

ESRS E4

BIODIVERSITY AND ECOSYSTEMS

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Objective

1. The objective of this Standard is to specify Disclosure Requirements which will enable users of the **sustainability statement** to understand:
 - (a) how the undertaking affects **biodiversity** and **ecosystems**, in terms of material positive and negative, actual and potential impacts, including the extent to which it contributes to the drivers of biodiversity and ecosystem loss and degradation;

- (b) any **actions** taken, and the result of such actions, to prevent or mitigate material negative actual or potential impacts and to protect and restore biodiversity and ecosystems, and to address risks and opportunities; and
 - (c) the plans and capacity of the undertaking to adapt its strategy and **business model** in line with:
 - i. respecting **planetary boundaries** related to **biosphere integrity** and **land-system change**;
 - ii. the vision of the Kunming-Montreal Global Biodiversity Framework and its relevant goals and **targets**;
 - iii. relevant aspects of the EU Biodiversity Strategy for 2030 ⁽⁷⁰⁾;
 - iv. Directive 2009/147/EC of the European Parliament and of the Council and Council Directive 92/43/EEC (EU Birds and Habitats Directives) ⁽⁷¹⁾; and
 - v. Directive 2008/56/EC of the European Parliament and of the Council (Marine Strategy Framework Directive) ⁽⁷²⁾;
 - (d) the nature, type and extent of the undertaking's material risks, dependencies and opportunities related to biodiversity and ecosystems, and how the undertaking manages them; and
 - (e) the **financial effects** on the undertaking over the short-, medium- and long-term of material risks and opportunities arising from the undertaking's impacts and dependencies on biodiversity and ecosystems.
2. This Standard sets out Disclosure Requirements related to the undertaking's relationship to terrestrial, **freshwater** and marine **habitats, ecosystems** and populations of related fauna and flora species, including diversity within species, between species and of ecosystems and their interrelation with **indigenous peoples** and other affected communities.
 3. The terms "**biodiversity**" and "**biological diversity**" refer to the variability among living organisms from all sources including, inter alia, terrestrial, **freshwater**, marine and other aquatic **ecosystems** and the ecological complexes of which they are part.

Interaction with other ESRS

4. '**Biodiversity** and **ecosystems**' are closely connected to other environmental matters. The main direct drivers of biodiversity and ecosystems change are climate change, **pollution**, land-use change, **freshwater**-use change and sea-use change, direct exploitation of organisms and invasive alien species. These drivers are covered in this standard, except for climate change (covered by ESRS E1) and pollution (covered by ESRS E2).
5. To obtain a comprehensive understanding of material **impacts** and **dependencies** on **biodiversity** and **ecosystems**, the Disclosure Requirements of other environmental ESRS should be read and interpreted in conjunction with the specific disclosure requirements of this Standard. The relevant disclosure requirements covered in other environmental ESRS are:
 - (a) ESRS E1 *Climate change*, which addresses in particular GHG **emissions** and energy resources (energy consumption);
 - (b) ESRS E2 *Pollution*, which addresses **pollution** to air, water and **soil**;
 - (c) ESRS E3 *Water and marine resources* which addresses in particular water resources (water consumption) and **marine resources**;

⁽⁷⁰⁾ EU Biodiversity Strategy for 2030- Bringing nature back into our lives, COM/2020/380 final.

⁽⁷¹⁾ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 20, 26.1.2010, p. 7) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

⁽⁷²⁾ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (OJ L 164, 25.6.2008, p. 19).

- (d) ESRS E5 *Resource use and circular economy* addresses in particular the transition away from extraction of non-renewable resources and the implementation of practices that prevent **waste** generation, including pollution generated by waste.
- 6. The undertaking's impacts on **biodiversity** and **ecosystems** affect people and communities. When reporting on material negative impacts on **affected communities** from biodiversity and ecosystem change under ESRS E4, the undertaking shall consider the requirements of ESRS S3 *Affected communities*.
- 7. This Standard should be read in conjunction with ESRS 1 *General requirements* and ESRS 2 *General disclosures*.

Disclosure Requirements

ESRS 2 *General disclosures*

- 8. The requirements of this section shall be read in conjunction with the disclosures required by ESRS 2 *Chapter 2 Governance, Chapter 3 Strategy and Chapter 4 Impact, risk and opportunity management*.
- 9. The resulting disclosures shall be presented alongside the disclosures required by ESRS 2, except for ESRS 2 SBM-3, for which the undertaking has an option to present the disclosures alongside the topical disclosures.
- 10. In addition to the requirements in ESRS 2, this Standard also includes the topic specific Disclosure Requirement E4-1 *Transition plan and consideration of biodiversity and ecosystems in strategy and business model*.

Strategy

Disclosure Requirement E4-1 – Transition plan and consideration of biodiversity and ecosystems in strategy and business model

- 11. The undertaking shall disclose how its biodiversity and ecosystem impacts, dependencies, risks and opportunities originate from and trigger adaptation of its strategy and business model.
- 12. The objective of this Disclosure Requirement is to enable an understanding of the resilience of the undertaking's strategy and **business model** in relation to **biodiversity** and **ecosystems**, and of the compatibility of the undertaking's strategy and business model with regard to relevant local, national and global public policy **targets** related to biodiversity and ecosystems.
- 13. The undertaking shall describe the resilience of its strategy and **business model** in relation to **biodiversity** and **ecosystems**. The description shall include:
 - (a) an assessment of the resilience of the current business model and strategy to biodiversity and ecosystems-related physical, transition and systemic risks;
 - (b) the scope of the resilience analysis in relation to the undertaking's own operations and its upstream and downstream value chain and in relation to the risks considered in that analysis;
 - (c) the key assumptions made;
 - (d) the time horizons used;
 - (e) the results of the resilience analysis; and
 - (f) the involvement of stakeholders, including, where appropriate, holders of indigenous and local knowledge.
- 14. If information specified in this disclosure requirement is disclosed by the undertaking as part of the information required under ESRS 2 SBM-3, the undertaking may refer to the information it has disclosed under ESRS 2 SBM-3.

