

Scoping the development of a Zero Pollution Scoreboard for regions (flagship 3) and gathering data on urban zero pollution action (flagship 2)

DRAFT CONCEPT PAPER

MARTS 2023
EUROPEAN COMMISSION, DG ENV

Scoping the development of a Zero Pollution Scoreboard for regions (flagship 3) and gathering data on urban zero pollution action (flagship 2)

DRAFT CONCEPT PAPER

PROJECT NO. DOCUMENT NO.
A236255 1

VERSION	DATE OF ISSUE	DESCRIPTION	PREPARED	CHECKED	APPROVED
3	31.03.2023	3 rd draft of concept paper	MCMN, LDFE, FEAR	MCMN	MCMN

CONTENTS

1	Introduction	6
1.1	Setting the scene in the context of Flagship 2/3	6
1.2	Overall objective of the urban and regional scoreboard	7
1.3	The concept, rationale and goal of the project	7
2	Developing the conceptual framework for urban and regional scoreboard	9
2.1	Selection of themes and related indicators	9
2.2	Overall approach and methods	16
2.3	Planning consultation	33
3	Conclusions	35

APPENDICES

Appendix A List of relevant references

Appendix B Administrative information

1 Introduction

This concept paper aims to outline a concept for the design of a zero-pollution scoreboard for regions and cities. The paper is divided in three main chapters, providing an (1) introduction and contextualisation, (2) the conceptual framework including themes and indicators and a (3) conclusion.

1.1 Setting the scene in the context of Flagship 2 and Flagship 3

To support the effort of reaching the zero-pollution objectives for Europe, the Zero Pollution Action Plan (ZPAP) sets out to support urban zero pollution action (flagship 2) and promoting zero pollution across regions (flagship 3). Flagship 2¹ envisages to reward cities in their effort to combat air, water, and soil pollution with regards to progress made in the timeframe 2021-2023. Flagship 3² envisages in a similar spirit to measure green performance of regions with regards to reaching pollution reduction targets. This shall be displayed in a scoreboard to award regions showing the most progress in achieving the 2030 targets to be presented in October 2024 by the European Commission in cooperation with the Committee of Regions. The scoreboard provides the opportunity for citizens to check progress of their respective regions/cities on the path to zero pollution as well as for administrations and businesses to implement actions to achieve that progress. In line with the ZPAP it should also provide the necessary information to inform tourism choices by citizens, with regards to the indicators impacting tourism. The EU Tourism Dashboard for example, provides the opportunity to, among other things check the quality of bathing water on a regional and sub-regional level³. Another relevant approach is currently applied in the REGIONS 2030 project, in which an indicator and monitoring framework for the fulfilment of the UN SDGs is tested in 10 pilot regions⁴. Considering the abovementioned, the scoreboard should be seen as a framework that accommodates both, the objectives of flagship 2 and 3 while taking account for and embedding relevant ongoing initiatives and projects on

¹ Flagship 2: Supporting urban zero pollution action

² Flagship 3: Promoting zero pollution across regions

³ [EU Tourism Dashboard \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

⁴ [REGIONS2030 - Pilot regions announced | Knowledge for policy \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

the European level, such as the Green City accord, synergies with the EU Mission on cities as well as for regions the regular Cohesion report, Eurostat region Yearbook, the Regions 2030 project, the EU Tourism dashboard etc. This has accordingly to be reflected in the choice of data and indicators, but also the visualisation and usability to provide for a meaningful scoreboard framework for the targeted groups.

1.2 Overall objective of the urban and regional scoreboard

The scoreboard is supposed to deliver a contribution boosting the objectives of flagship 2 and 3, by helping cities and regions to report progress on reducing air, water and soil pollution and making this data available to the wider public. The scoreboard is supposed to be a platform that communicates progress and good performance regarding zero pollution objectives. It should highlight good performers and raise the attention to best practices and good examples for other regions and cities. Thereby potential spill-over effects of the methods used in certain region/cities can be channelled/conveyed to other stakeholder and ideally generate multiplier effects. The ratings of the scoreboard should not be designed as such to blame and point at cities/regions not reaching the targets or not showing progress. It should in that sense be a forward-looking and constructive tool to point at the means and possibilities for stakeholders to reach the zero pollution targets, illustrated by positive examples.

The following steps and milestone to the IT development of the scoreboard have been set by the Commission (the dates indicated in italics are suggestions by COWI):

- 1 Scoping Study (Further described below) (*by May/June 2023*)
- 2 Development of the methodology for the scoreboard (*September 2023 - February 2024*)
- 3 Implementation of the methodology and data gathering through online IT tool (*February 2024-September 2024*)
- 4 Presentation of the first IT pilot of the scoreboard (*October 2024*)

1.3 The concept, rationale and goal of the project

The work conducted by COWI in developing the scoreboard comprises step 1 (scoping study) of the steps depicted above. The scoping study has the overall aim to outline a conceptual framework on the regional/urban zero pollution scoreboard. More specifically it comprises the following steps:

- > Review available official data with regards to geographical and timeframe granularity of indicators
- > Review available methodologies with regards to their relevance to the objectives of the scoreboard and their applicability to the range of indicators
- > Rate the available options and provide suggestions for ranking performances of regions/cities

- > Provide recommendations for the IT development of the scoreboard

In the final phase of the study, a workshop will be conducted with members of the zero-pollution stakeholder platform, DG ENV, DG REGIO, DG RTD, JRC, ESTAT, EEA and the Committee of the Regions to validate the findings and collect additional input to the conceptual framework. The scoping study will consecutively be updated with the inputs provided in the workshop.

Table 1-1 Milestones for the development of the concept paper

Milestones	Date
Final draft of concept paper	31 March 2023
Circulation of the final draft concept paper	5 April 2023
Workshop providing feedback to draft	25 April 2023
Final concept paper	26 May 2023

2 Developing the conceptual framework for urban and regional scoreboard

This section presents preliminary considerations on the overall concept for an urban and regional scoreboard. A variety of different indicators and means to group and aggregate indicators exist, of which the most promising ones will be briefly discussed in this section. The section also includes preliminary considerations on visualisation options for a scoreboard.

2.1 Selection of themes and related indicators

Based on the ZPAP flagship 2 and 3, the relevant themes will be discussed, considering the available and representative data.

It could be noted that the number of indicators that could be linked to pollution is estimated to be around 220⁵. For the regional and city scoreboard, the most relevant indicators should be selected. Hence, this section presents the themes and the availability of relevant indicators as the basis for developing the scoreboard.

In the context of the ZPAP, the Commission published a Monitoring and Outlook framework⁶ to track the progress in reaching the targets. The framework published sets out the baseline and helps the Commission and Member States identify where additional measures are necessary. Based on the explicit goals within the Action plan, the framework selected the most relevant and available data at EU level. This has been the basis for Zero-pollution monitoring assessment (ZPMA) report published by the EEA⁷.

