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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

on the monitoring framework for the 8th Environment Action Programme: Measuring progress towards the attainment of the Programme's 2030 and 2050 priority objectives

1. Introduction

The 8th environment action programme (8th EAP)[1] to 2030 aims to accelerate the green transition and ensure decisive action to protect and restore the environment. Ever since 1973, the development and coordination of EU environment policy has been guided by general environment action programmes, which have provided the framework for environment and climate action by the EU and its Member States. The 8th EAP builds on the objectives of the European Green Deal (EGD)[2], which is the EU's growth strategy for achieving a climate-neutral, resource-efficient, non-toxic, resilient and competitive circular economy in a just and inclusive way. The programme is also fundamental to achieving the environmental and climate objectives under the UN 2030 Agenda, its sustainable development goals (SDGs) and multilateral environmental and climate agreements.

Against the backdrop of a series of challenging economic and geopolitical crises, including Russia's aggression against Ukraine, the 8th EAP represents the determination of the EU and its Member States to address the climate, biodiversity and pollution crises and to make the EU more resilient to future shocks. The 8th EAP lays down a long-term priority objective for 2050 to *live well, within planetary boundaries*, and six thematic priority objectives. It also comprises an ambitious framework of 34 'enabling conditions' for achieving these objectives in line with the EGD's 'do no harm' oath and a just and fair transition which leaves no one behind.[3]

The 8th EAP 2050 priority objective*: 'By 2050 at the latest, people live well, within the planetary boundaries in a wellbeing economy where nothing is wasted, growth is regenerative, climate neutrality in the Union has been achieved and inequalities have been significantly reduced. A healthy environment underpins the wellbeing of all people and is an environment in which biodiversity is conserved, ecosystems thrive, and nature is protected and restored, leading to increased resilience to climate change, weather- and climate-related disasters and other environmental risks. The Union sets the pace for ensuring the prosperity of present and future generations globally, guided by intergenerational responsibility.'*

Monitoring main trends in a coherent way with the right indicators is key to ensuring that the EU is making progress towards its environmental and climate objectives. To support and strengthen an integrated approach, the 8th EAP puts in place a governance mechanism and tasks the Commission with establishing a new monitoring framework for measuring progress towards its priority objectives - the 8th EAP monitoring framework ('8th EAP MF'). The monitoring framework is to be based on a limited number of **headline indicators**, including systemic indicators on the links between the environment and social dimensions and the economy, enabling the EU to track progress towards green transition and give a high-level strategic political oversight. The Commission is tasked to report annually to the European Parliament and the Council on actions taken and to outline possible future actions.

[1] Decision (EU) 2022/591 of the European Parliament and of the Council of 12 April 2022 on a General Union Environment Action Programme to 2030 (8th EAP).

[2] COM(2019) 640 final.

[3] Council Recommendation on ensuring a fair transition towards climate neutrality, COM(2021) 801 final.

2. General features of the 8th EAP monitoring framework

The 8th EAP's governance mechanism involves annual monitoring, assessment and reporting by the Commission on the progress towards the programme's six priority objectives, taking into consideration the enabling conditions and the overall goal of achieving systemic change. The Commission is to be supported by the European Environment Agency (EEA) and the European Chemicals Agency (ECHA), which is developing an indicator framework on chemicals.

The 8th EAP headline indicator set is at the core of the governance mechanism. Under Article 4(3) of the programme Decision, the indicators must build on existing data to minimise administrative burden and reflect the latest developments as regards the availability and relevance of data and indicators. Further, the monitoring framework must be based on a methodology that enables the Commission to track the distance to targets related to priority objectives. Where EU legislation lays down legally binding EU targets, the indicators that underpin them were chosen to monitor the relevant programme objectives and enabling conditions. For instance, the EU has agreed on a legally binding target to reduce greenhouse gas emissions, measured in tonnes of CO2 equivalent, by 55% from 1990 levels by 2030. Where general legal requirements or aspirational targets and objectives exist, indicators that measure progress in the desired direction should be used. For example, *total waste generated* reflects efforts to apply the waste hierarchy and therefore to significantly reduce waste by 2030; *share of environmental taxation in total tax revenues* reflects the polluter pays principle.

The 8th EAP 2030 objectives and the 2050 vision requires indicators that measure long-term results in the EU and Member States ('impact' or 'outcome' indicators)[4]. However, in some cases, indicators that focus on action taken ('output' indicators) are included, where there is a strong policy relevance or link to the agreed target. The indicator on *protected areas* is an example of the latter, given its link to the target on protecting 30% of land and sea area by 2030.

