



Consultations on the EU Action Plan “Towards a Zero Pollution Ambition for air, water and soil”

Synopsis Report

Written by Ecorys
April – 2021

ECORYS 

EUROPEAN COMMISSION

Directorate-General for Environment
Directorate C — Quality of Life
Unit C.3 — Clean Air

Contact: Michael Klinkenberg

E-mail: ENV-ZERO-POLLUTION@ec.europa.eu

*European Commission
B-1049 Brussels*

Consultations on the EU Action Plan “Towards a Zero Pollution Ambition for air, water and soil”

Synopsis Report

LEGAL NOTICE

This document has been prepared for the European Commission however it reflects the views only of the authors, and the European Commission is not liable for any consequence stemming from the reuse of this publication. More information on the European Union is available on the Internet (<http://www.europa.eu>).

PDF ISBN 978-92-76-37276-9

doi:10.2779/053972

KH-02-21-585-EN-N

Luxembourg: Publications Office of the European Union, 2021

© European Union, 2021



The reuse policy of European Commission documents is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC-BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightholders.

Table of Contents

SYNOPSIS REPORT	2
Introduction	2
Policy background	2
The consultation strategy	3
Feedback to the Roadmap and OPC	4
Feedback from the stakeholder workshops.....	11
Outlook	12
ANNEX 1 FACTUAL SUMMARY REPORT	13
Introduction	13
Overview of respondents.....	14
Overview of the feedback provided	16
ANNEX 2 DETAILED ANALYSIS OF SELECTED QUESTIONS	34
Introduction	34
Analysis	36
ANNEX 3 RESULTS OF THE ANALYSIS OF OPEN QUESTIONS AND DOCUMENTS.....	53
Open questions.....	53
Position papers	69
ANNEX 4 REPORTS ON MEETINGS AND WORKSHOPS.....	91

Synopsis report

Introduction

To continue and enhance efforts to reduce pollution and ensure a healthy society and environment, the European Commission is working towards a Zero Pollution Action Plan. This Action Plan will serve as a basis to coordinate efforts to achieve the zero pollution ambition for a toxic-free environment outlined in the European Green Deal. In preparing this Action Plan, the European Commission consulted with various stakeholders to collect their views, ideas and insights on the topic. This Synopsis Report provides an overview of the consultation that has taken place and presents its outcomes.

The next sections provide a brief description of the policy background and the consultation strategy. Then, the section on the results of the consultation activities presents a summary of the feedback received to the Roadmap, to the Open Public Consultation (OPC) and during the stakeholder workshops. Finally, the outlook section provides a brief overview of the next steps and how the feedback provided by the stakeholders will feed into further actions. The supplementary annexes provide detailed reports on each component of the consultation activities.

Policy background

Pollution is one of the biggest threats to Europe’s ecosystems and the well-being of its citizens. It causes biodiversity loss and is leading to the extinction of an increasing number of species. Also, humans pay a high price for the ongoing pollution of air, soil and water; recent studies show that air pollution is linked to 400,000 premature deaths per year.¹ Environmental noise is linked to 48,000 cases of ischaemic heart disease per year and causes sleep disturbance for 6.5 million EU citizens.² In addition to the health-related costs, pollution also reduces yields in sectors such as agriculture, fishery, leisure and tourism, diminishes ecosystem services provided by the environment, and causes considerable remediation costs (for water treatment, marine depollution and soil decontamination). The problem and ongoing contradiction is that often key actors that cause pollution (such as agriculture, households, transport and industry) are not typically the ones which bear the costs. Rather it is often society’s most vulnerable people (children, citizens with pre-existing health conditions, the elderly and socio-economically neglected groups) who are most exposed, because the problem is not sufficiently tackled, including at the source.

The ongoing COVID-19 pandemic has underlined the importance of maintaining biodiversity, human and environmental health and living standards. This means that pollution needs to be monitored, reported on, and ultimately prevented, minimised and controlled – or, where this is not possible anymore, remedied. To achieve this and meet the expectations for a toxic-free environment set out in the European Green Deal³, the European Commission aims to systematically assess and mainstream its zero pollution ambition into existing and future policies and regulations through the Zero Pollution Action

¹ European Environment Agency (2020). Air quality in Europe – 2020 Report: <https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>

² European Environment Agency (2019). Environmental noise in Europe – 2020 Report: <https://www.eea.europa.eu/publications/environmental-noise-in-europe>

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>

Plan. This will be in line with the United Nations Sustainable Development Goals⁴ and strengthen the interlinkages with environmental protection, economic development and social policy – giving an additional boost to the transition to a circular economy, and – through technological developments, digitalisation and innovation – creating ample sustainable business opportunities for Europe’s businesses.

The consultation strategy

As laid out in the Better Regulations Tool #53⁵, consultation strategies are essential for evidence-based policymaking, ensuring greater legitimacy and transparency. Therefore, to develop a holistic and meaningful Zero Pollution Action Plan and gather feedback from all relevant stakeholders, the European Commission developed a consultation strategy with several activities carried out throughout 2020 and 2021.

The Roadmap for the Zero Pollution Action Plan⁶ was presented on 1 October 2020, providing an overview of the context, aim and evidence for the Action Plan. Stakeholders were able to submit feedback to the Roadmap. Next, the consultation strategy included an Open Public Consultation, inviting stakeholders to submit feedback through the survey and position papers between 11 November 2020 and 10 February 2021.⁷ Following this, the European Commission organised two online stakeholder workshops on 10 February 2021 on the Zero Pollution Action Plan⁸ - one for businesses and civil society, and one with Member State experts. In addition, a number of targeted consultation activities took place tailored to the needs of the stakeholder and expert groups already established in policy areas relevant to the zero pollution action plan, in particular at:

- Commission-organised events (e.g. expert groups in the areas of air, water, soil);
- Relevant activities organised by external partners in cooperation with / participation by the Commission (e.g. international organisations, NGOs);
- Relevant meetings of international conventions (e.g. international river conventions, regional sea conventions, convention on long-range transboundary air pollution, etc.)
- Relevant events organised by the current and future Presidency of the EU (e.g. Water & Marine Directors meetings).

All these consultation activities targeted specifically the following stakeholders:

- Citizens;
- Competent authorities in EU Member States and other EU Institutions;
- NGOs, consumer and other civil society organisations;
- Academia and research institutes working on EU environment and climate policy;
- Businesses and professionals (notably SMEs) operating in key sectors (e.g. environment, transport, climate, agriculture, water, health, aquaculture and fishing,

⁴ <https://sdgs.un.org/goals>

⁵ https://ec.europa.eu/info/sites/info/files/file_import/better-regulation-toolbox-53_en_0.pdf

⁶ <https://ec.europa.eu/info/law/better-regulation/>

⁷ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12588-EU-Action-Plan-Towards-a-Zero-Pollution-Ambition-for-air-water-and-soil/public-consultation>

⁸ https://ec.europa.eu/environment/events/stakeholder-workshop-zero-pollution-action-plan-air-water-and-soil_en

food, energy, other industries including extractive and energy-intensive ones, etc.);
and

- Financial institutions, especially those engaged in green finance.

Feedback to the Roadmap and OPC

Profile of Roadmap consultation respondents

The consultation on the Roadmap was launched on 1 October 2020 and remained open for four weeks, until 29 October 2020. In total, 111 contributions were received. Of these 111 contributions, 110 were published, while one was unpublished as it was out of the scope of the Zero Pollution Action Plan. Most contributions were from stakeholders in Belgium (46)⁹, followed by German and French stakeholders, with 12 submissions each. Two non-EU stakeholders - one from Canada and one from the UK - submitted contributions (see Table 1 below). More than a third of the stakeholders submitting feedback were business associations (40 in total), followed by non-governmental organisations (NGOs) with 19 contributions, company/business organisations (15 contributions) and public authorities (11 contributions). 69 of the respondents submitted a position paper.

Table 1 Number of contributions to the Roadmap per country

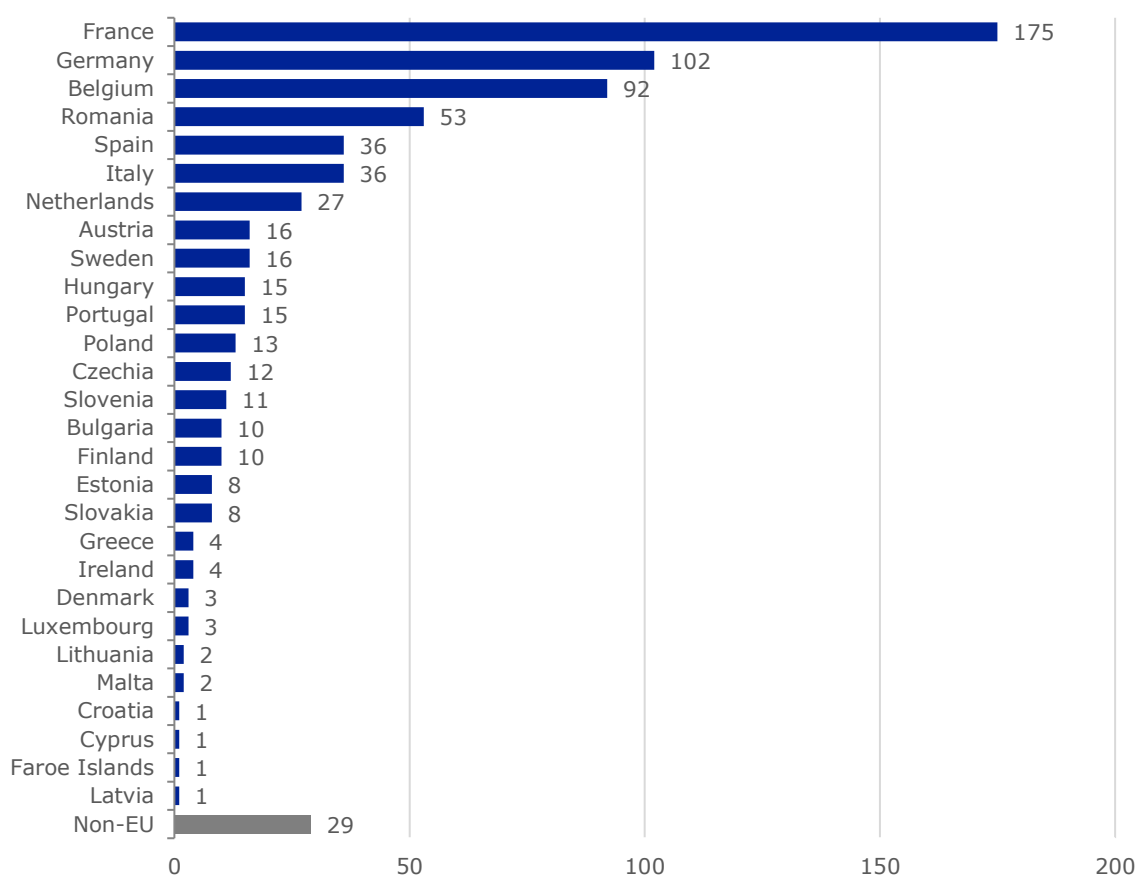
Country	Contributions	Type of stakeholders	Contributions
Austria	3	Academic/research institution	7
Belgium	46	Business association	40
Canada	1	Company/business organisation	15
Czech Republic	6	Consumer organisation	1
Germany	12	Environmental organisation	2
Denmark	1	EU citizen	8
Spain	5	NGOs	19
Finland	1	Other	7
France	12	Public authority	11
Ireland	1		
Italy	8		
Netherlands	6		
Poland	1		
Sweden	5		
Slovakia	1		
UK	1		

⁹ This is partly due to the fact that many organisations representing stakeholders towards the EU institutions are based in Belgium.

Profile of OPC consultation respondents

A total of 706 responses (and 79 documents annexed to responses) were received from all 27 EU Member States and 11 non-EU countries.¹⁰ Data were screened and cleaned in line with the Better Regulation Toolbox.¹¹ No duplicates and no clear-cut campaigns were identified. Therefore, the final number of responses for the analysis amounted to the full 706 responses submitted. 175 respondents indicated France as their country of origin, followed by Germany (102), Belgium (92)¹² and Romania (53). The figure below provides a detailed disaggregation of the respondents by their country of origin, in descending order.

Figure 1 Number of respondents by country of origin (EU and non-EU)



n=706

EU citizens provided the most contributions to this consultation, accounting for 54% of all respondents (379 replies), followed by business associations with 12% (88 replies), NGOs for 10% (71 replies), company/business organisations with 8% (56 replies), and public

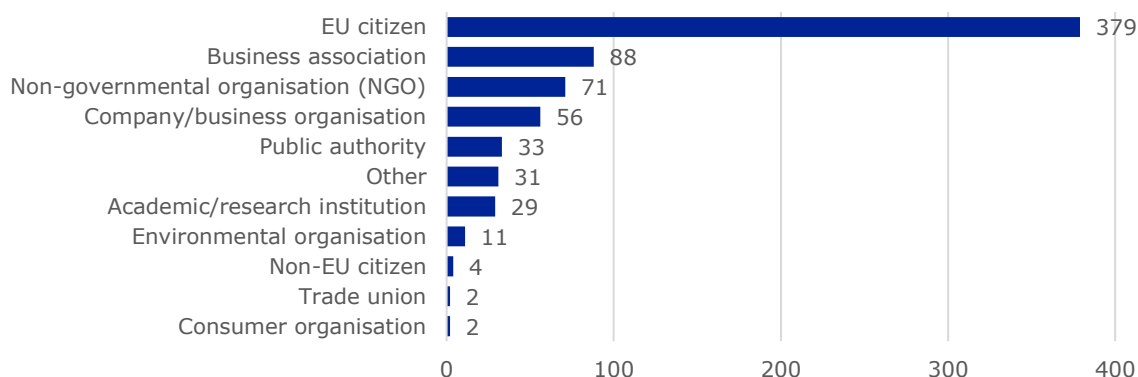
¹⁰From non-EU countries, there are responses from Argentina, Brazil, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, United Kingdom, United States, and Uzbekistan.

¹¹According to Better Regulation Toolbox 54, the minimum threshold should be 10 or more identical responses (across all closed questions) to count as a 'campaign'.

¹²This is partly due to the fact that many organisations representing stakeholders towards the EU institutions are based in Belgium.

authorities with nearly 5% (33 replies). Academic/research institutions accounted for another 4% (29 replies) of the overall responses. The remaining 7% (50 replies) of respondents were split between 'other', environmental organisations, non-EU citizens, trade unions and consumer organisations.

Figure 2 Number of respondents by stakeholder type

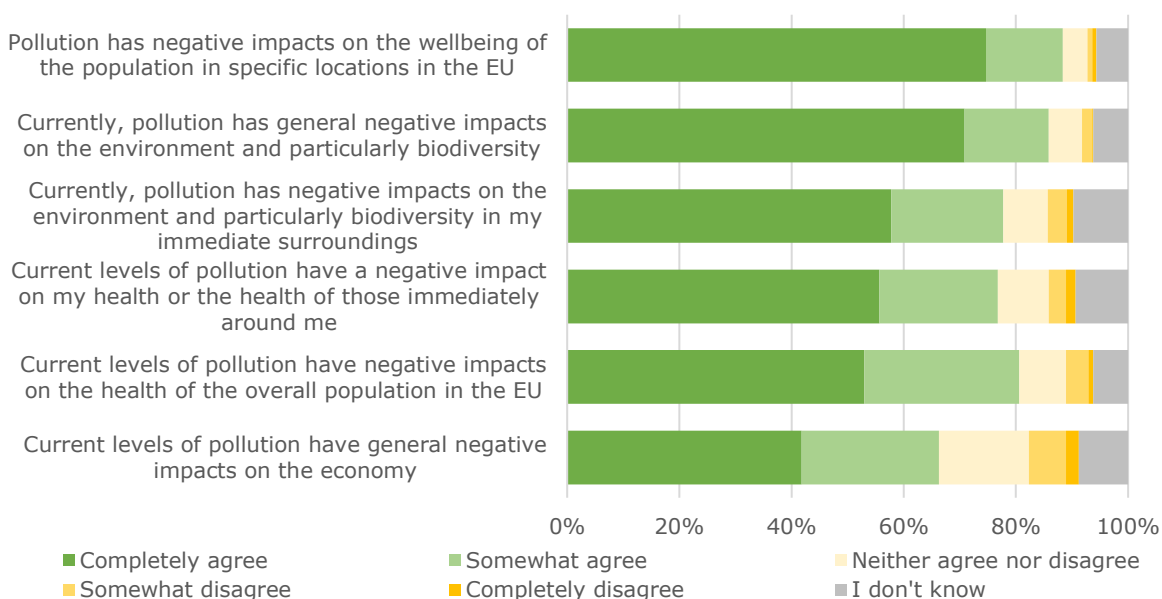


n=706

Synthesis of the feedback received for the Roadmap and the OPC

More than two-thirds of the respondents to the Open Public Consultation on the Zero Pollution Action Plan fully agree that current pollution has negative impacts on the wellbeing of people and on biodiversity, and that these negative impacts of pollution exist in their immediate surroundings. Complete agreement is most pronounced among NGOs, as well as public authorities and citizens, while it is less pronounced among businesses and their associations.

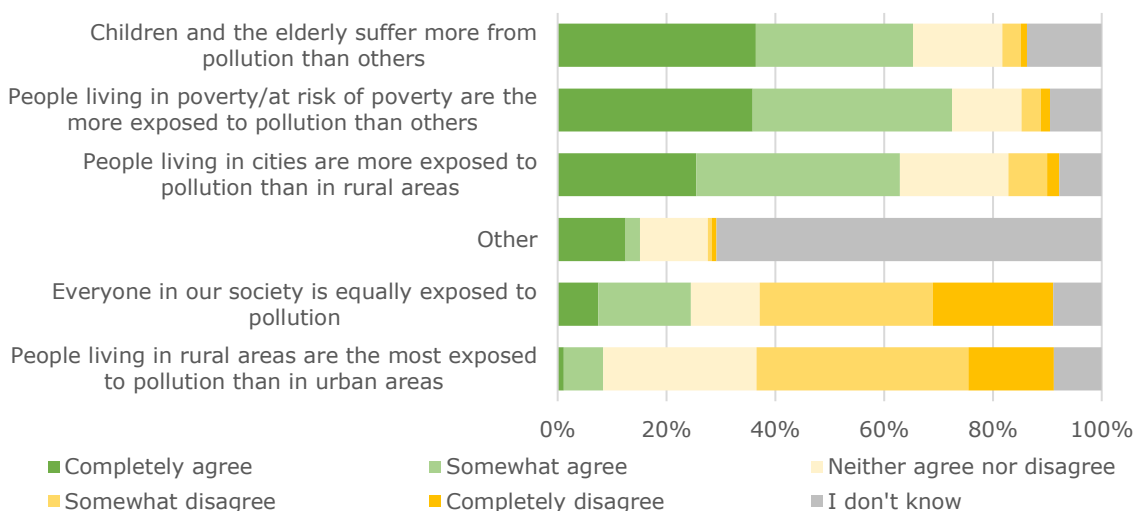
Figure 3 To what extent do you agree with the following statements about the impact of pollution through air, water and soil?



n=706

Most respondents see pollution as a problem affecting society unequally, with children, the elderly and people living in cities or those affected by poverty being more exposed. Conversely, most respondents do not consider people living in rural areas to be more exposed to pollution than those living in urban areas. Overall, all stakeholder groups show similar response patterns to the surveyed statements.

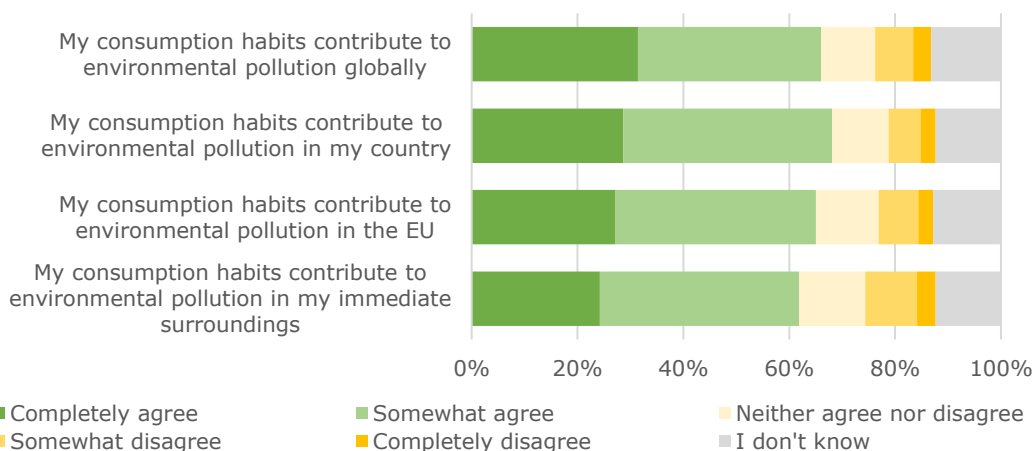
Figure 4 To what extent do you agree with the following statements about the impact of pollution on different population groups?



n=706

More than 6 in 10 respondents share the perception that their consumption habits add to pollution at the global, EU-wide, national and local levels. Respondents identifying as citizens are generally more critical of the impact of their consumption habits in comparison to the other stakeholder groups. Whereas between 70% and 80% of respondents identifying as citizens agree completely or somewhat with the statements below, only 20% to 30% of businesses and their associations agree at least somewhat.

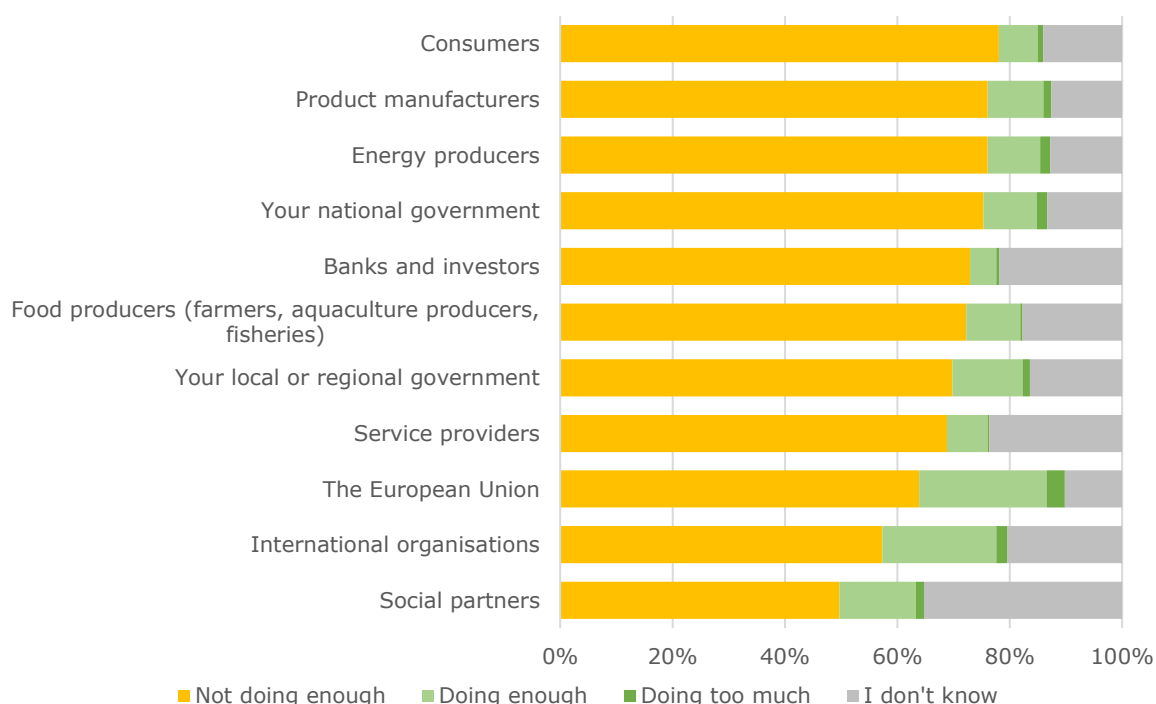
Figure 5 To what extent do you agree or disagree with the following statements?



n=706

Further to this, most respondents believe that all relevant societal and economic actors, along with national governments and the EU, are not yet doing enough to tackle pollution. For consumers, product manufacturers and energy producers, the share of respondents indicating that these actors are not doing enough is the highest (between 70% and 80%). The efforts of national governments are similarly assessed. Amongst EU and international organisations, the share of respondents who indicate that these actors are already doing enough is the highest. A quarter of the respondents consider that EU efforts to tackle pollution are sufficient.

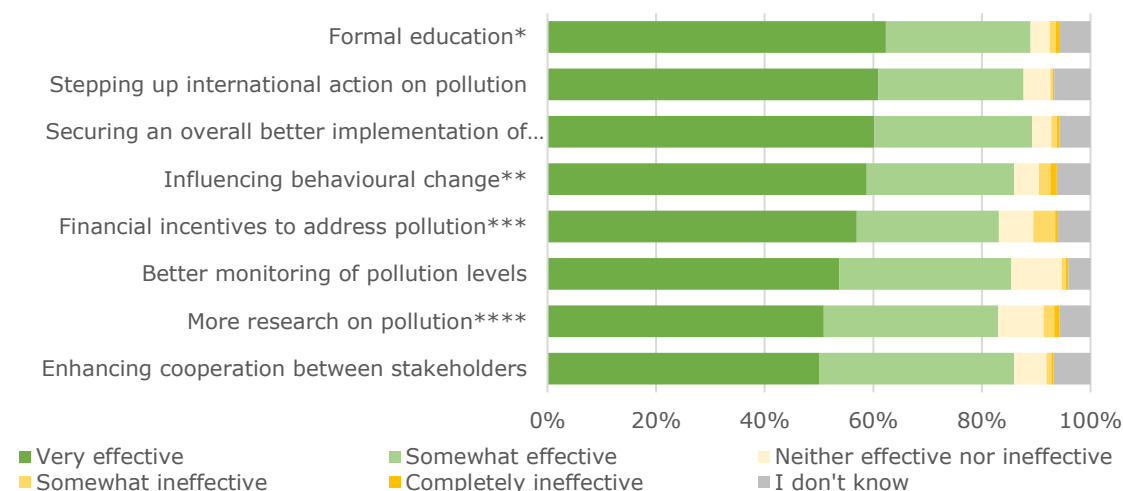
Figure 6 In your opinion, is each of the following currently doing too much, enough, or not enough about pollution?



n=706

Respondents identify formal education, stepping up international action on pollution, better implementation of pollution-related legislation, and influencing behavioural change as the most effective ways to tackle pollution. Each of these three ways of tackling pollution are identified as very effective by at least 60% of respondents. Additionally, all other suggested approaches to tackling pollution are considered to be at least somewhat effective by a majority of respondents. However, support among respondents is less pronounced with respect to granting greater powers to national authorities to sanction breaches of EU pollution legislation, as well as ensuring a more positive impact of the banking and insurance systems on pollution.

Figure 7 In your opinion, how effective would the following ways of tackling pollution be?¹³

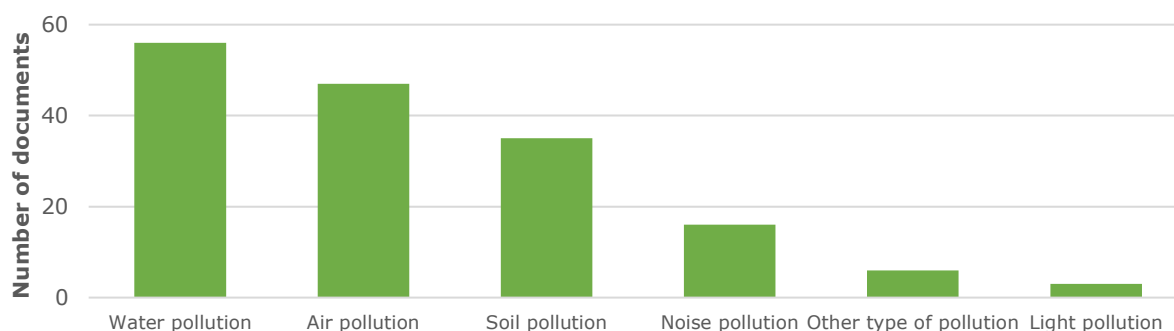


n= 706

*Shortened answer options: *Formal education: Integrating pollution-related issues more into education curricula, e.g. training activities on the interplay between pollution, climate change, and public health, on sustainable consumption of products and energy, on sustainable mobility; **Influencing behavioural change (e.g. through social media, culture, sports,...) to shift to a 'zero pollution mentality', by informing citizens more, e.g. on the interplay between pollution, climate change and public health, on sustainable consumption of products and energy, on sustainable mobility; ***Financial incentives to address pollution (e.g. taxes and subsidies favouring less-polluting activities by industry and consumers); ****Increasing awareness on pollution, e.g. funding for clean-up/remediation activities with citizen involvement.*

Contributions to the Roadmap and to the OPC provided by stakeholders touch upon different aspects of the Zero Pollution Action Plan. Water, air, soil, noise and light are identified by stakeholders as key types of pollution. Pollutants frequently discussed include for example pesticides, particulate matter, plastics, and different types of greenhouse gases. Transport, industry and the agricultural sector are most frequently identified as polluters.

Figure 8 Types of pollution mentioned in the contributions



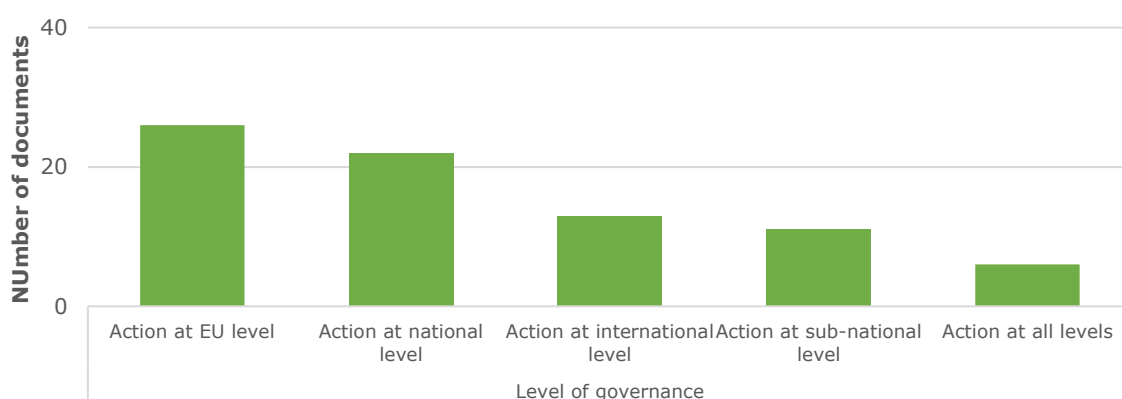
n=133

¹³ Note that the figure only displays response options which more than 50% of respondents identified as very effective. A full overview of the figure is provided in Annex 1.

Stakeholders present a range of suggestions to reduce pollution. Many suggest strengthening existing rules on pollution, notably via the better implementation and enforcement of existing legislation. Stakeholders also recommend revising current legislation, and adopting new legislation. A large share of consultees see the need to mainstream pollution reduction across different policies, through the adoption of a holistic and comprehensive framework. Synergies with the Circular Economy Action Plan and with the Chemical Strategy are identified several times. Data availability for monitoring and foresight activities is seen as problematic, and stakeholders propose making use of digital tools to improve data collection and analysis. Stakeholders further stress the need for financial incentives and support, and to foster research and innovation. Respondents also recommend raising awareness among consumers.

Regarding the appropriate level of governance to tackle pollution; stakeholders consider that action is needed at the international, EU, national and local levels. The EU level is seen as relevant for harmonising and coordinating activities overall.

Figure 9 Level of governance to tackle pollution mentioned in contributions



n=133

Stakeholders also share their concerns. Some see a need to clarify the definition of zero pollution, while others discuss potential costs and trade-offs linked to efforts to reduce pollution, increased administrative burden and loss of competitiveness. Some stakeholders are concerned about a lack of transparency and general awareness of pollution-related topics. They advocate greater involvement from civil society in the process of tackling pollution. COVID-19 and the subsequent economic recovery are also seen as challenges that the Action Plan should address.

Feedback from the stakeholder workshops

Overview of meetings and profile of participants

Two stakeholder workshops were organised towards the end of the consultation period to collect additional input. An overview of the two meetings and their timing is presented in the table below.

Table 2 Overview of stakeholder workshops

Meeting	Main target group(s)	Timing
Workshop with Member States	Competent authorities of EU Member States	10/02/2021 (10:00-12:30)
Workshop with stakeholders	Associations representing businesses and industry, NGOs, consumer and environmental organisations and research and academia	10/02/2021 (14:00-16:30)

Feedback received from the workshop with Member States

Asked about priority areas which should be addressed by the European Commission, participants pointed to air pollution as a key flagship area in which greater collaboration with various sectors, a revision of the WHO guidelines and related EU Directives (i.e. Industrial Emission Directive and the Ambient Air Quality Directives) would be necessary. Other issues flagged by participants included the recovery from COVID-19, green public procurement, digitalisation, drinking water protection, soil pollution, forest protection and international initiatives as other priority areas.

Participants stressed the need for more guidance and sharing of good practices, capacity building, and EU investment, as the most urgent actions to be taken at EU level. Though the Member States acknowledged existing policies on pollution, some underlined the need to set higher ambitions to curb and prevent pollution. They were in favour of raising additional awareness for the benefits of environmental policies and taking a more holistic and horizontal approach, integrating the zero pollution ambition as a cross-cutting objective. Furthermore, participants also invited reflection on the differences among Member States in the Zero Pollution Action Plan, and advocated the avoidance of additional financial, administrative, and social burdens.

Among workshop participants, there was also agreement that a more integrated pollution monitoring framework is needed. However, unifying various tools and standards across Europe was identified as a key challenge. As such, coordination between the EU, international level and the Member States was seen as indispensable to improve pollution monitoring. Finally, Member State representatives agreed that innovation and digitalisation bear immense potential to assess and tackle pollution.

Feedback received from the workshop with stakeholders

As in the workshop with Member States, many participants in the second workshop repeatedly singled out air pollution as an important challenge to human health and the environment. Water, plastic and soil pollution were also mentioned as relevant areas that should be covered by the Action Plan.

Stakeholders were concerned that a clear definition and concept of “zero pollution” was important to understand the implications of the Action Plan. Stakeholders underlined the importance of monitoring and harmonised monitoring systems to increase awareness on the environmental footprints of polluters, and to enforce legal limits. Numerous participants welcomed the holistic and integrated approach taken by the European Commission and emphasised the importance of integrating different pillars – health, environment, and the economy – in the Action Plan. Stakeholders also welcomed the adoption of a cross-cutting approach, for example by pushing industries to accelerate green processes and by using artificial intelligence or the EU taxonomy legislation to foster innovation and digital solutions against pollution. Many stakeholders stressed the need and importance of additional legislation to prevent pollution, and called upon the European Commission to accompany the Action Plan with a review of existing legislation. Vertical and horizontal cooperation between multiple levels of governance was seen as indispensable.

Participants were also asked to provide their opinions on the enabling conditions for societal change. Digital and other innovative solutions were considered by some stakeholders to be enablers to reduce pollution with a significant associated potential for business opportunity. Participants expressed that the availability of information to consumers, and the contextualisation of information, are key to fostering their engagement in the transition. Finally, an EU stakeholder platform on pollution-related topics was welcomed as a powerful tool to engage and collaborate with society and citizens.