For cities, there is the Green City Accord, which is an EC initiative where signatory cities commit to address and improve on five areas of environmental management⁸. As part of the initiative, there is a list of indicators that cities should report⁹. To ensure coherence, the indicators included in the *Zero-pollution monitoring assessment* and the *Green City Accord* as well as the criteria for the selection of the European Green Capital and Green Leaf awards are used as a starting point to ensure an integrated scoreboard across pollution domains. Similarly, some relevant indicators included in the Eurostat Regional

⁵ SWD(2021) 141 final *Towards a monitoring and outlook framework for the zero pollution ambition*

⁶ SWD(2021) 141 final *Towards a monitoring and outlook framework for the zero pollution ambition*

⁷ [Zero pollution monitoring assessment — European Environment Agency \(europa.eu\)](#)

⁸ [Green City Accord \(europa.eu\)](#)

⁹ [Green City Accord Indicators Guidebook.pdf \(europa.eu\)](#)

Yearbook 2022¹⁰ and the EU cohesion report¹¹ have been taken into account for the scoreboard.

Similarly, a reflexion is on-going on how to select, integrate, weight, and aggregate the different sources of pollution into the scoreboard. This also needs to be regarded from a geographical perspective, as the relevance of indicators differs according to geographies.

2.1.1 Zero-pollution targets

The definition of the environmental themes to be covered by a regional and urban scoreboard could be based on the zero-pollution targets. The targets include the following¹²:

- > improving air quality to reduce the number of premature deaths caused by air pollution by 55%;
- > improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%);
- > improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%;
- > reducing by 25% the EU ecosystems where air pollution threatens biodiversity;
- > reducing the share of people chronically disturbed by transport noise by 30%, and
- > significantly reducing waste generation and by 50% residual municipal waste.

It could be considered which of the targets are most relevant in relation to regions and urban areas (cities) when considering how to assess and reward progress.

The question of relevance is first of all a question of policy influence and responsibility. For some of themes, it might be that regions and cities have only limited influence on which measures are introduced and therefore limited influence on whether the targets are being met or not. Then, there are also regional and city specificities which have varying degree of influence on the achievement of the different targets.

For example, for air pollution, the energy system for heating and electricity is important. If changes to the energy system is decided at a nation level, regions and cities may have limited influence; for example, on which fuels to use and on setting pollution limit values for large point sources. It could also be that regions and cities can decide on the regional and local energy systems and thereby significantly affects air pollution emissions.

¹⁰ [Eurostat regional yearbook 2022 \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

¹¹ [Inforegio - Eighth Report on Economic, Social and Territorial Cohesion \(europa.eu\)](https://ec.europa.eu/info/policies/infocus/eu-cohesion-policy_en)

¹² See [Zero pollution action plan \(europa.eu\)](https://ec.europa.eu/info/policies/infocus/eu-cohesion-policy_en)

Regions and cities typically have more responsibilities for the transport sector. It means that they can affect the transport sector which is another important sector in relation to air pollution. The transport sector is also important in relation to noise and partly micro-plastics. Then, waste management is also part of the regional and city responsibilities and can be affected. The regional and city influence is less clear for agricultural impacts. It means that soil quality and partly air pollutants affecting ecosystems (for example ammonia) are related to agricultural pressures for which the regions and cities might have limited influence, depending on the governance structure of the regions/cities.

This aspect needs to be taken into account in view of the final selection of themes and the specific indicators. Below, this a brief assessment of each target is included. The assessment of relevance is based on our judgement, to be validated by stakeholders, of the extent to which regions and cities can make decision on measures that will impact on each of the themes.

Table 2-1 Regional and city relevance of zero-pollution targets

Target	Regional relevance	Urban/city relevance	Overall assessment for scoreboard
Improving air quality to reduce the number of premature deaths caused by air pollution by 55%;	Regions can affect air pollution	Cities can affect air pollution	Very relevant
Improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%);	Regions can affect these aspects to some extent	Regions can affect these aspects to some extent	Relevant
Improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%;	Much of actions on nutrients and pesticides are part of the WFD River Basin Management Plans. Often within what is nationally decided. Hence, there might be more limited scope for region actions	Not relevant for cities	Some or limited relevance as actions are decided at RBD or national level.
Reducing by 25% the EU ecosystems where air pollution threatens biodiversity;	Some relevance given transport emissions of NOx	Some relevance given transport emissions of NOx	Relevant
Reducing the share of people chronically disturbed by transport noise by 30%, and	Very relevant	Very relevant	Very relevant
Significantly reducing waste generation and by 50% residual municipal waste.	Very relevant	Very relevant	Very relevant

Source: COWI assessment

From the perspective of targets where regions and cities can take action and achieve progress, there is a varying degree of relevance. For all themes,

achieving progress and full achievement of the targets requires a mix of EU, national, regional and local actions and measures.

The consideration for the regional and city scoreboard is therefore how this aspect should affect the choice of themes and indicators. On one hand a theme is more relevant if actions by regions and cities can make a difference towards the zero-pollution targets. On the other hand as long as there are some actions and measures that regions and cities can decide, then they can be measured.

2.1.2 Themes and indicators in the Zero-pollution monitoring assessment

The thematic heading used in ZPMA includes the following:

- > Health
 - > Air pollution and health
 - > Noise pollution and health
 - > Water pollution and health
 - > Chemicals and health
 - > Soil pollution and health

- > Ecosystems
 - > Freshwater pollution and ecosystems
 - > Marine pollution and ecosystems
 - > Air pollution and ecosystems
 - > Soil pollution and ecosystems

- > Production and consumption
 - > Resource extraction
 - > Production
 - > Consumption
 - > Waste management

The flagship 2 and 3 include some references to the specific areas. For example, Flagship 2 on rewarding cities lists that it is about cities contribution to reduction of air, water and soil pollution. Flagship 3 does not refer to specific themes but to the regional performance in relation to the zero-pollution targets.

2.1.3 Other indicator sets and reports

There are other indicator sets that are relevant to consider. They include:

- > The indicators and assessments carried out in the context of the Green City Accord¹³ and relevant synergies with the urban flagship
- > The indicators used in the European Green Capital/Green Leaf Award
- > The 8th EU Cohesion Report

¹³ https://environment.ec.europa.eu/publications/green-city-accord-indicators-guidebook_en

- > The ESTAT (2022 Regional Yearbook, SGD Report)
- > EU strategies including on Biodiversity & Farm to Fork, Chemicals, Integrated Nutrient Management, Pharmaceuticals, Industry's strategies

The Green City Accord includes indicators on the following themes:

- > Air
- > Water
- > Nature and biodiversity
- > Waste and circular economy
- > Noise

The 8th Cohesion Report¹⁴ includes also a number of environmental themes similar to the one discussed above. For example:

- > Water quality
 - > Share of population connected to wastewater treatment plants with more stringent treatment
- > Waste
 - > Generation per capita
 - > Share of waste recovered
- > Air quality
 - > Emission of air pollutants
 - > Distance to targets for selected air pollutants
 - > Concentration level for selected pollutants
 - > Premature death caused by exposure to PM2.5
- > Land use/cover
 - > Built-up land and infrastructure
 - > Imperviousness per inhabitant

The Green Capital and Green Leaf assessment criteria in addition provide the following indicators (apart from the already covered ones):

- > Amount and quality of protected natural areas, habitats and species
- > Quality and amount of green infrastructure and green urban areas

These themes and indicators are very similar to the themes included in the ZPMA. Land use/cover is one theme that adds to the ZPMA. The indicators there might be considered in relation to soil. The indicator is not updated annually, so there is a further consideration of data availability and resources to build relevant indicators.