15. The undertaking may disclose its **transition plan** to improve and, ultimately, achieve alignment of its **business model** and strategy with the vision of the Kunming-Montreal Global Biodiversity Framework and its relevant goals and targets, the EU Biodiversity Strategy for 2030, and with respecting **planetary boundaries** related to biosphere integrity and **land-system change**.

Disclosure Requirement SBM 3 – Material impacts, risks and opportunities and their interaction with strategy and business model

16. The undertaking shall disclose:
- (a) a list of material **sites** in its own operations, including sites under its operational control, based on the results of paragraph 17(a). The undertaking shall disclose these locations by:
 - i. specifying the activities negatively affecting **biodiversity sensitive areas** ⁽⁷³⁾;
 - ii. providing a breakdown of sites according to the **impacts** and **dependencies** identified, and to the ecological status of the areas (with reference to the specific ecosystem baseline level) where they are located; and
 - iii. specifying the **biodiversity-sensitive areas** impacted, for users to be able to determine the location and the responsible competent authority with regards to the activities specified in paragraph 16(a) i.
 - (b) whether it has identified material negative impacts with regards to **land degradation, desertification** or **soil sealing** ⁽⁷⁴⁾; and
 - (c) whether it has operations that affect **threatened species** ⁽⁷⁵⁾.

Impact, risk and opportunity management

Disclosure Requirement related to ESRS 2 IRO-1 Description of processes to identify and assess material biodiversity and ecosystem-related impacts, risks, dependencies and opportunities

17. The undertaking shall describe its process to identify material impacts, risks, dependencies and opportunities. The description of the process shall include whether and how the undertaking:
- (a) identified and assessed actual and potential impacts on **biodiversity** and **ecosystems** at own **site** locations and in the upstream and downstream value chain, including assessment criteria applied;
 - (b) identified and assessed **dependencies** on biodiversity and ecosystems and their services at own site locations and in the upstream and downstream value chain, including assessment criteria applied, and, if this assessment includes **ecosystem services** that are disrupted or likely to be;
 - (c) identified and assessed **transition** and **physical risks** and opportunities related to biodiversity and ecosystems, including assessment criteria applied based on its impacts and dependencies;
 - (d) considered **systemic risks**;

⁽⁷³⁾ This information supports the information needs of financial markets participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impacts as set out by indicator #7 in Table 1 Annex 1 of the related Delegated Regulation with regard to disclosure rules on sustainable investments ("Activities negatively affecting biodiversity-sensitive areas").

⁽⁷⁴⁾ This information supports the information needs of financial market participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impact as set out by indicator #10 in Table 2 of Annex 1 of the related Delegated Regulation with regard to disclosure rules on sustainable investments ("Land degradation, desertification, soil sealing").

⁽⁷⁵⁾ This information supports the information needs of financial market participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impact as set out by indicator #14 in Table 2 of Annex 1 of the related Delegated Regulation with regard to disclosure rules on sustainable investments ("Natural species and protected areas").

- (e) conducted consultations with **affected communities** on sustainability assessments of shared biological resources and **ecosystems** and, in particular:
 - i. when a site, a **raw material** production or sourcing is likely to negatively impact biodiversity and ecosystems, the identification of the specific sites, raw materials production or sourcing with negative or potentially negative impacts on affected communities;
 - ii. when affected communities are likely to be impacted, the undertaking, shall disclose how these communities were involved in the **materiality** assessment; and
 - iii. with respect to impacts on **ecosystem services** of relevance to affected communities in its own operations, the undertaking shall indicate how negative impacts may be avoided. If these impacts are unavoidable, the undertaking may indicate its plans to minimise them and implement mitigation measures that aim to maintain the value and functionality of priority services.
- 18. The undertaking may disclose whether and how it has used **biodiversity** and **ecosystems scenario analysis** to inform the identification and assessment of material risks and opportunities over short-, medium- and long-term time horizons. If the undertaking has used such scenario analysis, it may disclose the following information:
 - (a) why the considered **scenarios** were selected;
 - (b) how the considered scenarios are updated according to evolving conditions and emerging trends; and
 - (c) whether the scenarios are informed by expectations published by authoritative intergovernmental bodies, such as the Convention for Biological Diversity and, where relevant, by scientific consensus, such as that expressed by the Intergovernmental Science-policy Platform on Biodiversity and Ecosystem Services (IPBES).
- 19. The undertaking shall specifically disclose:
 - (a) whether or not it has **sites** located in or near **biodiversity-sensitive areas** and whether activities related to these sites negatively affect these areas by leading to the deterioration of natural **habitats** and the habitats of species and to the disturbance of the species for which a **protected area** has been designated; and
 - (b) whether it has been concluded that it is necessary to implement biodiversity mitigation measures, such as those identified in: Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds; Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora; an Environmental Impact Assessment (EIA) as defined in Article 1(2), point (g), of Directive 2011/92/EU of the European Parliament and of the Council ⁽⁷⁶⁾ on the assessment of the effects of certain public and private projects on the environment; and for activities located in third countries, in accordance with equivalent national provisions or international standards, such as the International Finance Corporation (IFC) Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Disclosure Requirement E4-2 – Policies related to biodiversity and ecosystems

- 20. The undertaking shall describe its adopted policies to manage its material impacts, risks, dependencies, and opportunities related to biodiversity and ecosystems.
- 21. The objective of this Disclosure Requirement is to enable an understanding of the extent to which the undertaking has **policies** that address the identification, assessment, management and/or **remediation** of its material **biodiversity** and **ecosystem**- related **impacts, dependencies, risks** and **opportunities**.
- 22. The disclosure required by paragraph 20 shall contain the information on the **policies** the undertaking has in place to manage its material **impacts, risks, dependencies** and **opportunities** related to **biodiversity** and **ecosystems** in accordance with ESRS 2 MDR-P Policies adopted to manage material sustainability matters).

⁽⁷⁶⁾ Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (OJ L 26, 28.1.2012, p. 1).