Outlook

Stakeholder feedback calls for action on pollution. Stakeholders welcome the development of a Zero Pollution Action Plan and ask for a comprehensive and holistic approach. Their contributions feed into the preparation of the Zero Pollution Action Plan, which is expected to be adopted in the second quarter of 2021. Concretely, the results of the consultation will be used as inputs for the Zero Pollution Action Plan communication, entailing a dedicated package of actions (including legislative proposals) for rollout throughout the present Commission’s mandate. The Action Plan will build on previous and current European Commission efforts to tackle pollution, such as the ongoing work on the Ambient Air Quality Directives, Industrial Emissions Directive, the Urban Waste Water Directive, and emissions standards for cars, vans, lorries and buses. The results of the consultations will also be used in the preparation of two Staff Working Documents, one on a Zero Pollution Monitoring and Outlook framework, and another one on Digital Solutions for Zero Pollution. Finally, the results will also feed into the preparation of the 2021 EU Green Week (31 May – 4 June 2021), which will focus on the theme of zero pollution and related actions.

Annex 1 Factual Summary Report

Introduction

The public consultation supports the preparation of the EU Action Plan “*Towards a Zero Pollution Ambition for air, water and soil*”.¹⁴ The Action Plan, which is to be adopted by the European Commission in 2021, intends to:

- Prevent and remedy pollution from air, water, soil, and consumer products
- Mainstream the zero pollution ambition into all policy developments
- Further decouple economic growth from the increase of pollution
- Strengthen the links between environmental protection, sustainable development and people’s wellbeing.

The public consultation was conducted from 11 November 2020 to 10 February 2021. Using EU Survey, the consultation was available in all official EU languages and targeted the following stakeholders:

- Citizens;
- Competent authorities in EU Member States and other EU Institutions;
- EU and national consumer organisations;
- NGOs and other civil society organisations (notably in areas such as health, environment, transport and climate);
- Academia and research institutes working on EU environment and climate policy;
- Businesses and professionals (notably SMEs) operating in key sectors (e.g. environment, transport, climate, agriculture, water, health, aquaculture and fishing, food, energy, other industries including extractive and energy-intensive ones, etc.); and
- Financial institutions, especially those engaged in green finance.

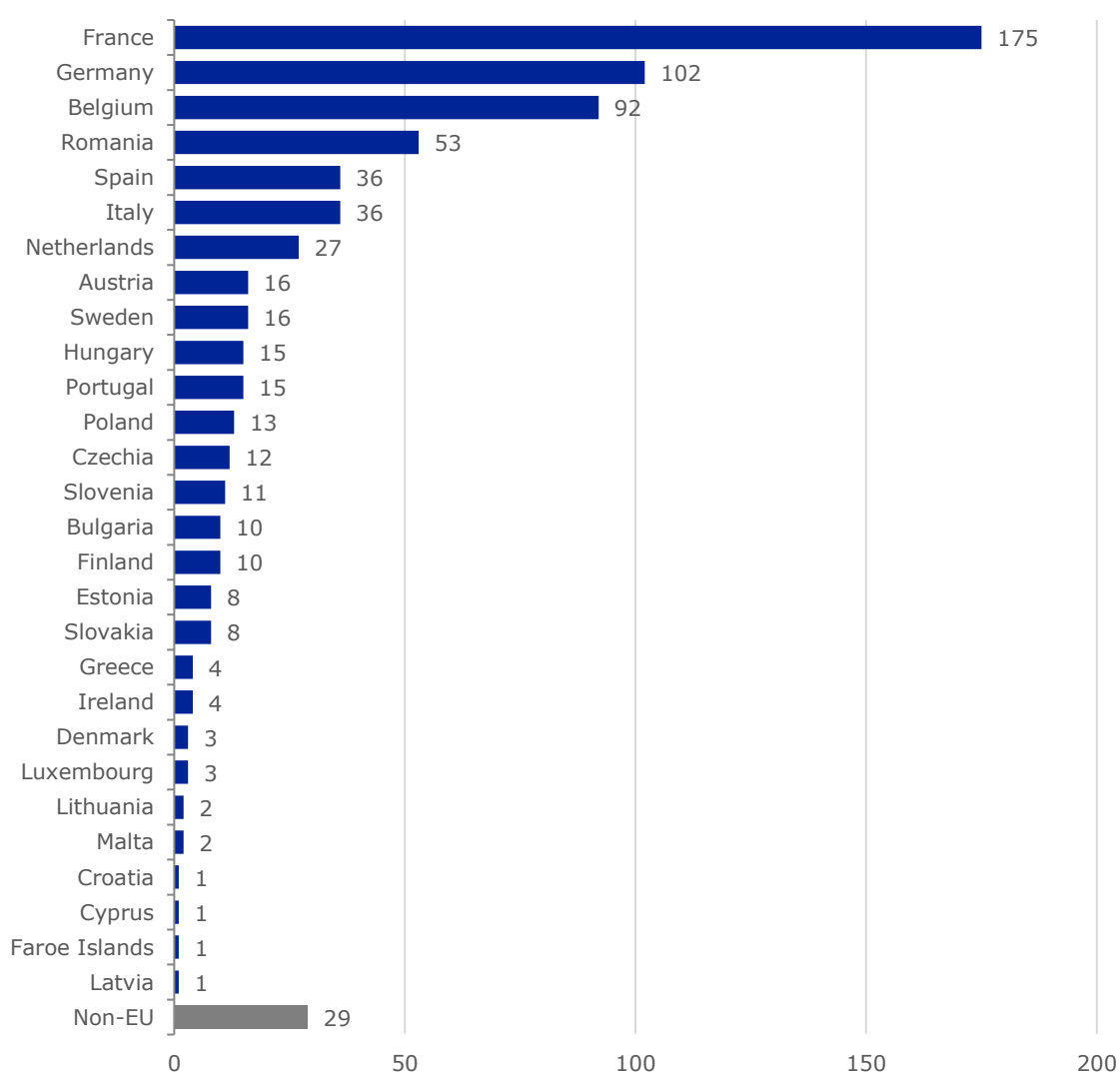
¹⁴ https://ec.europa.eu/environment/strategy/zero-pollution-action-plan_en

Overview of respondents

A total of 706 responses (and 77 documents annexed to responses) were received from all 27 EU Member States and 11 non-EU countries.¹⁵ Data was screened and cleaned in line with the Better Regulation Toolbox.¹⁶ Upon careful inspection, no duplicates and no clear-cut campaigns could be identified. Therefore, the final number of responses for the analysis amounted to the full 706 responses submitted.

A total of 175 respondents indicated France as their country of origin, followed by Germany (102), Belgium (92) and Romania (53). The figure below provides a detailed disaggregation of the respondents by their country of origin in descending order.

Figure 10 Number of respondents by country of origin (EU and non-EU)



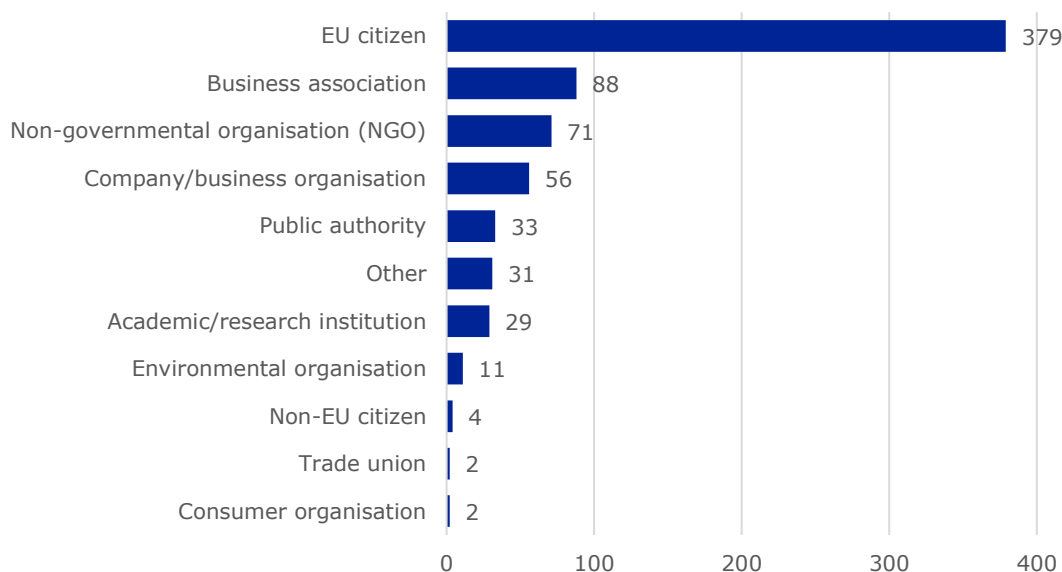
n= 706

¹⁵ From non-EU countries, there are responses from Argentina, Brazil, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, United Kingdom, United States, and Uzbekistan.

¹⁶ According to Better Regulation Toolbox 54, the minimum threshold should be 10 or more identical responses (across all closed questions) to count as a 'campaign'.

EU citizens provided the most contributions to this consultation, accounting for 54% of all respondents (379 replies), followed by business associations for 12% (88 replies), NGOs for 10% (71 replies), company/business organisations for 8% (56 replies), public authorities for nearly 5% (33 replies). Academic/research institutions account for another 4% (29 replies) of the overall responses. The remaining 7% (50 replies) of respondents are split between 'other', environmental organisations, non-EU citizens, trade unions and consumer organisations.

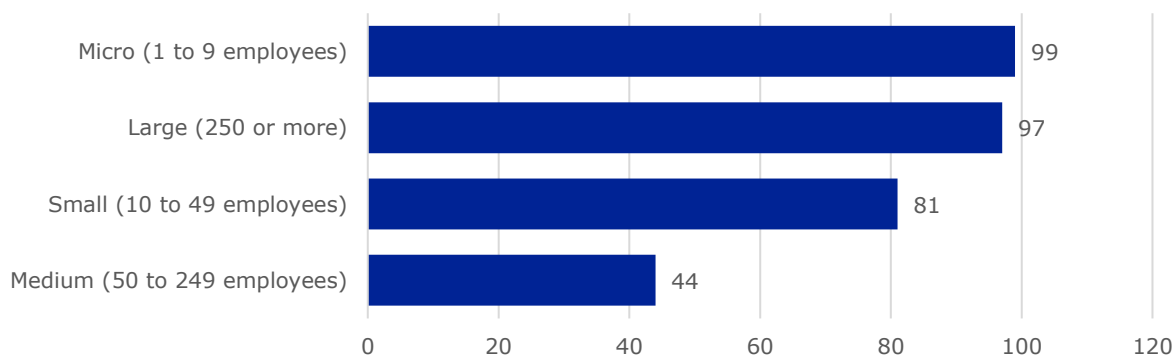
Figure 11 Number of respondents by stakeholder type



n= 706

Of the 321 organisations that responded to the OPC and provided information on the size of their organisation, 99 identified as micro-organisations with 1 to 9 employees, 97 identified as large organisations of 250 or more employees and another 81 identified as small organisations of 10 to 79 employees. The fewest responses to this optional question, 44, were received from mid-sized organisations (between 50 and 249 employees).

Figure 12 Number of respondents by size of the organisation



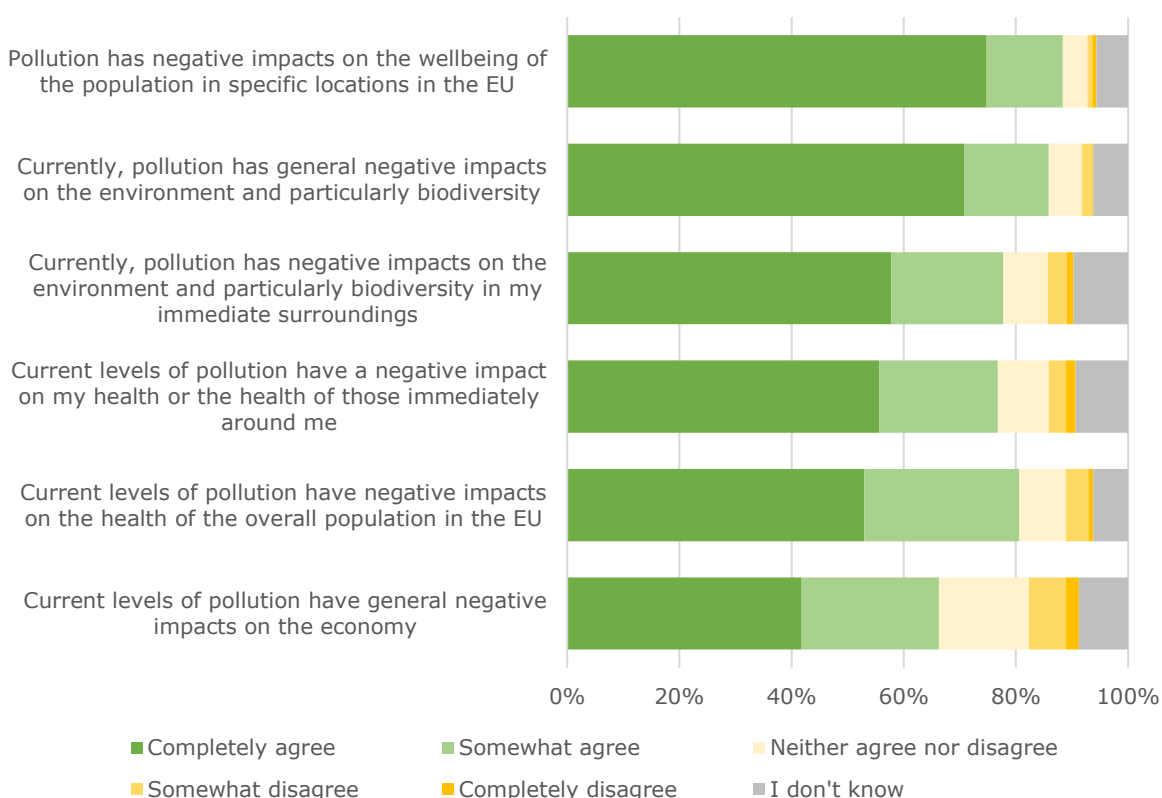
n= 321

Overview of the feedback provided

The first section on *General awareness of pollution and related policies* aims to collect information on the knowledge of respondents on EU environmental pollution and related policies in Europe. The section further seeks to gather information about knowledge of the effects of pollution on people and the environment.

A majority of respondents appear concerned that the current levels of pollution have negative effects on health and the environment. More than 80% of respondents completely agree that the current levels of pollution have negative effects on the wellbeing of residents of specific locations of the EU as well as biodiversity. Agreement is less pronounced for the statement that pollution has negative effects on the economy, while about two-thirds of respondents still completely agree and somewhat agree.

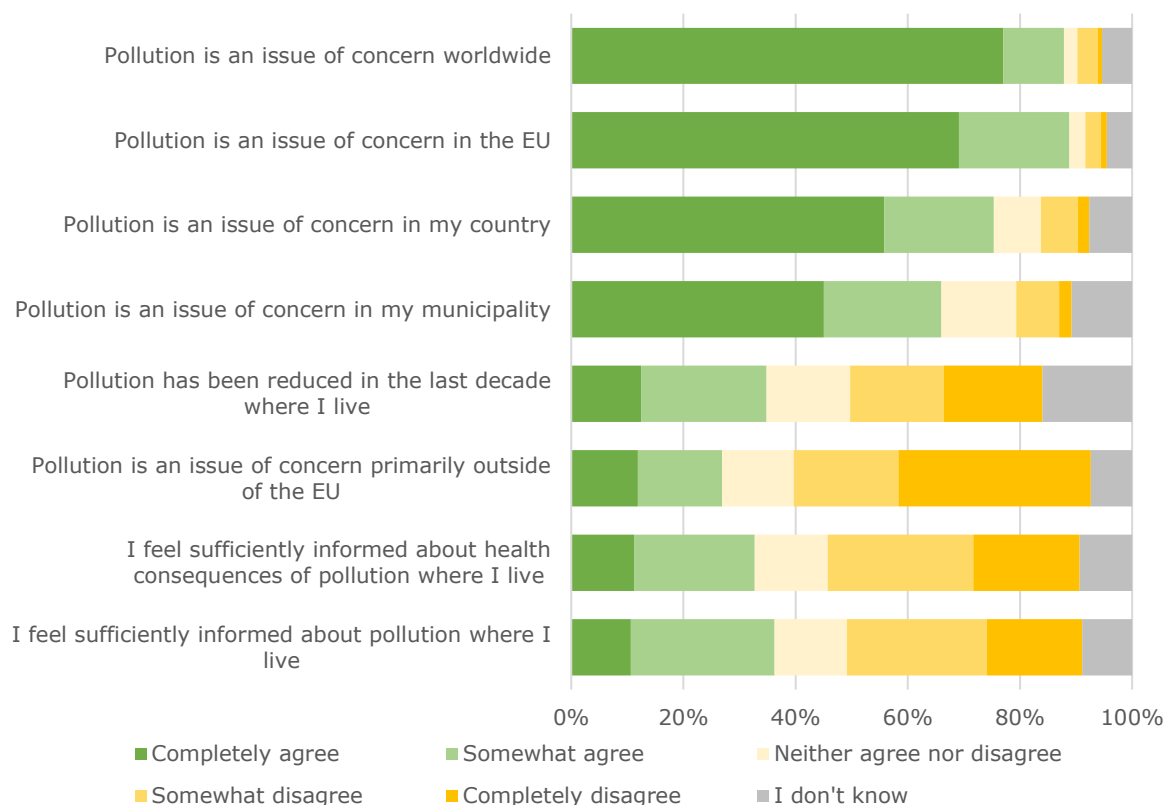
Figure 13 To what extent do you agree with the following statements about the impact of pollution through air, water and soil?



n= 706

More than half of the respondents (over 50%) completely agree that pollution is an issue of concern worldwide, in the EU, and in the respective country of the respondent. Yet, less than half of the respondents (45%) completely agree that pollution is an issue in their municipality. Over half of the respondents (53%) completely or somewhat disagree that pollution is an issue of concern primarily outside the EU. Respondents do not appear to feel sufficiently informed about pollution and its health consequences in the area where they live, as the share of respondents who completely agree is the smallest (both 11%).

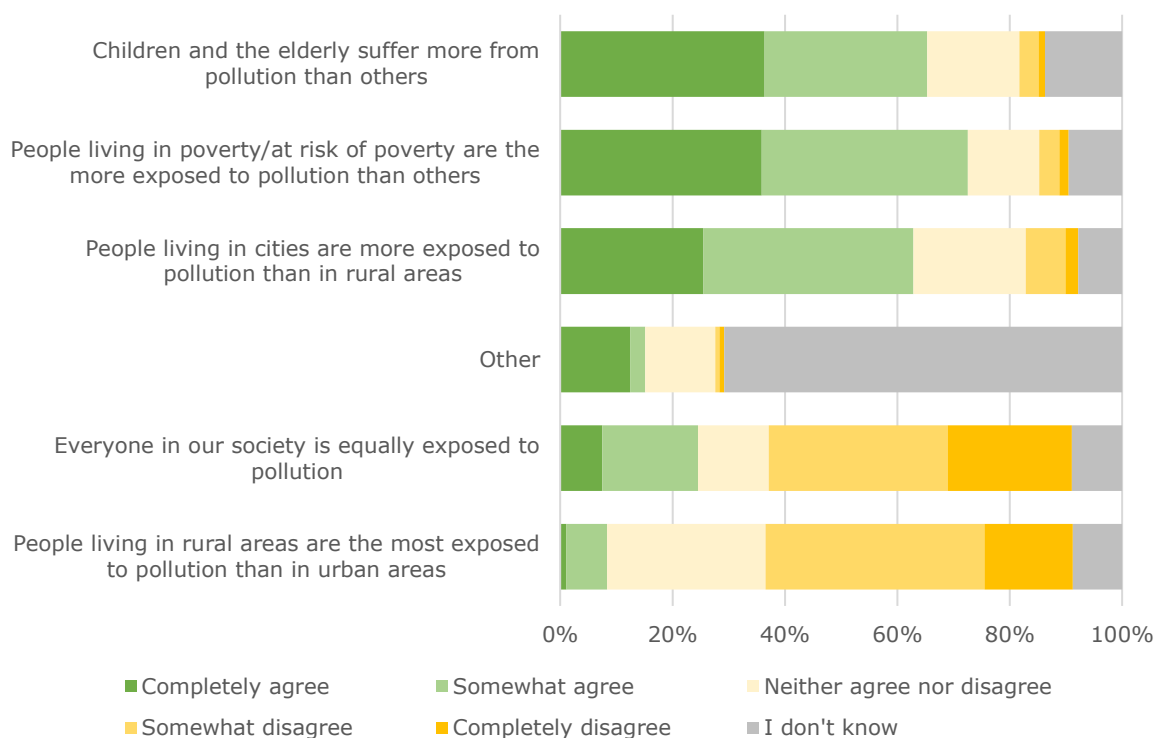
Figure 14 To what extent do you agree or disagree with the following statements?



n= 706

With respect to the impact of pollution on different population groups, 36% of the respondents completely agree and 29% somewhat agree that children and elderly suffer more from pollution, that people living in poverty/at risk of poverty are more exposed than others, and that people living in cities are also more exposed to pollution. Conversely, 16% completely disagreed and 39% somewhat disagree that everyone in society is equally exposed to pollution. Only 7% somewhat agree and 1% completely agree that people living in rural areas are the most exposed to pollution.

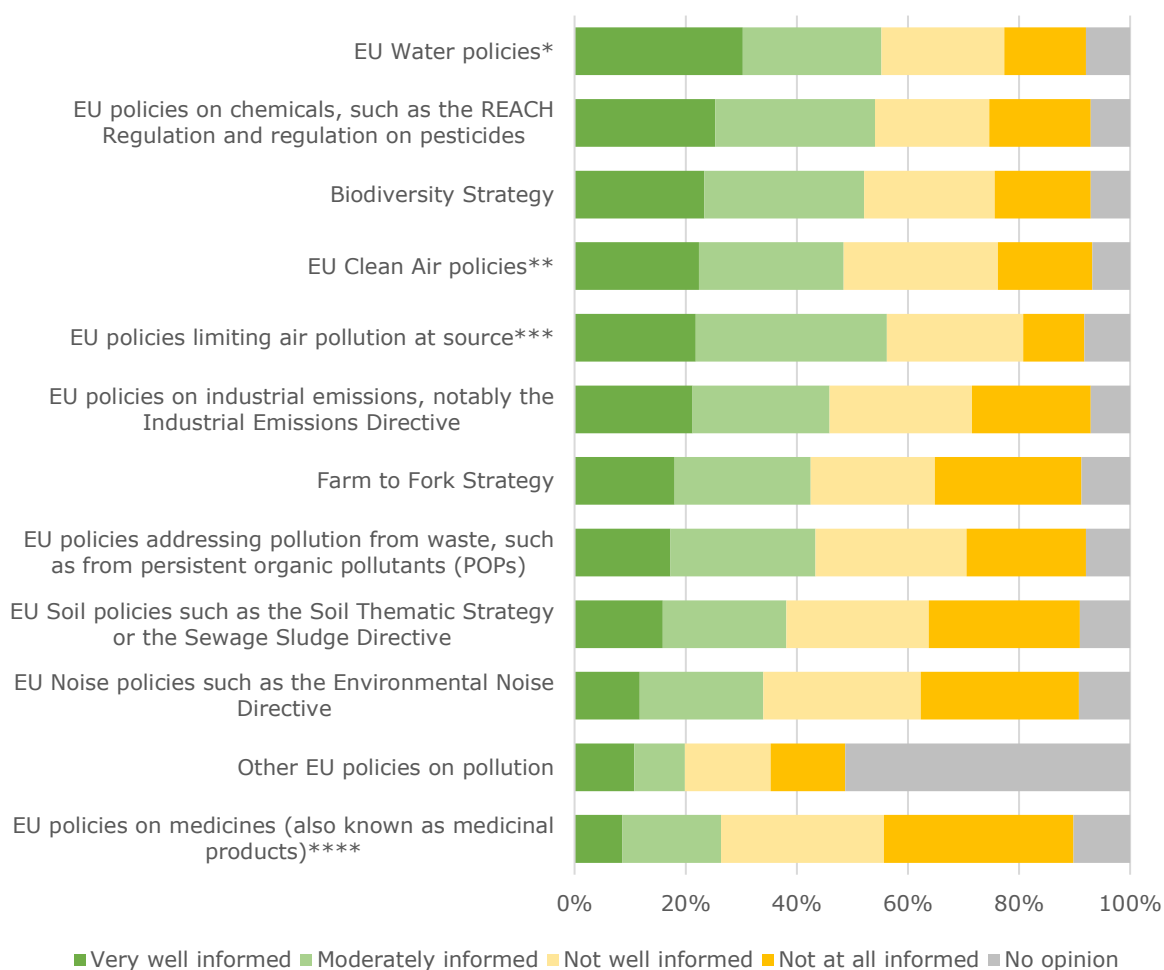
Figure 15 To what extent do you agree with the following statements about the impact of pollution on different population groups?



n= 706

With respect to the level of knowledge on EU initiatives addressing pollution, 30% of the respondents feel very well informed on EU water policies, followed by EU policies on chemicals (25%) and the EU’s Biodiversity Strategy (23%). Conversely, well over half of the respondents feel not at all informed (34%) or not well informed (29%) on EU policies on medicines.¹⁷

Figure 16 Have you heard about the following EU initiatives addressing pollution? If so, how much do you know about them?



n= 706

Shortened answer options:

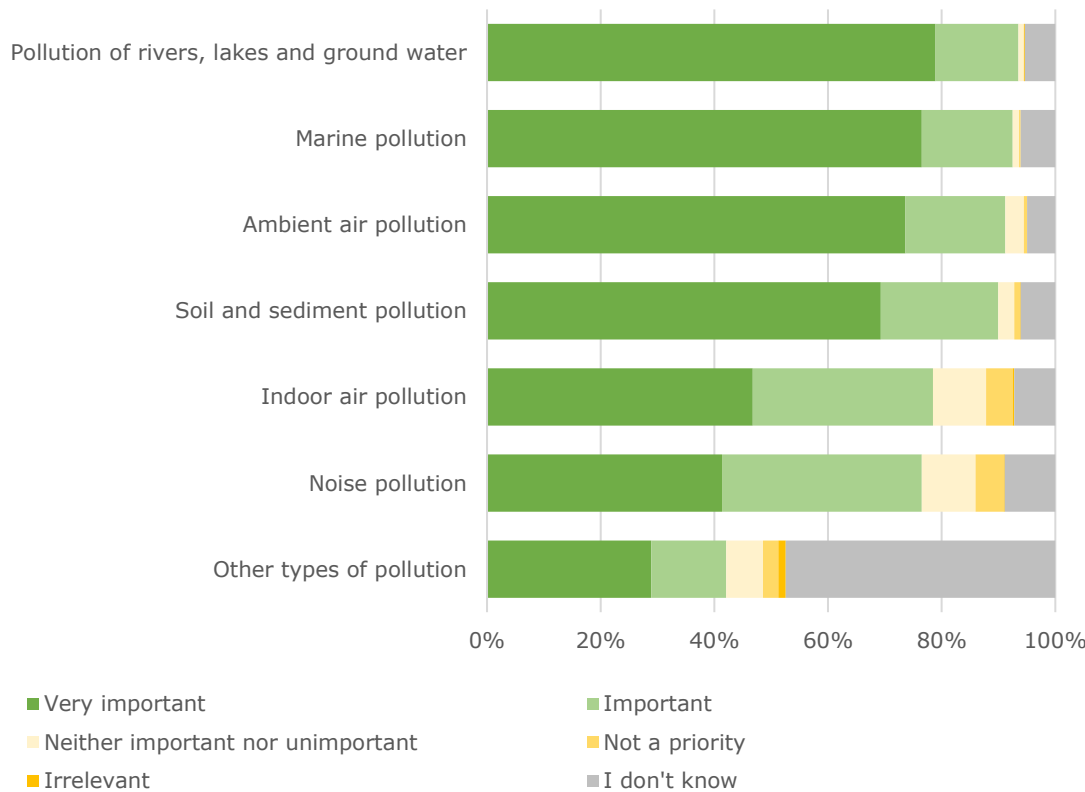
EU Water policies such as the Water Framework Directive, the Marine Strategy Framework Directive, the Urban Wastewater Treatment Directive, the Drinking Water Directive and the Bathing Water Directive, the Nitrates Directive; **EU Clean Air policies such as the Ambient Air Quality Directives and the National Emission reduction Commitments (NEC) Directive; *EU policies limiting air pollution at source, such as Euro standards for cars, buses and trucks, or eco-design rules for heating appliances; ****EU policies on medicines (also known as medicinal products), such as directives or regulations, and the 2019 EU Strategic Approach to Pharmaceuticals in the Environment*

¹⁷ Two associations specified that they selected “No opinion” as they preferred not to take a position on the question asked.

The second section on *Views on the state of pollution and related policies* explores the views of stakeholders on the state of pollution, and the importance of pollution in the wider context of environment policy.

More than 3 in 4 of the respondents (79%) indicate that it is very important to address pollution of rivers, lakes, and ground water, followed by marine pollution (76%) and ambient air pollution (74%). There is less agreement on noise pollution, where 41% of the respondents indicate that it is very important to address it, while another 35% indicate that it is important.¹⁸

Figure 17 How important is it to address the following pathways and depositories of pollution at the EU level.

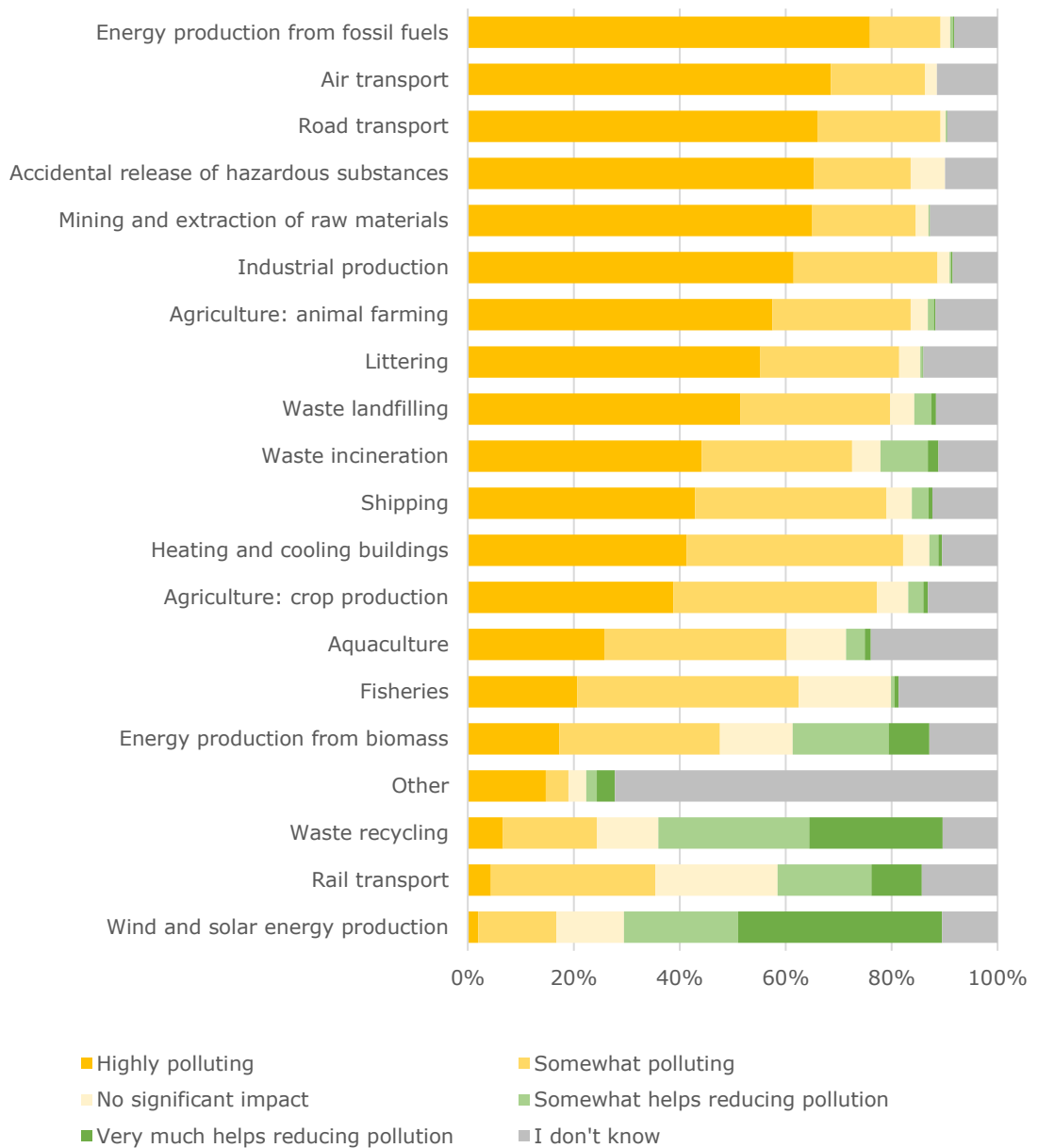


n= 706

¹⁸ One association specified that they selected “I don’t know” as they preferred not to take a position on the question asked.

With respect to the impact of pollution by the type of activity, more than half of the respondents (50% and above), indicate the following as highly polluting: energy production from fossil fuels (76%), air transport (69%), road transport (66%), accidental release of hazardous substances (65%), mining and extraction of raw materials (65%), industrial production (61%), agriculture: animal farming (58%), littering (55%), and waste landfilling (51%). Conversely, 39% of the respondents consider that wind and solar energy production very much contribute to reducing pollution and 22% consider it to contribute somewhat.¹⁹

Figure 18 How do you evaluate the impact of the following activities on pollution?

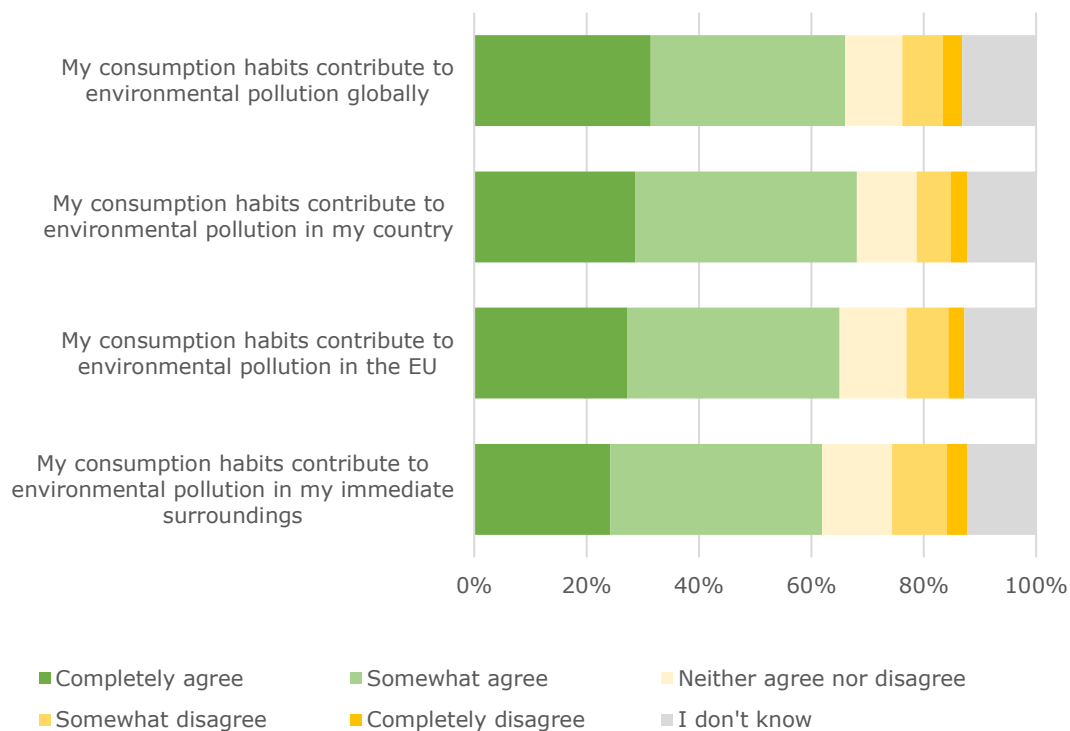


n= 706

¹⁹ One association specified that they selected “I don't know” as they preferred not to take a position on the question asked.