¹⁴ [Inforegio - Eighth Report on Economic, Social and Territorial Cohesion \(europa.eu\)](https://ec.europa.eu/economy_finance/inf-8th-report-economic-social-territorial-cohesion)

2.1.4 Selection of themes

Considering all of the above points, leads to a selection of themes. Using the above themes from the Zero pollution monitoring assessment, the following would come out as most promising:

- > Health
 - > Air pollution and health
 - > Noise pollution and health
 - > Water pollution and health
 - > Soil pollution and health

- > Ecosystems
 - > Air pollution and ecosystems
 - > Freshwater pollution and ecosystems
 - > Marine pollution and ecosystems
 - > Soil pollution and ecosystems

- > Production and consumption
 - > Waste management
 - > Industrial emissions
 - > Other sources?

Below, each of these themes are briefly discussed.

2.1.5 The impact of pollution on health

To tackle **air pollution**, there are two main targets in the action plan related to air pollution:

- > reduction of air pollution to levels not considered harmful to health
- > reduction of premature deaths caused by air pollution by 55%

Air pollution and its impact on health is a theme where regions and cities through actions and measures can impact on the situation. It is also a theme where there are many data and indicators already available. So, for this theme, the challenge is to select the specific indicators. This is discussed in Section Preliminary selection of indicators 2.2.3.

When it comes to **noise pollution**, the ZPAP targets a reduction of 30% the share of people chronically disturbed by transport noise. However, data is more difficult to assess progress from, as the reports are published every five years, with the latest version being from 2017. The Green City Accords include noise indicators, but it might not be ready for a 2024 scoreboard. It will also not include regions.

Concerning **water pollution**, the ZPAP only calls for the protection of human health without any detailed target. The Bathing Water Directive and the Urban Wastewater Directive provide relevant data on the progress made each year. From January 2023, the Drinking Water Directive will allow the monitoring of

more concerning pollutants. However, under the Nitrates Directive, data has been collected on the quality of groundwater stations. This indicator could be used in the meantime. For water, there is question about what is in the responsibility of regions and cities. Urban wastewater treatment (which cover also small cities/agglomerations) is very much a regional and city responsibility. UWWT affects health through bathing water, but considering the current level of treatment, bathing waters are generally of good quality. There is therefore limited room for additional improvements. Pollution with hazardous substances is a topic of emerging concern. Here, there are limited data and indicators available.

Indicators concerning the **status of soil** are closely linked to the impact of the pollution on environment as well. The ZPAP identifies the need to improve the management of contaminated sites. In its ZPMA, the EEA identifies the risks caused by antimicrobials and pesticides for our health. However, the EEA reports that the collection of such data is sparse across Member States.

2.1.6 The impact of pollution on ecosystems and biodiversity

The ZPAP identifies broad targets to reduce pollution within the ecosystems. While there are already frameworks in place concerning air and water, the Action plan foresees further development to assess the quality of EU soils.

When it comes to air quality, the objective is to reduce air pollution-related eutrophication threatening biodiversity by 25%¹⁵. In its framework, the EEA identifies 4 important pollutants for reaching the targets: concentration of atmospheric nitrogen, exposition to ozone, emission of heavy metals from industries (which include lead, mercury and cadmium).

Concerning **water pollution** including both freshwater and marine pollution, the EU legislation provides a range of comprehensive framework defining two main objectives to be achieved by 2030: achieve a good ecological status for both freshwater and marine water bodies and reduce nutrient in losses by 50%, which can be monitored through the level of nitrate and phosphorus both in rivers and groundwaters. The level of pesticides and biochemical oxygen demand, which indicates the level of organic pollution in water, are also indicators relevant to assess the progress made by cities and regions.

The ZPAP aims at reaching a level of 75% of EU **soil** in healthy conditions. This calls for a reduction of pollution of agricultural land with zinc and copper which in large concentrations cause harm to ecosystems. The available indicators, from the LUCAS soil module 2018¹⁶ only analyses soil data in a single sampling period. Reports are only available for the years 2009, 2015 and 2018. Also land

¹⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0400&from=EN>

¹⁶ European Commission, JRC, Fernández-Ugalde, O., Orgiazzi, A., Marechal, A., et al., LUCAS 2018 soil module : presentation of dataset and results, Publications Office of the European Union, 2022

cover data could be considered, but they may not be updated annually and therefore more challenging to use.

2.1.7 Production and consumption

In relation to production and consumption, the relevant target is the one about significantly reducing waste generation and by 50% residual municipal waste.

The Green City Accord include indicators for generation of municipal waste, recycling and landfilling.

Though a specific definition of what a significant reduction of **municipal waste** would mean, it could be possible to monitor the development. The target for the **residual municipal waste** refers to the share of municipal waste being incinerated or landfilled.

These are areas that regions and cities can affect and where there are available indicators. Hence, it could also be relevant to include this theme in the scoreboard. Currently, the indicators are not available at regional and city level. It will therefore require additional data collection such as envisaged by the Green City Accord.

2.2 Overall approach and methods

2.2.1 Considerations on the scoring of performance

This section describes the alternative type of indicators that can be selected for the regional/city scoreboard.

Above, the themes have been discussed. Within each theme there are alternative indicators that could be selected. To consider all possibilities, the discussion is organised around two dimensions of defining indicators. They include:

- > The Driver, Pressure, State, Impact and Response (DPSIR) framework (as e.g. used by the EEA)
- > Description, performance and efficiency indicators. This is a different typology that covers what an indicator shows.

Using these dimensions will allow us to consider in systematic and comprehensive way how the scoreboard can be defined as a basis for the final decision.

DPSIR

The discussion starts off from the considering the DPSIR framework and how the indicators can be defined.

Overall, the DPSIR framework defines how pollution and other environmental issues can be understood based on the causal links. It means that drivers are typically socio-economic factors leading to pressures. For example, socio-economic developments affect mobility, which again affects the use of different modes of transport vehicles. Consequently, the use of transport vehicles generates air emissions. Emissions are the typical pressure. The state is typically the concentration of the emitted substances in the environment. The impacts are what the state leads to in terms of effects. It could be the number of people being exposed or further in the causal chain, the number of diseases/health impacts caused. Response is then what is done to mitigate the problem. The response are typically actions affecting the drivers or the pressures.

There are indicators that cover all these elements of the framework. For the urban and regional scoreboard, it is relevant to consider all types of indicators.

Drivers: For air pollution, this category includes for example the transport activity, use of fuels for heating and electricity etc. While the drivers are important when defining relevant measures to improve the environmental performance, there is not always a direct link to the environmental situation. Given that the focus of the scoreboard on the environmental situation and performance, it is less likely that this type would be used here.