The 8th EAP MF comprises a selected headline indicators to provide a high-level political summary. The monitoring framework builds on sector-specific monitoring tools to ensure coherence and minimise administrative burden. These tools include the Energy Union and climate action governance[5], the circular economy monitoring framework, the EU biodiversity monitoring framework[6], the EU bioeconomy monitoring system[7] and the forthcoming monitoring framework on zero pollution[8]. It also takes account of the insights from the environmental implementation review[9].

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4 COM 'Better regulation toolbox', November 2021 edition, p. 358.

5 Regulation (EU) 2018/1999 of 11 December 2018.

6 EU biodiversity strategy dashboard and action tracker: https://dopa.jrc.ec.europa.eu/kcbd/dashboard/.

7 Related Dashboards: https://knowledge4policy.ec.europa.eu/visualisation/eu-bioeconomy-monitoring-system-dashboards_en; https://knowledge4policy.ec.europa.eu/biodiversity/topic/eu-biodiversity-strategy-actions-tracker_en.

8 COM(2021) 400 final and Staff Working Document (2021) 141.

9 COM(2019) 149 final.

Broad agreement on environmental headline indicators will support coherent messages in reporting on environmental and climate policies from a broader perspective, such as:

- the 'EGD visualisation tool', which also covers digital and fairness aspects[10]
- the annual EU progress reports on all 17 SDGs[11]
- the resilience dashboard's holistic assessment of resilience in the EU and its Member States[12]
- the transition performance index that ranks 45 countries' progress on four dimensions of the sustainability transitions[13]
- the European Semester which, in addition to its focus on broad economic and employment policy coordination, provides SDG reporting across all Member States[14] and
- the Composite Indicators & Scoreboards Explorer[15] interactive tool hosting over 100 multidimensional measures.

The 8th EAP MF is aligned with the final report of the Conference on the Future of Europe and its proposals in the area of climate change and the environment[16].

3. Stakeholder consultation

The Commission published a consultative paper on the proposed approach and architecture for the 8th EAP MF on 17 February 2021, which outlined the existing sets of indicators and the principles used to guide the selection of headline indicators. This paper, together with a complementary note of 14 July 2021[17] comprising a first proposal for headline indicators were the basis for the consultations that took place from July 2021 to January 2022. The Commission organised a workshop for Member States and a workshop for external stakeholders in autumn 2021 to discuss the proposed set of indicators. Following the political agreement on the 8th EAP, the Commission revised the list of headline indicators in line with the feedback received and consulted Member States again on this revised list.

The consultation facilitated an in-depth look at indicators within specific thematic areas and sector-specific monitoring tools. It guided the choice of headline indicators as the basis for the annual progress reports and helped to identify indicator gaps, with placeholders agreed for areas where an indicator is not yet ready for use or annual data are not available. A need was identified for

10 https://ec.europa.eu/eurostat/cache/egd-statistics/.
11 https://ec.europa.eu/eurostat/web/sdi
12 https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en
13 https://ec.europa.eu/info/research-and-innovation/strategy/support-policy-making/support-national-research-and-innovation-policy-making/transitions-performance-index-tpi_en
14 https://ec.europa.eu/eurostat/cache/infographs/sdg-country-overview/
15 https://composite-indicators.jrc.ec.europa.eu/explorer
16 https://futureu.europa.eu/pages/reporting
17 https://ec.europa.eu/environment/news/8th-environment-action-programme-commission-consults-monitoring-framework-headline-indicators-2021-07-19_en.

additional indicators for the more in-depth assessments in 2024 and 2029 (see Section 5) and indicators that did not make the final list will be used for this purpose.

Some indicators, such as those measuring greenhouse gas emissions[18] and organic farming, were swiftly identified as headline indicators based on the wide consensus that emerged from the consultations. For areas such as zero pollution choices had to be made. The selected indicators best reflect the systemic nature of environmental and climate challenges and policies, while specific areas will continue to be assessed using some targeted monitoring tools. A separate chapter on its holistic 2050 vision and indicators that relate to several priority objectives or key initiatives were included. For example, the material footprint indicator reflects global environmental pressures related to EU consumption.

There was also a strong call to strengthen the ecosystem health angle. Consequently, three headline indicators were included for the biodiversity chapter to measure progress towards the objective to halt and reverse biodiversity in terms of both individual species and ecosystems. Moreover, in the climate adaptation chapter, the indicator for drought impact on ecosystems was favoured over the one for drought risks. In addition, an indicator on land take was included in the crosscutting 2050 vision chapter.