24% or more of the respondents completely agree with the statements concerning the contribution of consumption habits to environmental pollution. 31% of the respondents completely agree that their consumption habits contribute to environmental pollution globally, followed by in their country (29%), in the EU (27%), and in their immediate surroundings (24%).

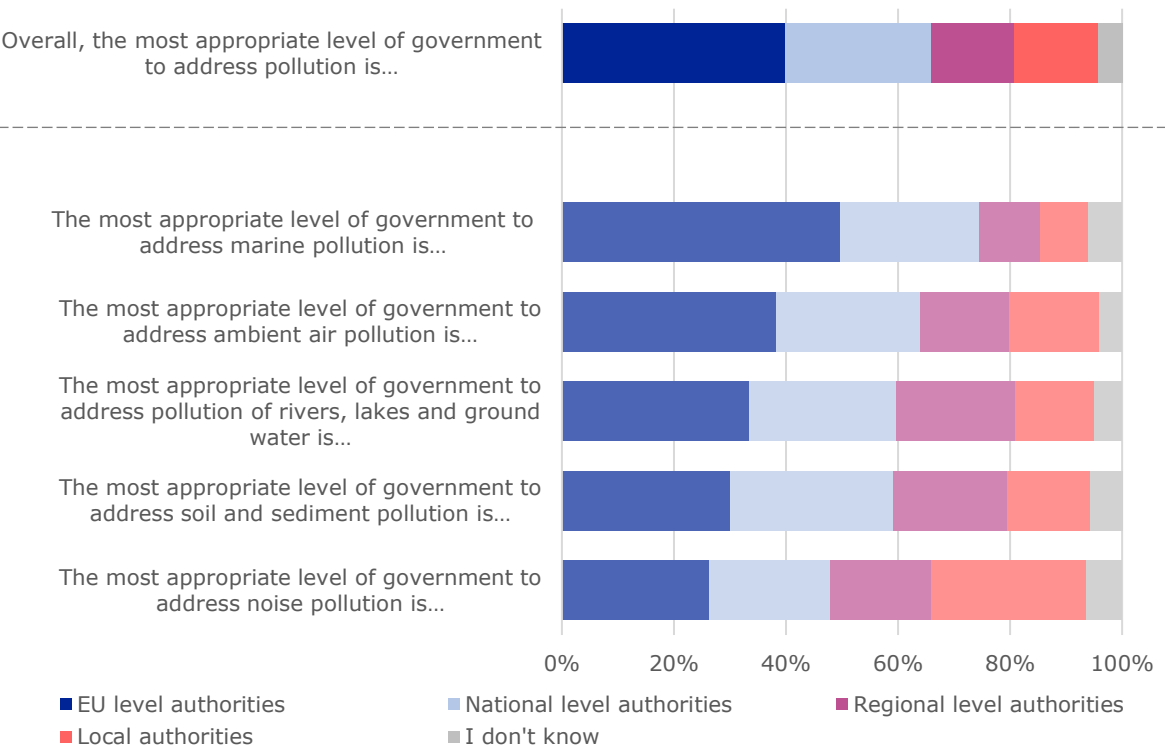
Figure 19 To what extent do you agree or disagree with the following statements?



n= 706

In terms of the level of government most appropriate to address pollution in the EU Member States, 40% of the respondents consider EU level authorities to be the most appropriate, followed by 26% for national level authorities, and 15% each for regional and local authorities. EU-level authorities are considered as the most appropriate to address marine pollution (50%), ambient air pollution (38%), rivers, lakes and ground water pollution (33%), and soil and sediment pollution (30%). After EU-level authorities, respondents rank national level authorities as the second most appropriate to address the different types of pollution. The only exception is noise pollution, where 28% of the respondents consider local authorities to be the most appropriate, which is the highest share for this type of pollution.²⁰

Figure 20 Which level of government is the most appropriate to address pollution in the EU Member States?

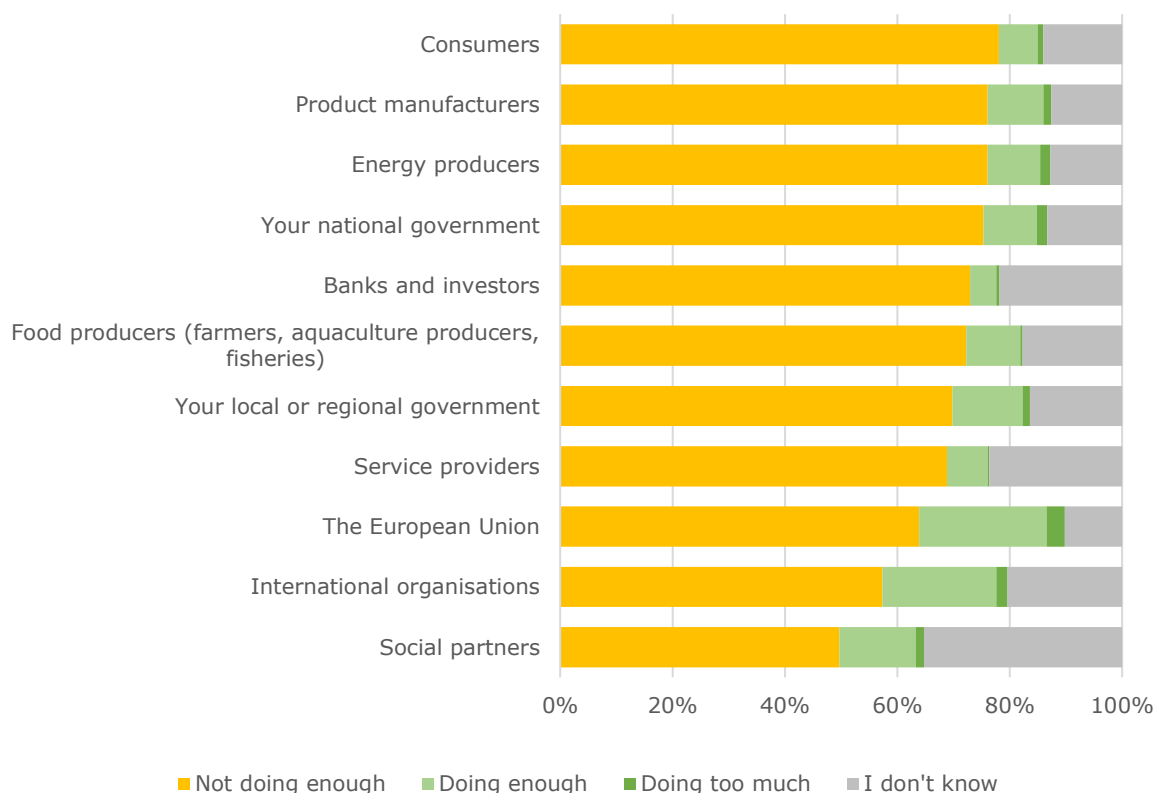


Note: Multiple replies were possible

²⁰ One association specified that they selected “I don’t know” as they preferred not to take a position on the question asked.

More than half of the respondents (50% and above) agree that all actors listed are not yet doing enough to tackle pollution. Above all, 78% of the respondents state that consumers are not doing enough, followed by product manufacturers, energy producers (both 76%), and national governments (75%). At the other end, 23% of the respondents state that the European Union is doing enough about pollution, which is the highest share across the different categories.

Figure 21 In your opinion, is each of the following currently doing too much, enough, or not enough about pollution?

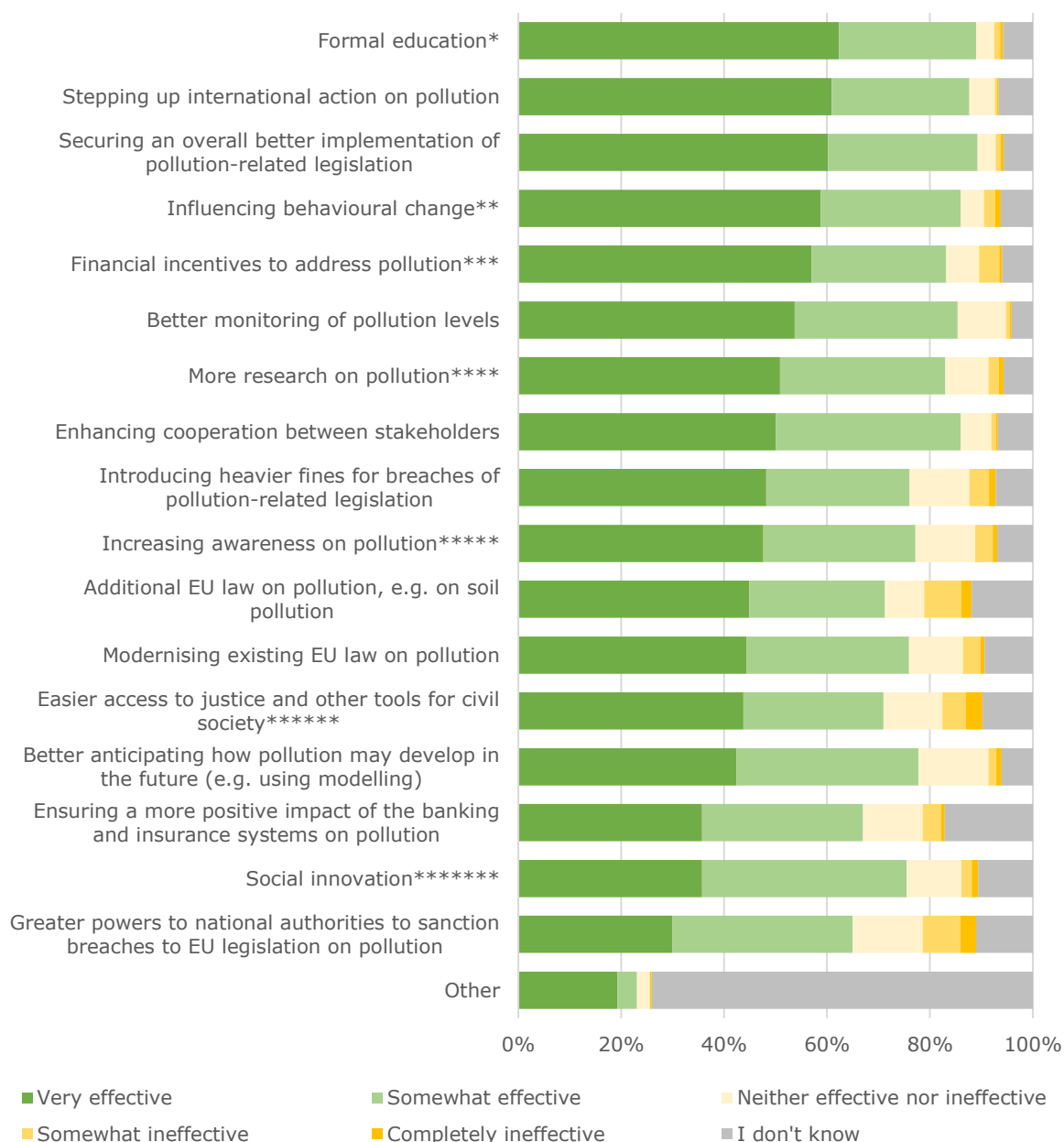


n= 706

The third section on *Ways forward to address pollution* focuses on ways to address the issue of pollution in the future.

Consistently, over 60% of the respondents completely or somewhat agree with the listed ways of tackling pollution. Formal education gains the biggest support with a 62% share of the respondents who completely agree, followed by stepping up international action on pollution (61%), and overall better implementation of pollution-related legislation (60%).

Figure 22 In your opinion, how effective would the following ways of tackling pollution be?



n= 706

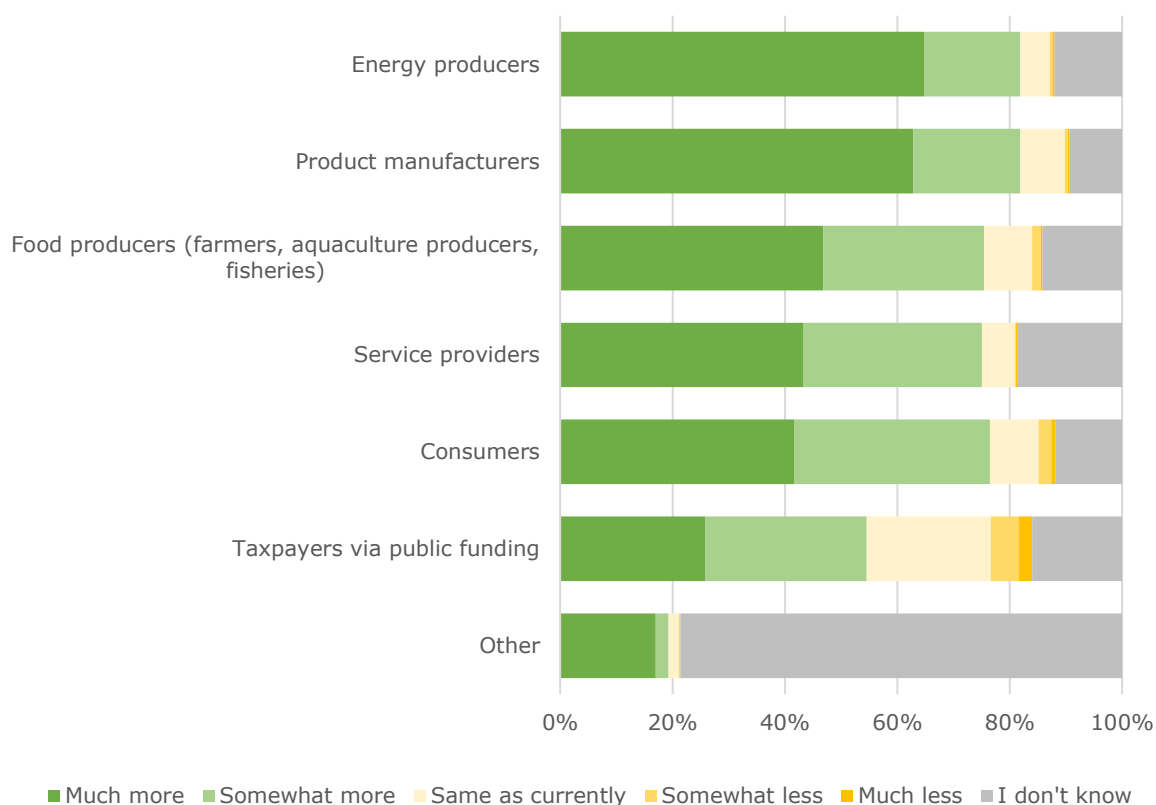
Shortened answer options:

*Formal education: Integrating pollution-related issues more into education curricula, e.g. training activities on the interplay between pollution, climate change, and public health, on sustainable consumption of products and energy, on sustainable mobility; **Influencing behavioural change (e.g. through social media, culture, sports,...) to shift to a 'zero pollution mentality', by informing citizens more, e.g. on the interplay between pollution, climate change and public health, on sustainable consumption of products and energy, on

sustainable mobility; ***Financial incentives to address pollution (e.g. taxes and subsidies favouring less-polluting activities by industry and consumers); ****Increasing awareness on pollution, e.g. funding for clean-up/remediation activities with citizen involvement; *****Easier access to justice and other tools for civil society organisations to act against breaches to EU legislation on pollution; *****Social innovation (e.g. shifting from physical to digital solutions, changes in work organisation)

Asked about how much different actors should contribute to reducing pollution, 65% of the respondents state that energy producers should contribute much more, followed by product manufacturers (63%), food producers (47%) service providers (43%), and consumers (42%). Less than a third of the respondents indicate that taxpayers via public funding (26%) and others (17%) should contribute much more. Only 2% of the respondents think taxpayers should do much less, which is the highest share across the different groups.²¹

Figure 23 In your view, how much should the following groups contribute (financially and by actions) to reducing pollution, compared to the current situation?

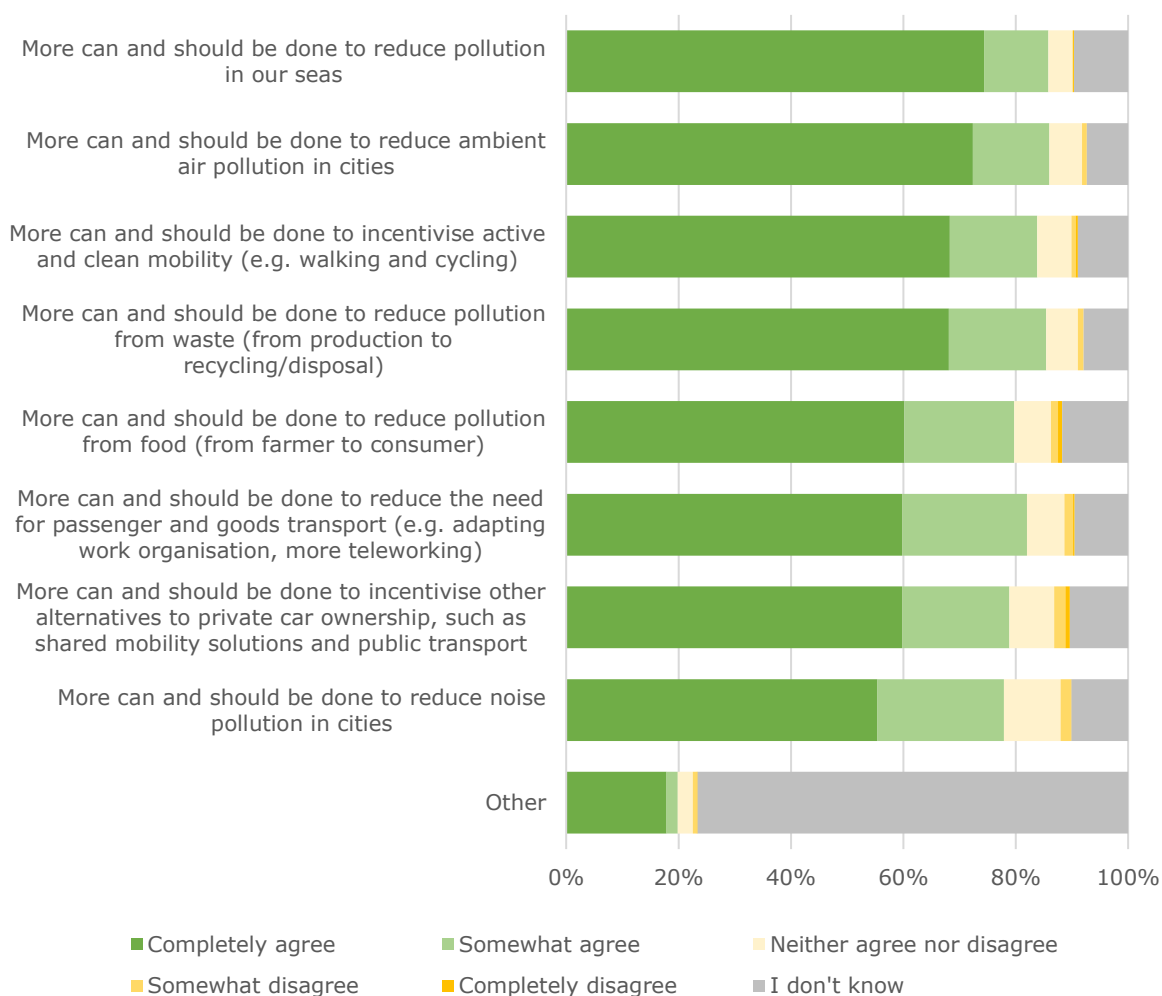


n= 706

²¹ Five associations specified that they selected “I don’t know” as they preferred not to take a position on the question asked.

With respect to the lessons that could be learned for zero pollution policies from recent developments, such as changes observed during COVID-19 related measures, 55% or more of the respondents completely agree with the listed statements. 74% of the respondents completely agree that more can and should be done to reduce pollution in our seas, followed by reducing ambient air pollution in cities (72%), incentivising active and clean mobility and reducing pollution from waste (both 68%). Respondents are the least sure about reducing noise pollution in cities, with 10% of the respondents neither agreeing nor disagreeing.

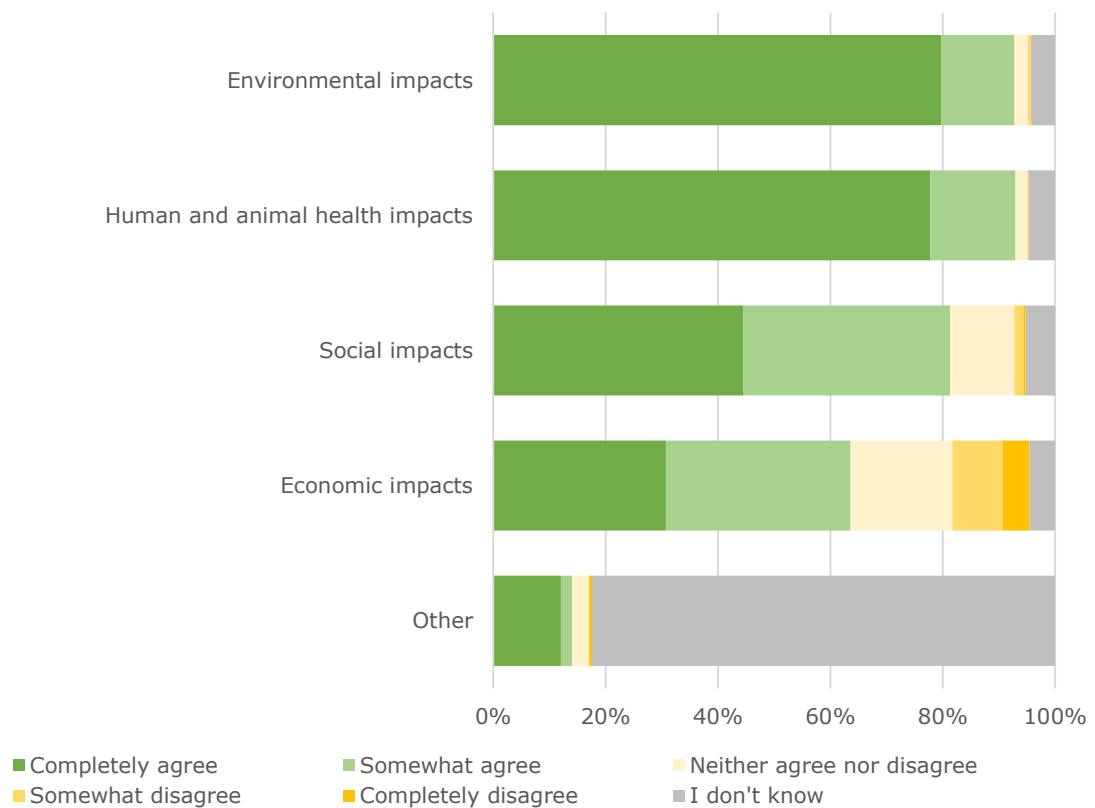
Figure 24 In your view, which lessons could be learned for zero pollution policies from recent developments, such as changes observed during Covid-19 related measures (e.g. changes related to less commuting and traffic)?



n= 706

With respect to the impacts that should be the most decisive for implementation of pollution related policies, 80% of the respondents completely agree that environmental impacts should be the most decisive, followed by human and animal health impacts (78%). Opinions diverge more when it comes to the economic impacts, but even there 31% of the respondents completely agree and 33% somewhat agree.

Figure 25 In your view, what impacts should be the most decisive for implementation of pollution related policies?

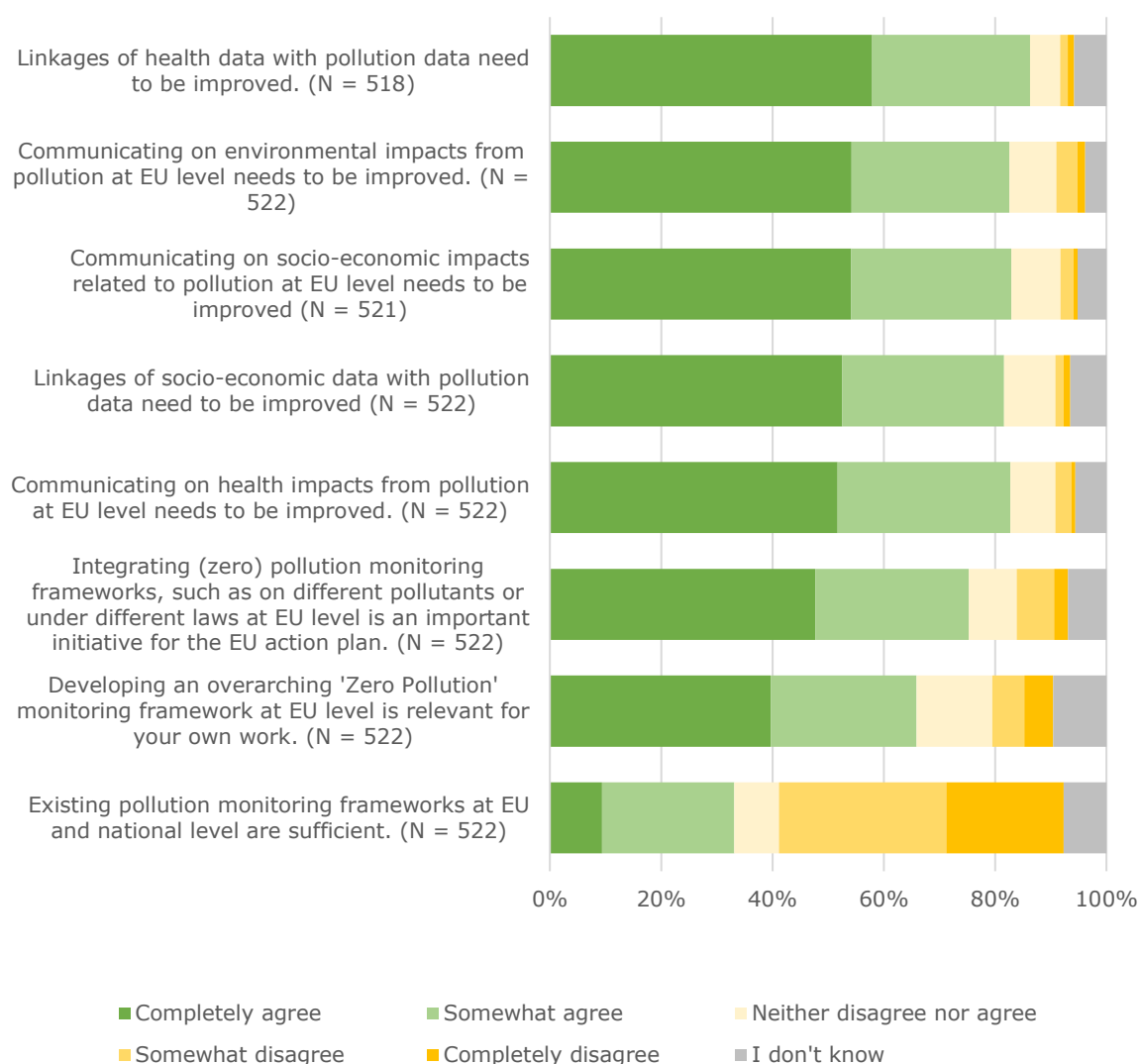


n= 706

Two additional sections seek input from experts and the specialised public (self-assessment). All questions were optional. The first of these two sections, *Towards an integrated zero pollution monitoring and outlook framework*, asks experts on their views on the development of a more integrated and holistic zero pollution monitoring and outlook framework.

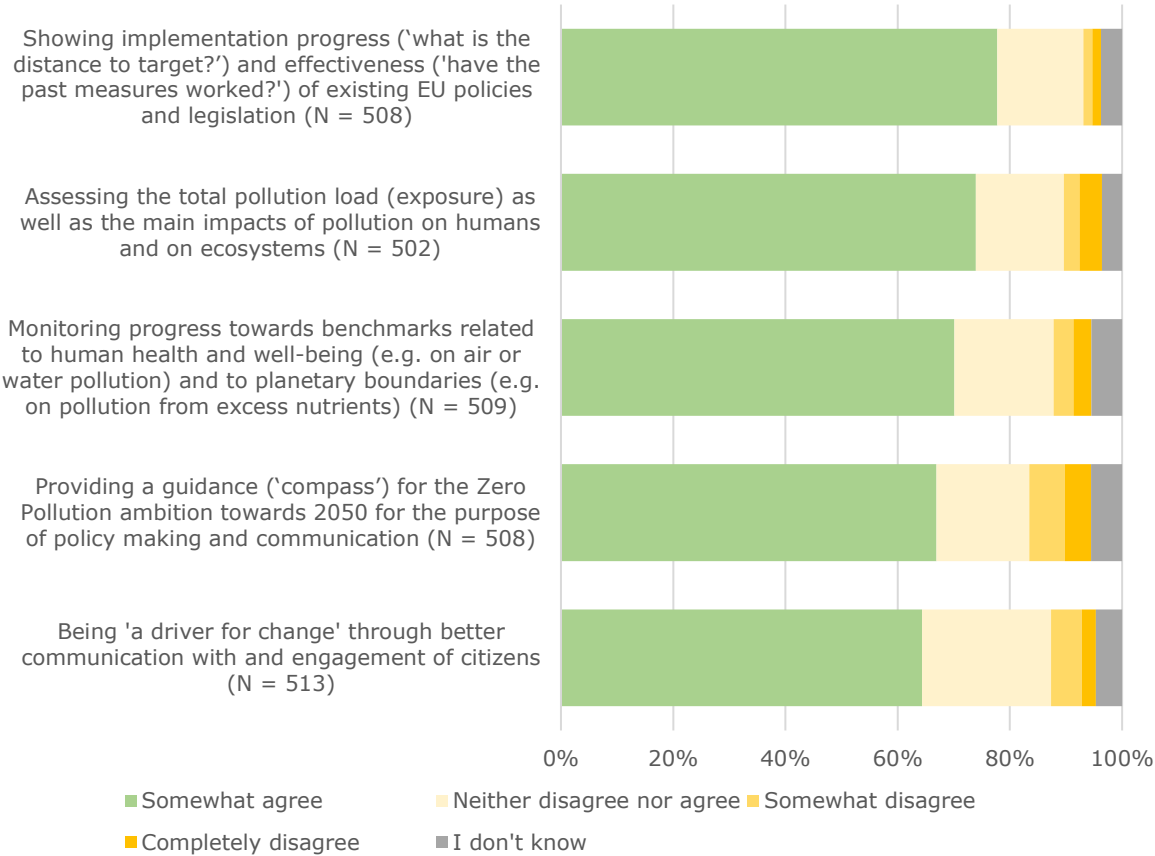
Overall, 40% or more of the respondents completely with the statements relating to necessary improvements in the application and management of pollution policies. 58% of the respondents completely agree that linkages between health data and pollution data need to improved, followed by communicating on environmental impacts from pollution at EU level and on socio-economic impacts related to pollution at the EU level (both 54%). Conversely, 21% completely disagree and 30% somewhat disagree that the existing monitoring frameworks for pollution at the EU and national level are sufficient.

Figure 26 What is your opinion about the following statements?



With respect to the opinions of respondents on the main purpose for a zero pollution monitoring and outlook at EU level, 64% or more somewhat agree with all of the suggested options.

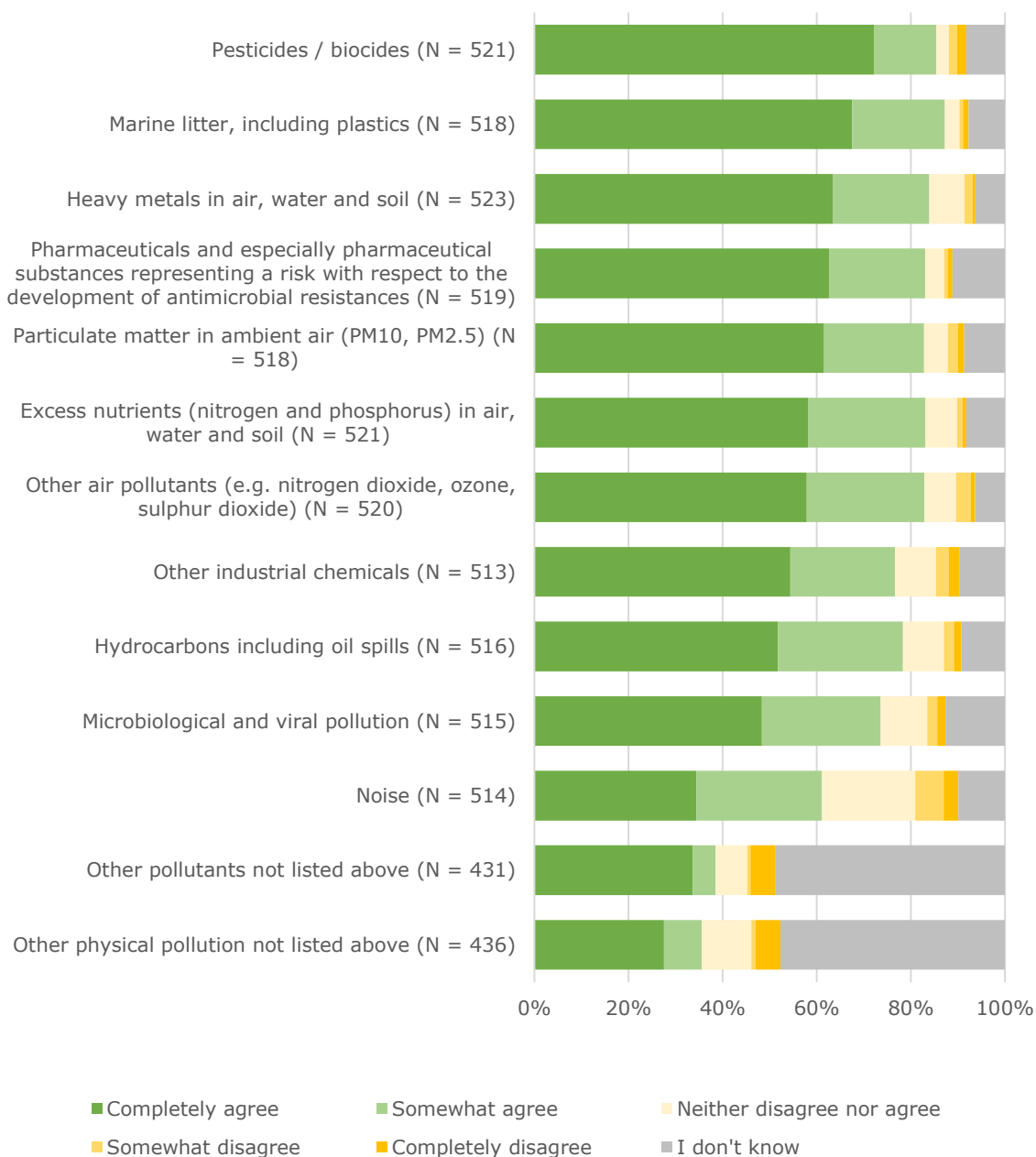
Figure 27 In your opinion, what should be the main purpose for a zero pollution monitoring and outlook at EU level?



Note: There was no option “completely agree”

With respect to the pollutants that should be addressed as a priority at EU level and therefore included in the monitoring framework, pesticides / biocides are ranked first with 72% of the respondents completely agreeing they should be addressed as a priority, followed by marine litter (68%), heavy metals (63%), pharmaceuticals (63%), and particulate matter (62%). Respondents are less certain about addressing noise as a priority, where 20% of the respondents neither disagree nor agree.

Figure 28 In your opinion, which pollutants should be addressed as a priority at EU level and therefore included in the monitoring framework?



The final section of the questionnaire explores *Digital solutions for zero pollution*, seeking to gather views of experts on the digital tools and services and how they can be used for achieving the zero pollution ambition.