Pressure indicators: They are for example indicators on emissions. They are part of other EEA indicators and the Green City Accord as discussed above. Therefore, this type is relevant to include. The absolute amount of emissions will not be a relevant indicator as the regions would vary in size and population and therefore emissions would differ. Accordingly, a more relevant indicator for the scoreboard would be emission per capita or per area (km² or ha).

State indicators: They include the concentration of air pollutants, and they are important for understanding the status quo of pollution. They are often closely related to the pressure indicators. If emissions are high, it is likely that concentrations are high as well.

Impact indicators: Impact indicator could be the number of premature deaths caused by the current level of air pollution. Impact indicators are relevant as they present the consequences of the situation.

Response indicators: A response indicator could comprise the total investments made to reduce air pollution. This type of indicator is not part of the key data sources that have been investigated, see Annex 1. However, this type could be relevant as it will reflect cases in which there are pressures with the state being far from the targets, but large efforts are being made in order to mitigate the situation.

Descriptive, performance or efficiency indicators

Another way of categorizing indicators includes the following categories or types of indicators (EEA)¹⁷:

- > Description indicators
- > Performance indicators
- > Efficiency indicators
- > Total welfare indicators

Description indicators describe the current situation of the state of the environment. Accordingly, all indicators discussed above under the DPSIR framework can be considered description indicators.

Performance indicators are typically presenting the distance to a defined target. For example, where annual air pollution emission would be considered a description indicator, a performance indicator could show the difference between the annual emissions and an agreed reduction commitment. Where a description indicator could be the concentration of an air pollutant, the performance indicator would be showing the actual concentration compared to target value (an agreed target, a recommended limit value etc.).

Both description and performance indicators can be considered relevant in relation the scoreboard.

Efficiency indicators are showing environmental performance in relation to products or services. For example, the level of air pollution in relation to Gross Domestic Product (GDP) is a measure of how efficient the economy is in producing economic welfare without generating pollution.

Total welfare indicators are aggregated efficiency indicators. An example of such an aggregated efficiency indicator is green GDP, where all the environmental externalities are included as an adjustment to the traditional GDP measure. An aggregated efficiency indicator could be relevant in order to understand changes with respect to environmental performance. If for example air pollution emissions are decreasing, it suggests an environmental improvement. However, if this is the result of a fall in industrial activity leading to a reduction in the "traditional" GDP, it might be seen as a negative socio-economic impact. In such a case a green GDP might show whether it is an overall improvement.

Given the initial scope of the regional scoreboard, it might not be feasible to include economic efficiency indicators already at this stage. In any case, this could be considered in the future when regional GDP data for NUTS2 regions and other economic indicators are available.

¹⁷ EEA (1999) *Environmental indicators: Typology and overview*, Technical report No 25

Given that the aim of the regional and urban/city scoreboard is to show progress and inspire regions and cities to improve performance, it points to some indicators being better suited than others.

Table 2-2 Assessment of indicator types

Type of indicator	Availability	Relevance for the scoreboard	Comments
DPSIR			
Driver	Availability not assessed	Less relevant	Not directly about environment – will lead to too many indicators (or indicator elements)
Pressure	Available	Very relevant	Linked to sources and production & consumption
State	Available	Very relevant	Linked to themes health and ecosystems
Impact	Available	Very relevant	Linked to themes health and ecosystems
Response	Availability not assessed	Maybe relevant	There are alternative ways to measure response. To be further assessed.
Process			
Descriptive	Available	Very relevant	
Performance	Available	Very relevant	
Efficiency	Data available, indicator to be estimated	Maybe relevant	To be considered for flagship 3, though not part of the ZPMA or the Green City Accord.
Total welfare and other economic data		Not relevant for the regional scoreboard at this initial stage	

Source: COWI assessment

The DPSIR and the process dimensions can be combined. Not all combinations are relevant to consider for this scoreboard. The possible relevant combinations of the DPSIR and the process indicators are set out in the next table.

Table 2-3 Relevant combinations of indicator dimensions

	Descriptive	Performance	Efficiency
Driver	X	X	
Pressure	X	X	X
State	X	X	
Impact	X	X	
Response	X		X

Source: COWI assessment

As argued above, driver indicators are not considered relevant. For pressure indicators, they could be descriptive, performance and efficiency based. For state indicators, descriptive or performance-based indicators are most relevant. This similarly applies to impact indicators. For response, they are either descriptive – how much is done, or efficiency based – what is result of the response.

For all the possible indicators there is one more dimension to consider. The indicators can be presented and used as:

- > Annual value
- > Annual Change in percentage

This is possible for all the indicators. The scoreboard is focused on promoting good performance, so the changes in from year to year or a wider trend is therefore more in line with the objective of the scoreboard.

Grouping

Defining the grouping is closely linked with selection of indicators discussed above.

The EEA is often working with two indicators to characterise a certain theme such as air pollution. They use the past trends as one indicator, which is defined as the annual changes of the main indicator. Then the main indicator often consists of a state or impact performance indicator. For example, for air pollution and health in the 2022 ZPMA Z the indicator is premature mortality attributed to PM_{2.5}. Additionally, there is the trend - whether the number is decreasing or not and there is the distance to target – how far there is to the EU target of reducing premature mortality by 55%.

In such a case the groups could be defined by where they are and how much they are improving.

Table 2-4 Example of definition of categorisation of regions/cities

	Distance to target	Trend
Group 1	Regions/cities above target	Trend is not worsening
Group 2	Regions/cities just below the target	Trend is improving or constant
Group 3	Regions/cities below target (less than xx%)	Trend is improving
Group 4	Regions/cities further below target (less than yy%)	Trend is significantly improving
Group 5	Regions/cities further below target (more than yy%)	Trend is less than significantly improving

Source: COWI

There are several ways of designing the grouping and thereby displaying a larger or smaller number of well-performing regions/cities. If the scoreboard should highlight a variety of medium to well performing actors, a broader grouping in the upper category could be an option.

Exemplified by group 3 this could look as follows:

Group 3	Regions below target (less than xx%)	Trend is improving by x%
	Regions below target (less than yy%)	Trend is improving by between x and z%

Also, it could be considered to include the possibility of adding cities own information to revise the scoring. This could be to include a third indicator – for example the amount invested in improvements (per capita or per GDP). Then, the definition of groups would include that if a region/city has plans for or investments in improvement of the theme, their position in the group would accordingly improve.

There are other possible approaches to define the groups of regions/cities. One alternative is one shown in the below table.

Table 2-5 Alternative break down of regions/cities

	Distance to target/ Pollution level	Trend
Group 1	Pollution meets the target.	Trend is downward
Group 2	Pollution meets the target.	Trend is stable.
Group 3	Pollution meets the target.	Trend is upward
Group 4	Pollution exceeds the target.	Trend is downward
Group 5	Pollution exceeds the target.	Trend is stable
Group 6	Pollution exceeds the target.	Trend is upward

Eurostat in its SDG report or also the EU ecosystem assessment (JRC report 2020) define what is upward, stable and downward trends. This can go beyond merely statistical significance. For instance, in the EU ecosystem assessment, it is considered that a trend of 5% per decade is “ecologically significant” even if the statistical trend was not significant. See page 32-33 of the EU ecosystem assessment.