23. In addition to the provisions of ESRS 2 MDR-P the undertaking shall describe whether and how its **biodiversity** and **ecosystems**-related **policies**:
- (a) relate to the matters specified in ESRS E4 AR 4;
 - (b) relate to its material biodiversity and ecosystems-related impacts;
 - (c) relate to material dependencies and material physical and transition risks and opportunities;
 - (d) support traceability of products, components and raw materials with material actual or potential impacts on biodiversity and ecosystems along the **value chain**;
 - (e) address production, sourcing or consumption from ecosystems that are managed to maintain or enhance conditions for biodiversity, as demonstrated by regular monitoring and reporting of biodiversity status and gains or losses; and
 - (f) address social consequences of biodiversity and ecosystems-related impacts.
24. The undertaking shall specifically disclose whether it has adopted:
- (a) **biodiversity** and **ecosystem** protection **policy** covering operational **sites** owned, leased, or managed in or near a **biodiversity sensitive area**;
 - (b) sustainable land / agriculture practices or policies ⁽⁷⁷⁾;
 - (c) sustainable oceans / seas practices or policies ⁽⁷⁸⁾; and
 - (d) policies to address **deforestation** ⁽⁷⁹⁾.

Disclosure Requirement E4-3 – Actions and resources related to biodiversity and ecosystems

25. The undertaking shall disclose its biodiversity and ecosystems-related actions and the resources allocated to their implementation.
26. The objective of this Disclosure Requirement is to enable an understanding of the key **actions** taken and planned that significantly contribute to the achievement of **biodiversity** and **ecosystems**-related **policy** objectives and **targets**.
27. The description of key **actions** and resources shall follow the mandatory content defined in ESRS 2 MDR-A *Actions and resources in relation to material sustainability matters*.
28. In addition, the undertaking :
- (a) may disclose how it has applied the mitigation hierarchy with regard to its actions (avoidance, minimisation, restoration/rehabilitation, and compensation or offsets);
 - (b) shall disclose whether it used **biodiversity** offsets in its action plans. If the **actions** contain biodiversity offsets, the undertaking shall include the following information:
 - i. the aim of the offset and key performance indicators used;
 - ii. the financing effects (direct and indirect costs) of biodiversity offsets in monetary terms; and;
 - iii. a description of offsets including area, type, the quality criteria applied and the standards that the biodiversity offsets comply with;

⁽⁷⁷⁾ This information supports the information needs of financial market participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impact as set out by indicator #11 in Table II of Annex I of Commission Delegated Regulation (EU) 2022/1288 with regard to disclosure rules on sustainable investments ("Investments in companies without sustainable land/agriculture practices").

⁽⁷⁸⁾ This information supports the information needs of financial market participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impact as set out by indicator #12 in Table II of Annex I of Commission Delegated Regulation (EU) 2022/1288 with regard to disclosure rules on sustainable investments ("Investments in companies without sustainable oceans/seas practices").

⁽⁷⁹⁾ This information supports the information needs of financial market participants subject to Regulation (EU) 2019/2088 because it is derived from an additional indicator related to principal adverse impact as set out by indicator #15 in Table II of Annex I of Commission Delegated Regulation (EU) 2022/1288 with regard to disclosure rules on sustainable investments ("Deforestation").

- (c) shall describe whether and how it has incorporated local and indigenous knowledge and nature- based solutions into biodiversity and **ecosystems**-related actions.

Metrics and targets

Disclosure Requirement E4-4 – Targets related to biodiversity and ecosystems

29. **The undertaking shall disclose the biodiversity and ecosystem-related targets it has set.**
30. The objective of this Disclosure Requirement is to allow an understanding of the **targets** the undertaking has adopted to support its **biodiversity** and **ecosystems policies** and address its material related **impacts, dependencies, risks** and **opportunities**.
31. The description of the **targets** shall follow the mandatory content defined in ESRS 2 MDR-T *Tracking effectiveness of policies and actions through targets*.
32. The disclosure required by paragraph 29 shall include the following information:
- (a) whether **ecological thresholds** and allocations of impacts to the undertaking were applied when setting **targets**. If so, the undertaking shall specify:
 - i. the ecological thresholds identified and the methodology used to identify such thresholds;
 - ii. whether or not the thresholds are entity-specific and if so, how they were determined; and
 - iii. how responsibility for respecting identified ecological thresholds is allocated in the undertaking;
 - (b) whether the targets are informed by, and/or aligned with the Kunming-Montreal Global Biodiversity Framework, relevant aspects of the EU Biodiversity Strategy for 2030 and other **biodiversity** and **ecosystem**-related national **policies** and legislation;
 - (c) how the targets relate to the biodiversity and ecosystem impacts, dependencies, risks and opportunities identified by the undertaking in relation to its own operations and its upstream and downstream value chain;
 - (d) the geographical scope of the targets, if relevant;
 - (e) whether or not the undertaking used biodiversity offsets in setting its targets; and
 - (f) to which of the layers of the mitigation hierarchy the target can be allocated (i.e., avoidance, minimisation, restoration and rehabilitation, compensation or offsets).

Disclosure Requirement E4-5 – Impact metrics related to biodiversity and ecosystems change

33. The undertaking shall report metrics related to its material impacts on *biodiversity* and *ecosystems*.
34. The objective of this Disclosure Requirement is to enable an understanding of the performance of the undertaking against impacts identified as material in the **materiality** assessment on **biodiversity** and **ecosystems** change.
35. If the undertaking identified **sites** located in or near **biodiversity-sensitive areas** that it is negatively affecting (see paragraph 19(a)), the undertaking shall disclose the number and area (in hectares) of sites owned, leased or managed in or near these protected areas or key **biodiversity** areas.
36. If the undertaking has identified material impacts with regards to land-use change, or impacts on the extent and condition of **ecosystems**, it may also disclose their land-use based on a Life Cycle Assessment.
37. For datapoints specified in paragraphs 38 to 41, the undertaking shall consider its own operations.