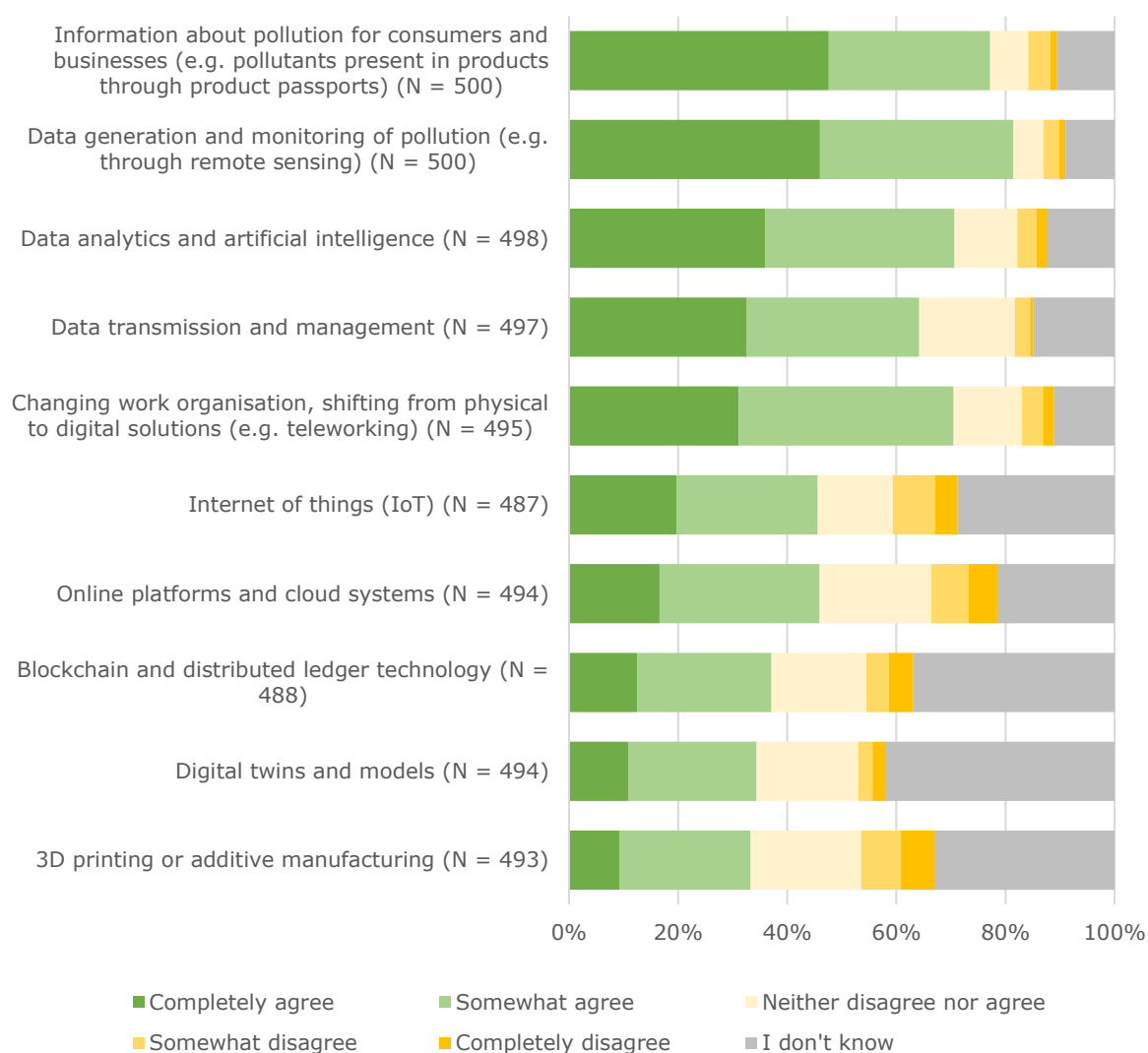
36% of respondents completely agree with the statement that significant investment is needed in innovation and digitalisation to help achieve the ‘zero pollution ambition, and that that digital solutions offer significant potential for reducing pollution (28%). Opinions diverge more when it comes to the use of digital tools by administrators to trace pollution and inform the public, where only 5% of the respondents completely agree and 12% completely disagree. Similarly, 12% of the respondents completely disagree with the statement that administrations are using digital tools to implement EU pollution legislation and enforce rules on the ground.

Figure 29 What is your opinion about the following statements?



Nearly half of the respondents (48%) completely agree that information about pollution for consumers and businesses is an area with high potential for pollution prevention, reduction and remediation. This is followed by data generation and monitoring of pollution (46%), data analytics and artificial intelligence (36%) and data transmission and management (33%). Based on the share of ‘I don’t know’ responses, respondents are least sure about the potential of digital twins and models (42%), blockchain and distributed ledger technology (37%), and 3D printing or additive manufacturing (33%) as areas with a big potential for pollution prevention.

Figure 30 In your opinion, what are the areas of digital application with the biggest potential for pollution prevention, reduction and remediation?



Annex 2 Detailed Analysis of Selected Questions

Introduction

Of 18 closed questions, 10 were selected for a detailed analysis. As part of the 10 selected questions, a total of 67 sub-questions were analysed. This analysis consists of a breakdown of responses by stakeholder group and allows the observation of common trends across the various groups, as well as divergences that would otherwise not appear when analysing all groups together. Due to the low response numbers from certain groups (e.g. trade unions, consumer organisations, non-EU citizen), which prevents a detailed analysis of response patterns in a representative way, the decision was taken to aggregated some of the stakeholder groups (as shown in the table below). Prior to this, it was ensured that aggregated groups have similar response patterns.

Table 3 Aggregation of stakeholder groups

Stakeholder type	Number of respondents	Stakeholder type (aggregated if applicable)
Consumer organisation	2	NGOs
Non-governmental organisation (NGO)	71	
Environmental organisation	11	
Company/business organisation	56	Businesses and associations
Business association	88	
Trade union	2	
Non-EU citizen	4	Citizens
EU citizen	379	
Public authority	33	Public authorities
Academic/research institution	29	Academic/research institutions
Other	31	Other
Total	706	

The table below provides an overview of the questions that were selected for a detailed analysis. The selection includes elements from all sections of the questionnaire and focused on questions where differences in response patterns appeared to be most likely.

Table 4 Selection of questions for the detailed analysis

Question	Number of sub-questions
1.1 To what extent do you agree with the following statements about the impact of pollution through air, water and soil?	6
1.2 To what extent do you agree or disagree with the following statements?	8
1.3 To what extent do you agree with the following statements about the impact of pollution on different population groups?	5
2.1 How important is it to address the following pathways (the way pollution moves from its source once it has been released into the environment) and depositories (the eventual recipients of pollution, where it then accumulates) of pollution at the EU level?	7

CONSULTATION ON THE EU ACTION PLAN “TOWARDS A ZERO POLLUTION AMBITION FOR
AIR, WATER AND SOIL”

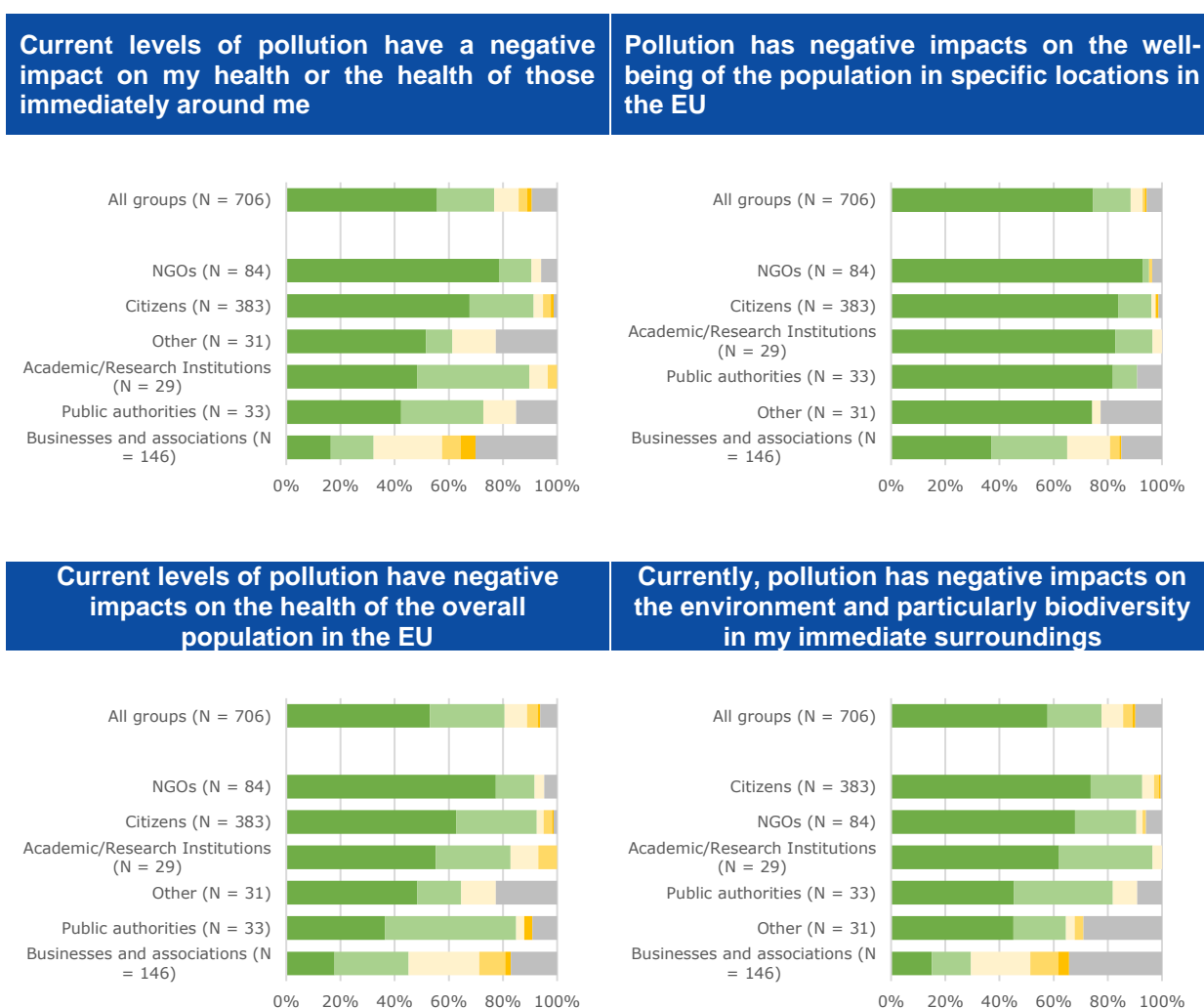
Question	Number of sub-questions
2.3 To what extent do you agree or disagree with the following statements?	4
3.3 In your view, which lessons could be learned for zero pollution policies from recent developments, such as changes observed during Covid-19 related measures (e.g. changes related to less commuting and traffic)?	8
4.1 What is your opinion about the following statements?	8
4.2 In your opinion, what should be the main purpose for a zero pollution monitoring and outlook at EU level?	5
5.1 What is your opinion about the following statements?	6
5.2 In your opinion, what are the areas of digital application with the biggest potential for pollution prevention, reduction and remediation?	10

Analysis

Question 1.1. To what extent do you agree with the following statements about the impact of pollution through air, water and soil?

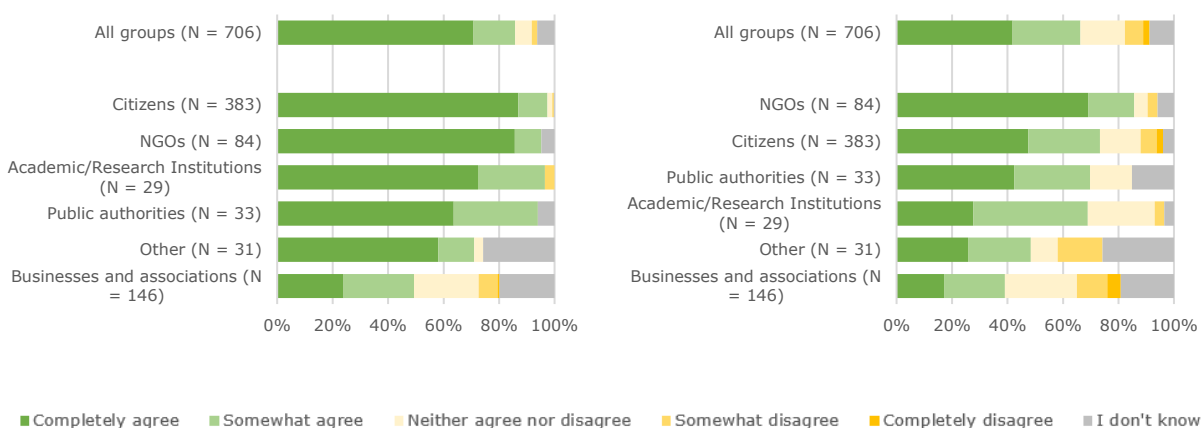
The detailed analysis of the statements about the impact of pollution through air, water and soil shows similar response patterns across citizens, academic/research institutions, public authorities, and NGOs; high shares of each group completely or somewhat agree on the negative impacts of pollution. By contrast, businesses and associations appear to consider current levels of pollution less problematic, in particular in relation to health, biodiversity, and the economy. For example, citizens agree most strongly that pollution has general negative impacts on the environment and particularly biodiversity (87% of all citizens completely agree), while only 24% of business and associations completely agree with that statement. Among NGOs, a particularly large share indicates that pollution has negative impacts on the wellbeing of the population in specific locations in the EU (93% completely agree). With respect to the negative impacts of pollution on the economy, only 17% of business and associations completely agree.

Figure 31 Q1.1 – Analysis by type of stakeholder



Currently, pollution has general negative impacts on the environment and particularly biodiversity

Current levels of pollution have general negative impacts on the economy



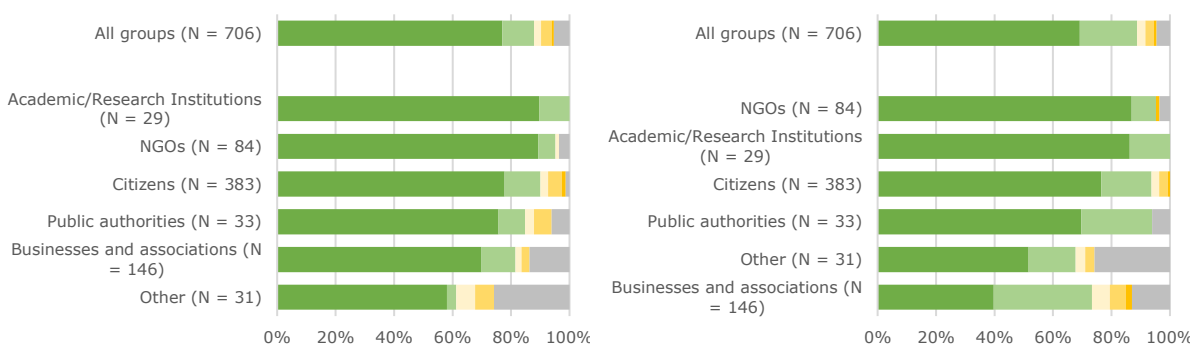
Question 1.2. To what extent do you agree or disagree with the following statements?

All stakeholder groups agree that pollution is an issue of concern worldwide and in the EU. While most other stakeholders disagree that pollution is an issue of concern primarily outside of the EU, a higher share of businesses and associations completely agree (18%) or somewhat agree (28%). Compared to the other stakeholders, businesses and associations also do not see pollution as a grave issue in their country (23% completely agree, compared to 56%). While most stakeholders agree that pollution is an issue in their municipality, only a small share of businesses and associations completely agree (11%) or somewhat agree (11%) with that statement.

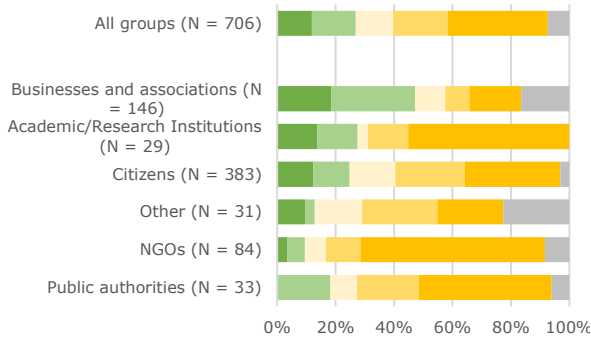
Figure 32 Q1.2 – Analysis by type of stakeholder

Pollution is an issue of concern worldwide

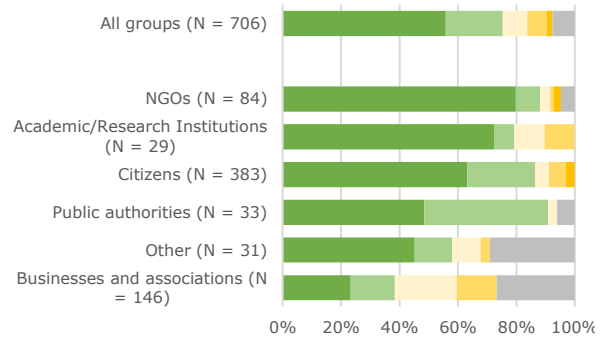
Pollution is an issue of concern in the EU



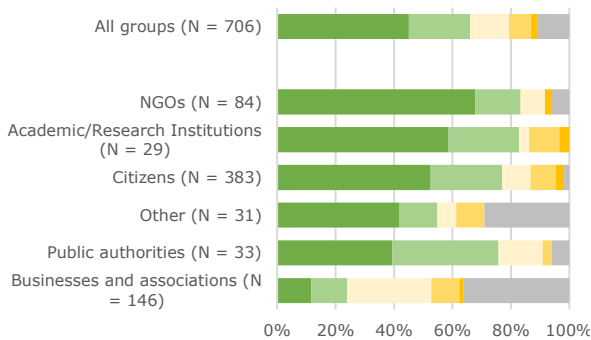
Pollution is an issue of concern primarily outside of the EU



Pollution is an issue of concern in my country



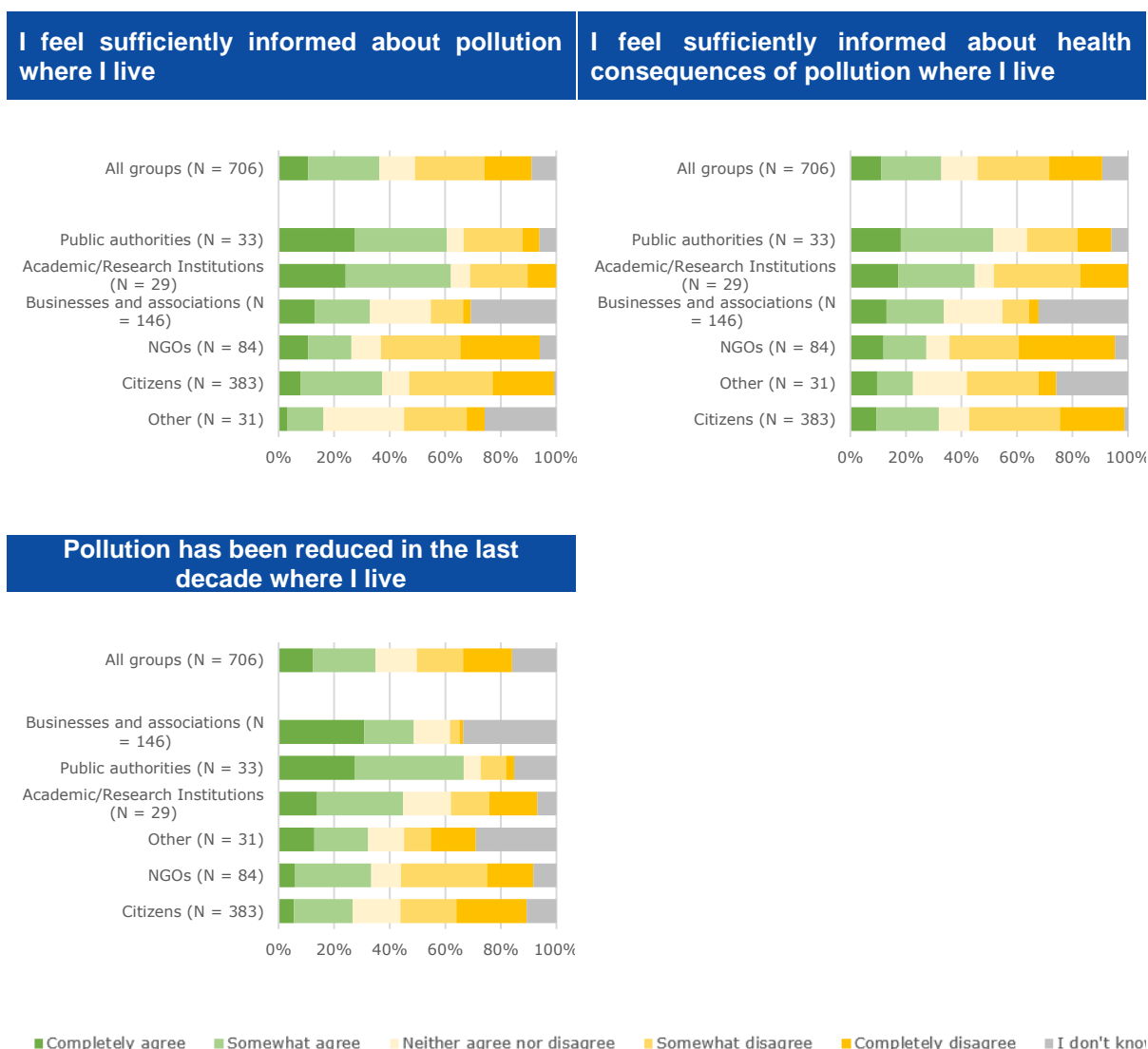
Pollution is an issue of concern in my municipality



■ Completely agree
 ■ Somewhat agree
 ■ Neither agree nor disagree
 ■ Somewhat disagree
 ■ Completely disagree
 ■ I don't know

Most stakeholder groups do not feel sufficiently informed about pollution and the health consequences of pollution where they live. Notably, larger shares of academic/research institutions and public authorities state that they feel sufficiently informed (for example, about 60% of the academic/research institutions and public authorities completely or somewhat agree that they feel sufficiently informed about pollution in their areas). Furthermore, public authorities and businesses and associations align in their opinions that pollution has been reduced in the last decade where they live (27% and 31% respectively completely agree). By contrast, only 5% of citizens and 6% of NGOs completely agree with that statement.

Figure 33 Q1.2 – Analysis by type of stakeholder

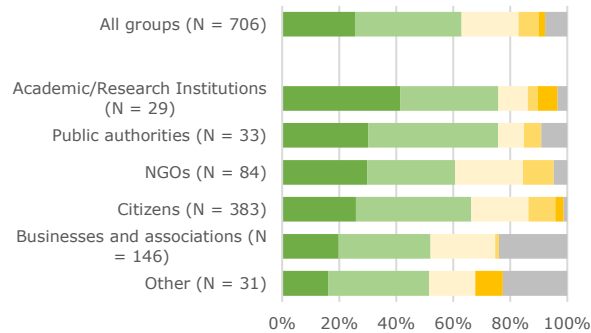


Question 1.3 To what extent do you agree with the following statements about the impact of pollution on different population groups?

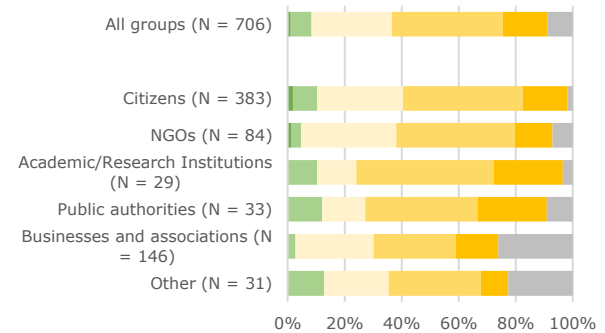
All stakeholder groups show similar response patterns with respect to the statements about the impact of pollution on different population groups. Agreement across stakeholder groups is the largest that people living in rural areas are less affected by pollution than in urban areas. Response patterns diverge slightly on the statement that people living in poverty/at risk of poverty are more exposed to pollution than others. 20% of businesses and associations completely agree with the statement, compared to overall 36% of respondents completely agreeing. Similarly, 12% of businesses and association completely agree that children and the elderly suffer more from pollution than others, while the total is 36%.

Figure 34 Q1.3 – Analysis by type of stakeholder

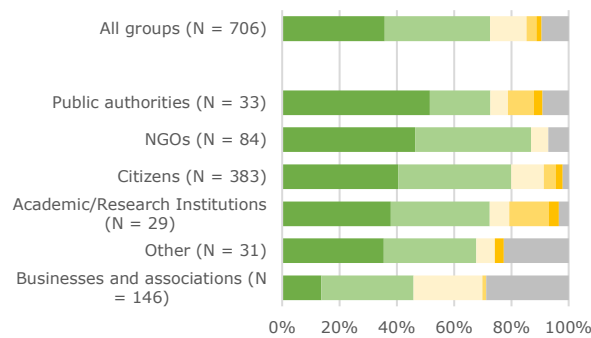
People living in cities are more exposed to pollution than in rural areas



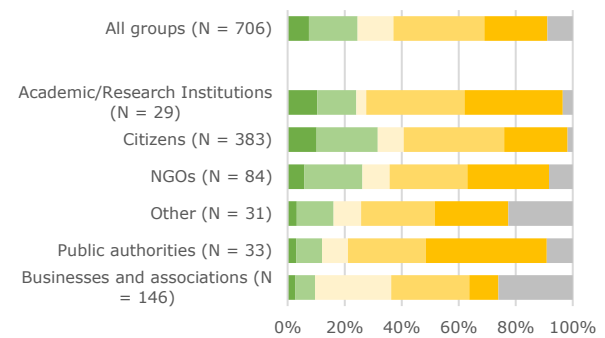
People living in rural areas are the most exposed to pollution than in urban areas



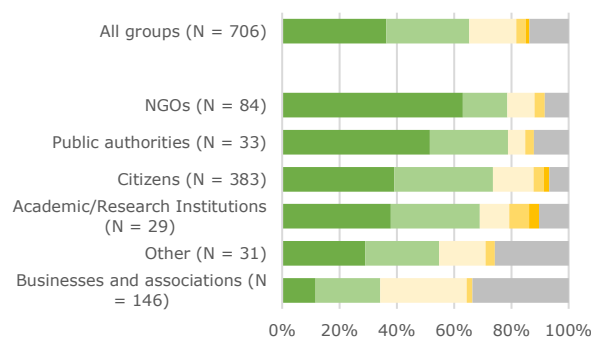
People living in poverty/at risk of poverty are more exposed to pollution than others



Everyone in our society is equally exposed to pollution



Children and the elderly suffer more from pollution than others

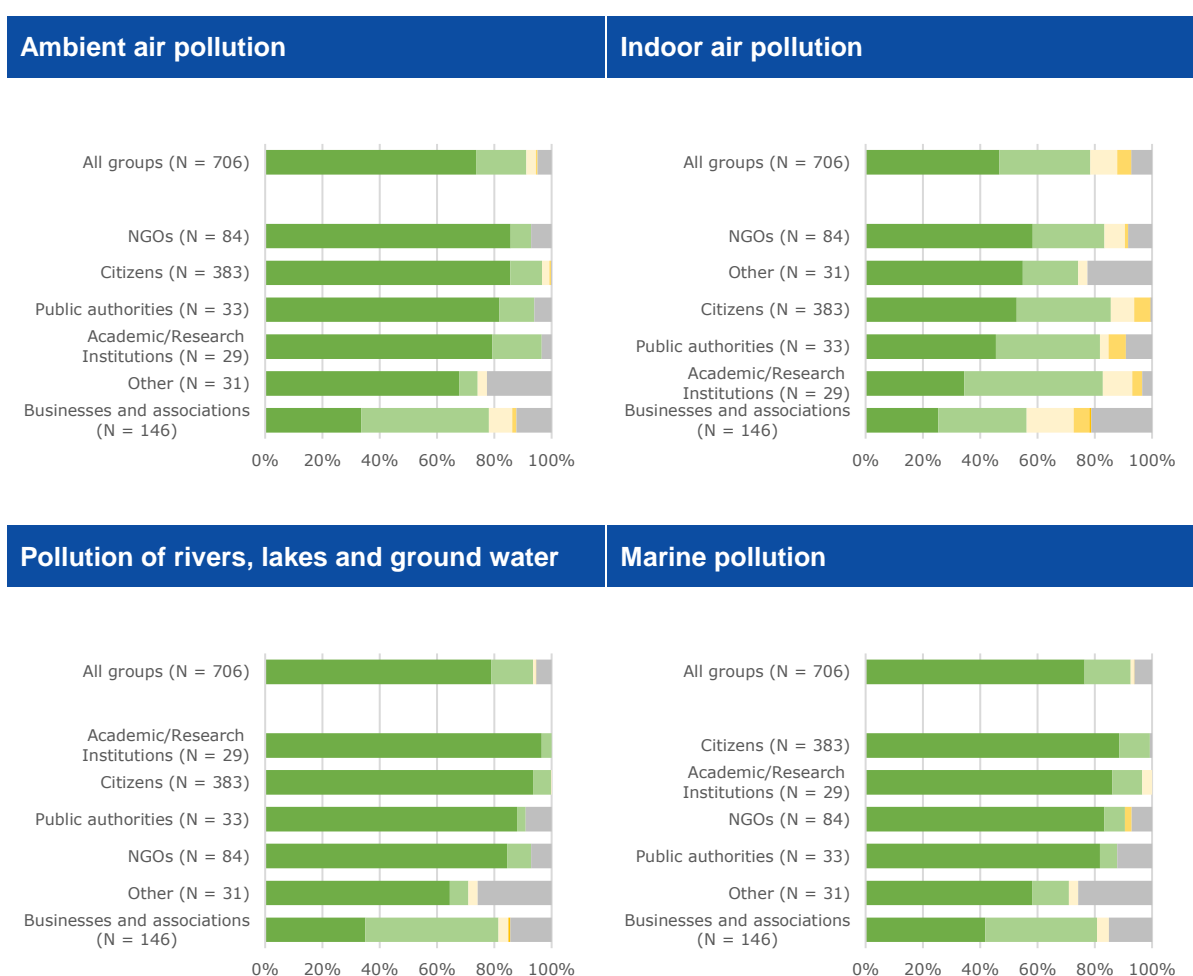


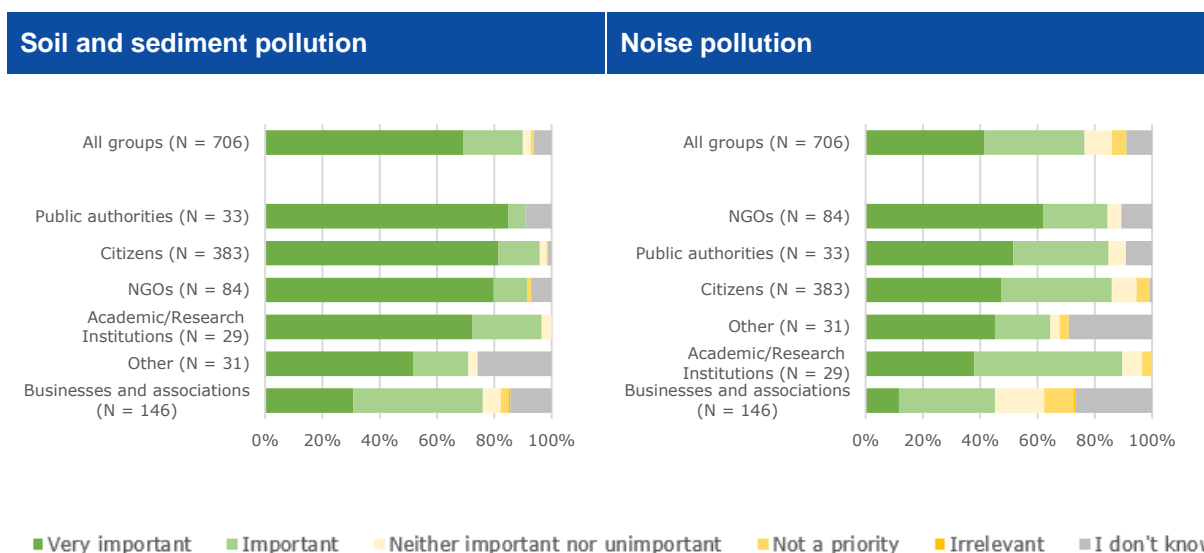
■ Completely agree
 ■ Somewhat agree
 ■ Neither agree nor disagree
 ■ Somewhat disagree
 ■ Completely disagree
 ■ I don't know

Question 2.1 How important is it to address the following pathways (the way pollution moves from its source once it has been released into the environment) and depositories (the eventual recipients of pollution, where it then accumulates) of pollution at the EU level?

All stakeholder groups seem to agree that it is important to address all the surveyed pathways and depositories of pollution at the EU level. While – compared to other stakeholder groups – smaller shares of businesses and associations consider it very important to address the surveyed pathways and depositories of pollution at EU level, the majority of businesses and associations find them at least somewhat important. The only exception is noise pollution, where businesses and associations appear to be the least certain; 17% respond with neither important nor unimportant and another 27% indicate “don’t know”.

Figure 35 Q2.1 – Analysis by type of stakeholder

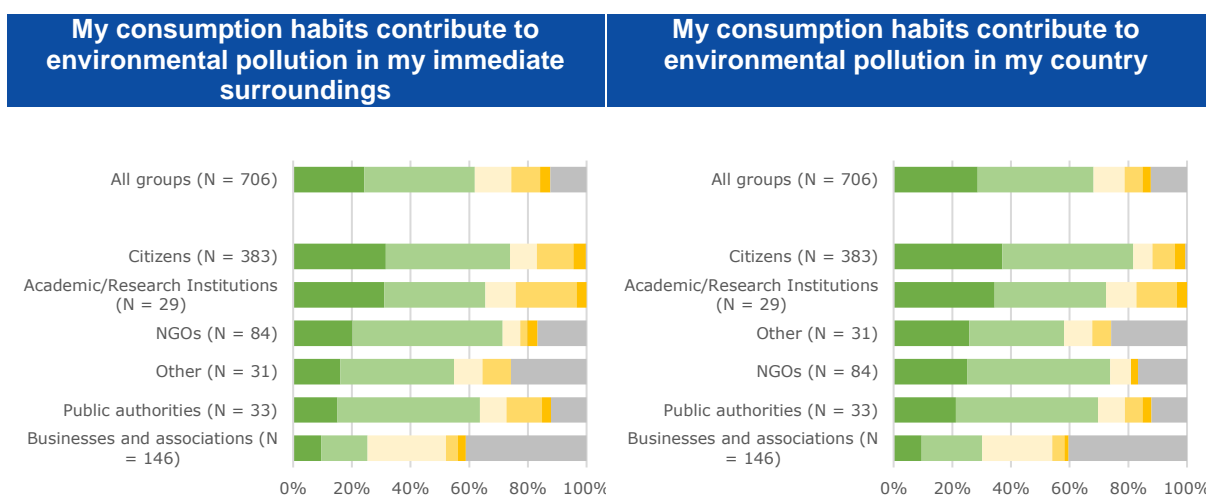


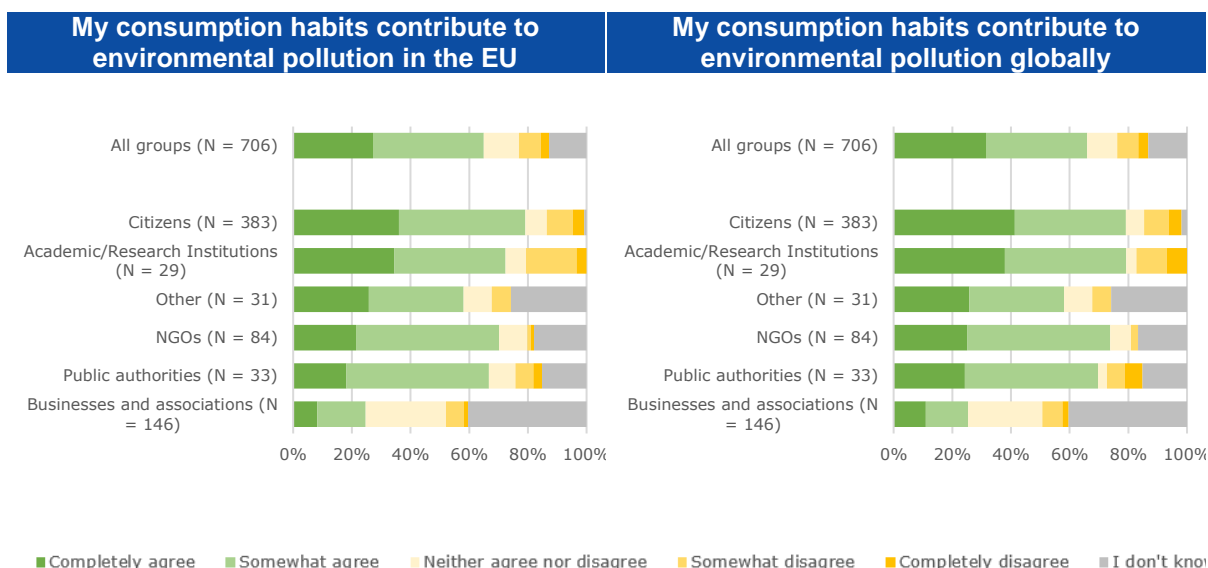


Question 2.3 To what extent do you agree or disagree with the following statements?