2.2.2 Considerations on the geographical grouping and scaling of regions and cities

The challenge of defining the geographical grouping of regions and cities is to create a certain extent of comparability. Regions in themselves differ significantly with regards to population density, the intensity and kind of industrial activity and natural and geographical properties. The types of pollution a region faces that is dominated by agricultural farmland are very different compared to a region that contains e.g., mining industries, paper industry or coal power plants. The scoreboard should therefore make reference to the differing properties of the regions and their specific pollution challenges.

The choice on the definition of the regional level of aggregation is between the NUTS2 and the NUTS3 level. There are 242 regions at NUTS2 level and 1166 regions at NUTS3 level.

With regards to geographic resolution of the available data, the collection of indicators reveal that certain relevant indicators are only available to a level of NUTS2, e.g., the indicators on soil contamination. This points to the conclusion that the geographical resolution should be limited to NUTS2, unless interpolation/disaggregation for certain indicator groups is being taken into consideration.

Another challenge is the fact that indicators on water quality only exist on the level of water bodies, not NUTS levels. Considerations on how to aggregate the water indicators with the other indicators on NUTS-level will therefore need to be made.

The European Commission's *Cohesion in Europe towards 2050*¹⁸ report defines several types of regions and areas, that will need to be taken into account for the geographical grouping of regions and cities:

With regards to economic activity in regions the following grouping can be used:

- > Less developed regions – GDP per head below 75% of EU27 average
- > Transition regions – GDP per head between 75%-100% of EU-27 average
- > More developed regions – GDP per head above 100% of EU-27 average

With regards of types of the degree of urbanisation the following groupings exist:

- > Cities: with more than 50% of the population in an urban centre
- > Towns and suburbs: with more than 50% of the population in urban clusters but less than 50% living in an urban centre
- > Rural areas: More than 50% of the population in rural grid cells (1km²)

A more granular classification, provided by the Eurostat manual on territorial typologies¹⁹, for rural areas distinguishes between:

- > predominantly urban regions – more than 80% of the population live in urban clusters
- > Intermediate regions – more than 50% and up to 80% of the population live in urban clusters
- > predominantly rural regions – at least 50% of the population live in rural grid cells

2.2.3 Preliminary selection of indicators

Based on all the above considerations, this section presents suggestions for indicators to be included in the scoreboard. The analysis and recommendations are only preliminary and further assessment might be needed.

Pollution and health

With regards to the DPSIR dimension, in principle all the elements are covered by available indicators except for Response, which might be more demanding to cover.

¹⁸ [Inforegio - Eighth Report on Economic, Social and Territorial Cohesion \(europa.eu\)](https://ec.europa.eu/economy_finance/inforegio_en)

¹⁹ [Eurostat - methodological manual on territorial typologies](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

As discussed above, Driver indicators are less relevant. Comparing the indicators on **air and health** included in the ZPMA and the Green City Accord, the choice is between indicators on concentrations of specific air pollutants (state) and indicators on impacts such number of premature deaths.

Given that the ZPA includes targets on reduction of premature death due to air pollution, it points to including this as one of the air pollution indicators. While the type is not included in the Green City Accord list, the Cohesion report includes the years of life lost attributed to exposure to PM_{2.5} at NUTS 3 level, but it can be estimated for cities as well.

For **noise**, the available indicators are not updated annually. It will therefore be difficult to measure progress over the period 2021 to 2024. It could be considered for future update of the scoreboard to include noise. However, a comparison could be made between the latest two rounds of noise data being reported, i.e. between 2017 and 2022 (reporting currently ongoing).

For **water and health**, there are several options. The most direct impact is through drinking water. There is currently no useful indicator available. Almost all water supplies throughout EU comply with the DWD requirements to limit values for hazardous substances. So, there is limited added value of including compliance in the selected indicators. However, the reporting for the Directive may result in some more meaningful data indicators becoming available. Hence a decision on including those at a later stage, can be made, once available. For bathing waters, where there is also a direct link to health, there is similar situation. In this case an indicator exists which shows the quality of all more than 20,000 designated bathing sites. The vast majority – more than 80% - are of a high-quality level already. It means it is not likely that an indicator will show any changes. Still this indicator is an important factor for water pollution and could therefore be included.

A more indirect indicator could be the status of ground water bodies. The majority of the drinking water supply is coming from groundwaters wherefore increased groundwater pollution would pose a potential problem. Still, the DWD requires that all concentration limit values for hazardous substances are to be complied with. It means that increased pollution of ground water bodies will lead to additional treatment costs rather than direct health issues.

For **soil pollution** and health, there is an indicator on the management of contaminated sites as one of currently available indicators. As with some of the other indicators, there is issue of how regular it is updated and therefore whether can be included in a first version of the scoreboard.

It should therefore be considered whether in future, there might be more relevant indicators on soil. Therefore, the preliminary conclusion on indicators for pollution and health include the below selection. It should be noted that it the list will need to be further reduced.

Note that availability here means whether the indicator is available at NUTS2 level and with annual data update.

Table 2-6 Proposed indicators (indicative provision of availability) for pollution and health

Possible indicator	Availability	Type of indicator	Availability at regional /urban level
Air pollution indicators			
Emissions of PM _{2.5} and or NO ₂	EEA (CSI004), EEA Air Quality Health Risk Assessments	Descriptive indicators could be used.	NUTS2, Cities
Concentrations of PM _{2.5}	EEA (CSI004), EEA Air Quality Health Risk Assessments	Both descriptive and performance indicators can be defined and used.	NUTS2, NUTS3 ²⁰ Cities
Number of premature death due to PM _{2.5}	EEA (CSI004), EEA Air Quality Health Risk Assessments	Both descriptive and performance indicators can be defined and used.	NUTS2, Cities
Water pollution indicators			
Quality of bathing water	EEA (CSI022/WAT004)	Both descriptive and performance indicators can be defined and used.	Per water body
Drinking water quality	Data will be available on an annual basis, in accordance with drinking water directive recast. (Two endocrine disrupters by 2023, more substances such	Indicators can be added once data under the new DWD become available.	Tbc.

²⁰ [Table publisher \(europa.eu\)](https://eur-lex.europa.eu/)

Possible indicator	Availability	Type of indicator	Availability at regional /urban level
	as PFAS to follow in 2024 ²¹)		
Percentage of groundwater stations exceeding the drinking water standard (50 mg nitrate s per litre)	COM / EEA	Both descriptive and performance indicators can be used.	MS level, per measurement station
Percentage of population connected at secondary wastewater treatment.	EEA/ Wise (only available every 2 years)	Both descriptive and performance indicators can be used.	NUTS2
Soil pollution indicator			
Progress in management of contaminated sites	The indicator is not available at NUTS2 level (only at national level), and only every 5 years	Performance indicators can be used.	Only at national level
(Noise indicators)			
Percentage of the population exposed to average day-evening night noise levels (Lden) ≥ 55 dB	Only every 5 years. Disaggregation needs to be considered.	Descriptive. Performance indicators can be used.	EEA City level

Pollution and ecosystems

For pollution and ecosystems, there are **air pollutants** that affect ecosystems and where there are available indicators. The emissions that are from transport

²¹ [L_2020435EN.01000101.xml \(europa.eu\)](#)

activities are where the regions and cities have the largest influence. This could be considered for the final selection of indicators.