For some areas, there was agreement to use proxy indicators. For example, for zero pollution, the amount of nitrates in groundwater was chosen as an indicator of clean water, even though it is not updated annually. Albeit it does not quantify the reduction in the nutrient losses, it shows the impact of these losses on water quality and provides good indication for nutrient reduction objectives of the Green Deal. For biodiversity, the common bird index for instance shows best the decline of farmland bird populations, mainly due to agricultural intensification. On ecosystem restoration and protection[19], the most suitable indicators identified relate to *protected areas* and *forest connectivity*. Similar proxy indicators are also used for environmental pressures in complex systems. For instance, for sustainable energy system, the consultation concluded on a combination of two indicators: *energy consumption* and *renewable energy*.

Finally, for a limited number of areas where indicators are not yet available but are particularly policy relevant, the choice was to refer to future developments (for fossil fuel subsidies) or include a placeholder (environmental inequalities) (see Section 5).

4. Selected headline indicators

The headline indicator set follows the structure of the 8th EAP and includes 26 indicators. Each specific priority objective is monitored by two indicators, except biodiversity, which uses three

[18] Used under the EU's climate monitoring mechanisms which lay down the EU's own internal reporting rules based on internationally agreed obligations.

[19] Work ongoing under monitoring and assessment of ecosystem services (MAES). EU methodology to map and assess ecosystem condition is due by end-2022, based on internationally agreed standards from the UN system of environmental-economic accounting.

indicators. Five indicators each are included for environmental pressures, the enabling conditions and the long-term 2050 priority objective.

INDICATOR	TARGET	SOURCE[20]
Climate change mitigation *(Article 2(2)(a))*		
1. Greenhouse gas emission (GHG, index 1990=100, tonnes of CO_2 equivalent)	Climate neutrality: reduce net GHG emissions by at least 55% by 2030 from 1990 levels[21]	EEA
2. GHG emissions from land use, land use change and forestry (LULUCF[22], tonnes of CO_2 equivalent)	Climate neutrality: increase net GHG removals by carbon sinks from the LULUCF sector to -310 million tonnes CO_2 equivalent by 2030[23]	EEA
Climate change adaptation *(Article 2(2)(b))*		
3. Climate-related economic losses (in EUR billion)	Economic impact of climate change: reduce overall monetary losses from weather and climate-related events	EEA[24]
4. Drought impact on ecosystems (area affected in km^2)	Ecosystem resilience: decrease the area impacted by drought and loss of vegetation productivity	EEA
A regenerative circular economy *(Article 2(2)(c))*		
5. Raw material consumption (tonnes per capita)	Material footprint: significantly decrease the EU's material footprint[25], by reducing the amount of raw material needed to produce the products consumed in the EU by reducing the amount of raw material needed to produce the products consumed in the Union	Eurostat
6. Total waste generation (kg per capita)	Waste prevention: significantly reduce the total amount of waste generated by 2030[26]	Eurostat
Zero pollution and a toxic free environment *(Article 2(2)(d))*		
7. Premature deaths due to exposure to fine particulate matter (PM2.5) (number of premature deaths)	Environmental impact on health: reduce premature deaths from air pollution by 55% (from 2005 levels) by 2030[27]	EEA

20 The organisation responsible for data collection and methodology.
21 Regulation (EU) 2021/1119 of 30 June 2021 (Climate Law).
22 Land use, land use change and forestry.
23 COM(2021) 554 final (LULUCF Regulation).
24 Based on data from CATDAT from RiskLayer.
25 8th EAP, Article 3(s).
26 Circular economy action plan, COM(2020) 98 final and Zero pollution action plan, COM(2021) 400 final.
27 ZPAP COM(2021) 400 final.

8. Nitrates in groundwater (mg of NO_3/l and % monitoring stations with value above 50 mg NO_3/l)	Clean water: reduce nutrient losses by at least 50% in safe groundwater resources	EEA[28]
Biodiversity and ecosystems *(Article 2(2)(e))*		
9. Designated terrestrial and marine protected areas[29] (% of total area)	Nature protection: legally protect at least 30% of the EU's land area and 30% of the EU's sea area by 2030[30]	EEA
10. Common bird index (index: 1990 = 100)	Biodiversity preservation: reverse the decline in populations of common birds[31]	EBCC/[32] BirdLife/ RSPB/CSO
11. Forest connectivity (0-100 %[33])	Healthy ecosystems: increase the degree of connectivity in forest ecosystems, with a view to creating and integrating ecological corridors[34] and increase climate change resilience	Joint Research Centre
Environmental and climate pressures related to EU production and consumption *(Article 2(2)(f))*		
12. Energy consumption (in million tonnes of oil equivalent)	Energy efficiency: reduce (primary and final) energy consumption by at least 13% by 2030 compared to 2020[35]	Eurostat
13. Share of renewable energy in gross final energy consumption (in %)[36]	Sustainable energy: at least [45%] of energy from renewable sources in gross final energy consumption by 2030[37]	Eurostat
14. Circular material use rate (in % to the overall material use)	Sustainable industry: double the ratio of circular material use by 2030 compared to 2020[38]	Eurostat
15. Share of buses and trains in inland passenger transport	Sustainable mobility: Increase the share of collective transport modes (buses, coaches and trains)	Eurostat