Stakeholder groups share similar views on the effects of consumption habits on environmental pollution. Businesses and associations are the only exception, with high shares indicating “don’t know” (40% for each of the four statements). Another 25% of the businesses and associations respondents indicate that they neither agree nor disagree. A possible explanation is the way the question is phrased, suggesting to explore personal consumption habits, rather than consumption habits of economic operators. Notably, academic/research institutions and citizens are the two stakeholder groups with the highest share of respondents who somewhat disagree that their consumption habits contribute to environmental pollution in their immediate surroundings (20% and 12% respectively).

Figure 36 Q2.3 – Analysis by type of stakeholder

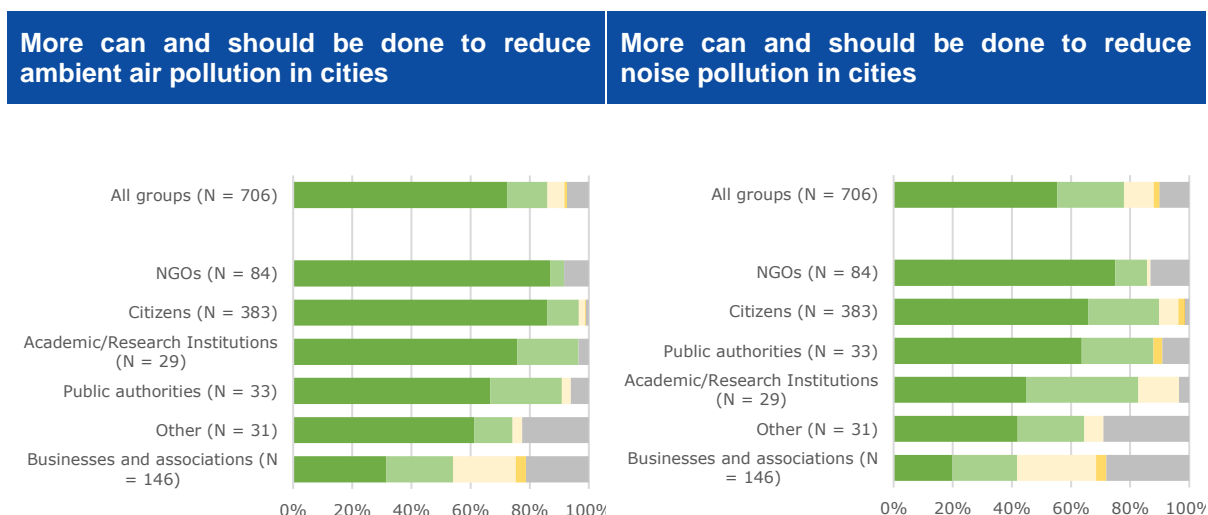




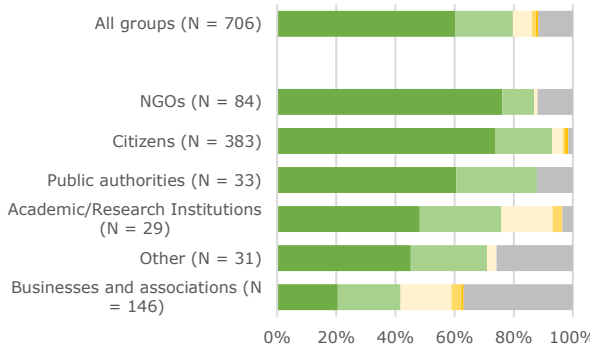
Question 3.3 In your view, which lessons could be learned for zero pollution policies from recent developments, such as changes observed during Covid-19 related measures (e.g. changes related to less commuting and traffic)?

There is a consensus among stakeholder groups that more needs to be done to tackle pollution. Among most stakeholder groups, 40% or more of respondents completely agree with the various statements of this question. The share is particularly high among NGOs and citizens; 60% or more agree. Conversely, businesses and associations appear to be the stakeholder group that is the least certain, with larger shares of the indicating that they neither agree nor disagree, or that they don't know.

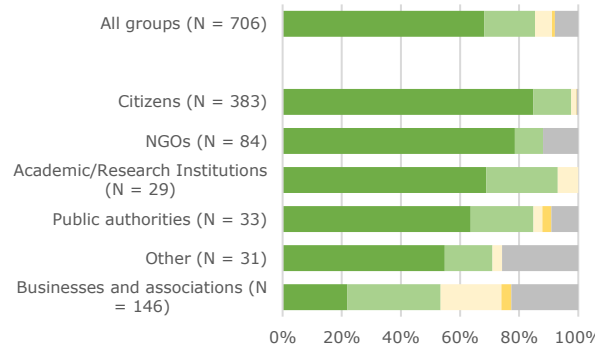
Figure 37 Q3.3 – Analysis by type of stakeholder



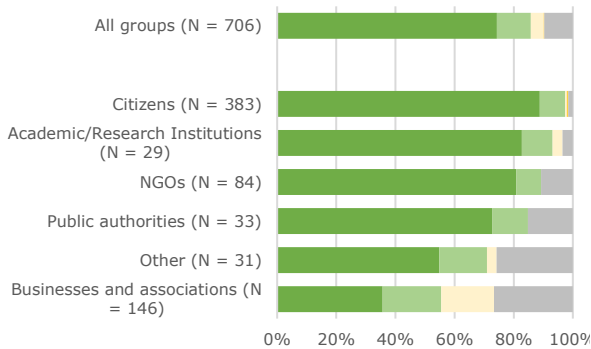
More can and should be done to reduce pollution from food (from farmer to consumer)



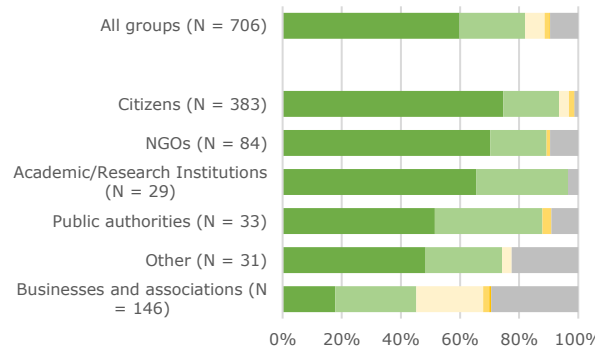
More can and should be done to reduce pollution from waste (from production to recycling/disposal)



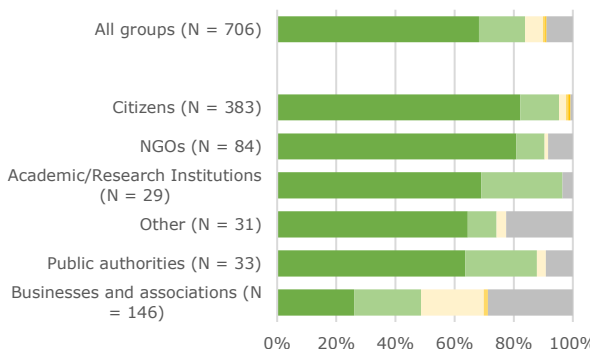
More can and should be done to reduce pollution in our seas



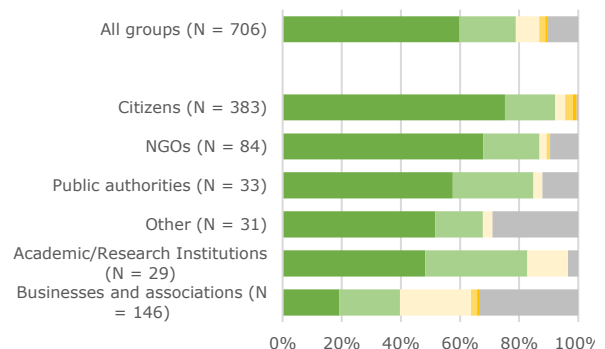
More can and should be done to reduce the need for passenger and goods transport



More can and should be done to incentivise active and clean mobility (e.g. walking and cycling)



More can and should be done to incentivise other alternatives to private car ownership, such as shared mobility solutions and public transport

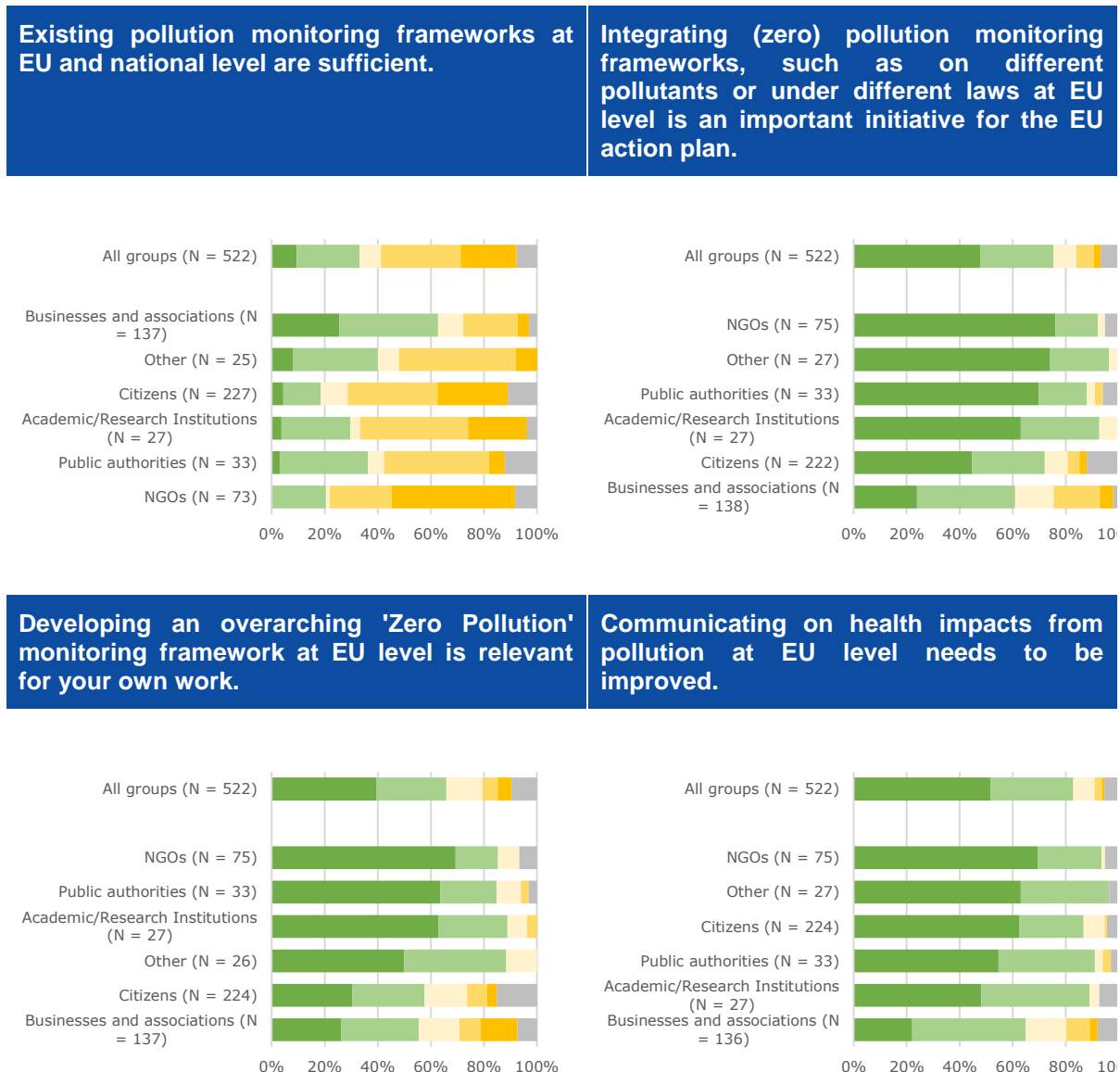


■ Completely agree ■ Somewhat agree ■ Neither agree nor disagree ■ Somewhat disagree ■ Completely disagree ■ I don't know

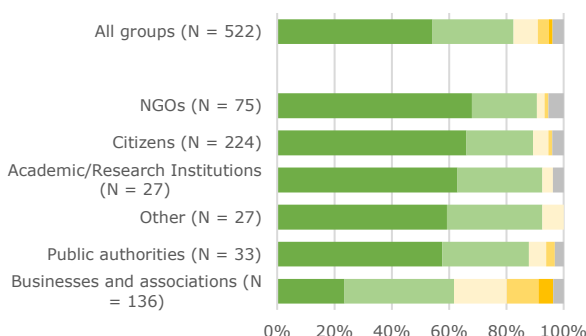
Question 4.1. What is your opinion about the following statements?

Businesses and associations are the only stakeholder group among which a majority finds existing pollution monitoring frameworks at EU and national level sufficient. Most respondents from all other stakeholder groups somewhat or completely disagree with this statement. However, with respect to the other statements, there appears to be a consensus among all stakeholder groups about the ways forward concerning tackling the pollution issue, with high shares agreeing completely or somewhat.

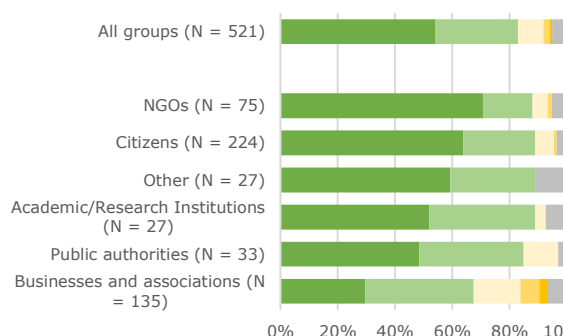
Figure 38 Q4.1 – Analysis by type of stakeholder



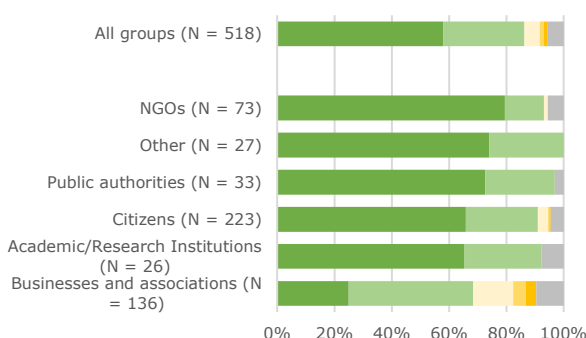
Communicating on environmental impacts from pollution at EU level needs to be improved.



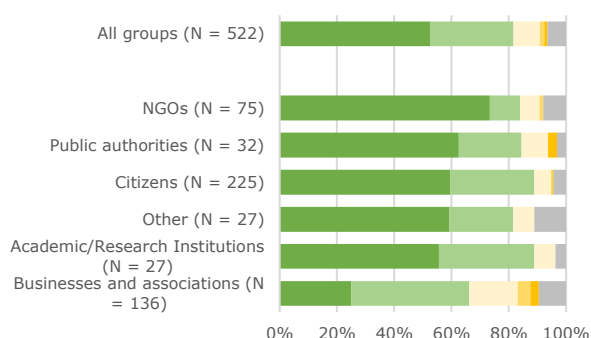
Communicating on socio-economic impacts related to pollution at EU level needs to be improved.



Linkages of health data with pollution data need to be improved



Linkages of socio-economic data with pollution data need to be improved

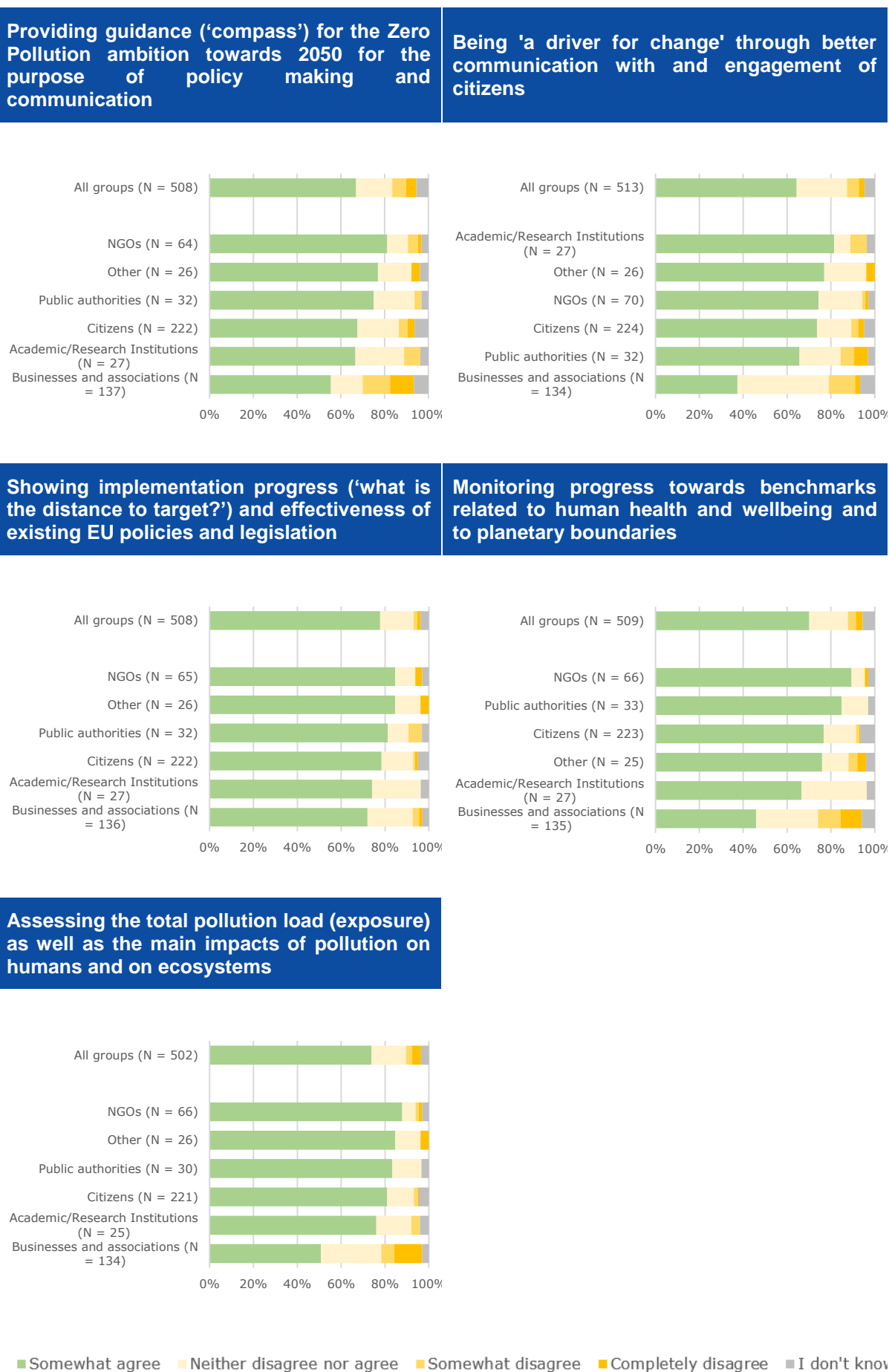


■ Completely agree ■ Somewhat agree ■ Neither agree nor disagree ■ Somewhat disagree ■ Completely disagree ■ I don't know

Question 4.2 In your opinion, what should be the main purpose for a zero pollution monitoring and outlook at EU level?

With respect to the main purpose for a zero pollution monitoring and outlook at EU level, all stakeholder groups show similar response patterns to the suggested ways. However, businesses and associations appear wary about zero pollution as a compass for policy making and communication, the assessment of exposure to and impacts of pollution, and as 'a driver for change' through better communication with and engagement of citizens (42% of respondents of this group neither disagree nor agree). By contrast, NGOs indicate the highest support for the suggested ways, with 70% or more of the respondents expressing agreement.

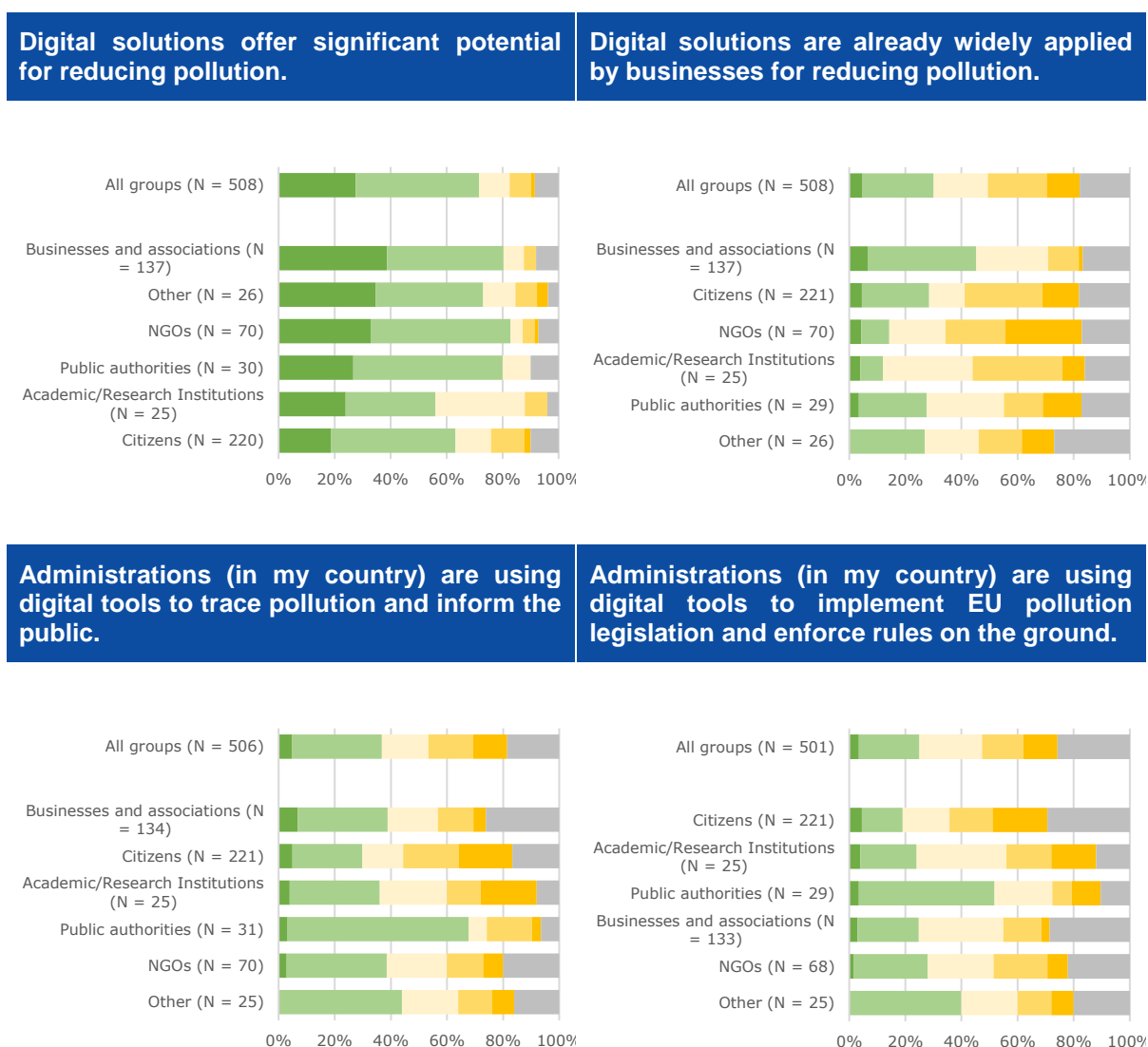
Figure 39 Q4.2 – Analysis by type of stakeholder



Question 5.1 What is your opinion about the following statements?

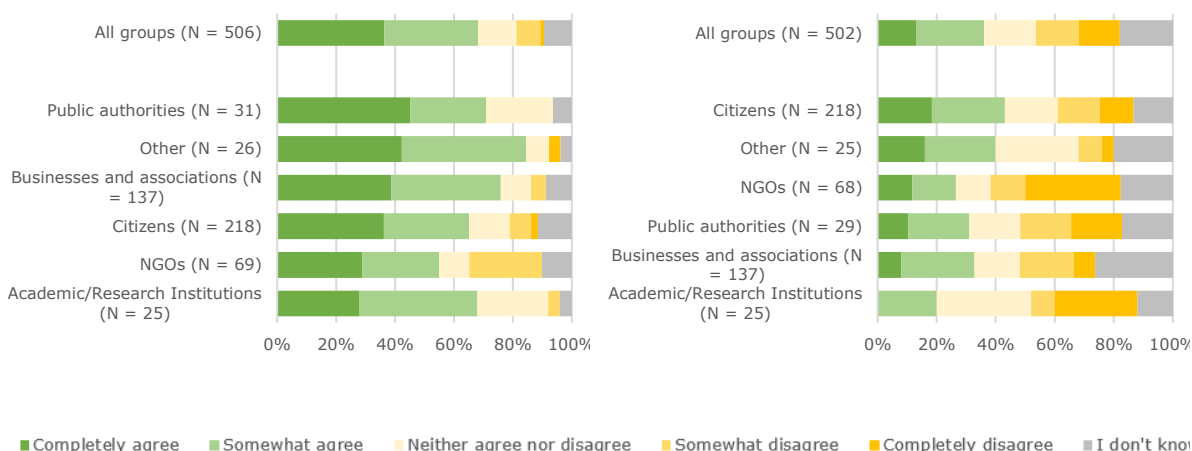
All stakeholder groups completely or somewhat agree that digital solutions offer significant potential for reducing pollution. Businesses have the highest share of respondents agreeing with the statement that digital solutions are already widely applied by businesses for reducing pollution. By contrast, NGOs and academic/ research institutions are far more critical, with high shares somewhat or completely disagreeing. Similarly, public authorities are the stakeholder group that is the most supportive of the two statements concerning administrations using digital tools, while citizens, NGOs, businesses and associations are far less certain to what extent administration is already using digital tools to trace pollution, inform the public, and implement and enforce existing legislation. All stakeholder groups agree that significant investment is needed in innovation and digitalisation to help achieve the zero pollution ambition. Conversely, most stakeholder groups completely or somewhat disagree that excessive data collection and storage risks contributing to pollution more than it reduces pollution.

Figure 40 Q5.1 – Analysis by type of stakeholder



Significant investment is needed in innovation and digitalisation to help achieve the ‘zero pollution ambition’

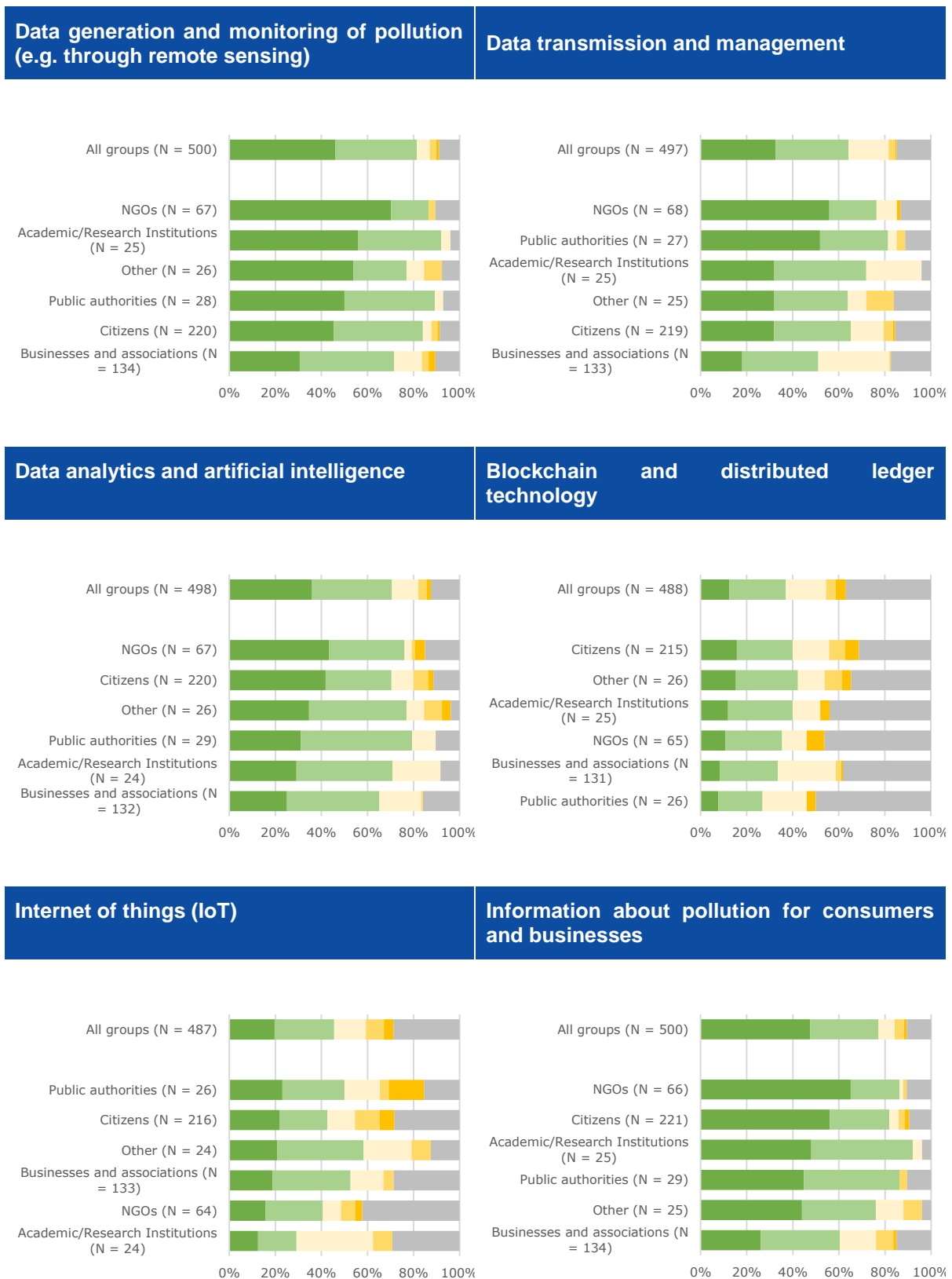
Excessive data collection and storage risks contributing to pollution more than it reduces pollution



Question 5.2 In your opinion, what are the areas of digital application with the biggest potential for pollution prevention, reduction and remediation?

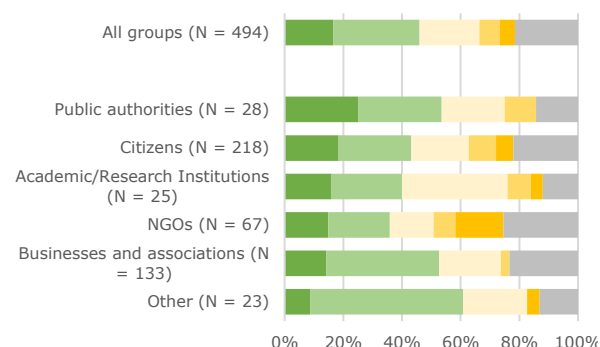
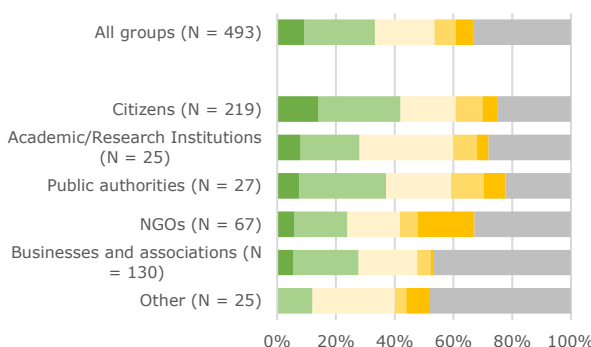
Concerning the areas of digital application with the biggest potential for pollution prevention, reduction and remediation, there are similar response patterns among the various stakeholder groups across all surveyed areas. As such, stakeholder groups agree on the high potential of data generation and monitoring of pollution, data transmission and management, data analytics and artificial intelligence, information about pollution for consumers and businesses, and changing work organisation. Yet, high shares of respondents across all stakeholder groups appear to be unfamiliar with blockchain and distributed ledger technology, or at least seem to be unable to assess their potential for pollution prevention, reduction and remediation. Similarly, respondents from all stakeholder groups indicate that they don't know whether the Internet of Things (IoT), 3D printing or additive manufacturing, as well as digital twins and models are areas of digital application with high potential for pollution prevention, reduction and remediation.

Figure 41 Q5.2 – Analysis by type of stakeholder



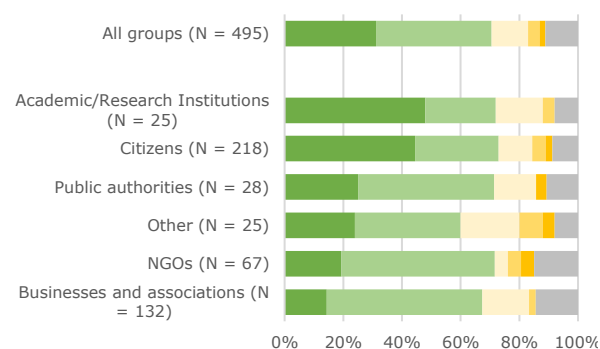
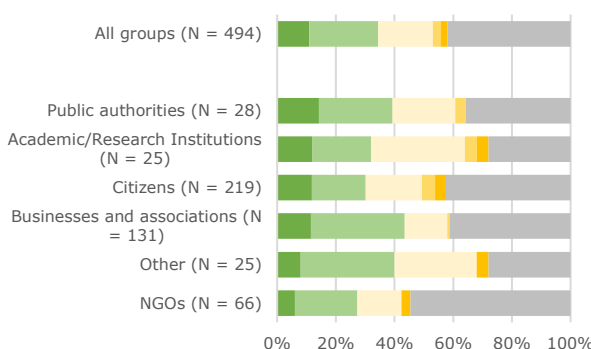
3D printing or additive manufacturing

Online platforms and cloud systems



Digital twins and models

Changing work organisation, shifting from physical to digital solutions (e.g. teleworking)



■ Completely agree ■ Somewhat agree ■ Neither agree nor disagree ■ Somewhat disagree ■ Completely disagree ■ I don't know

Conclusions

The analysis of the feedback overall suggests that respondents are concerned about current levels of pollution and consider these harmful to the environment, health, and also the economies. Generally, large shares of respondents see the adverse effects of pollution unevenly distributed across societal groups, while they consider that all societal actors need to step up efforts to curb pollution further. The detailed analysis here suggests that these viewpoints are generally shared among all different stakeholder groups. Yet, the detailed analysis also highlights some differences in response patterns.