On **water**, there indicators for emissions which are regularly updated. For overall status of water bodies, the indicators defined by the Water Framework Directive are not being updated annually. There is also an question on the aggregation from the river basin definition of water bodies into the administrative regions.

For **soil**, the are available indicators. However, this aspect needs further assessment.

Table 2-7 Proposed indicators for biodiversity and ecosystems

Possible indicator	Availability	Type of indicator	Availability at regional/urban level
Air pollution indicators			
Deposition of airborne nitrogen	EEA/EMEP	Descriptive indicators can be used	NUTS2 (to be clarified)
Concentration of air-level ozone	EEA	Descriptive indicators can be used.	NUTS 0,1,2
Concentration of NO2	EEA (CSI004) .	Descriptive indicators can be used	NUTS 0,1,2
Water pollution indicators			
Ecological (chemical?) status of coastal waters, transitional waters, lakes and rivers	Waterbase- Water Quality ICM	Descriptive and performance indicators can be used.	Per water body
Concentration of P in lakes and rivers	Waterbase- Water Quality ICM	Descriptive indicators can be used.	Per water body
Oxygen-consuming substances in rivers	Waterbase- Water Quality ICM	Descriptive and performance indicators can be used.	Per water body

Possible indicator	Availability	Type of indicator	Availability at regional/urban level
Soil pollution indicators			
Concentration of heavy metals in agricultural soils	JRC LUCAS	Descriptive and performance indicators can be used.	NUTS 2 and more accurate (1km resolution)

Production and consumption

The theme pollution and consumption and production gather relevant indicators to grasp how cities and regions have progressed in reducing pollution at its source.

Concerning air pollution, industrial and agricultural activities are responsible for the emissions of specific materials such as heavy metals and nitrogen oxides. To assess the progress of regions and cities in reducing pollution at its source, it is then relevant to monitor the emissions of those pollutants.

For urban wastewater, there is a general high level of treatment. Some regions are behind but making progress. The real remaining problem is that many hazardous substances are not currently covered by the Urban Wastewater Treatment Directive (UWWTD). This is being considered, but it will only be in the longer-term future that there will be good data on the emissions of micropollutants of concern.

The ZPAP explicitly includes targets to prevent and improve waste management: reduction in waste generation and reduction by half the amount of residual municipal waste. On waste generation Those indicators are regularly collected and available by Eurostat.

Table 2-8 Suggested indicators for production and consumption

Possible indicator	Availability	Type of indicator	Availability at regional/urban level
Air pollution indicator			
Emission of Hg, Cd and Pb	EEA (CSI004)	Descriptive and performance indicators can be used.	NUTS 0,1,2

Possible indicator	Availability	Type of indicator	Availability at regional/urban level
Water pollution indicator			
Percentage of population connected at secondary wastewater treatment.	EEA/ Wise (only available every 2 years)	Both descriptive and performance indicators can be used.	NUTS2
Waste indicators			
Waste generation per capita	Eurostat, every 2 years, MS level ; green city accord	Descriptive and performance indicators can be used;	Eurostat – MS level; green city accord – for municipalities
Share of waste recovered	Eurostat, every 2 years, MS level	Descriptive and performance indicators can be used	Eurostat – MS level; green city accord – for municipalities

2.2.4 Considerations on the aggregation of indicators

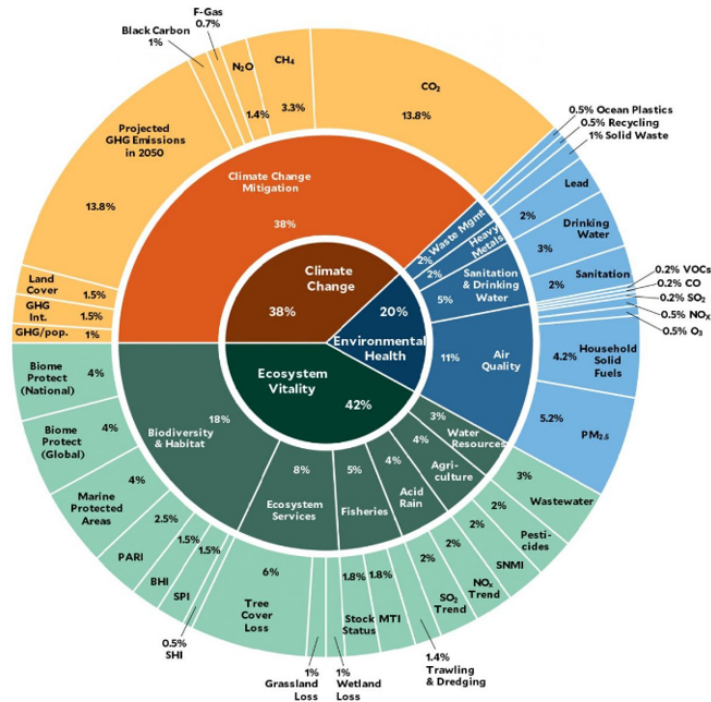
Having decided on the grouping and selection of indicators, the groups and indicators need to be weighted with regards to the final zero pollution scoring.

Aggregation based on the EPI framework

The environmental performance index (EPI), developed by Yale university²² applies weightings to 40 indicators, which in turn contribute to 11 issue categories, leading to the 3 main themes climate change mitigation, environmental health and ecosystem vitality (the biggest fraction of it being biodiversity & habitat. The latter is the largest contributor to the overall score (42%) of the overall score, whereas climate change mitigation contributes with 38% and environmental health for 20%.

²² [Welcome | Environmental Performance Index \(yale.edu\)](https://www.yale.edu/eipi/)

Figure 2-1 EPI indicator framework Yale University²³



The EPI framework considers the following factors in the **weighting of indicators**, by assigning simple arithmetic sums to indicators considering the following factors: importance of the issues; data quality; timeliness of data; statistical analysis for spreading the balancing of scores. With regards to air quality for examples, the EPI framework uses population-weighted exposure indicators, quantifying the pollutant levels for the average resident. These have been derived by population density and ground level pollutant concentration.

With regards to the overall themes, the EPI framework considers the standard deviation of performance across the themes. Meaning that if the deviation of a theme across countries is particularly high, the weighting is adjusted to not let well-performers of one theme achieve an overall high scoring, despite low performances in other themes.

