
- Extensive use of chemical crop protection products

Intensive livestock farming

Intensive livestock production requires feed which is often cultivated intensively and pressures biodiversity indirectly through water pollution and soil degradation on production site. If extensive livestock farming is poorly managed (e.g. inadequate grazing) it can further have a direct negative impact on biodiversity (FAO 2019).

4 Conclusion and next steps

This report aims to enable the readers to understand the EU Taxonomy, its relevance, primary goals and design and to highlight tasks in the further development of the Taxonomy.

The Taxonomy has the opportunity to go beyond existing political frameworks – like the CAP in the agricultural sector. Criteria should ensure that activities that are somehow less harmful to biodiversity (better than a business-as-usual scenario), but not fully biodiversity-friendly are not defined as substantially contributing to the protection of biodiversity and ecosystems.

The ambition level of points of reference and criteria highly impacts the overall effect of the Taxonomy. Criteria must be **ambitious enough to lead to greater sustainability** than the status quo and **science based**.

It will be a critical task for readers and the non-governmental community to accompany the development of the Taxonomy and make sure that the application criteria, thresholds and benchmarks are **regularly reviewed and strengthened over time**. Accompanied by ambitious regulatory and economic policy instruments, the Taxonomy can play a major role in accelerating transformative changes towards sustainable economic activities.

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