Across questions, response patterns of citizens, NGOs, and academia and research institutions appear to be generally aligned. This is for example the case for the views of respondents from these three stakeholder groups on the effects of pollution (Question 1.1), as well as the current efforts to tackle it and the potential role of the Zero Pollution Action Plan (Questions 3.3 and 4.1). Most notable differences among the response patterns of these three stakeholder groups can be observed for questions on how informed respondents feel (Question 1.2). Across almost all questions explored, businesses and their associations show noticeable differences in their response patterns compared to the other stakeholder groups. Lower shares of businesses and associations agree strongly or at least somewhat with concerns about adverse effects of current levels

of pollution on the environment and health, but also the economy (Question 1.1). Among stakeholder groups, the relatively largest share of respondents among businesses and associations considers pollution less of an issue within the EU, but rather outside of the Union (Question 1.2). Consequently, a consistently smallest share (compared to other stakeholder groups) of businesses and their associations agree with statements that more needs to be done to tackle pollution in various sources and types of pollution (Question 3.3). At the same time, businesses and associations are the most optimistic about the current and potential use of digital solutions to reduce pollution (Question 5.1).

Annex 3 Results of the Analysis of Open Questions and Documents

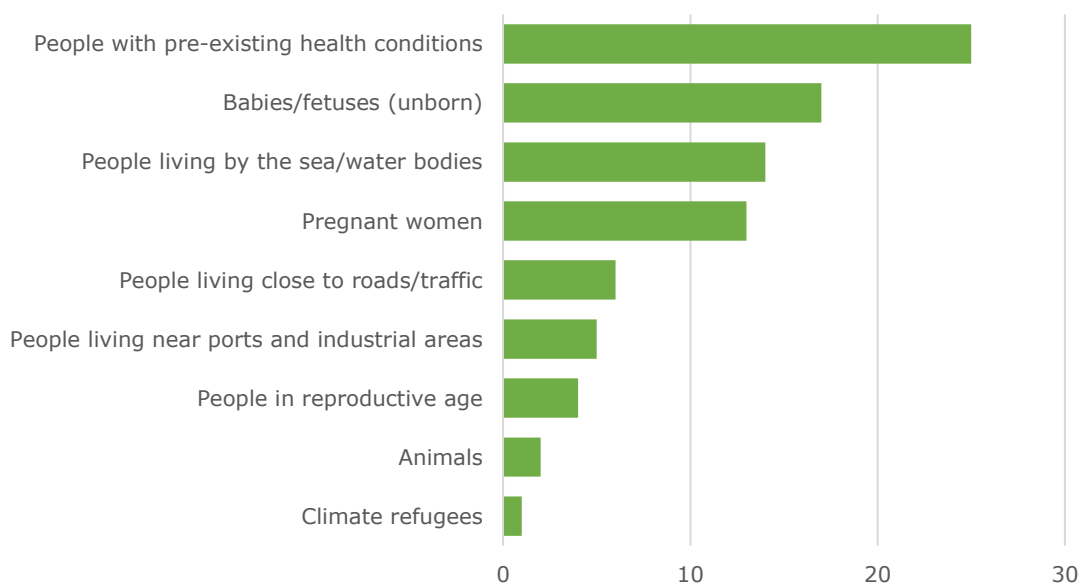
Open questions

This section of the annex provides an overview of responses to the “other” open questions of the OPC, namely, under questions 1.3, 1.4, 2.1, 2.2, 3.1, 3.2, 3.3 and 3.4. Furthermore, it provides an analysis of the open questions on digital solutions to reduce pollution and any other comments or issues that should be addressed in the context of the action plan.

Question 1.3: To what extent do you agree with the following statements about the impact of pollution on different population groups? – If other, please specify.²²

From the 87 total responses to this question, respondents most commonly identify people with pre-existing health conditions, including chronic illnesses, asthma, allergies, diabetes, respiratory diseases and cancer (mentioned 25 times), as well as babies and foetuses (mentioned 17 times) as being significantly impacted by pollution. Furthermore, respondents suggest that humans living close to the sea or other bodies of water, and pregnant women, are also particularly vulnerable groups (mentioned 14 and 13 times, respectively). Fewer respondents consider that people of reproductive age and those living close to roads, traffic, harbours, and industrial areas are more vulnerable to pollution.

Figure 42 Additional population groups mentioned by frequency



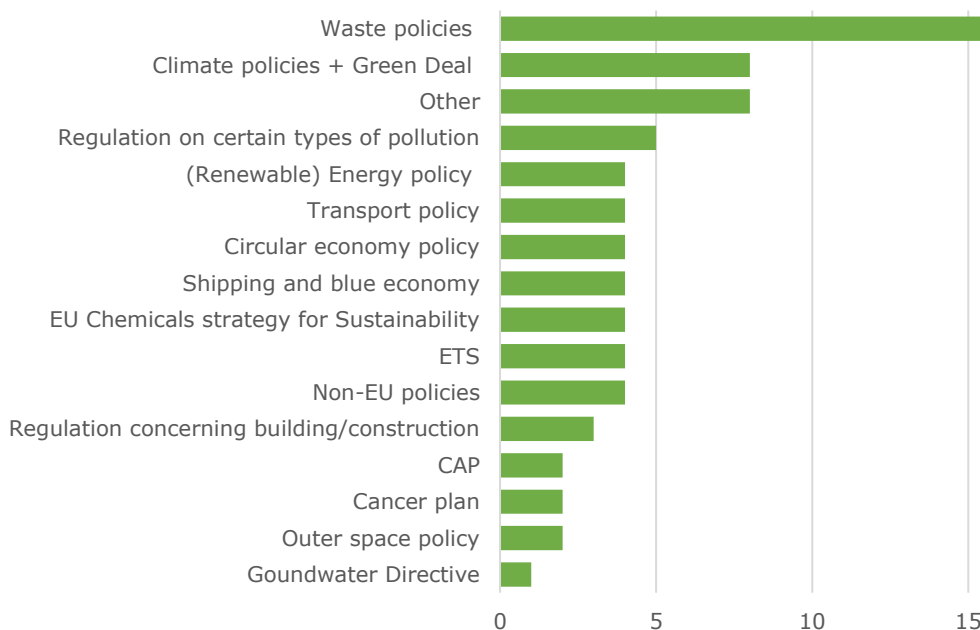
n= 87

²² Aforementioned groups: People living in cities, People living in rural areas, People living in poverty, everyone in society, children and elderly.

Question 1.4: Have you heard about the following EU initiatives addressing pollution? If so, how much do you know about them? – If other, please specify.²³

In total, 79 respondents provide additional input on other EU initiatives and legislation known to the OPC respondents. Most prominent are the EU's waste policies, including the Waste Framework Directive, the EU Plastics Strategy, the Mining Waste Directive, and the Packaging Waste Directive, which 16 respondents acknowledge. Furthermore, there is considerable awareness of the EU climate policies and the EU Green Deal (8 respondents), followed by specific regulation on certain types of pollution or substances (legislation on mercury and the EU Methane Strategy). Energy, transport and circular economy policies are also known to the OPC respondents, as are policies on shipping and the blue economy, the EU Chemicals Strategy for Sustainability and the EU Emissions Trading System (EU ETS). Other less frequently mentioned policy areas are the Common Agricultural Policy (CAP), the EU Cancer Plan and EU Space Policy. Finally, respondents also point to several non-EU initiatives and legislation that is still relevant to tackling pollution. These include the Stockholm and Basel Convention, WHO guidelines on pollution and the Gothenburg Protocol (UN framework).

Figure 43 Initiatives mentioned by frequency



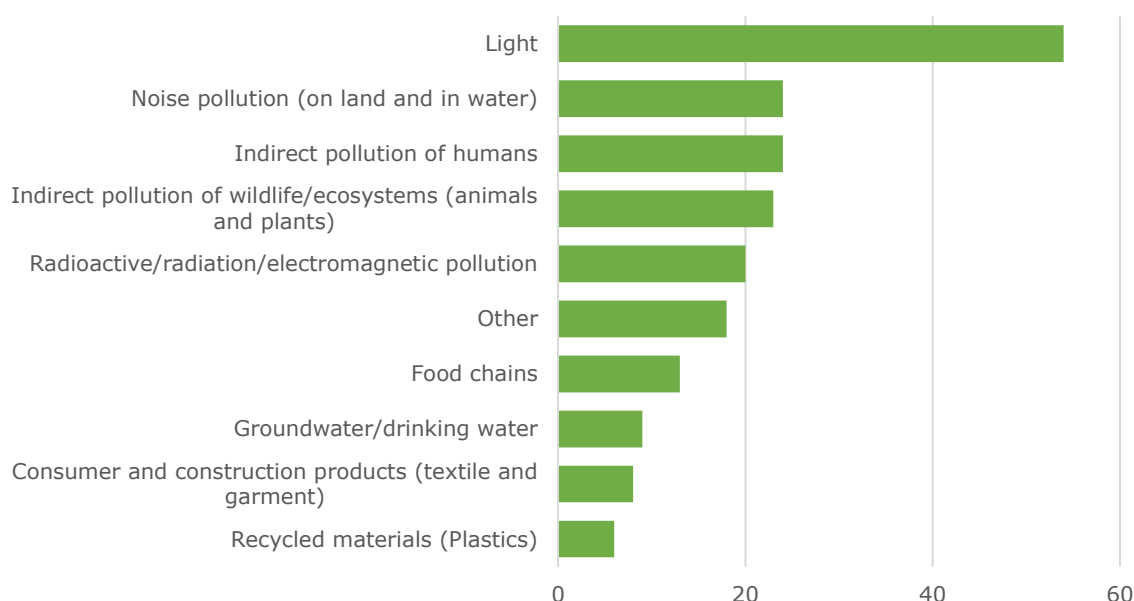
n = 79

²³ Aforementioned initiatives: EU Clean Air policies such as the Ambient Air Quality Directives and the National Emission reduction Commitments (NEC) Directive; EU Water policies such as the Water Framework Directive, the Marine Strategy Framework Directive, the Urban Wastewater Treatment Directive, the Drinking Water Directive and the Bathing Water Directive, the Nitrates Directive; EU Soil policies such as the Soil Thematic Strategy or the Sewage Sludge Directive; EU Noise policies such as the Environmental Noise Directive; EU policies on industrial emissions, notably the Industrial Emissions Directive; EU policies on chemicals, such as the REACH Regulation and regulation on pesticides; EU policies on medicines (also known as medicinal products), such as directives or regulations, and the 2019 EU Strategic Approach to Pharmaceuticals in the Environment; Farm to Fork Strategy; Biodiversity Strategy; EU policies limiting air pollution at source, such as Euro standards for cars, buses and trucks, or eco-design rules for heating appliances; EU policies addressing pollution from waste, such as from persistent organic pollutants (POPs).

Question 2.1: How important is it to address the following pathways (the way pollution moves from its source once it has been released into the environment) and depositories (the eventual recipients of pollution, where it then accumulates) of pollution at the EU level? – If other, please specify.²⁴

From the 199 responses to this open question, 27% (54 replies) point to light pollution as an area that should receive attention. Furthermore, 24 responses highlight noise pollution (especially underwater noise). Concerns about indirect pollution on the human body and wildlife are voiced similarly frequently (mentioned 24 and 23 times, respectively). Finally, stakeholders suggest that radioactive and electromagnetic pollution are areas of concern, as well as the contamination of food chains, drinking water and consumer products.

Figure 44 Pathways and depositories mentioned by frequency



n= 199

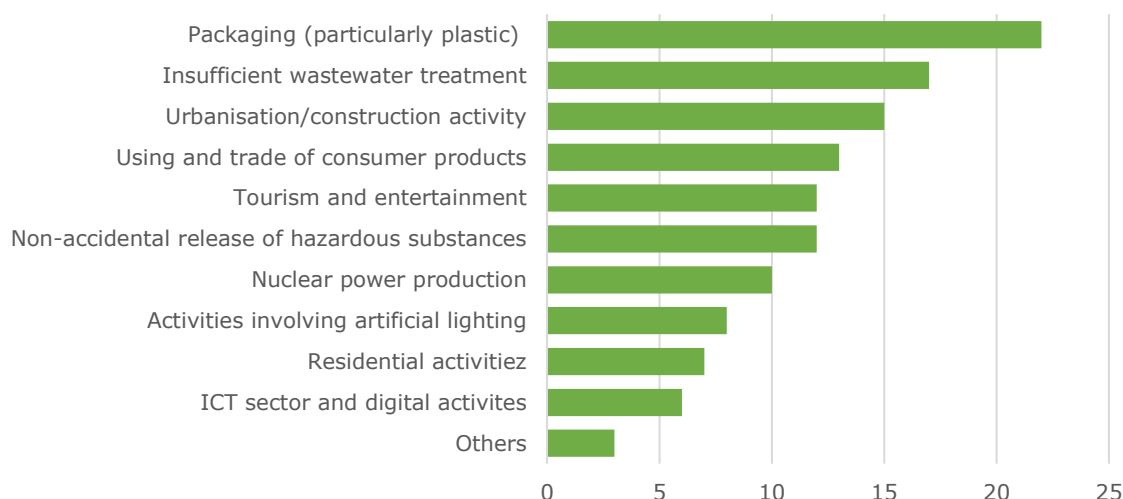
Question 2.2: How do you evaluate the impact of the following activities on pollution? – If other, please specify.²⁵

A total of 125 respondents replied to this open question. The activity most frequently identified as polluting is packaging, particularly plastic packaging (mentioned 22 times). This is followed by (insufficient) wastewater treatment (mentioned 17 times) and, more generally, urbanisation and construction activities (mentioned 15 times). Furthermore, respondents consider the use and trade of consumer products (fashion, fireworks, etc.) and tourism and entertainment activities to be particularly polluting. The illegal and non-accidental release of hazardous substances and the production of nuclear energy are frequently mentioned as activities with adverse effects on the environment (each mentioned by at least 10 respondents each).

²⁴ Aforementioned pathways/areas: Ambient air pollution; Indoor air pollution; Pollution of rivers, lakes and ground water; Marine pollution; Soil and sediment pollution; Noise pollution.

²⁵ Aforementioned activities: animal farming; crop production; Fisheries; Aquaculture; Mining and extraction of raw materials; Industrial production; Road transport; Rail transport; Shipping; Air transport; Waste landfilling; Waste incineration; Waste recycling; Energy production from fossil fuels; Energy production from biomass; Wind and solar energy production; Accidental release of hazardous substances; Littering; Heating and cooling buildings.

Figure 45 Activities mentioned by frequency



n= 125

Question 3.1: In your opinion, how effective would the following ways of tackling pollution be? – If other, please specify²⁶

A total of 139 respondents replied to this open question. More than a third of respondents identify the application of EU Environmental principles as a means to tackle pollution (mentioned 49 times). Applying the polluter pays principle (mentioned 26 times) and cutting pollution at the source (mentioned 18 times) are the two principles cited most frequently as effective ways to tackle pollution.

Actions related to the approach and governance of policies to tackle pollution are also identified (mentioned by 30 respondents). Half of these respondents stress the importance of a comprehensive and holistic approach, and four more mention the need for a multi-governance approach. 28 respondents suggest changes to legislation. A plurality of respondents specify the need to implement or revise the legislation on waste (8 respondents) and the need for greater harmonisation between different pieces of legislation (8 respondents). The revision of the air legislation (mentioned 3 times) and further legislation on particles (cited 2 times) are also identified.

Targeting specific sectors (21 responses) such as developing sustainable agriculture (7 replies) and transports (6 replies) are other actions identified by respondents to tackle pollution.

²⁶ Aforementioned ways: Greater powers to national authorities to sanction breaches to EU legislation on pollution; Easier access to justice and other tools for civil society organisations to act against breaches to EU legislation on pollution; Introducing heavier fines for breaches of pollution-related legislation; Securing an overall better implementation of pollution-related legislation; Modernising existing EU law on pollution; Additional EU law on pollution, e.g. on soil pollution; Financial incentives to address pollution; Ensuring a more positive impact of the banking and insurance systems on pollution; More research on pollution; Better monitoring of pollution levels; Better anticipating how pollution may develop in the future; Stepping up international action on pollution; Enhancing cooperation between stakeholders Increasing awareness on pollution, e.g. funding for clean-up /remediation activities with citizen involvement; Formal education; Influencing behavioural change to shift to a 'zero pollution mentality', by informing citizens more, e.g. on the interplay between pollution, climate change and public health, on sustainable consumption of products and energy, on sustainable mobility; Social innovation; Other.

Engaging with the civil society (11 replies) and using additional instruments (9 replies) are two other suggested ways to tackle pollution. Among the instruments highlighted, labelling the environmental impact of products (5 replies) and green public procurement (2 replies) are mentioned. Respondents also identify a need to decouple the use of natural resources from pollution (mentioned 9 times) and the circular economy's importance when tackling pollution (mentioned 5 times).

Figure 46 Ways to tackle pollution mentioned by frequency



n= 139

Question 3.1: In your opinion, how effective would the following ways of tackling pollution be? – If applicable, please specify in which area you would like to see new EU legislation on pollution

208 respondents replied to this open question. When asked about areas where they would like to see new EU legislation on pollution, respondents provide input along two dimensions: economic sectors that require further attention, as well as the types of pollution.

Economic sectors

A plurality of the 82 respondents identify the agricultural sector for new legislation on pollution (27 replies). Here, respondents highlight the importance of strengthening rules on the use of pesticides and fertilisers. The transport sector (16 replies) and pollution linked to industry in general (11 replies) and the pharmaceutical sector (8 replies) are also mentioned frequently.

Table 5 Sectors mentioned by frequency

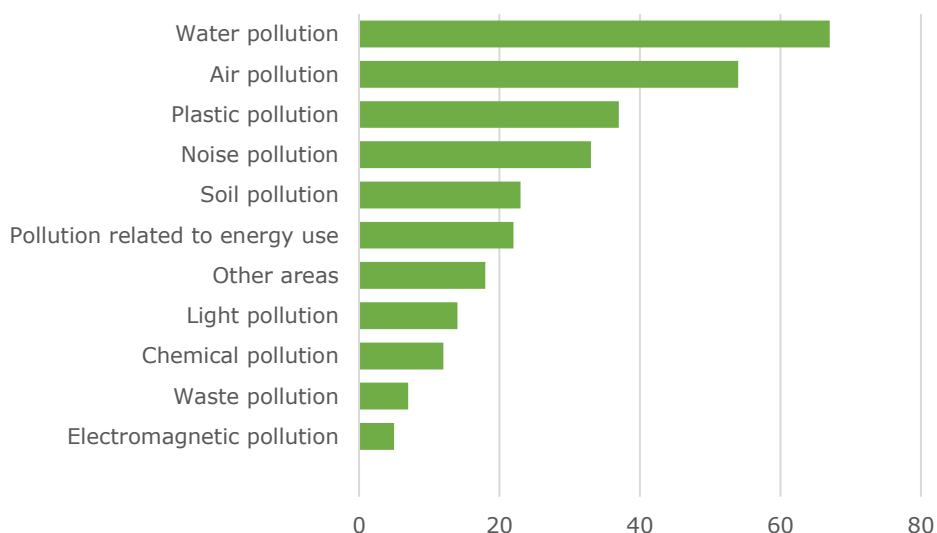
Sectors	Frequency
Agriculture	27
Transport	16
Industry / manufacturing	11
Pharmaceutical sector	8

Sectors	Frequency
All sectors	8
Construction	4
Textile industry	3
Horticulture	2
IT / digital sector	2
Banking / finance sector	1

Types of pollution

Respondents mention water (67 replies), air (54), plastic (37), noise (33), soil (23) and energy (22) as specific areas where they would like to see new EU legislation on pollution. On water pollution, respondents particularly mention the issues of containers lost at sea (16), sunscreen pollution (14) and deep-water drilling (12). With regards to air pollution, participants specify that they see a need for legislation on fine and ultra-fine particles (12), indoor air pollution (11) and air pollution coming from agriculture (9). Regarding plastic pollution, microplastics (23) are the main area identified by respondents. Regarding noise pollution, underwater noise (17) is the most recurring issue. Pollution linked to sunscreen (14), light pollution (14), and chemical pollution (12) are also areas mentioned frequently by respondents.

Figure 47 Types of pollution mentioned by frequency



n= 208

Question 3.2: In your view, how much should the following groups contribute (financially and by actions) to reducing pollution, compared to the current situation? – If other, please specify²⁷

A total of 128 respondents replied to this open question. Replies vary substantially, but can be grouped around the clusters presented in the table below. Almost half of the respondents specify private sector actors as groups that should contribute more to reducing pollution. The second-largest share of respondents identifies groups among the public sector, while stakeholders mention other or all actors less than 10 times. Four respondents identify specific groups among consumers as societal actors, which should contribute more to reducing pollution.

Table 6 Groups mentioned by frequency

Groups	Frequency
Private sector	62
Public sector	35
Other	9
All actors	8
Consumers	4

Private sector actors

The finance, banking and insurance sectors (mentioned 20 times) are specified most frequently by respondents among private sector actors to contribute more to reduce pollution. The second most frequently identified group are polluters, in line with the polluter pays principle (mentioned 8 times). This includes, for example, users of pesticides and energy consumers. Similar numbers of respondents identify big corporations (cited 8 times) and the transport sector (mentioned 7 times). 19 respondents mention other private sector actors.

Table 7 Private sector actors mentioned by frequency

Groups	Frequency
Finance, banking, and insurance	20
Polluters (polluter pays principle)	8
Big corporations	8
Transport sector	7
Producers	4

²⁷ Aforementioned groups: Product manufacturers; Service providers; Food producers; Energy producers; Consumers; Taxpayers via public funding; Other.

Groups	Frequency
Chemical and pharmaceutical industries	4
Mining and fracking industries	3
Waste sector	3
Travel companies	2
Construction sector	1
Importers	1
Fashion industry	1

Public sector actors

Among public sector actors, respondents identify policymakers in general most frequently (14 times). Member States are expected to contribute more to pollution reduction by 12 respondents, while 8 more respondents expect the EU to strengthen their efforts. One respondent specifies that the judicial system needs to contribute more.

Table 8 Public sector actors mentioned by frequency

Groups	Frequency
Policymakers	14
Member States	12
The EU	8
Justice	1

Other actors

8 respondents specify that all actors need to contribute more to tackle pollution. 4 respondents specify that the wealthiest among consumers should contribute more. In contrast, some other respondents indicate this for the media (mentioned 3 times), foreign actors (cited 2 times, it remained unspecified if these are public or private sector actors). 1 respondent stresses that vulnerable groups should be exempt from contributing more.

Table 9 Other actors mentioned by frequency

Groups	Frequency
All actors	8
The wealthiest	4
Media	3
Foreign actors	2
Exempt vulnerable groups	1

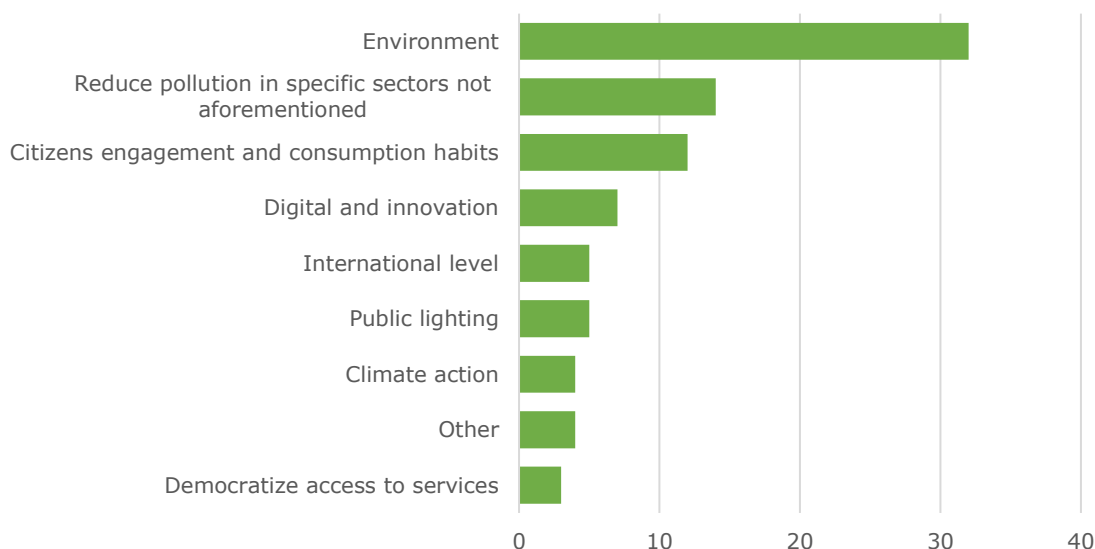
Groups	Frequency
Local communities	1
Scientists	1
Philanthropists	1

Question 3.3: In your view, which lessons could be learned for zero pollution policies from recent developments, such as changes observed during Covid-19 related measures (e.g. changes related to less commuting and traffic)? - If other, please specify²⁸

123 respondents replied to this open question. Respondents identify lessons related to the environment most frequently (mentioned 32 times), with the need to protect biodiversity and vulnerable ecosystems (14 times) and to live in better harmony with nature (13 times) cited most frequently. According to respondents, more could and should also be done to reduce pollution in specific areas and sectors (14 times), notably on chemicals, construction activities and indoor air pollution. Better engagement of citizens to fight pollution (3) and education (5) - as well as changing consumption habits on animal products (2) - are further lessons identified by respondents.

Respondents also suggest doing more at the international level (5), on public lighting management (5), climate-related actions (4) and in the democratisation of access to services such as healthcare and water (3).

Figure 48 Lessons mentioned by frequency



n= 123

²⁸ Aforementioned lessons: More can and should be done to reduce ambient air pollution in cities; More can and should be done to reduce noise pollution in cities; More can and should be done to reduce pollution from food; More can and should be done to reduce pollution from waste; More can and should be done to reduce pollution in our seas; More can and should be done to reduce the need for passenger and goods transport; More can and should be done to incentivise active and clean mobility; More can and should be done to incentivise other alternatives to private car ownership; Other.

Question 3.4: In your view, what impacts should be the most decisive for implementation of pollution-related policies? - If other, please specify²⁹

A total of 78 responses were analysed under this question. Respondents stress the need to consider several or all impacts at the same time when implementing pollution-related policies (21 replies). Interdependencies between the different impacts (8 replies) and the need to balance them (2 replies) are also considerations raised by respondents.

Mental health (14 replies) and cultural impacts (4 replies) are also mentioned, as well as impacts on wellbeing (2 replies) and security (2 replies).

Table 10 Impacts mentioned by frequency

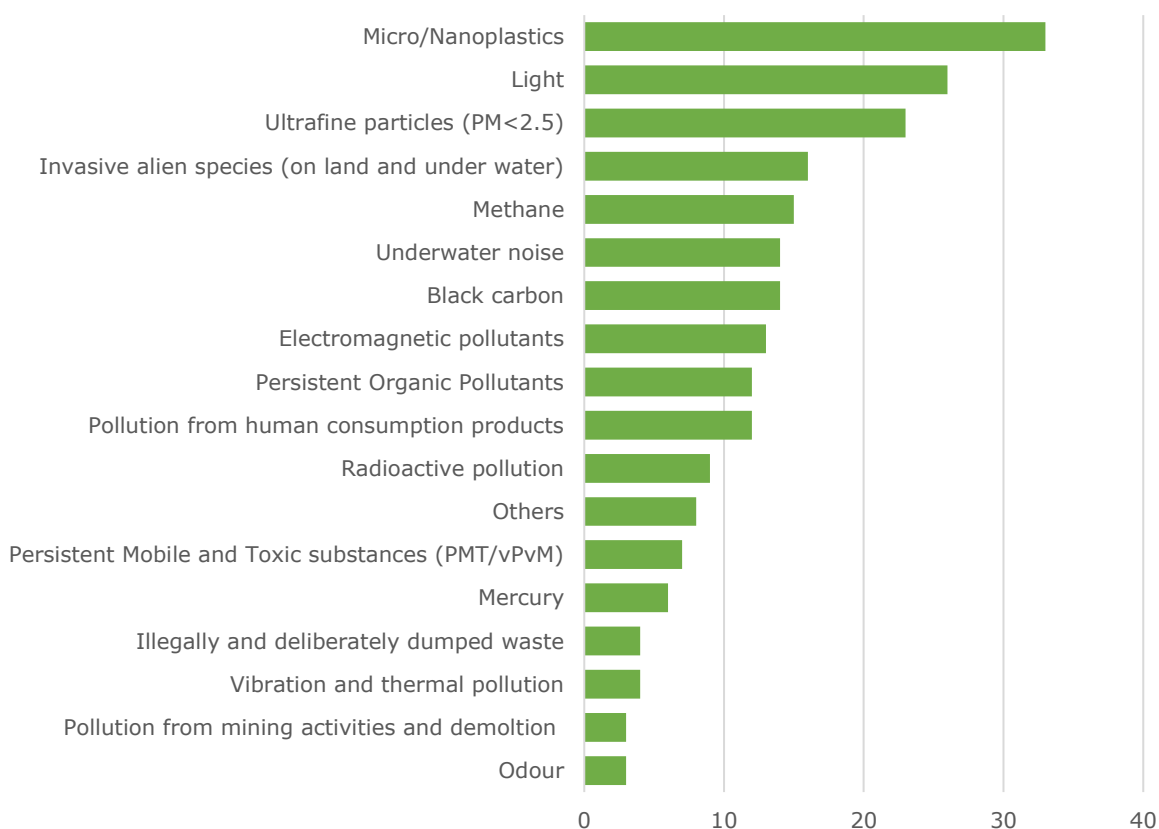
Decisive impacts	Frequency
A holistic and comprehensive approach needed	21
Mental health	14
Consider interdependencies	8
Cultural impact	4
Balance between impacts	2
Wellbeing	2
Security	2
Raise awareness about the gains of polluting less	2
On third countries	1
Food and nutrition security	1
Tourism	1
Circularity	1
On future generations	1
Education	1
Scientists	1
On local authorities	1

²⁹ Aforementioned impacts: Human and animal health impacts; Environmental impacts; Economic impacts; Social impacts; Other.

Question 4.3: In your opinion, which pollutants should be addressed as a priority at EU level and therefore included in the monitoring framework? – If other (physical) pollution³⁰, please specify.

Among the total of 222 responses to the open questions under question 4.3, most respondents specify microplastics and nano plastics (33 replies) and light (26 replies) as pollutants to be addressed as a priority at EU level. In addition to the aforementioned particulate matter (PM) in ambient air, respondents suggest paying more attention to ultrafine particles with a diameter of less than 2.5 micrometres (μm) (23 replies) as well as pollution caused through invasive alien species both on land and underwater (16 replies). Stakeholders mention various gases, such as methane (15 replies) and black carbon, which, similarly to underwater noise, is mentioned 14 times. Finally, electromagnetic radiation emitted through telecommunication, radio frequencies, nanotech, and other wireless radiation (13 replies), persistent organic pollutants (12 replies) and pollution from human consumption products (12 replies) such as textiles and tobacco are also mentioned frequently.

Figure 49 Pollutants mentioned by frequency



n= 222

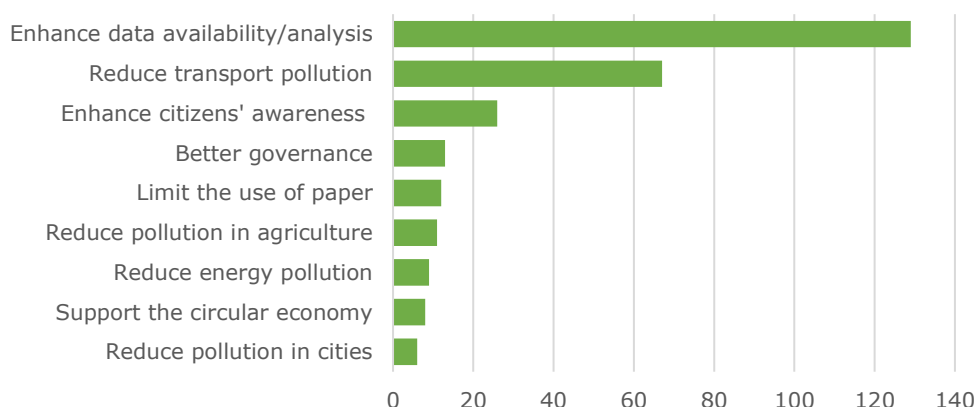
³⁰ Respondents had the opportunity to provide answers to two open questions, one asking for “other physical pollutants” and one asking for “other pollutants”. However, answers to both questions overlapped as for many respondents the difference between physical and other pollutants was not clear. Therefore, answers to both questions were conflated. The analysis covers the most frequent answers to both questions.

Question 5.2: Can you give examples for digital solutions to reduce pollution in your area of work?

A total of 178 responses were analysed under this question. Most respondents identify examples where digital solutions can enhance the data availability and analysis of pollution (mentioned 129 times). The use of digital technologies to conduct live and remote monitoring (41 responses), to build and access databases (31 responses) or registers of information (12 responses) are among the specific examples provided.

About a third of respondents also mention digital solutions to reduce pollution linked to transports (67 responses). Teleworking (30 responses) and videoconferences (15 responses) are the most cited examples. Respondents highlight the potential for digital solutions to enhance citizens' awareness (26 responses), notably through communication tools informing consumers about their environmental footprint (13 responses). Finally, digital solutions are identified by respondents to improve governance (13 responses), limit the use of paper (12 responses) and reduce pollution in specific sectors such as agriculture (11 responses) and energy (9 responses).

Figure 50 Examples of digital solutions mentioned by frequency



n= 178

Further comments: Do you have any other comments or any other issues that should be addressed in the context of the Zero Pollution Action Plan? Why?

A total of 244 respondents replied to this open question. Asked for additional comments or any other issues that should be addressed in the context of the Action Plan, respondents provide suggestions along four distinct dimensions: (1) the types of pollution to be addressed, (2) economic sectors they consider key contributors towards pollution, (3) actions to reduce pollution and elements to be considered in the governance and approach of the action plan (4).

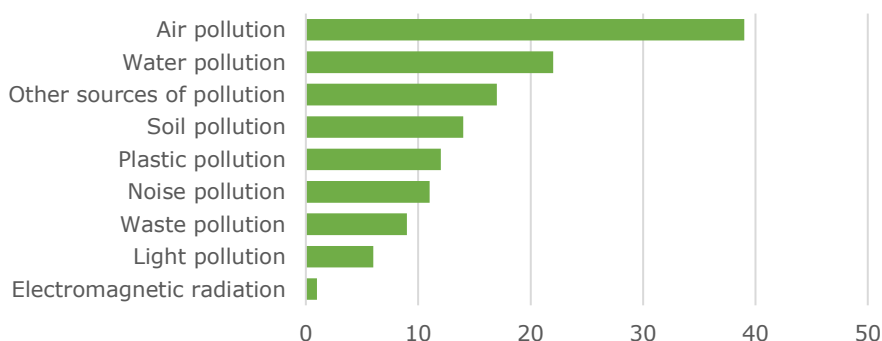
Types of pollution

Air pollution is the type of pollution mentioned most frequently by respondents (mentioned 39 times), followed by water pollution (mentioned 22 times) and soil pollution (mentioned 14 times). On air pollution, respondents particularly stress the need for the EU to align with the WHO air quality guidelines (5 responses), to improve the standards of vehicles emissions (4 responses) and to establish stricter emissions limits (4 responses). On water pollution, respondents suggest considering the protection of the marine environment (4

responses), while on the issue of soil pollution, the specific role of sediments is identified (5 responses).