Based on the named case example, the literature and the data reviewed, the following considerations would, among others, needed to be included in a weighting framework:

- > Occurrence of the pollution
- > Severity of the pollution type, based on toxicity, health impacts, impact on aquatic, terrestrial organisms, ecosystems etc.
- > Population impacted by the pollution type, based on population density of the area, vulnerability of the population

²³ [Microsoft Word - EPI 2022 Report v05.docx \(yale.edu\)](#)

- > Ecosystems impacted by the pollution type, based on ecosystem type, ecosystem vulnerability
- > Statistical elements, such as data quality, timeliness/timeframe of data, statistical analysis for spreading the balancing of scores
- > Consideration of political priorities within the different themes.

All of these factors need to be based on sound scientific evidence prioritising the different impacts. The weighting of indicators requires further discussion and consideration when designing the framework of aggregated indicator for the ZPAP scoreboard.

The factor of time

Based on the indicators collected, we can conclude that most of the data to populate the scoreboard is available down to a timely granularity of one year. Only few indicators are collected on a multi-year basis and the same value applied on a multi-year basis, depending on the granularity. This is for example the case for soil contamination indicators, only being collected every 5 years.

A second time aspect that needs to be considered is the gap between the capturing/measurement of data and the reporting. In the case of most indicators from EEA sources for example, the latest available data stems from 2020, that has been reported and published in 2021/2022. In this regard it will need to be discussed how to bridge the reporting gap, and potentially strive for a more direct data transfer process from measurement to the scoreboard. This would provide for a more up-to date scoreboard while also ensuring its ability to display progress over time. A third time related consideration relates to the measurement of performance. To measure performance three dimensions, as for example lined out in the green leaf/green capital award²⁴ can be taken into account:

- > Past performance: Measures implemented over the past years, leading to improvement
- > Present situation: Presenting the status quo of pollution or anti-pollution measures (can also be defined as a time-frame of several years)
- > Future plans: Considers improvement measures that are defined in legislative texts and strategies

These time dimensions play an important role when deciding on the weighting of performance. It could for example be considered to count past, present and future performance equally, or put a higher weight on the present situation.

Considerations on infringement

In case of infringement procedures that apply to a region, considerations on how this should be embedded in the scoring have to be made. This relates e.g. to the

²⁴ [EGCA-EGLA2025_Guidance Note_0.pdf \(europa.eu\)](https://ec.europa.eu/eia/egca-egla2025-guidance-note)

questions whether regions with infringement procedures should be excluded from the scoreboard rating.

2.2.5 Visualisation and display of the scoreboard

In this subsection several approaches on the visualisation of scoreboard will be roughly lined out. This should rather be seen as a set of suggestions to make the results of the scoring easily and clearly understandable. The overall visualisation of the scoreboard is a task by itself that will be conducted at a later stage on the IT development of the scoreboard.

As the scoreboard will display performance of regions and cities, it will in some way or another involve a spatial element of displaying data. The most user-friendly and obvious choice would therefore be a visualization embedded in an **interactive GIS/Map interface**. The EU Tourism Dashboard embeds several elements that are relevant for a scoreboard visualization on a GIS-base²⁵.

The interface would enable users to zoom into certain regions, but would be comprised of 4 main layers, (1) on Member State level, (2) Federal State level, (3) regional level, (4) City level (where applicable). When arriving at a regional level, ideally the map would be visualized in such a way as to highlight the availability of city-specific data. This way the user would be able to instantly get an impression of the granularity of data.

The default visualisation of the map could show the overall score/progress of the respective region. When clicking on the region, a drop-down menu could appear to show the metadata of the score and enable the user to see what sub-scores and indicators it is composed of. It can also be considered to embed a visualization of maps based on the selected sub-scores. E.g. the air-measurement values of NO₂ concentrations across all European regions. This would, however, add another layer of complexity to the GIS interface.

Apart from a GIS-based visualization, a **dashboard interface** can be considered, similar to the approach taken in the EU tourism dashboard.

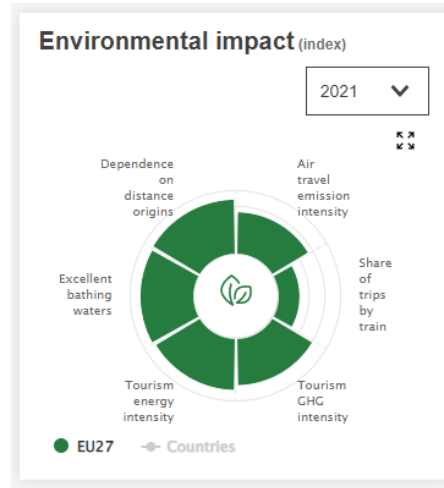
A search mask enables the user to look for a region or city, and based on the available data, the most accurate scoring would appear. Figure 2-2 displays a distance to target visualization of the data. Similarly, the distance to target in reaching the zero pollution objectives could be shown. Alternatively, the share of percentage points of the sub-targets contributing to the overall target could be displayed.

The search mask would be supplemented by a table showing the scoring on Member State level. A drop-down menu for each MS enables to choose the scorings on state and regional levels. Different filters enable the user to choose

²⁵ [EU Tourism Dashboard \(europa.eu\)](https://europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&code=sdg_13_3_0&plugin=1)

the available scorings according to various criteria, e.g. only showing the top-performers, or only showing the top-performers with regards to air quality.

Figure 2-2 Example: EU Tourism Dashboard on Environmental Impact



These are approaches that have already been taken in various digital and geographical information systems, such as the EU tourism dashboard, or the variety of GIS based interfaces offered by the EEA and JRC.

2.3 Planning consultation

This section present elements and steps in setting up an operational regional and city scoreboard.

The main steps as presented in the introduction includes:

- > Scoping Study (by May/June 2023)
- > Development of the methodology for the scoreboard (September 2023 - February 2024)
- > Implementation of the methodology and data gathering (February 2024- September 2024)
- > Presentation of the first IT pilot of the scoreboard (October 2024)

The first step – the scoping study is this present concept note. It is expected to include discussions and suggestions on indicators.

2.3.1 Development of the methodology for the scoreboard

The next step is then developing the methodology for the scoreboard. This could include the following tasks:

- > Final selection of indicators
 - > For each suggested indicator
 - > Who hosts the data
 - > Updating – when is new data available

- > Uncertainty of data/indicators
- > Cost of using the data/indicator
- > Assessment and suggested list of indicators
- > Consultation of the suggested indicators
- > Final selection of the indicators regional and city ZP scoreboard

- > Aggregation of indicators
 - > Further refinement of the aggregation principles
 - > Assess the implication of the alternative aggregation principles given the choice of indicators and section of the aggregation approach

- > Visualisation
 - > Assessment of the feasibility of alternative visualisation approaches and selection of one or more feasible alternative
 - > Mock-up of the selected alternatives
 - > Final selection

- > Workplan for the next step

While this concept note presents suggestions for possible indicators, the final choice will require a detailed assessment of each indicator. Such an assessment could lead to changes in the choice of the specific indicators. The assessment could involve the following process. For each indicator, the data holder and providers are involved and consulted on all relevant aspects of the specific data and production of the indicator at regional and city level.