38. If the undertaking has concluded that it directly contributes to the **impact drivers** of **land-use change**, **freshwater-use change** and/or sea-use change, it shall report relevant **metrics**. The undertaking may disclose metrics that measure:
- (a) the conversion over time (e.g. 1 or 5 years) of land cover (e.g. **deforestation** or mining);
 - (b) changes over time (e.g. 1 or 5 years) in the management of the ecosystem (e.g., through the intensification of agricultural management, or the application of better management practices or forestry harvesting);
 - (c) changes in the spatial configuration of the landscape (e.g. fragmentation of **habitats**, changes in ecosystem connectivity);
 - (d) changes in ecosystem structural connectivity (e.g. habitat permeability based on physical features and arrangements of habitat patches); and
 - (e) the functional connectivity (e.g. how well genes or individuals move through land, freshwater and seascape).
39. If the undertaking concluded that it directly contributes to the accidental or voluntary introduction of invasive alien species, the undertaking may disclose the **metrics** it uses to manage pathways of introduction and spread of **invasive alien species** and the risks posed by invasive alien species.
40. If the undertaking identified material impacts related to the state of species, the undertaking may report **metrics** it considers relevant. The undertaking may:
- (a) refer to relevant disclosure requirements in ESRS E1, ESRS E2, ESRS E3, and ESRS E5;
 - (b) consider population size, range within specific **ecosystems** as well as extinction risk. These aspects provide insight on the health of a single species' population and its relative resilience to human induced and naturally occurring change;
 - (c) disclose metrics that measure changes in the number of individuals of a species within a specific area;
 - (d) disclose metrics on species at extinction risk ⁽⁸⁰⁾ that measure:
 - i. the threat status of species and how activities/pressures may affect the threat status; or
 - ii. changes in the relevant **habitat** for a **threatened species** as a proxy for the undertaking's impact on the local population's extinction risk.
41. If the undertaking identified material impacts related to ecosystems, it may disclose:
- (a) with regard to ecosystems extent, **metrics** that measure area coverage of a particular ecosystem without necessarily considering the quality of the area being assessed, such as **habitat** cover. For example, forest cover is a measure of the extent of a particular ecosystem type, without factoring in the condition of the ecosystem (e.g., provides the area without describing the species diversity within the forest).
 - (b) with regard to ecosystems condition:
 - i. metrics that measure the quality of ecosystems relative to a pre-determined reference state;
 - ii. metrics that measure multiple species within an ecosystem rather than the number of individuals within a single species within an ecosystem (for example: scientifically established species richness and abundance indicators that measure the development of (native) species composition within an ecosystem against the reference state at the beginning of the first reporting period as well as the targeted state outlined in the Kunming-Montreal Global Biodiversity Framework, or an aggregation of species' conservation status if relevant); or
 - iii. metrics that reflect structural components of condition such as habitat connectivity (i.e., how linked habitats are to each other).

⁽⁸⁰⁾ As indicated in the IUCN Red List of Threatened Species and the European Red List published by the European Commission.

Disclosure Requirement E4-6 – Anticipated financial effects from material biodiversity and ecosystem-related risks and opportunities

42. The undertaking shall disclose its anticipated financial effects of material biodiversity- and ecosystem-related risks and opportunities.
 43. The information required by paragraph 42 is in addition to the information on current financial effects on the entity's financial position, financial performance and cash flows for the reporting period required under ESRS 2 SBM-3 para 48 (d).
 44. The objective of this Disclosure Requirement is to provide an understanding of:
 - (a) **anticipated financial effects** due to material risks arising from biodiversity- and ecosystem-related impacts and **dependencies** and how these risks have (or could reasonably be expected to have) a material influence on the undertaking's financial position, financial performance and cash flows over the short-, medium- and long-term; and
 - (b) anticipated financial effects due to material opportunities related to biodiversity- and ecosystem.
 45. The disclosure shall include:
 - (a) a quantification of the **anticipated financial effects** in monetary terms before considering **biodiversity** and **ecosystems**-related actions or where not possible without undue cost or effort, qualitative information. For **financial effects** arising from material opportunities, a quantification is not required if it would result in disclosure that does not meet the qualitative characteristics of information (see ESRS 1 Appendix B *Qualitative characteristics of information*). The quantification of the anticipated financial effects in monetary terms may be a single amount or a range;
 - (b) a description of the effects considered, the impacts and **dependencies** to which they relate and the time horizons in which they are likely to materialise; and
 - (c) the critical assumptions used to quantify the anticipated financial effects as well as the sources and the level of uncertainty of those assumptions.
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Appendix A

Application Requirements

This appendix is an integral part of the ESRS E4. It supports the application of the disclosure requirements set out in this standard and has the same authority as the other parts of the standard.

ESRS 2 GENERAL DISCLOSURES*Strategy***Disclosure Requirement E4-1 – Transition plan and consideration of biodiversity and ecosystems in strategy and business model**

AR 1. If disclosing a transition plan, the undertaking may:

- (a) explain how it will adjust its strategy and **business model** to improve and, ultimately, achieve alignment with relevant local, national and global public policy goals and **targets** related to **biodiversity** and **ecosystems** including the vision of the Kunming-Montreal Global Biodiversity Framework and its relevant goals and targets, the EU Biodiversity Strategy for 2030, and Directive 2009/147/EC Council Directive 92/43/EEC (the EU Birds and Habitats Directives) and, as appropriate, **planetary boundaries** related to biosphere integrity and **land-system change**;
- (b) include information about its own operations and also explain how it is responding to material impacts in its upstream and downstream value chain identified in its materiality assessment in accordance with ESRS 2 IRO-1 Description of the processes to identify and assess material impacts, risks and opportunities;
- (c) explain how its strategy interacts with its transition plan;
- (d) explain how it contributes to addressing biodiversity and ecosystem impact drivers and its possible mitigation actions following the mitigation hierarchy and the main path-dependencies and locked-in assets and resources (e.g., plants, raw materials) that are associated with biodiversity and ecosystems change;
- (e) explain and quantify its investments and funding supporting the implementation of its transition plan, with a reference to the key performance indicators of taxonomy-aligned CapEx, and where relevant the CapEx plans, that the undertaking discloses in accordance with Commission Delegated Regulation (EU) 2021/2178;
- (f) if it has economic activities that are covered by delegated regulations on biodiversity under the Taxonomy Regulation, explain any objective or plans (CapEx, CapEx plans) that it has for aligning its economic activities (revenues, CapEx) with the criteria established in those delegated regulations;
- (g) explain how biodiversity offsets are used as part of the transition plan, and if so, where the offsets are planned to be used, the extent of use in relation to the overall transition plan, and whether the mitigation hierarchy was considered;
- (h) explain how the process of implementing and updating the transition plan is managed;
- (i) explain how it measures progress, namely indicate the metrics and methodologies it uses for that purpose;
- (j) indicate whether the administrative, management and supervisory bodies have approved the transition plan; and
- (k) indicate current challenges and limitations to draft a plan in relation to areas of significant impact and how the company is addressing those challenges.