Noise (11 responses), waste (9) and light pollution (6), as well as other sources of pollution (17) such as digital pollution (8) are also issues flagged by respondents.

Figure 51 Types of pollution mentioned by frequency

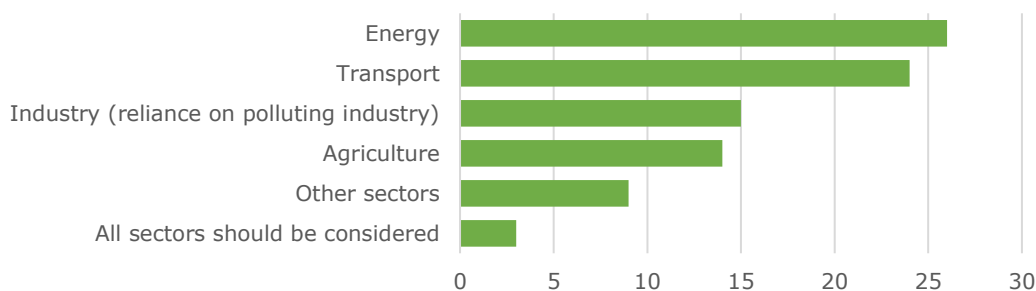


n= 244

Sectors

When replying to this question, respondents also stress the role of specific sectors in causing pollution. Respondents discuss the importance of tackling emissions from these sectors, and the need to find alternatives. The energy (26 responses) and transport (24 responses) sectors are mentioned most frequently. Policies to phase out fossil fuels (8 responses) and the need to consider shipping pollution (4 responses) are two examples of actions within these sectors mentioned by respondents. Agriculture (14 responses) and industry (15 responses) are also mentioned, with a particular focus on packaging (7 responses). Stakeholders raise some concerns regarding the impact of the new zero-pollution objective on the competitiveness of some sectors (5 responses), notably the chemical industry.

Figure 52 Sectors mentioned by frequency



n= 244

Actions to tackle pollution

The need to improve air pollution monitoring (20 replies) and the better enforcement of current legislation (18 replies) are two recurring topics in stakeholder responses. Regarding monitoring, some respondents suggest enhancing cooperation between pollution monitoring at the EU, national, and regional levels. Others stress the need to improve monitoring processes and strengthen capacity to lead to concrete actions

towards pollution reduction. On the enforcement of legislation, respondents note the need to focus on implementing current rules before introducing new legislation. Several respondents mention that existing legislation allows too much flexibility for Member States and see this as a reason for insufficient enforcement at the national level.

Respondents also identify the need to promote technological solutions to tackle pollution (11 replies). Innovations in the chemical industry and the development of hydrogen fuels for cleaner road vehicles are two recurring examples of sectors where respondents see the potential to reduce pollution. Regarding citizens awareness (10 responses), respondents mention the need to better inform citizens about the effects of pollution on health-related and environmental impacts. Raising public awareness to encourage citizens to change their consumption habits is also an action identified by respondents.

Some stakeholders stress the need to widen the use of impact assessments (7 responses), notably for regulating chemicals, before developing new legislation. Respondents also mention the development of digital solutions to tackle pollution (6 replies) and stress the importance of communication with the Member States and citizens, such as campaigns or the sharing of good practices, to tackle pollution.

Table 11 Actions mentioned by frequency

Actions to tackle pollution	Frequency
Better monitoring	20
Better enforcement of current rules/legislation	18
Promote technological solutions	11
Citizens awareness	10
Impact assessments	7
Develop digital solutions/tools	6
Communicate more	6
Promote behavioural change	5
Binding legislation/commitments	5
Rely on scientific knowledge	4
Consider the life-cycle of products	4
Greater sanctions	4
Other actions	4
Financial support/public investment	3
Include explicit access to justice provisions (for citizens)	2
Understand and prevent human health exposure	2
Revision of the Environmental Liability Directive	2
Develop new programs (such as eco-cheques)	1

Governance and approach of the action plan

Further considering the international perspectives of pollution (11 responses), notably by cooperating with Neighbourhood and third countries, is a recurring action identified by respondents. Some respondents also stress the need to reduce or consider stricter rules on EU imports from third countries.

Ensuring consistency with other policies (13 responses), such as the Farm to Fork strategy or the Renovation Wave strategy, is another action noted by respondents, as well as the need to have a holistic and comprehensive approach (12 mentions). Respondents also flag up the importance of following the EU environmental principles when developing new actions, including the polluter pays principle (16 responses) and the precautionary principle (13 responses). Several stakeholders also stress the need to define and clarify the concept of (zero) pollution (12 responses).

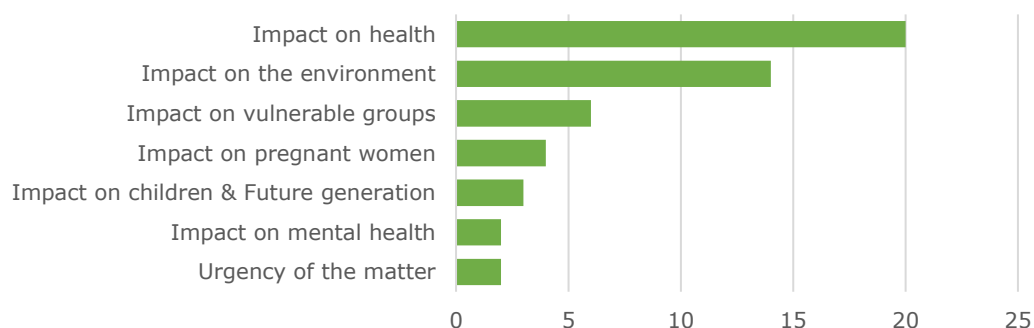
Table 12 Approaches mentioned by frequency

Governance and approach of the action plan	Frequency
Governance	
International perspective	11
Importance of civil society	6
Cooperation between different levels of authority	5
Limit lobbies	4
Stop corruption	3
Importance of youth involvement	2
Importance of local authorities	1
Approach of the action plan	
Apply polluter pays principle	16
Consistency with other policies	13
Precautionary principle	13
Holistic/Comprehensive approach	12
Education	12
Clarity about the concept behind "zero pollution"	11
Balanced approach	9
Pollution prevention	9
Transparency	7
Producer's responsibility	4
Develop a systemic approach	4

Governance and approach of the action plan	Frequency
Flexibility and adaptation to specificities	3
Risk-based approach	3
Lack of ambition	3
Tackling pollution at the source	2

Respondents stress the impacts on health (20) and the environment (14) as the main reasons motivating their responses and emphasise that the most vulnerable groups (6) need to be thought of in decision-making processes.

Figure 53 Impacts mentioned by frequency



n= 244

Position papers

This section of the annex provides an overview of the position papers submitted by stakeholders as part of their contribution to the Roadmap and the OPC. It first highlights key themes and topics covered by the position papers. Following this, the input stakeholders provided is presented in greater detail for a selected number of themes.

In total, stakeholders submitted 176 position papers, 69 of them in reply to the Roadmap, 79 in reply to the Open Public Consultation, and 28 by email to the European Commission in the context of the different consultation activities. An overview of the stakeholders submitting position papers to the Roadmap and OPC are provided further below.

After screening, 133 were deemed relevant and have been coded. Documents considered to be insufficiently relevant include submissions of the filled-in questionnaire without further comments, which were included in the quantitative analysis of answers to the multiple-choice questions above, duplicates of position papers, and documents that clearly cover topics unrelated to the focus of the OPC.

Table 13 Overview of position papers received and number of documents coded

Number of position papers received	169
Number of position papers relevant for the analysis	133

Slightly more than half of the **relevant position papers** have been submitted by business associations and individual businesses. The second largest share of relevant position papers has been submitted by NGOs (31 relevant submissions). Public authorities contributed 12, and academic and research institutions submitted 3 relevant contributions. The remaining relevant documents were submitted by stakeholders identifying as ‘other’, as well as citizens.

Table 14 Overview of relevant position papers coded by stakeholder type

Stakeholder type	Number of submissions
Citizen	4
Businesses and associations	69
NGOs	31
Public authorities	12
Academic/ research Institutions	3
Other	14
Total	133

Overview

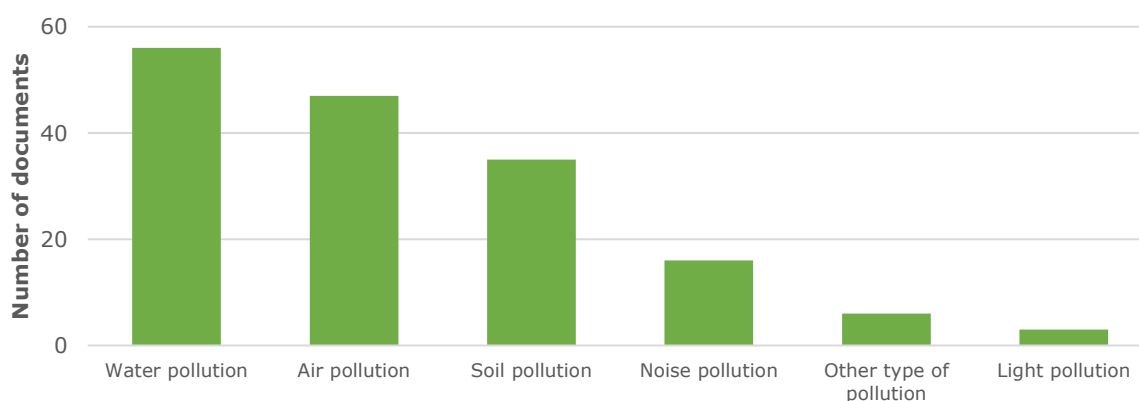
This section provides an overview of the themes which stakeholders flag and discuss in their contributions. To extract these main themes, a coding system has been developed that focussed on the following aspects: the types of pollution and types of pollutants, the sources and effects of pollution, suggested approaches to tackle pollution and the appropriate level of governance, as well as concerns and challenges seen by stakeholders. For each of these categories, a number of sub-categories were developed, combining an inductive and deductive approach. This section is structured along the main categories and offers a summary of the aspects discussed by stakeholders.

Types of pollution

In their contributions to the Roadmap and the OPC, the stakeholders flag and discuss a range of different forms of pollution that should be considered in the Zero Pollution Action Plan. Of the 56 contributions which discuss water pollution, 12 documents cover marine pollution, either in addition to water pollution in general or exclusively. Contributions that discuss freshwater pollution cover all types of freshwater bodies, including rivers, lakes, and groundwater. Of the 47 contributions which discuss elements linked to air pollution, 6 contributions focus (at least partly) on indoor air pollution. 35 documents touch upon topics linked to soil pollution explicitly.

In addition to these three main types discussed, the stakeholders flag further types of pollution deemed relevant. 16 contributions mention noise pollution. Noise pollution is regularly discussed as a phenomenon pertinent to inhabited areas (for example, transport-related noise pollution). Yet, two contributions bring up the issue of underwater noise pollution, framing it rather as an environmental than a (human) health problem. In their contributions, 3 stakeholders discuss light pollution, while two NGOs mention thermal emissions as yet another type of pollution that requires attention. Finally, four contributions discuss the potential effects of electromagnetic waves (all captured under other types of pollution).

Figure 54 Types of pollution mentioned in contributions



Types of pollutants

Among the contributions submitted, pesticides are frequently mentioned as a form of pollution requiring further attention. In total, 45 documents mention pesticides. Plastics (22 contributions) and microplastics (34 contributions) are also discussed frequently. While these two groups of pollutants are frequently discussed in relation to soil and water pollution, 40 contributions highlight particulate matter (PM) and 33 contributions flag nitrogen oxides (NOx), usually in the context of air pollution. Another widely discussed

concern among stakeholders is climate change and the greenhouse gases fuelling global warming. Consequently, 32 contributions mention CO₂, while a few stakeholders point out methane as a greenhouse gas, and 9 further identify ozone. Additional stakeholders flag or demand further action on substances of very high concern 14 times, and on contaminants of emerging concern and persistent organic pollutants 12 times and 11 times respectively. There are several more pollutants explicitly mentioned by less than 5 contributions, which are not listed in the table below, including brine and nickel.

Table 15 Types of pollutants mentioned in contributions

Pollutant	Count	Pollutant	Count
Pesticides	45	Contaminants of emerging concern (CEC)	12
Particulate matter (incl. PM 10 and PM 2.5)	40	Fertilisers	11
Microplastics	34	Persistent Organic Pollutant (POP)	11
NOx	33	Micropollutants	11
CO ₂	32	Ozone (O ₃)	9
Plastics	22	Black carbon	6
Endocrine disruptors	16	PAHs (Polycyclic Aromatic Hydrocarbons)	6
PFAS	16	Heavy metals	6
Methane	15	Ash	6
Substances of very high concern (SvHC)	14	Arsenic	6
Ammonia	12	Nanomaterials	6
Mercury	12	Other	<5

Sources of pollution

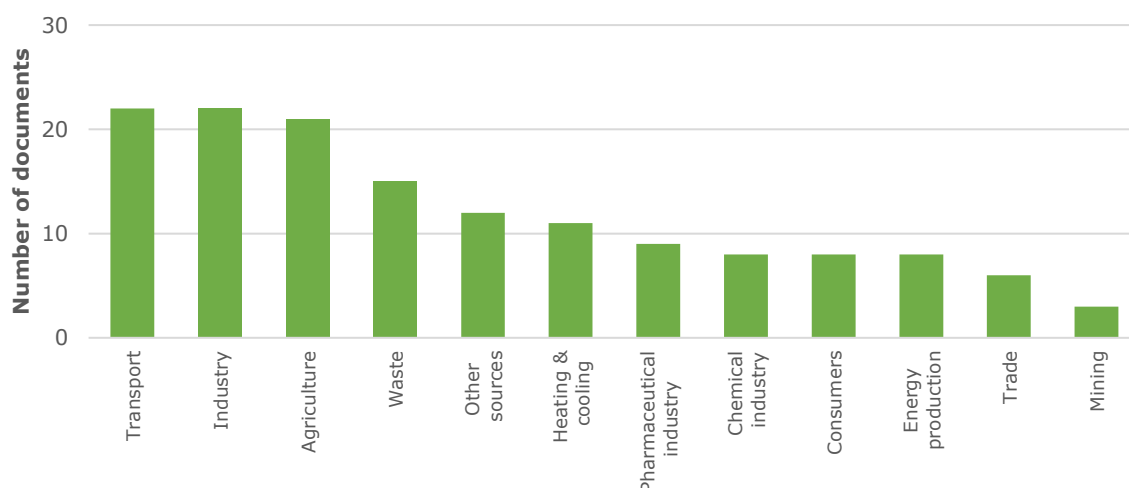
Across contributions, transport is among the sources of pollution most frequently mentioned. In total, 22 stakeholders identify different forms of transport – road and rail traffic, shipping, aviation – as potential targets to reduce polluting behaviour. Oftentimes discussed in the context of air pollution and a key source of GHG, transport is also identified as a source for other types of pollution, most notably noise pollution by several stakeholders. Across the contributions which identify transport as a source of pollution, stakeholders tend to mention road traffic more frequently than other types of transport. The same number of contributions (22) discuss industry, including producers, as a key source of pollution. If the producing sectors captured separately are factored in (pharmaceutical and chemical industry as well as energy production), production is identified as a source of pollution by the largest share of contributions.

Stakeholders stress the role industry in general can play to reduce emissions and thus any type of pollution. Some stakeholders (5) link industry emissions explicitly to water pollution, while two more discuss the effects on air quality and one stakeholder focuses on thermal pollution. 8 stakeholders discuss adverse environmental effects of the emissions of the chemicals industry, while 9 contributions also touch upon pollution stemming from

the pharmaceutical sector. A majority of contributions discuss the pharmaceutical industry as a polluter of water bodies (mentioned in 5 contributions), while the other 4 contributions discuss a need to reduce pollution stemming from the pharmaceutical industry in general. Energy production, cited in 8 contributions, is usually seen as a source of air pollution and GHG emissions.

Stakeholders mention agriculture almost as frequently as a source of pollution (21 contributions). Conventional farming is seen as particularly problematic, with stakeholders citing agricultural activities as key sources of water and soil pollution via - in their view - disproportionate use of fertilisers and pesticides. Yet, several contributions also mention agriculture as a source of pollutants such as plastics and microplastics. Whereas industry and agriculture are discussed across a wide range of contributions, only 3 stakeholders mention mining as a source of pollution in their contributions. In 8 contributions, consumers are singled out as a source of pollution, whereas domestic heating (and cooling) is discussed in 11 contributions. Waste is mentioned by 15 contributions as a source of pollution and usually linked to concerns of stakeholders that the amount of waste is increasing each year. Consequently, stakeholders call for efforts to reduce waste and the amount of toxic substances waste contains. 2 stakeholders flag the potential threat landfills pose to the surrounding environment.

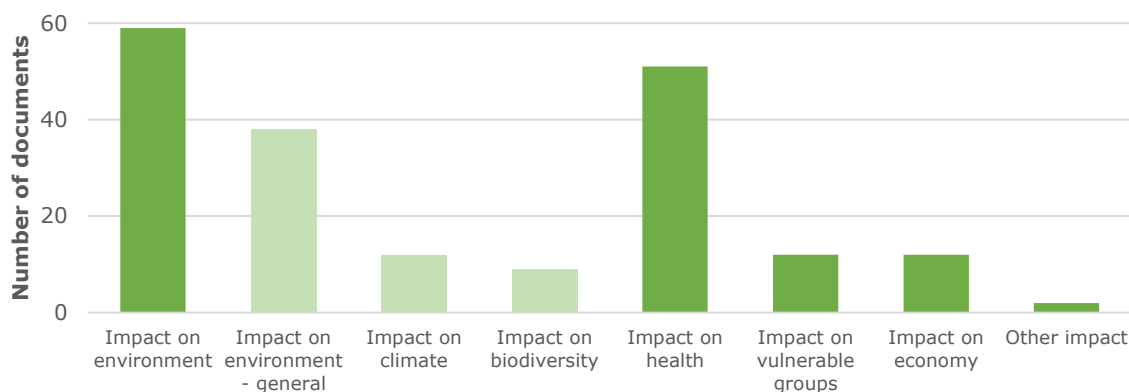
Figure 55 Sources of pollution mentioned in contributions



Impacts of pollution

Stakeholders discuss environmental and human health effects most frequently, by far. 59 stakeholders submitted contributions that discuss adverse effects on the environment. This includes 12 contributions that explicitly touch upon issues linked to climate and climate change, while 9 more address impacts on biodiversity. 38 documents discuss other environmental effects of pollution or discuss these effects solely in general terms (captured under 'Impact on environment – general'). Almost as many contributions - 51 in total - discuss the effects of various types of pollutions and pollutants on human health. Adverse effects on the economy are mentioned 12 times. An equal number of contributions discusses effects on vulnerable groups in particular, which encompasses people at risk of poverty, but also children, elderly and people with chronic diseases. Two additional contributions stress the need for further research to identify any additional potential effects of pollution.

Figure 56 Impacts of pollution mentioned in contributions



Note: Impact on environment captures the sum of documents discussing environmental impacts in general, impacts on climate and/ or impacts on biodiversity.

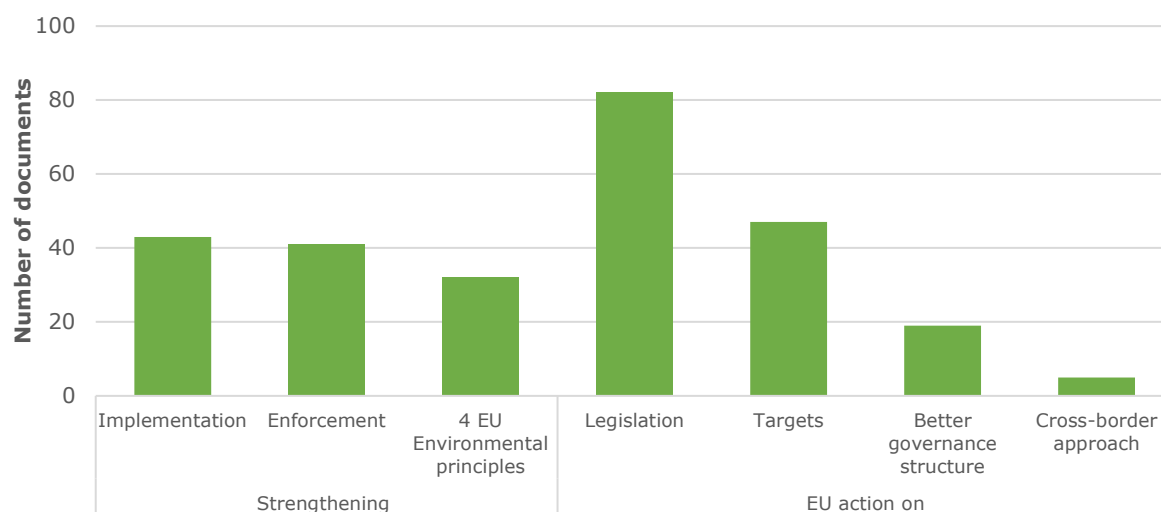
Approaches to tackling pollution

In their contributions, stakeholders develop a wide range of suggestions and ideas to tackle pollution. While the suggestions are diverse, many of the approaches brought forward follow similar lines of thinking and starting points. One important theme that summarises many ideas stakeholders have is to strengthen existing anti-pollution rules. Here, stakeholders suggest strengthening the implementation (mentioned 43 times) and enforcement (mentioned 41 times) of existing rules, in particular to tackle air and water pollution (including marine pollution). The contributions flag a wide range of legislation, ranging from the Water Framework Directive to emission-related directives as well as sector-specific rules.

One key issue flagged by several stakeholders is the uneven implementation and enforcement of these rules across EU Member States, which they link to a call for greater harmonisation. In addition, stakeholders call for a more consistent application of the four environmental principles enshrined in the treaties of the EU.³¹ Stakeholders mention the four principles (precaution, prevention, rectifying pollution at source, and polluter pays) in 61 instances across 32 contributions. The polluter pays principle is cited most frequently (27 times), closely followed by the principles of precaution (25 times) and prevention (22 times). All four principles are cited 5 times, while the principle of rectifying pollution at source is explicitly mentioned 3 times.

³¹ Article 191 of the Treaty on the Functioning of the European Union.

Figure 57 Approaches to tackle pollution mentioned in contributions



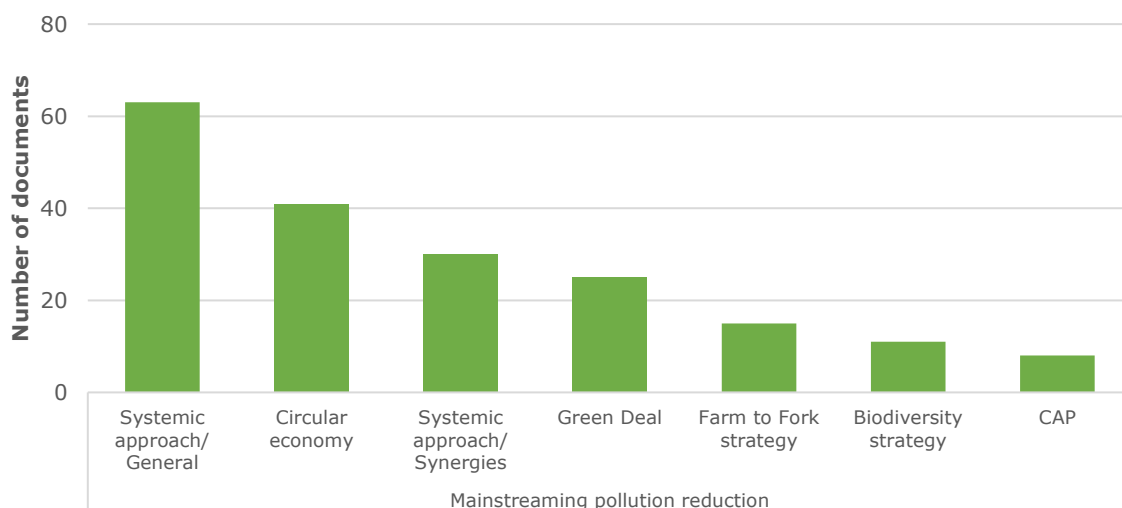
Apart from strengthening existing rules, stakeholders also offer a wide range of suggestions for the EU to take further actions. Very frequently, stakeholders suggest revising and adapting existing legislation or passing new rules to tackle various forms of pollution. In total, 82 contributions touch upon this point, covering 24 different areas and sectors. The need to revise or review legislation in the areas of water (42 contributions), industry (23) and air pollution (16) is commonly brought up. Among the legislation to be revised, stakeholders specifically point out the Water Framework Directive (WFD), the Industrial Emissions Directive (IED) and the Ambient Air Quality Directives. 5 contributions consider it unnecessary to revise the Ambient Air Quality Directives, and 12 argue that a revision of the IED is not necessary and should only be regulated on a long-term basis. Suggestions to revise legislation on urban wastewater treatment, chemicals, pharmaceuticals, micro-plastics and on the eco-design Directive are also made. The complete list of legislative texts suggested for revision by stakeholders is presented in the table below.

7 contributions advocate for a new legislative framework on soil, while 5 others refer to the subsidiarity principle to justify their opposition to such legislation. The need for new legislation in the areas of underwater noise pollution (3 contributions), indoor air pollution (2) and light pollution (1) is also suggested. Partly linked to the revision of existing and implementation of new legislation, a wide range of contributions advocate defining (binding) targets to tackle pollution. 47 contributions mention or discuss targets. 14 contributions propose targets to improve air quality explicitly, while another 8 stakeholders explicitly link their targets to water protection. Stakeholders further suggest binding noise limits. There are further suggestions to introduce or strengthen targets on the use of hazardous substances in production and for a range of pollutants, to set stricter emission limits, and to define a minimum share of land protected to support healthy eco-systems and biodiversity. Stakeholders also see the need to develop better governance of pollution policies. Stronger governance on air quality policies is, for example, mentioned by several contributions. In this regard, stakeholders recommend establishing common guiding principles to define consistent air quality plans and ask to establish a stronger reporting, reviewing and monitoring cycle. The need for a better harmonisation between Member States to tackle soil pollution is also cited. Finally, 5 contributions touch upon the issue of cross-border emissions, particularly regarding air and water pollution, and see it as an important issue to consider when tackling pollution.

In their contributions, stakeholders also discuss the mainstreaming of pollution reduction across different policies. 63 contributions stress the need to adopt a systemic approach when tackling pollution and 30 contributions specifically identify synergies between the

Zero Pollution Action Plan and other initiatives such as the Circular Economy Action Plan and the Chemical Strategy. Developing a holistic, global and comprehensive framework while ensuring coherence between specific policies such as the Biodiversity strategy, the Farm to Fork, the Chemical and the EU’s Health strategies is seen as an important aspect. Stakeholders also point out the need to promote cross-cutting initiatives and to keep a balanced approach, especially on pollution reduction policies related to air, water and soil. The transition to a circular economy is seen as an important factor in tackling pollution (41 contributions). Stakeholders suggest, for example, that actions on product lifecycle and recyclability can contribute to reducing pollution. The Zero Pollution Action Plan is also seen as an important element of the European Green Deal (25). Stakeholders notably suggest building the action plan on the principles enshrined in the Green Deal. Further links and actions under the Farm to Fork Strategy (15), the Biodiversity strategy (11) and the new Common Agricultural Policy (CAP) (8) are identified by stakeholders to reduce pollution.

Figure 58 Approaches to tackling pollution mentioned in contributions

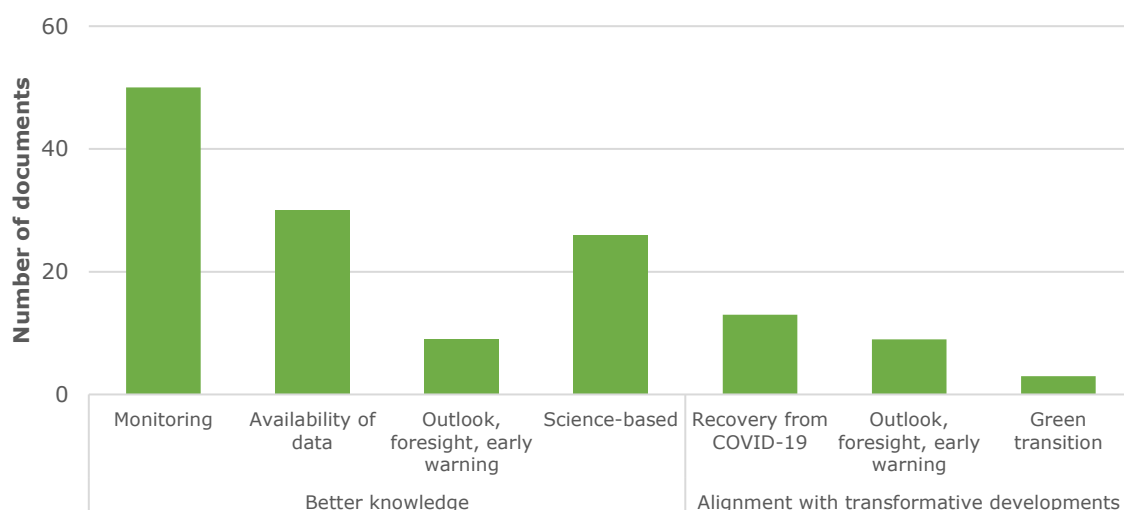


In their contributions, stakeholders put forward the importance of better knowledge of pollution through monitoring, actions related to the availability of data, outlook, foresight, early warning, and science-based initiatives. This is linked to the need for improved alignment with transformative development, particularly with the COVID-19 recovery and green transition. Mentioned by 50 stakeholders, monitoring is seen as key to better knowledge, informed decision-making, and ultimately achieving the zero pollution ambition. Some stakeholders indicate that monitoring and reporting systems should be improved, considering the science-based approach and establishing baselines as announced in the EU Biodiversity Strategy. Specific links are made between pollution of water, air, soil, noise, etc. and monitoring systems. According to the stakeholders, data availability is another aspect to consider in the Zero Pollution Action Plan (mentioned in 30 documents). Stakeholders point out that accurate data availability underpins a proper decision-making process. From the industry perspective, stakeholders explain that the availability of data on chemicals in material flows could also stimulate the production of safer chemicals, products and materials. This could also contribute to improving the quality of recycled goods.

Monitoring and availability of data were often mentioned in relation to the science-based approach (mentioned by 26 stakeholders) and to do with outlook, foresight, early warning (discussed in 9 documents). The latter is mentioned to underline the need for monitoring and data systems to have a long-term vision, e.g. to anticipate how pollution may develop, its impact on market development, and in the context of crisis forecasting. Stakeholders

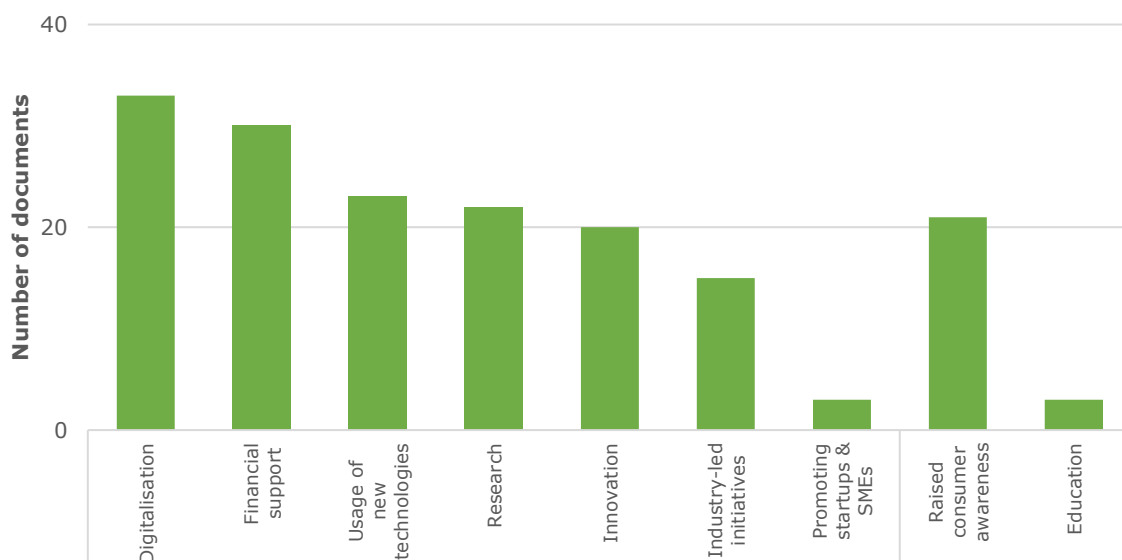
indicated that alignment with transformative development should be considered to anticipate and prevent pollution. In particular, 13 stakeholders indicate that post-COVID-19 recovery is a prominent feature to consider for the Zero Pollution Action Plan. Some state that it should be seen as an opportunity and that the recovery funds should be aligned with the zero pollution objectives. Similarly, the green transition is mentioned as another element to consider by 3 stakeholders.

Figure 59 Approaches to tackle pollution mentioned in contributions



Besides mainstreaming pollution reduction, contributions also discuss specific means required to tackle pollution. Digital technologies are put forward most often in the contributions (33 mentions). Stakeholders see digitalisation as an important tool to better monitor and control pollution, to improve data collection and to enable consumers to adopt more sustainable consumption habits. Contributions also identify new technologies (23 contributions) to tackle pollution, notably through their potential to improve pollution management and control. Stakeholders mention the need to unlock financial support (30 contributions) both at the EU and local levels, notably via the multiannual financial framework, European public banks or the private sector. Fostering research (22 contributions) is also seen as a specific means required to tackle pollution. Stakeholders mention the need to close research gaps and to enhance cooperation between researchers and sectors. The need to increase research on the effects of environmental degradation on health, on chemical exposure as well as on hazardous substances are cited. Innovation is seen as an important means to tackle pollution by 20 stakeholders. Perceived as a driver of change to tackle pollution, some stakeholders ask to develop a framework supporting innovation while others stress the important role of industrial innovation. Finally, 15 contributions mention the need for industry-led initiatives and 3 ask to develop business opportunities for start-ups and SMEs, particularly in the circular economy.

Figure 60 Approaches to tackle pollution mentioned in contributions

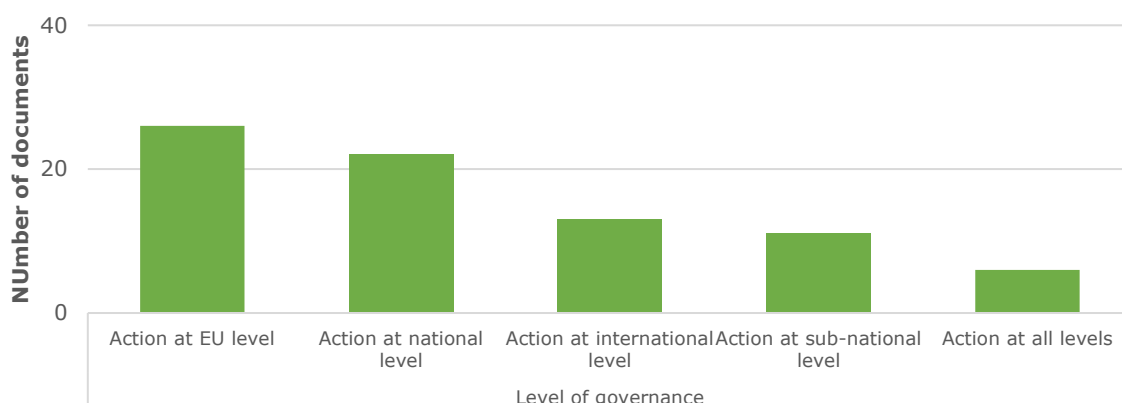


Level of governance

When discussing the level of governance which is most appropriate to take action on pollution reduction, stakeholders suggest different approaches in their contributions. 26 mention the need for action at the EU level. Harmonising rules and standards on pollution (4 contributions) and improving coordination of actions (3 contributions) - notably providing guidance to Member States - are seen as important aspects of EU governance on this matter. 3 stakeholders indicate that the EU should take a leading role in pollution reduction and seek improvements with its partners at the international level. Two stakeholders note the importance of not externalising pollution to third countries and ask the EU to act on this issue, notably through trade agreements. One contribution flags the essential role of the EU in supporting the industry towards reducing pollution.