This would lead to a description of each of the indicators which would allow for the final choice.

Based on the discussion on aggregation of indicator included in this concept paper, the aggregation could need further elaboration. Then, the implication of alternative aggregation principles including the specific weights to be used are determined.

The assessment will then give the basis for the final selection of the aggregation approach.

The final element in developing the scoreboard is the visualisation. This will include a final assessment and choice of the visualisation approach. The assessment would cover the costs of alternative visualisation approaches. At this stage mock-ups of the scoreboard could be developed to inform the choice.

2.3.2 Implementation of the methodology and data gathering

This final step will involve that the data is gathered, and the scoreboard visualization is programmed.

3 Conclusions

This chapter summarizes the main conclusions and way forward for the scoreboard. It will present the next possible steps of development beyond this assignment and provide recommendations on how to reach the target of a fully-fledged scoreboard concept by October 2024.

The chapter will be drafted for the final version after having received feedback at the workshop and when the main elements have been agreed upon.

Appendix A List of relevant references

This appendix presents the list of literature, reports and relevant documentation that helped develop the scoreboard. It will be updated with upcoming relevant documents. The list of references is divided into 2 categories: 1) relevant EU initiatives to define the scope of the scoreboard and 2) bibliography of relevant literature used throughout the concept paper.

Relevant EU Initiatives

> **The EU Cities missions**

The EU Missions are an initiative by the Commission to support 100 European Cities in reducing their greenhouse gas emissions to reach climate neutrality by 2030. Cities are key to achieve climate neutrality as they account for more than 70% of global CO₂ emissions. As such, they can contribute by offering clean air and less noise to the citizens. The selected cities will have to adopt clear commitments, Climate City Contracts, involving citizens and companies, to detail how they plan to achieve climate neutrality. The plan will require cross-sectors effort in energy, building, waste management and transport.

> **Green City Accord**

The initiative aims at supporting cities in improving five areas of environmental management to deliver on the European Green Deal objectives. Signatories are expected to monitor and report on 5 areas every three years for a limited set of indicators:

- > Air:
 - > PM2.5 concentration levels [highest annual mean observed at (sub) urban background stations]
 - > PM10 daily concentration levels [highest number of days exceeding the WHO recommendation of 45 µg/m³ per year, at any (sub) urban background stations]
 - > NO₂ concentration levels (highest annual mean observed at traffic stations)

- > Water:
 - > Household water consumption (litres/capita/day)
 - > Infrastructure Leakage Index (ILI)
 - > Percentage of urban wastewater meeting the requirements of the UWWTD (regarding collection and secondary treatment)

- > Nature & biodiversity:
 - > Percentage of protect natural areas, restored and naturalised areas on public land in municipality
 - > Percentage of tree canopy cover within the city
 - > Change in number of species of birds in urban area/built-up areas in the city

- > Waste & circular economy:
 - > Municipal waste generated per capita (tons)
 - > Recycling rate of municipal waste (%)
 - > Percentage of municipal waste landfilled

- > Noise:
 - > Percentage of the population exposed to average day-evening-night noise levels (Lden) ≥ 55 dB
 - > Percentage of the population exposed to night-time noise (Lnight) ≥ 50 dB
 - > Percentage of (adult) population with High Sleep Disturbance

The timeframe for the City Accord will not allow the use of the data to be integrated into the scoreboard yet, but this can be considered at a further stage.

- > **[Zero pollution monitoring assessment – European Environment Agency \(europa.eu\)](https://europeanenvironment.eu/)**

The framework establishes a zero-pollution monitoring framework to assess the progress made at European level in reaching the targets established in the ZPAP. It served as a baseline to identify all available and upcoming indicators relevant for the scoreboard.

- > ***Eight Report on Economic, Social and Territorial Cohesion – DG REGIO and the Eurostat Regional Yearbook 2022***

The Cohesion Report highlights the trends at regional level on the progress achieved to reach key policy targets. For the scoreboard, the section dedicated to improving the environment addresses topics relevant for the ZPAP such as water, waste and air quality at NUTS 2 and NUTS 3 level.

Similarly as the Cohesion Report, the Eurostat Yearbook provides statistics at a regional level for 13 subjects, including the environment on the topic of water, soil and air pollution. Under this section, the air pollution and soil indicators are relevant for the scoreboard as the water section mostly reports on the consequences of climate change.

Both reports details indicators on the impact of climate change at regional level, which could be integrated at a further stage within the scoreboard.

Relevant literature

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Pathway to a Health Planet for All EU Action Plan: "Towards Zero Pollution for Air, Water and Soil' *available at:*

[EUR-Lex - 52021DC0400 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lexUri.do?uri=CELEX:52021DC0400:EN:EUR-Lex)

Directive (EU) 2020/2184 of the European Parliament and of the Council of on the quality of water intended for human consumption available at:

[L_2020435EN.01000101.xml \(europa.eu\)](#)

European Commission, JRC, Fernández-Ugalde, O., Orgiazzi, A., Marechal, A., et al., LUCAS 2018 soil module : presentation of dataset and results, Publications Office of the European Union, 2022 available at:

https://esdac.jrc.ec.europa.eu/public_path/shared_folder/dataset/75-LUCAS-SOIL-2018/JRC_Report_2018-LUCAS_Soil_Final.pdf

EU Tourism Dashboard

[Methodological manual on territorial typologies – 2018 edition - Products Manuals and Guidelines - Eurostat \(europa.eu\)](#)

REGIONS 2030 available at : [REGIONS2030 - Pilot regions announced | Knowledge for policy \(europa.eu\)](#)

Wolf, M. J., Emerson, J. W., Esty, D. C., de Sherbinin, A., Wendling, Z. A., et al. (2022). *2022 Environmental Performance Index*. New Haven, CT: Yale Center for Environmental Law & Policy. epi.yale.edu available at: [Welcome | Environmental Performance Index \(yale.edu\)](#)

EU Mission: Climate-Neutral and Smart Cities

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

On 1 March 2023, 53 Pilot Cities out of the Mission cities were selected and will experiment with new ways to rapidly decarbonise over the course of a two-year programme. The cities will receive between €0.5 million and €1.5 million from a total of €32 million in grants from NetZeroCities, a Horizon 2020 project, which is managing the Mission Platform. [53 pilot cities to test climate transition pathways as part of the EU Cities Mission \(europa.eu\)](#)

Appendix B Administrative information

The following concept paper is part of the provision of ad-hoc technical and scientific support to the Zero Pollution Stakeholder Platform (task 3) as part of the project "Support to the Zero Pollution Stakeholder Platform" in the framework contract ENV.F.1/FRA/2019/0001. Within this contract COWI A/S as part of a consortium provides administrative, organisational and technical support to the implementation of the zero-pollution stakeholder platform, assists with tasks and ad hoc activities and provides thematic contributions, analysis and background documents. The concept paper is the output of the ad-hoc task to support the scoping of the development of a zero-pollution scoreboard for regions and gathering data on urban zero pollution action. The specific objectives and milestones of this task are further described in 1.2 and 1.3 of this concept paper.