AR 2. If disclosing a transition plan, the undertaking may, for example, refer to the following **targets** from the EU Biodiversity Strategy for 2030:

- (a) The decline of pollinators is reversed.
- (b) The risk and use of chemical pesticides is reduced by 50%, and the use of more hazardous pesticides is reduced by 50%.

- (c) At least 25% of agricultural land is under organic farming management, and the uptake of agro-ecological practices is significantly increased.
- (d) Three billion additional trees are planted in the EU, in full respect of ecological principles.
- (e) Significant progress in the **remediation** of contaminated **soil sites**.
- (f) At least 25 000 km of free-flowing rivers are restored.
- (g) The losses of nutrients from fertilisers are reduced by 50%, resulting in the reduction of the use of fertilisers by at least 20%.
- (h) The negative impacts on sensitive species and habitats, including on the seabed through fishing and extraction activities, are substantially reduced to achieve good environmental status.

AR 3. If disclosing a transition plan, the undertaking may also refer to the Sustainable Development Goals, in particular:

- (a) SDG 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
- (b) SDG 6 - Ensure availability and sustainable management of water and sanitation for all;
- (c) SDG 14 - Conserve and sustainably use the oceans, seas and **marine resources** for sustainable development; and
- (d) SDG 15 - Protect, restore and promote sustainable use of terrestrial **ecosystems**, sustainably manage forests, combat **desertification**, and halt and reverse **land degradation** and halt **biodiversity loss**.

Impact, risk and opportunity management

Disclosure requirements related to ESRS 2 IRO-1 – Description of the processes to identify and assess material biodiversity and ecosystem-related impacts, risks and opportunities

AR 4. The **materiality** assessment under ESRS E4 includes the undertaking's:

- (a) contribution to direct **impact drivers** on **biodiversity loss** ⁽⁸¹⁾:
 - i. climate change;
 - ii. **land-use change** (e.g., land artificialisation), **freshwater**-use change and sea-use change;
 - iii. direct exploitation;
 - iv. **invasive alien species**;
 - v. **pollution**; and
 - vi. others.
- (b) **impacts** on the state of species (i.e., species population size, species global extinction risk);
- (c) impacts on the extent and condition of **ecosystems** including through **land degradation**, **desertification** and **soil sealing**; and
- (d) impacts and **dependencies** on **ecosystem services**.

AR 5. When assessing the **materiality** of **impacts**, **dependencies**, **risks** and **opportunities** the undertaking shall consider the provisions in ESRS 2 IRO-1 and ESRS 1 Chapter 3 *Double materiality as the basis for sustainability disclosures* and describe its considerations.

⁽⁸¹⁾ The direct driver climate change is to be reported under ESRS E1 Climate Change and pollution under ESRS E2 Pollution.

- AR 6. The undertaking shall assess the materiality of biodiversity and ecosystems in its own operations and its upstream and downstream **value chain**, and may conduct its **materiality** assessment in line with the first three phases of the LEAP approach: Locate (paragraph AR 7), Evaluate (paragraph AR 8) and Assess (paragraph AR 9).
- AR 7. Phase 1 relates to the localisation of relevant **sites** regarding its interface with **biodiversity** and **ecosystems**. To identify these relevant sites the undertaking may:
- (a) develop a list of locations of direct assets and operations and related upstream and downstream **value chain** that are relevant to the undertakings business activities. Furthermore, the undertaking may provide information about sites for which future operations have been formally announced;
 - (b) list the biomes and ecosystems it is interfacing with based on the list of locations identified under paragraph AR 7(a);
 - (c) identify the current integrity and importance of biodiversity and ecosystem at each location taking into consideration the information provided in paragraphs 16 and 17;
 - (d) develop a list of locations where the undertaking is interfacing with locations in or near **biodiversity-sensitive areas** taking into consideration the information provided in paragraphs 16 and 17; and
 - (e) identify which sectors, business units, value chains or asset classes are interfacing with biodiversity and ecosystems in these material sites. Instead of identifying these interfaces per site, the undertaking may choose to identify them per **raw material** procured or sold by weight in tons, if such practice offers greater transparency.
- AR 8. In Phase 2, to evaluate its actual or potential impacts and **dependencies** on **biodiversity** and **ecosystems** for relevant **sites**, the undertaking may:
- (a) identify business processes and activities that interface with biodiversity and ecosystems;
 - (b) identify actual and potential impacts and dependencies;
 - (c) indicate the size, scale, frequency of occurrence and timeframe of the impacts on biodiversity and ecosystems taking into consideration the disclosures under paragraphs 16 and 17. Furthermore, the undertaking may disclose:
 - i. the percentage of its **suppliers'** facilities which are located in risk prone areas (with **threatened species** on the IUCN Red List of Species, the Birds and Habitats Directive or nationally list of threatened species, or in officially recognised Protected Areas, the Natura 2000 network of protected areas and Key Biodiversity Areas);
 - ii. the percentage of its procurement spend from suppliers with facilities which are located in risk prone areas (with threatened species on the IUCN Red List of Species, the Birds and Habitats Directive or nationally list of threatened species, or in officially recognised Protected Areas, the Natura 2000 network of protected areas and Key Biodiversity Areas); and
 - (d) indicate the size and scale of the dependencies on biodiversity and ecosystems, including on raw materials, **natural resources** and **ecosystem services**. The undertaking may rely on the international classifications such as the Common International Classification of Ecosystem Services (CICES).
- AR 9. In Phase 3, to assesses its material **risks** and **opportunities** based on the results of Phases 1 and 2, the undertaking may consider the following categories:
- (a) **physical risks**:
 - i. acute risks (e.g., natural disasters exacerbated by loss of coastal protection from **ecosystems**, leading to costs of storm damage to coastal infrastructure, disease or pests affecting the species or variety of crop the undertaking relies on, especially in the case of no or low genetic diversity, species loss and ecosystem **degradation**); and