[28] The annual EEA data will be validated by the data collected under the Nitrates Directive (data source: ENV/JRC) available every 4 years.

[29] Nationally designated sites or Natura 2000 sites.

[30] EU biodiversity strategy.

[31] EU biodiversity strategy.

[32] EBCC – European Bird Census Council; RSPB – Royal Society for the Protection of Birds; CSO (Czech Society for Ornithology)

[33] From not at all (0%) to fully connected (100%).

[34] EU biodiversity strategy with reference to a trans-European Nature Network and Commission proposal for a Regulation on nature restoration, COM(2022) 304 final of 22.6.2022.

[35] Target reflects REPowerEU announcement (COM(2022) 230 final). Subject to final agreement on amended Energy Efficiency Directive (COM(2021) 558 final) and target on renewable energy subject to the amended Renewable Energy Directive (COM(2021) 557 final.

[36] Including breakdown by renewable energy sources.

[37] See FN for indicator 12, number to be adapted, subject to final agreement on amended Renewable Energy Directive (COM(2022) 222 final.

[38] Circular economy action plan COM(2020) 98 final: "in the coming decade".

(% of total inland passenger transport, expressed in passenger-kilometres)		
16. Area under organic farming (% of utilised agricultural area in km^2)	Sustainable agriculture: 25% of EU agricultural land organically farmed by 2030[39]	Eurostat
Enabling conditions *(Article 3)*		
17. Share of environmental taxes in total tax revenues (in %)	Making polluters pay: increase the share of environmental taxes in total revenues from taxes and social contributions	Eurostat
18. Fossil fuel subsidies (EUR million)[40]	Making polluters pay: reduce environmentally harmful subsidies, in particular fossil fuel subsidies, with a view to phasing them out without delay	European Commission
19. Environmental protection expenditure (EUR billion and % GDP)	Financing the transition: increase spending by households, corporations and governments on preventing, reducing and eliminating pollution and other environmental degradation	Eurostat
20. Green bonds (% of total bonds issued)	Sustainable investments: increase the issuance of green bonds to boost public and private financing for green investments	EEA[41]
21. Eco-innovation index[42] Member States' performance compared to EU average (EU = 100) and trend	Innovation for sustainability: increasing eco-innovation as a driver for the green transition	Eco-Innovation Observatory
Living well, within planetary boundaries (*Article 2(1)*)		
22. Land take (km^2 per year)	Planetary boundaries/sustainable use of land: no net land take by 2050[43]	EEA
23. Water exploitation index plus[44] (in %)	Planetary boundaries/sustainable use of water: reduce water scarcity[45]	EEA

[39] EU biodiversity strategy and Farm to Fork strategy.

[40] Data are published in the Staff Working Document accompanying the State of Energy Union report, COM(2021) 950 final. As of 2023, data will be based on Member States' reporting required under the Governance of the Energy Union and Climate action Regulation.

[41] Based on Bloomberg Finance L.P. used in Commission Staff Working Document on monitoring progress towards a capital markets union, (2021) 544 final/2.

[42] The index may be replaced to reflect new policy needs.

[43] EU soil strategy for 2030, COM(2021) 699 final.

[44] For info on sectors covered and time and spatial scale, see https://ec.europa.eu/eurostat/cache/metadata/en/sdg_06_60_esmsip2.htm and https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-3/assessment-4

[45] Directive 2000/60/EC (Water Framework Directive).

24. Consumption footprint[46] (based on life cycle assessment)	Sustainable consumption: significantly decrease the EU's consumption footprint[47], i.e. the environmental impact of consumption	Joint Research Centre
25. Employment and gross added value of environmental goods and services sector (% of total economy)	Sustainable competitiveness: increase of the shares of the green economy and of green employment in the whole economy[48]	Eurostat
26. PLACEHOLDER Environmental inequalities[49]	Environmental wellbeing: reduce environmental inequalities and ensure a fair transition	

5. Closing indicator gaps

The consultations revealed some monitoring gaps regarding indicators that could be useful for environment and climate policymaking in the coming years. For instance, there are no suitable indicators yet for monitoring healthy ecosystems and soils or sustainable use of chemicals. Although monitoring data are collected in many areas, some existing reporting requirements do not include annual data sharing at EU level, e.g. data on marine litter or chemicals in water are reported to the EU only every 6 years. Better implementation of existing legislation and the drive for open data spaces in EU policies[50] will address this bottleneck.