- ii. chronic risks (e.g., loss of crop yield due to decline in pollination services, increasing scarcity or variable production of key natural inputs, ecosystem degradation due to operations leading to, for example, coastal erosion and forest fragmentation, ocean acidification, land loss to **desertification** and **soil degradation** and consequent loss of soil fertility, species loss).
- (b) **transition risks**, including:
- i. **policy** and legal: e.g. introduction of regulation or policy (e.g. changes such as increased land protection); exposure to sanctions and litigation (e.g. spills of polluting effluents that damage human and ecosystem health; or violation of biodiversity-related rights, permits or allocations; or negligence towards or killing of **threatened species**); enhanced reporting obligations on biodiversity, ecosystems and related services;
 - ii. technology: e.g. substitution of products or services by products or services with a lower impact on **biodiversity** or dependence on **ecosystem services**, lack of access to data or access to poor quality data that hamper biodiversity-related assessments, transition to more efficient and cleaner technologies (i.e. with lower impacts on biodiversity), new monitoring technologies (e.g. satellite), requirements to use certain technologies (e.g. climate resistant crops, mechanical pollinators, water purification, flood protection);
 - iii. market: e.g., shifting supply, demand and financing, volatility or increased costs of raw materials (e.g., biodiversity-intense inputs for which price has risen due to ecosystem **degradation**);
 - iv. reputation: e.g., changing societal, customer or community perceptions as a result of an organisation's role in loss of biodiversity, violation of nature-related rights through operations, negative media coverage due to impacts on critical species and/or ecosystems, biodiversity-related social conflicts over endangered species, protected areas, resources or **pollution**.
- (c) **systemic risks**, including:
- i. ecosystem collapse risks that a critical natural system no longer functions, e.g., tipping points are reached and the collapse of ecosystems resulting in wholesale geographic or sector losses (summing physical risks);
 - ii. aggregated risk linked to fundamental impacts of **biodiversity loss** to levels of transition and physical risk across one or more sectors in a portfolio (corporate or financial); and
 - iii. contagion risks that financial difficulties of certain corporations or financial institutions linked to failure to account for exposure to biodiversity-related risks spill over to the economic system as a whole.
- (d) opportunities, including for example:
- i. business performance categories: resource efficiency; products and services; markets; capital flow and financing; reputational capital; and
 - ii. sustainability performance categories: ecosystem protection, restoration and **regeneration**; sustainability use of natural resources.

Presentation of information:

AR 10. The undertaking may consider the tables below to facilitate its **materiality** assessment of material **sites** identified under paragraph AR 7:

Ecosystem service...	Actual or potential dependencies	
...	Change of functionality	Financial loss
...	Limited, moderate or significant	Limited, moderate or significant
...

Site location	Threatened species, protected areas, key biodiversity areas	Actual or potential impacts			
		Frequency of occurrence	Speed of impact	Severity of impact	Potential for mitigation
...	...	High, medium or low	<1 year or 1-3 years or >3 years	High, medium or low	High, medium or low
...

With regard to AR 7(e), the undertaking may consider using the table below:

Where are the raw materials produced or sourced from?	Absolute weight of raw materials (and percentage of the raw material weight)
In areas with species listed on the IUCN Red List of Threatened Species, the Birds and Habitats Directive or on national lists of threatened species	...
In officially recognised protected Areas	...
In other Key Biodiversity Areas	...

Disclosure Requirement E4-2 – Policies related to biodiversity and ecosystems

AR 11. The **policies** described under this Disclosure Requirement may be integrated in broader environmental or sustainability policies covering different subtopics.

AR 12. The undertaking may also provide information on how the **policy** refers to the production, sourcing or consumption of raw materials, and in particular how it:

- (a) limits procurement from **suppliers** that cannot demonstrate that they are not contributing to significant damage to protected areas or key **biodiversity** areas (e.g., through certification);
- (b) refers to recognised standards or third-party certifications overseen by regulators; and
- (c) addresses raw materials originating from **ecosystems** that have been managed to maintain or enhance conditions for biodiversity, as demonstrated by regular monitoring and reporting of biodiversity status and gains or losses.

AR 13. The undertaking may disclose connections and alignment with other global goals and agreements such as the SDGs 2, 6, 14 and 15 or any other well established global convention related to biodiversity and ecosystems.

AR 14. When disclosing **policies** related to social consequences of **biodiversity** and **ecosystems** related **dependencies** and **impacts** under 23 (f), the undertaking may notably refer to the Nagoya Protocol and the Convention for Biological Diversity (CBD).

AR 15. When disclosing information about whether and how its **policies** address the social consequences of biodiversity and ecosystems-related **impacts** under paragraph 23(f), the undertaking may provide information in relation to:

- (a) the fair and equitable sharing of the benefits arising from the utilisation of genetic resources; and
- (b) the **free, prior and informed consent** for access to genetic resources.

AR 16. The undertaking may also explain how its **policy** enables it to:

- (a) avoid negative impacts on **biodiversity** and **ecosystems** in its own operations and related upstream and downstream **value chain**;
- (b) reduce and minimise its negative impacts on biodiversity and ecosystems in its operations and throughout the upstream and downstream value chain that cannot be avoided;
- (c) restore and rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimised; and
- (d) mitigate its contribution to material **biodiversity loss** drivers.

AR 17. When disclosing its **policies**, if referring to third-party standards of conduct, the undertaking may disclose whether the standard used:

- (a) is objective and achievable based on a scientific approach to identifying issues, and realistic in assessing how these issues can be addressed on the ground under a variety of practical circumstances;
- (b) is developed or maintained through a process of ongoing consultation with **stakeholders** with balanced input from all relevant stakeholder groups, including producers, traders, processors, financiers, local people and communities, **indigenous peoples**, and civil society organisations representing **consumer**, environmental and social interests, with no group holding undue authority or veto power over the content;
- (c) encourages a step-wise approach and continuous improvement, both in the standard and its application of better management practices, and requires the establishment of meaningful **targets** and specific milestones to indicate progress against principles and criteria over time;
- (d) is verifiable through independent certifying or verifying bodies, which have defined and rigorous assessment procedures that avoid conflicts of interest, and are compliant with ISO guidance on accreditation and verification procedures or Article 5(2) of Regulation (EC) No 765/2008; and
- (e) conforms to the ISEAL Code of Good Practice.

Disclosure Requirement E4-3 – Actions and resources related to biodiversity and ecosystems

AR 18. The undertaking may relate significant monetary amounts of CapEx and OpEx required to implement the actions taken or planned to:

- (a) the relevant line items or notes in the financial statements;
- (b) the key performance indicators required under article 8 of Regulation (EU) 2020/852 and under Commission Delegated Regulation (EU) 2021/2178; and
- (c) if applicable, the CapEx plan required by Commission Delegated Regulation (EU) 2021/2178.

AR 19. The undertaking may disclose whether it considers an “avoidance” action plan, which prevents damaging **actions** before they take place. Avoidance often involves a decision to deviate from the business-as-usual project development path. An example of avoidance is altering the **biodiversity** and ecosystem footprint of a project to avoid destruction of natural **habitat** on the **site** and/or establishing set-asides where priority biodiversity values are present and will be conserved. At a minimum, avoidance should be considered where there are biodiversity and ecosystem-related values that are in one of the following categories: particularly vulnerable and irreplaceable, of particular concern to **stakeholders**, or where a cautious approach is warranted due to uncertainty about impact assessment or about the efficacy of management measures. The three main types of avoidance are defined below:

- (a) avoidance through site selection (Locate the entire project away from areas recognised for important biodiversity values);
- (b) avoidance through project design (Configure infrastructure to preserve areas at the project site with important biodiversity values); and
- (c) avoidance through scheduling (Time project activities to account for patterns of species behaviour (e.g., breeding, migration) or ecosystem functions (e.g., river dynamics).

AR 20. With regard to key **actions**, the undertaking may disclose:

- (a) a list of key **stakeholders** involved (e.g., competitors, suppliers, retailers, other business partners, affected communities and authorities, government agencies) and how they are involved, mentioning key stakeholders negatively or positively impacted by actions and how they are impacted, including impacts or benefits created for affected communities, smallholders, **indigenous peoples** or other persons in vulnerable situations;
- (b) where applicable, an explanation of the need for appropriate consultations and the need to respect the decisions of affected communities;
- (c) a brief assessment of whether the key actions may induce significant negative sustainability **impacts**;
- (d) an explanation of whether the key action is intended to be a one-time initiative or systematic practice;
- (e) an explanation of whether the key action plan is carried out only by the undertaking, using the undertaking's resources, or whether it is part of a wider initiative to which the undertaking significantly contributes. If the key action plan is part of a wider initiative, the undertaking may provide more information on the project, its sponsors and other participants;
- (f) a description of how it contributes to systemwide change, notably to alter the drivers of biodiversity and ecosystem change, e.g., through technological, economic, institutional, and social factors and changes in underlying values and behaviours;

AR 21. In the context of this Disclosure Requirement, "local and indigenous knowledge" refer to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For rural and **indigenous peoples**, local knowledge informs decision-making about fundamental aspects of day-to-day life.

Metrics and targets

Disclosure Requirement E4-4 – Targets related to biodiversity and ecosystems

AR 22. The undertaking may specify whether the **target** addresses shortcomings related to the Substantial Contribution criteria for Biodiversity as defined in the delegated acts adopted pursuant to Article 15(2) of Regulation (EU) 2020/852. Where the Do No Significant Harm (DNSH) criteria for Biodiversity as defined in delegated acts adopted pursuant to Article 10(3), Article 11(3), Article 12(2), Article 13(2), and Article 14(2) of Regulation (EU) 2020/852 are not met, the undertaking may specify whether the target addresses shortcomings related those DNSH criteria.

AR 23. When disclosing information required under paragraph 29 for the purpose of setting **targets** the undertaking shall consider the need for an informed and willing consent of local and **indigenous peoples**, the need for appropriate consultations and the need to respect the decisions of these communities.

AR 24. The **targets** related to material impacts may be presented in a table as illustrated below:

Type of target according to mitigation hierarchy	Baseline value and base year	Target value and geographical scope			Connected policy or legislation if relevant
		2025	2030	Up to 2050	
Avoidance					
Minimisation					
Rehabilitation and restoration					
Compensation or offsets					

AR 25. The **targets** related to the potentially material sustainability matters listed in paragraph AR 4 of this Standard, may be presented in a table as illustrated below:

Type of target according to sustainability matter	Baseline value and base year	Target value and geographical scope			Connected policy or legislation if relevant
		2025	2030	Up to 2050	

AR 26. Measurable **targets** related to **biodiversity** and **ecosystems** may be expressed as:

- (a) size and location of all **habitat** areas protected or restored, whether directly or indirectly controlled by the undertaking, and whether the success of the restoration measure was or is approved by independent external professionals;
- (b) recreated surfaces (environments in which management initiatives are implemented so as to create a habitat on a **site** where it did not exist initially); or
- (c) number or percentage of projects / sites whose ecological integrity was improved (e.g., installation of fish passes, wildlife corridors).