The 8th EAP includes systemic indicators that address the environmental-social and environmental-economic nexus. For environmental inequalities, a placeholder is included while the EEA develops an indicator linking exposure to air pollution with the level of income. This is part of a broader effort to measure environmental fairness and to link the exposure of groups at risk of socio-economic marginalisation to environmental and health risks. On environmentally harmful subsidies, the Commission is currently preparing an implementing act under the Regulation on Governance of the Energy Union and Climate action[51], which will include reporting on the phasing out of energy subsidies, in particular for fossil fuels. In 2022, Eurostat has started to collect data from the national statistical institutes related to "potentially damaging environmental subsidies". On the environment-economy nexus, there are still gaps in indicators to assess the macroeconomic benefits of ecosystem diversity, the risks stemming from ecosystem destruction, the cost of pollutants other than greenhouse gases and the overall socio-economic benefits and distributional aspects of the transition to environmental sustainability.

Some indicators that were not selected as headline will be used for the two in-depth assessments planned in 2024 and 2029. For instance, data on climate-related human losses could help to widen the perspective when assessing progress towards climate adaptation. The same applies to *soil organic carbon* potential for nature restoration, *share of vegetal supply in overall calorie supply*

46 This indicator combines consumption intensity and environmental impacts of representative products for five areas of consumption, assessing the entire supply-chain of products (domestic and trade).

47 8th EAP, Article 3(s) and circular economy action plan.

48 For definitions, see https://ec.europa.eu/eurostat/cache/metadata/en/env_egs_esms.htm

49 See Section 5.

50 COM(2020) 66 final.

51 See Article 17 of Regulation (EU) 2018/1999.

and *use of pesticides*[52] for assessing progress towards a sustainable food system, or an indicator on *electrification of transport* for a wider view on sustainable mobility. Indicators on environmental governance covering compliance assurance, transparency, public participation and access to justice, are not suitable as headline indicators but will be used for the in-depth assessments.

6. Progress reports

In line with the 8th EAP Decision, the Commission, supported by the EEA and ECHA, will present annual reports on progress towards the objectives on the basis of the monitoring framework with its 26 headline indicators outlined in this Communication.

The EEA will develop the assessment methodology in close collaboration with the Commission and present its first annual stocktaking of progress by the end of 2023. The Commission will report on its main findings to facilitate the annual exchange with the European Parliament and the Council. In addition to the annual reporting and exchange, the 8th EAP Decision also provides for a mid-term review in 2024 and an evaluation in 2029.

This reporting will support communication on progress towards achieving the Green Deal objectives. It will be used as a basis for communicating with citizens and policymakers on whether our actions are ambitious enough to help us stay within planetary boundaries, or if more ambition is needed. The consultation has favoured indicators that can be broken down to different levels of governance, which will facilitate a dialogue at national, regional, city and local level.

7. Outlook

The 8th EAP requires a monitoring framework that is stable while allowing for some flexibility. In line with this, the Commission will consider proposing changes to the headline indicators following the 2024 mid-term review and the 2029 evaluation, particularly in view of new indicators becoming available as a result of ongoing and future work (see section 5).

The 8th EAP tasks the Commission to further clarify and potentially streamline the interlinkages between existing EU-level indicator sets, monitoring frameworks and processes that track social, economic and environmental progress. To this end, the Commission will build on a new tool[53] that brings together data from over 100 indices, scoreboards and dashboards and allows for identifying interlinkages between them. The report should lead to a future *beyond-GDP summary dashboard* to measure the EU's progress towards sustainability, wellbeing and resilience. The 8th EAP headline set could constitute its environmental component.

The Commission will continue to promote coherence between the 8th EAP headline indicators and other crosscutting monitoring tools, such as the European Semester and EU SDG monitoring. The Commission has also started preparatory work towards an integrated framework for wellbeing,

[52] Proposal for a Sustainable Use of Pesticides Directive COM(2022) 305 final: target to reduce the use of chemical pesticides by 50% by 2030.

[53] https://composite-indicators.jrc.ec.europa.eu/explorer

which could inform policy makers and stakeholders on whether environmental policies are ambitious enough for the EU to stay within the safe and just limits of our planet.