Disclosure Requirement E4-5 – Impact metrics related to biodiversity and ecosystems change

AR 27. When preparing the information required under this Disclosure Requirement, the undertaking shall consider and may describe:

- (a) the methodologies and **metrics** used and an explanation for why these methodologies and metrics are selected, as well as their assumptions, limitations and uncertainties, and any changes in methodologies made over time and why they occurred;
- (b) the scope of the metrics and methodologies, for example:
 - i. undertaking, **site**, brand, commodity, corporate business unit, activity;
 - ii. aspects (as set out in paragraph AR 4) covered.
- (c) the **biodiversity** components of the metrics: species specific, ecosystem specific;
- (d) the geographies covered by the methodology and an explanation of why any relevant geographies were omitted;
- (e) how the metrics integrate **ecological thresholds** (e.g., the **biosphere integrity** and **land-system change, planetary boundaries**) and allocations;
- (f) the frequency of monitoring, key metrics being monitored, and the baseline condition/value and baseline year/period, as well as the reference period;
- (g) whether these metrics rely on primary data, secondary data, modelled data or on expert judgement, or a mixture of these;
- (h) an indication of which action is measured and monitored via the metrics and how they relate to the achievement of **targets**;
- (i) whether metrics are mandatory (required by legislation) or voluntary. If they are mandatory, the undertaking may indicate the relevant legislation; if voluntary, the undertaking may refer to any voluntary standard or procedure used; and
- (j) whether the metrics are informed by or correspond to expectations or recommendations of relevant and authoritative national, EU-level or intergovernmental guidelines, **policies**, legislation or agreements, such as the Convention for Biological Diversity (CBD) or IPBES.

AR 28. The undertaking shall disclose **metrics** that are verifiable and that are technically and scientifically robust considering the appropriate time scales geographies, and may disclose how its selected metrics correspond to those criteria. To ensure that the metric is relevant there should be a clear relationship between the indicator and the purpose of the measurement. Uncertainties should be reduced as far as possible. Data or mechanisms used should be supported by well-established organisations and updated over time. Robust modelled data and expert

judgment can be used where data gaps exist. The methodology shall be sufficiently detailed to allow for meaningful comparison of impacts and mitigation activities over time. Information gathering processes and definitions must be systematically applied. This enables a meaningful review of the undertaking's performance over time and helps internal and peer comparison.

AR 29. If a metric corresponds to a target, the baseline for both shall be aligned. The **biodiversity** baseline is an essential component of the larger biodiversity and **ecosystems** management process. The baseline is necessary to inform impact assessment and management planning, as well as monitoring and adaptive management.

AR 30. Methodologies available to collect data and measure the undertakings' impacts on **biodiversity** and **ecosystems** may be separated into three categories as follows:

- (a) primary data: collected in-situ using on the ground surveys;
- (b) secondary data: including geospatial data layers that are overlaid with geographic location data of business activities.
 - i. At the species level, data layers on the ranges of different species can be used to predict the species that may be present at different locations. This includes operation **sites** and sourcing locations. Different range layers will have different levels of accuracy depending on certain factors (e.g., whether species ranges have been refined based on availability of **habitat**). Information on the threat status of the species, and the activities that threaten them, can provide an indication of the likely contribution that business activities may be having on driving population trends and threat status.
 - ii. At the ecosystem level, data layers reflecting change in the extent and condition of ecosystems can be applied, including levels of **habitat fragmentation** and connectivity.
- (c) modelled biodiversity state data: Model-based approaches are commonly used for measuring ecosystem level indicators (e.g., extent, condition, or function). Models quantify how the magnitude of different pressures affects the state of biodiversity. These are referred to as pressure-state relationships and are based on globally collected data. Modelling results are applied locally to estimate how undertaking-level pressures will cause changes in ecosystem condition. An impact driver generally has three main characteristics: magnitude (e.g., amount of contaminant, noise intensity), spatial extent (e.g., area of land contaminated) and temporal extent (duration of persistence of contaminant).

AR 31. With regard to life cycle assessment for land-use, the undertaking may refer to the "Land-use related environmental indicators for Life Cycle Assessment" by the Joint Research Center.

AR 32. With regard to the introduction of invasive alien species, the undertaking may disclose the pathways and number of **invasive alien species** and the extent of surface covered by invasive alien species.

AR 33. With regard to metrics on the extent and condition of **ecosystems**, useful guidance can be found in the work of the United Nations System of Environmental Economic Accounting Ecosystem Accounting (UN SEEA EA).

AR 34. The undertaking may disclose in units of area (e.g., m² or ha) on land-use using guidance provided by the Eco-Management and Audit Scheme (EMAS) ⁽⁸²⁾:

- (a) total use of land;
- (b) total sealed area;
- (c) total nature-oriented area on **site**; and
- (d) total nature-oriented area off site.

⁽⁸²⁾ As proposed by Commission Regulation (EU) 2018/ 2026 of 19 December 2018 amending Annex IV to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) (OJ L 325, 20.12.2018, p. 18).

- AR 35. The undertaking may disclose, for example, land cover change, which is the physical representation of the drivers “habitat modification” and “industrial and domestic activities”, i.e., the man-made or natural change of the physical properties of the earth’s surface at a specific location.
- AR 36. Land cover is a typical variable that can be assessed with earth observation data.
- AR 37. When reporting on material impacts related to the **ecosystems**, the undertaking may, in addition to the extent and condition of ecosystems, also consider the functioning of ecosystems by using:
- (a) a metric that measures a process or function that the ecosystem completes, or that reflects the ability of the ecosystem to undertake that specific process or function: e.g. net primary productivity, which is a measure of plant productivity based on the rate at which energy is stored by plants and made available to other species in the ecosystem. It is a core process that occurs for ecosystems to function. It is related to many factors, such as species diversity, but does not measure these factors directly; or
 - (b) A metric that measures changes to the population of scientifically identified species under threat.
- AR 38. At the ecosystem level, data layers reflecting change in the extent and condition of **ecosystems** may be applied, including levels of **habitat fragmentation** and connectivity.

Disclosure Requirement E4-6 – Anticipated financial effects from material biodiversity and ecosystem-related risks and opportunities

- AR 39. The undertaking may include an assessment of its related products and services at risk over the short-, medium- and long-term, explaining how these are defined, how financial amounts are estimated, and which critical assumptions are made.
- AR 40. The quantification of the **anticipated financial effects** in monetary terms under paragraph 45(a) may be a single amount or a range.