22 contributions opine that the national level is a more appropriate level to tackle pollution. 6 stakeholders suggest, for example, that some specific types of pollution should be dealt with by Member States. Types of pollution mentioned include soil (5 contributions) and noise (1 contribution). International actions are also seen as important to tackle pollution (13 contributions). Needs to coordinate efforts with the Sustainable Development Goals (3 contributions), the UN conventions (e.g. Basel and Stockholm conventions), the Convention on Biological Diversity (1) and the International Maritime Organization (1) are brought forward. 4 stakeholders consider that the cross-border nature of pollution justifies the need for an international level of governance. 11 stakeholders see the need to strengthen sub-national level governance when tackling pollution. Leveraging the role of local and regional level in policies and enhancing capacity building are examples provided. Municipalities are seen by 2 stakeholders as being particularly relevant to tackle the issue of noise pollution. Finally, 6 contributions mention the need to take actions at all levels when tackling pollution.

Figure 61 Level of governance to tackle pollution mentioned in contributions



Concerns and challenges

In their contributions, many stakeholders also share concerns and expected challenges related to the Action Plan. A point that is repeatedly discussed by respondents is the concept of zero pollution (mentioned in 24 contributions). Stakeholders stress that it is important to define what zero pollution means in the Action Plan; whether it entails pollution at a level that can be considered negligible, or the complete avoidance of pollution overall. Further, several stakeholders note that efforts to reduce pollution do not come without costs and trade-offs. 14 contributions raise the issue of administrative burden, which stakeholders fear could increase due to new limits and objectives. 16 contributions discuss potential trade-offs of stricter pollution targets that could occur. While economic trade-offs are mentioned more frequently by these contributions (concern about competitiveness are mentioned 6 times), there are also 2 stakeholders that stress that there could also be conflicts among the different pollution targets. 6 stakeholders explicitly say that existing targets are already too strict. However, 8 other contributions explicitly state that the current limits and targets are insufficient to effectively curb pollution.

Several stakeholders suggest raising general awareness among citizens for pollution-related topics. Concerned about information available to citizens, 1 stakeholder proposes to enhance data disclosure to improve awareness on water-related challenges. Concerning air pollution, 3 stakeholders advise to further inform citizens about air quality in general (recommending the Canadian Air Quality Index as a good practice on this matter) and air pollution sources, impacts and places of exposure. Additionally, 2 others recommend increasing awareness of consumers on the sustainability of the products (e.g. environmental footprint, recycling content, type of plastic) and foster waste sorting to empower consumers. Regarding noise pollution, one contribution mentions that citizens and policymakers should be more aware of noise pollution's long-term effects, suggesting tackling it as any other pollutions. One contribution highlights the role that digital technologies could have to overcome communication challenges. In line with these points, 12 contributions ask for greater participation, and 10 propose enhancing transparency.

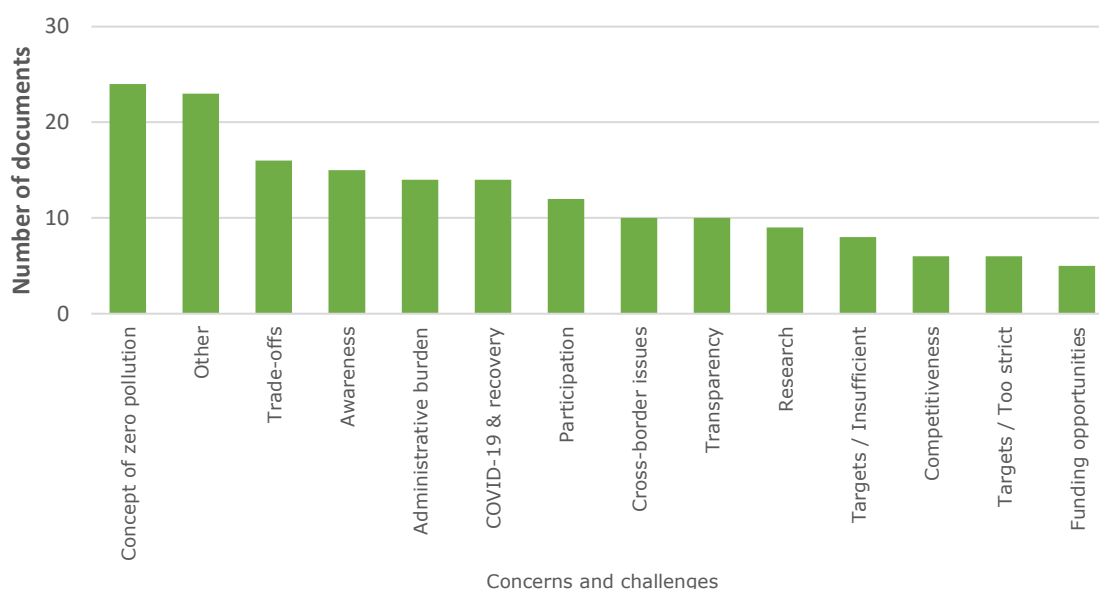
COVID-19 and the recovery from the pandemic is yet another challenge which stakeholders suggest should be considered when elaborating the Zero Pollution Action Plan (14 contributions mention COVID-19). 2 contributions highlight the suspected link between poor air quality in urban areas and the death toll from the virus, as well as the importance of ventilation and indoor air quality to reduce the transmission of the virus (one contribution). Another contribution points out the need for sustainable measures for universal access to safe drinking water and sanitation to fight the virus, and to contribute to the EU recovery. One stakeholder advises that the COVID-19 recovery should create a legal framework that incentivises investment towards supporting the zero pollution ambition. While the pandemic has incurred positive effects such as the reduction of noise

pollution and road traffic (mentioned by 1 stakeholder), and recognition of the crucial role of the healthcare industry and products (1 stakeholder), it also highlights future challenges. According to two stakeholders, the COVID-19 recovery should provide opportunities to maintain reduced pollution levels in Europe and other parts of the world, e.g. to manage the disposal of healthcare products to avoid increased pollution. Moreover, two stakeholders stress that cities as actors need to be further considered.

6 stakeholders point out knowledge gaps, such as on the quantification of the impact of pollution on human health and the interplay among factors involved in the environment-health equation, as yet another challenge. Stakeholders also flag limited coherence among current policies and laws (6 times), which links back to the demand for a more systemic approach. Furthermore, 8 stakeholders point out challenges related to the implementation and enforcement of the law and call for improvement, e.g. the implementation of the polluter pays principles. Three stakeholders raise concern with regard to the timing of the policy initiative considering the obligations of the Member States and the need for the industries to take the appropriate measures and fulfil their obligations.

Among other concerns and challenges mentioned by stakeholders (23 contributions), one stakeholder points out a lack of specific reference to nutrient pollution related to agriculture and food systems within the Roadmap. A few stakeholders question the necessity of the Zero Pollution Action Plan in general. Some of them consider the existing legislation already fit for purpose, stressing that it provides a high level of environmental and human health protection. Others express the opinion that the 8th Environmental Action Programme already includes the Action Plan’s ambition and objectives. A stakeholder also recalls the need to have a clear view of each economic sector’s specificities in elaborating the Action Plan.

Figure 62 Concerns and challenges mentioned in contributions



Detailed analysis

The following section contains an extended analysis for a selection of the sub-categories identified above. Particular attention is paid to approaches stakeholders bring forward to tackle pollution, as well as potential challenges.

Improved implementation and enforcement

In many contributions (43 documents), stakeholders suggest enhancing the implementation and enforcement of existing rules. Many of these stakeholders stress that the proper application of existing legislation should be the first step to reducing current pollution.

While several contributions ask only for enhanced implementation without specifying which rules are not yet fully implemented, other stakeholders provide more specific examples. Most contributions remain vague on the question of which provisions are yet to be fully implemented. However, a common theme across several contributions is a lack of harmonised transposition and implementation of existing legislation in the national context. The contributions suggest that there are shortcomings in the implementation of legislation protecting water. Stakeholders mention the Water Framework Directive, but also the Nitrates Directive and the Industrial Emissions Directive as relevant pieces of legislation. Contributions further discuss insufficient implementation of the Marine Strategy Framework Directive as well as the Urban Waste Water Treatment Directive. Apart from water, stakeholders also note that some pieces of legislation intended to reduce air pollution are not yet fully implemented. Here, one stakeholder mentioned for example the National Emissions Ceiling Directive. Further legislation that is discussed as not fully implemented yet includes REACH and other sectoral legislation (including biocides and pesticides, RoHS, etc.).

Enforcement is often mentioned simultaneously along with implementation, without further specification of the particular rules that - in the views of stakeholders - lack either. However, several contributions also provide further details about elements of legislation that stakeholders wish to see better enforced. This includes, for example, the authorisation processes under REACH, which in the view of stakeholders are not yet used to their maximum extent. One stakeholder notes that the limits set in the Air Quality Directive are not yet fully enforced, while another stakeholder calls for strengthened enforcement of the rules on waste collection for pharmaceuticals. Another piece of legislation mentioned by at least three stakeholders is the Water Framework Directive. However, here the stakeholders do not specify which rules they consider as not yet fully enforced. As for the implementation of rules, several stakeholders raise concern that enforcement of rules is inconsistent across the EU.

Table 16 Pieces of legislation mentioned in contributions

Legislation	Frequency
Water Framework Directive	18
Industrial Emissions Directive (IED)	18
Ambient Air quality Directives	12
Urban Wastewater Treatment Directive	7
REACH	7
Environmental Quality Standards Directive (EQSD)	3

Legislation	Frequency
END Directive	3
Eco-design Directive	3
Waste Framework Directive	2
Marine Strategy Framework Directive	2
Environmental Liability Directive	2
Emission standards for vehicles	2
Bathing Water Directive	2
National Emission Ceilings Directive	2
Sewage Sludge Directive	1
Nitrates Directive	1
Ground Water Directive	1
Energy Performance of Buildings Directive	1

Targets

In addition to the revision of existing legislation or the introduction of new legislation, many stakeholders discuss the need to define targets to support the ambitions of the Zero Pollution Action Plan. Air pollution is the type of pollution stakeholders most frequently mention explicitly as focus for these targets (14 times), followed by water pollution (8 times). Regarding air pollution, a majority of stakeholders mention a need for strict targets in general (mentioned 9 times). Some other stakeholders provide more details on envisaged air pollution targets, e.g. for industrial emissions and emissions from transport and heating. To improve water quality, stakeholders suggest stricter targets for wastewater and the use of fertilisers and pesticides. Two stakeholders further suggest setting targets to reduce pollution from stormwater overflows, while another stakeholder advocates full adherence to targets on micropollutants in the European River Memorandum. Climate change and related emission reductions are another theme for which several contributions suggest new targets. Several stakeholders (mentioned in 5 contributions) propose defining stricter limits on emissions to ensure EU climate neutrality by 2035, 2040, and 2050, respectively. Two more contributions are in favour of new targets for GHG emissions, and three stakeholders envision an emission-free transport sector as a key stepping stone towards climate change mitigation. To enhance the circular economy and reduce waste, several stakeholders favour targets on the use of pollutants in products. One stakeholder suggests stricter targets for material recovery, while another suggests working towards non-toxic material cycles. Another stakeholder proposes setting a minimum threshold for recycled content in newly produced products. Apart from these, 4 stakeholders are in favour of defining limits to reduce noise pollution, while targets for light pollution are mentioned by one contribution. Two stakeholders suggest defining a minimum share of land and sea area to be protected to safeguard healthy ecosystems and strengthen biodiversity.

Better governance

Some contributions (19) also touch upon the issue of improving governance when it comes to tackling pollution. While stakeholders identify different levels of governance to tackle pollution (at the EU, national or sub-national levels, as described above), they also see these different levels as interlinked when it comes to developing a better governance framework. A strong international approach incorporating coordination with local and regional levels of governance is put forward by stakeholders. Notably, contributions see the need to improve governance on pollution linked to trade (2 contributions), air pollution reduction policies (1), climate (1) as well as on noise (1) and soil pollution (1).

Coordination among the different levels of governance as well as supporting initiatives reinforcing links with politics and scientists, especially regarding health issues, are suggestions put forward. One stakeholder stresses that scientific developments are not yet assessed and embedded in the legislation as quickly as they should be. Two stakeholders suggest considering the establishment of an independent committee to make the link between science and policy, and to review impacts of pollution on health and the environment. Another stakeholder suggests strengthening the engagement in the European Environment and Health Process to increase synergies and opportunities.

Using the National Energy and Climate Plans to improve the governance of pollution policies and sharing resources and knowledge between agriculture, industry and civil society are examples of multi-level governance actions which some stakeholders would like to see. Contributions also suggest that the EU should further provide guidance to Member States on certain pollution issues. With regard to noise pollution, one stakeholder asks the EU to encourage the integration of local noise action plans into the sustainable urban mobility plans. With regard to air pollution, another stakeholder calls on the EU to establish common principles to define consistent Air Quality Plans.

Finally, on soil pollution, one contribution suggests establishing coordinated actions with Horizon funding to overcome the current lack of harmonised indicators and common methodology to measure soil health across Member States.

Systemic approach

Many contributions (63) touch upon the need to adopt a systemic approach to tackling pollution. More than a third of these contributions mention the importance of adopting an action plan that is coherent with other policies (24 contributions). Ensuring coherence with the Circular Economy Action Plan, the EU Soil strategy, the Farm to Fork and the Biodiversity strategies are noted by several stakeholders. Coherence with the climate neutrality objectives and with the soon to be adopted European climate law is also stressed. Some stakeholders also mention the importance of maintaining coherence between the air, soil and water dimensions when implementing the Action Plan.

Stakeholders see the Zero Action Plan as an opportunity to adopt a global and holistic approach (11 contributions), particularly regarding water legislation and the chemicals lifecycle. They also express their wish to see the mainstreaming of pollution reduction objectives in all policies and sectors (12 contributions) and hence suggest adopting a horizontal and sectoral approach. 9 stakeholders express their wish to avoid double regulation and ask to ensure consistency between different measures to tackle pollution.

Stronger cooperation with the health sector (9 contributions), particularly on scaling up health environment research, is mentioned by a couple of stakeholders. 6 contributions stress the need to promote cross-cutting initiatives, notably by strengthening capacity building. Interlinkages between different areas are also identified by some stakeholders (6 contributions) especially regarding chemicals - for which pollution reduction policies are seen as closely linked with biodiversity, agriculture and waste issues. A couple of stakeholders stress the need to adopt a comprehensive action plan (5 contributions) that takes into account cross-media effects between air and water (3 contributions). Adopting a balanced approach considering industry's specific needs is also identified as important by

three stakeholders. Some stakeholders explicitly identify the need for synergies between the Action Plan and the Circular Economy (3 contributions), climate and energy policies (4 contributions), and road transport regulations (3 contributions). The need for further synergies with the industrial and pharmaceutical strategies as well as with the research and innovation framework such as Horizon Europe are also cited (3 contributions). Finally, some contributions see important links between the Action Plan and international initiatives, notably with the World Health Organisation’s air quality guidelines (6 contributions) and with the Sustainable Development Goals (5 contributions).

Monitoring

Many stakeholders (50 in total) mention in their contribution that the monitoring component should be kept in mind when elaborating the Action Plan. 10 Stakeholders state that the EU should review and strengthen the existing monitoring system (e.g. the E-PRTR, the monitoring system under the Environmental Liability Directive, etc.). In their view, this would ensure better implementation and enforcement of relevant EU law. Five stakeholders express the view that the monitoring systems should cover all types of pollution and recommend taking action to enable monitoring, studying and legislative development on pollutants currently not covered by the EU Directives. The EU could consider an integrated overarching approach to monitoring systems. Moreover, two stakeholders mention that it is necessary to integrate monitoring results in risk assessment to improve human health. Three stakeholders suggest that, although monitoring systems should cover all types of pollution, they should be targeted and focus on specific pollutants (e.g. on POPs/candidate, POPs that are still being used/produced) and "severe" problems (e.g. site contamination at large industrial facilities). Two stakeholders state that better monitoring would contribute to increasing transparency.

The review of the monitoring systems (and elaboration of new ones) should be done coherently, according to 5 stakeholders, to avoid overlaps and duplication. This should also contribute to the harmonisation of monitoring and EU-wide reporting. However, one stakeholder warns that these harmonisation efforts should not overrule the suitability of methods. Another stakeholder explains that a better and centralised pollution monitoring system would also help to ensure data comparability. Three stakeholders point out that joint monitoring could also contribute to tackling pollution, e.g. through a network of monitoring stations when it comes to air pollution. In addition, a stakeholder mentions that guidance for Member States to set up monitoring networks would also support the accurate gathering of information on pollution. This links to two stakeholders' contributions, explaining that national and regional authorities should receive more guidance to implement monitoring systems and ensure their effectiveness. Another contribution stresses the need to improve the governance of pollution policies, notably via monitoring tools, and to invest in the reporting and monitoring of the implementation of environmental measures.

Finally, 10 stakeholders explain that a better and innovative monitoring system would contribute to achieving zero pollution. Innovation to improve data collection would be essential. For this purpose, the use of (future) digital technologies and new tools for pollution monitoring would improve the quality of available data.

Availability and access to data

The availability of data is another essential aspect to consider in the elaboration of the Zero Pollution Action Plan, which 30 stakeholders raise through their position papers. Four stakeholders stress concerns and challenges regarding data quality and accuracy, the lack of data, and insufficient data details to enable an adequate analysis of the existing situation or to be used as evidence for policymaking. Two stakeholders mention the need to improve data collection in some Member States to improve the consistency and comparability of data across Europe. To do so, one stakeholder suggests having

precise analysis and guidelines to ensure correct interpretation of the data resulting from past and future changing methods of calculation on noise pollution. It is also opined that public authorities should identify where data is lacking (e.g. data for minor roads).

In two contributions, stakeholders suggest further fostering the generation of sound data on specific pollutants and the sources that matter the most. Improving the availability of data on, for instance, exposure to chemicals in some material flows would stimulate the production of safer chemicals, products and materials.

Furthermore, when addressing data availability, stakeholders also pointed out the need to ensure their transparency (3 times) and traceability (3 times). Data on pollution should be publicly - or at least more broadly – available, according to three stakeholders. It would enable public engagement through the availability and accessibility of (disaggregated) data, reporting, consumer information, and public participation opportunities. The EU should improve access to data between the sectors and actors as well. This could be linked to one comment on the need to strengthen access to data via legislation. Moreover, four stakeholders point out that access to information is key to ensure transparency and traceability throughout the value chain (e.g. chemicals use throughout the entire healthcare supply chain). It is believed that appropriate instruments for better traceability of substances contained in products should also be developed.

The use of digitalisation is also essential to improve the availability of data. Three stakeholders explain that digitalisation should be used to collect and share data. However, the data must be collected and used efficiently. One stakeholder stresses the potential for digitalisation to enhance knowledge and information sharing as well as to enhance transparency and collaboration between stakeholders. According to five stakeholders, other technologies could contribute to the availability and the quality of data, e.g. satellite technology, remote sensing data, further expansion of digital solutions to compile existing data, use of model and data science, evaluation of the data using artificial intelligence, etc. One stakeholder mentions that technologies could also contribute to tackling polluting substances which have received insufficient attention for various reasons (e.g. due to high mobility and poor measurability).

Finally, four stakeholders stress the importance of having comprehensive databases open and linked to each other. They see digitalisation as a supporting tool to bring together environmental information by creating and compiling databases.

Usage of digital and new technology

Stakeholders mention the use of digital and new technologies as tools that could support the reduction of pollution. When discussing digital technologies, contributions refer to their potential in improving pollution monitoring and control (11 times). These digital solutions are seen as promising to ensure the quality of water, avoid and limit leakages, better monitor water use and resources and improve the early detection of pathogens in wastewater, for example. Contributions also mention that digitalisation can improve data collection and accessibility as well as ensure better traceability of the information and, therefore, a better degree of compliance regarding pollution levels. Digital technologies can at the same time, support greater sustainable consumption patterns by further informing consumers on the environmental impact and sustainable use of the products they buy (4 contributions). Water (2 contributions), waste management (2), agriculture (2) and transport (1) are the sectors identified to benefit from digital technologies. Smart farming tools, or the use of artificial intelligence and blockchain to increase transparency on chemicals production and risks are examples put forward by stakeholders.

New technologies used to improve pollution management and control are identified by stakeholders (8 contributions). Among the examples of technologies, the use of remote sensing, autonomous devices, drones and satellites are suggested to monitor pollution. New technologies such as sustainable batteries for electric vehicles (3 contributions), green hydrogen, bio-based alternatives to plastic and 3D printing are identified to help

reducing pollution. Stakeholders also suggest using smart technologies to tackle water and agricultural pollution.

Financial support

When discussing the financial support needed to tackle pollution, stakeholders mainly identify EU (14 contributions) and private (8 contributions) financial support. Five stakeholders mention the need to dedicate financial support via the multiannual financial framework, four to use part of the recovery funds under Next Generation EU, and two to make use of the European Investment Bank (EIB), to support actions to reduce pollution. The use of the European Structural and Investment Funds and the Connection Europe Facility are also cited and additional funding to protect Natura 2000 sites are requested by one stakeholder each. Three stakeholders also suggest unlocking funding for local and regional authorities as they are at the forefront in the implementation of pollution reduction policies. Among the private funding identified, investment in innovation (4 contributions), clean energy (2 contributions) and for soil quality (2 contributions) are mentioned. Four stakeholders suggest redirecting finance towards less polluting activities, and call to end fossil fuel subsidies. Finally, two stakeholders point out the need to have easier access to finance for solutions and innovations aiming at reducing pollution.

Industry-led initiatives

20 stakeholders discuss the need for further industry-led initiative when tackling pollution. Some of them see the need to improve the environmental performance of industry in general, while others point out the need to consider competitiveness issues when requiring the sector to implement further actions to tackle pollution. One stakeholder stresses the importance of seeing voluntary actions from the industry, and another asks to leave the choice of the suitable technology to reduce pollution to industry, rather than legislate. Some stakeholders ask some specific branches such as the healthcare, automotive and agrochemical industries to intensify their efforts. One mentions the need to scale-up actions on sustainable supply management, while 2 contributions highlight the progress already made by the industry.

Administrative burden and trade-offs

In several contributions (14 in total), stakeholders call to limit the administrative burden for businesses. Stakeholders ask that policymakers should ensure consistency between the EU regulations to avoid regulatory overlaps and consider whether new regulations could lead to additional costs for the economy. The 14 stakeholders are concerned about the administrative burden related to existing reporting requirements (mentioned twice) and the authorisation process (mentioned once), which in their view limit innovation (mentioned once). Consequently, these stakeholders are sceptical of introducing new requirements and stricter limits. One stakeholder suggests that the EU could provide further guidance on the Zero Pollution Action Plan.

The aspect of administrative burden is often linked to the topic of trade-offs, in particular those related to additional costs. Twelve stakeholders raise concerns about the potential negative socio-economic impacts of more stringent regulations. One explains that it could aggravate the relocation of industry and production to third countries with negative impacts on the European economy and the environment (due to trade). Two stakeholders further suggest that costs of lowering pollution should not be disproportionate compared to the benefits. They suggest that a balance is needed between the ambition on the one side and economic viability of industries on the other.

According to three other stakeholders, it will be necessary to take into account possible cross-media trade-off effects (i.e., situations in which the reduction of a pollutant emission to one environmental medium (air, land, or water) would result in increased emissions of

other pollutants to the same or other environmental media) in future policy and legislative initiatives. In other words, they explain that future policies should not lead to a disproportionate shift of burden from one environmental area to another. To do so, two stakeholders highlight that an integrated and risk-based approach would prevent trade-offs between the different types of pollution or at least balance those that must be made in deciding the best environmental option.

Furthermore, one stakeholder points out that targeted actions should not jeopardise actions that lead to lower emission levels, e.g. efforts to continue the industry's electrification, which reduces air and on-site pollution. This echoes one contribution that recommends integrating a risk-benefit based approach in the Zero Pollution Action Plan, particularly when taking actions in sectors (e.g. pharmaceutical, transport, etc.) that contribute to human health and wellbeing despite leading to residues and contaminants.

According to four stakeholders, the Action Plan should balance its ambitions with technical feasibility and economic viability. The aim should be to develop an adequate framework to remain environmentally, but also socially and economically sustainable. They stress that a balanced approach is needed between greater environmental ambition and safeguarding the EU industry's competitiveness. One contribution added that the disclosure of the trade-off would make the policy decision process more transparent.

Concept of Zero Pollution and the objective of the Zero Pollution Action Plan

Stakeholders discuss the need to clarify the concept of “Zero Pollution” adopted under the action plan (24 contributions). 15 stakeholders mention that the target of ‘real’ zero pollution is likely to be unachievable. Three of them explain that eliminating pollution is impossible given the extreme complexity and interactions related to this issue and stress that some pollution is inevitable. 9 stakeholders suggest that it would be preferable to adopt a risk-based approach where the objective would be to effectively minimise pollution and reach tolerable risk levels while others (3 contributions) see the concept of zero pollution as focussed on the need to eliminate harmful impacts on health and the environment. One stakeholder asks specifically to adopt a result-oriented rather than pollution-oriented concept, while another suggests disaggregating the concept of pollution between “natural” pollution and “man-made” pollution. Three stakeholders mention the importance of working towards a common language and understanding of the concept of zero pollution, and some contributions stress the need to make clear for all sectors what level of ambition is aimed for. One contribution discusses whether the concept of zero pollution should be a vision rather than a goal.

Stakeholders also highlight their vision on the overall objectives of the Zero Pollution Action Plan (20 contributions). Two stakeholders see the Action Plan as a guiding framework ensuring the coherence of policies and objectives between the different strategies of the EU. Two others see it as an opportunity to examine and strengthen the implementation and enforcement of existing legislation tackling pollution. Some stakeholders also see the need to include additional considerations in the Action Plan. Among the additional objectives mentioned, the need to consider soil pollution with a similar level of attention to air and water pollution (2 contributions) is (for example) cited. Two stakeholders want the Action Plan to be a driver of social changes, one to be more inclusive in the decision making, one to have higher objectives and one other to put greater focus on the impacts on our health and environment. Finally, two stakeholders state that they want the Action Plan to reach the highest pollution reduction possible.

Overview of stakeholders who submitted position papers

The table below provides an of the stakeholders who submitted position papers as part of their responses to the Roadmap.

Table 17 Overview of submission to the Roadmap by stakeholder

Organisation	Stakeholder type ³²
AECC (Association for Emissions Control by Catalyst)	Business association
AgroBioHeat	Other
All Policies for a Healthy Europe	Other
BioEnergy Europe	Business association
Bundesverband Glasindustrie e.V.	Business association
CEE Bankwatch Network	NGO
CEMBUREAU	Business association
CEWEP	Business association
ClientEarth	Environmental organisation
COMMON FORUM on Contaminated Land in Europe	NGO
Confederation of European Paper Industries	Business association
ENEL	Company/business organisation
Eucopro	Business association
EURACOAL aisbl	Business association
EurEau - European Federation of Water Services	Business association
Eurits	Business association
Eurocities	NGO
EUROFER	Business association
EuroHealthNet	NGO
Eurometaux	Business association
European Biogas Association (EBA)	Business association
European Chemical Industry Council (Cefic aisbl)	Business association
European Compost Network	Business association
European Copper Institute	Business association
European Environmental Bureau (EEB)	NGO
European Federation of Allergy and Airways Diseases Patients' Associations	NGO
European Public Health Alliance (EPHA)	NGO
European Respiratory Society	Other
Eurovent	Business association
FEAD	Business association
Federation of German Industries e.V (BDI)	Business association
Fertilizers Europe	Company/business organisation
FNADE	Business association
Grundfos Holding	Company/business organisation
HAZARDOUS WASTE EUROPE	Business association

³² Self-assessment.

Organisation	Stakeholder type ³²
Health and Environment Alliance (HEAL)	NGO
Health Care Without Harm (HCWH) Europe	NGO
HERA project consortium	Other
Hesus	Company/Business organisation
IAWR, IAWD, AWE, AWWR	Other
Iberdrola, S.A.	Company/Business organisation
IMA-Europe	Business association
INRAE	Academic/Research Institution
Liquid Gas Europe	Business association
Métropole européenne de Lille	Public authority
Ministerstvo životního prostředí	Public authority
N/A	EU Citizen
N/A	EU Citizen
N/A	EU Citizen
N/A	Other
National Research Council of Italy	Academic/Research Institution
NSG	NGO
Orgalim, Europe's Technology Industries	Business association
Polskie Towarzystwo Programów Zdrowotnych	NGO
SEA Europe	Business association
Stockholm University	Academic/Research Institution
Transport & Environment	NGO
UBA on behalf of HBM4EU	Environmental organisation
UNESID	Business association
Veolia	Company/business organisation
Verband der Chemischen Industrie	Business association
Verband der deutschen Lack- und Druckfarbenindustrie e. V.	Business association
Verband kommunaler Unternehmen e.V.	Business association
Water Europe	Business association
Water JPI	Public authority
Wirtschaftsvereinigung Stahl	Business association
Xylem Inc.	Company/Business organisation

The table below provides an of the stakeholders who submitted position papers as part of their responses to the OPC. Eight stakeholders submitted their contributions anonymously. Four stakeholders submitted two position papers as part of their contribution.

Table 18 Overview of submission to the OPC by stakeholder

Organisation	Stakeholder type ³³
A.I.S.E.	Business association
All Policies for a Healthy Europe	Other
Association of Netherlands Municipalities	Public authority
Associazione Italiana Elettrosensibili	NGO
Bellona Europa	NGO
Boliden ad	Company/business organisation
Buglife - The Invertebrate Conservation Trust	NGO
Butterfly Conservation Europe	Environmental organisation
CAEF The European Foundry Industry Association	Business Association
CEMBUREAU	Business association
Cittadini per l'aria onlus	Business association
Comité National de la Conchyliculture	Business association
Community of European Railway and Infrastructure Companies (CER)	Business association
Compassion in World Farming EU	NGO
Confederation of European Paper Industries aisbl	Business association
Corbion	Company/business organisation
Costa Group	Company/business organisation
DABSKA.LEGAL	Other
Dutch Noise Abatement Society	NGO
ENEL	Company/business organisation
ESWET - European Suppliers of waste-to-energy Technologies	Business association
Euracoal aisbl	Business association
EuroChem Group AG	Company/business organisation
Eurocities	NGO
Eurometaux	Business association
European Chemical Industry Council (Cefic aisbl)	Business association
European Copper Institute	Business association
European Environmental Bureau (EEB)	NGO
European Federation of Allergy and Airways Diseases Patients' Associations	NGO
European Landowners' Organization	Business association
EUROSLAG	Company/business organisation
Federation of German Industries e.V (BDI)	Business association
FNADE	Business association
German Environment Agency (Umweltbundesamt, UBA)	Public authority
Glass Alliance Europe aisble (GAE)	Business association

³³ Self-assessment.

CONSULTATION ON THE EU ACTION PLAN “TOWARDS A ZERO POLLUTION AMBITION FOR
AIR, WATER AND SOIL”

Organisation	Stakeholder type ³³
Global Alliance on Health and Pollution	NGO
Grundfos Holding	Company/business organisation
H2020 Project: ZEROBRINE	Other
Hubert & Associates GmbH	Company/business organisation
IAWR, IAWD, AWE, AWWR	Other
ICLEI – Local Governments for Sustainability.	Public authority
Industrieverband Agrar e.V.	Business association
Instituto Geologico y Minero de España	Academic/research institution
IOGP	Business association
MEDEF	Company/business organisation
MSFD Navigation Task Group	Other
NICOLE	Business association
Norwegian Environment Agency	Public authority
EuDA	Other
Port of Rotterdam	Company/business organisation
Romanian Health Observatory	Company/business organisation
SEAS AT RISK vzw	Environmental organisation
SGI Europe	Business association
Sonairte - the National Ecology Centre	NGO
Stadtwerke Karlsruhe GmbH	Other
Surfrider Foundation Europe	NGO
Technology Industries of Finland	Business association
ToxicoWatch Foundation	Other
Transport & Environment	NGO
Valmet Oyj	Company/business organisation
Verband der Chemischen Industrie (VCI)	Business association
Verband der deutschen Lack- und Druckfarbenindustrie e. V.	Business association
Water Europe	Business association
WKO	Business association
Xylem Inc.	Company/business organisation
Zero Waste Europe	NGO
Anonymous	Anonymous

Annex 4 Reports on Meetings and Workshops

The following pages feature summary reports for workshops and meetings that have taken place in the scope of the consultation on the Zero Pollution Action Plan.

Workshop on the preparation of the Zero Pollution Action Plan for air, water and soil

Session with Member State experts



Date: 10 February 2020

Time: 10:00 – 12:30

Place: Online (via WebEx)

Chair: Veronica Manfredi, Director ENV C - Quality of Life of DG Environment

1. Welcome and introduction

The Commission welcomed the participants to the workshop, presented the agenda, reminded the participants that the open public consultation (OPC) in support of the Action Plan was still open and invited those who did not respond yet to do so. The Commission explained the context and objectives of the Zero Pollution Action Plan for air, water and soil.

According to the short survey at the beginning of the workshop, 28% of participants were experts in several areas covered by the Action Plan, 26% self-identified as water experts, and 22% as air experts. There were no participants who self-identified as experts in noise pollution only.

2. Towards a Zero Pollution Action Plan for air, water and soil

The zero pollution ambition is embedded in the European Green Deal, and strongly linked to the Circular Economy Action Plan and the Biodiversity Strategy. As part of the zero pollution ambition, the Chemicals Strategy for Sustainability was published in October 2020, whereas a Commission proposal to address industrial pollution from large installations is scheduled for 2021.

The Zero Pollution Action Plan aims to protect health and the environment from the impacts of pollution and encourage innovation and business opportunities. The hierarchy of action on pollution should focus on its sources, and be based on key Treaty principles such as prevention at source, and the precautionary and polluter pays principles.

The Commission informed participants that three deliverables are scheduled under this policy initiative in Q2 2021:

- Zero Pollution Action Plan communication, entailing a dedicated package of actions (including legislative proposals) for roll out throughout the present Commission's mandate;
- A Staff Working Document on a Zero Pollution Monitoring and Outlook framework
- A Staff Working Document on Digital Solutions for Zero Pollution;

- Furthermore, the Commission announced that the 2021 Green week (31st May – 4th June) would be focused on the Zero Pollution Action Plan.

3. Session 1: Flagship initiatives and implementation

1. Flagship initiatives: Which flagship initiatives to take to address policy or legislative gaps?

Tackling air pollution was considered as a key flagship area by four Member States, with necessary actions mentioned including:

- Collaborate with various sectors;
- Make the best use of the upcoming revisions of the Industrial Emission Directive and Air Quality Directives

Partly linked to air pollution, the Action Plan should also aim to **phase out all emissions** and specifically address industrial emissions (including those from small installations), according to three Member States.

Other participants also flagged additional areas to prioritise: **areas with great potential that could also help recover from the current crisis**, such as green public procurement and digitalisation (one Member State); **drinking water protection** (one Member State); **soil pollution** (one Member State); **forests protection** (one Member State); as well as **international initiatives** such as a global agreement for zero marine litter (one Member State).

Another Member State suggested to discuss soil pollution further in the Action Plan, and in particular in relation to buildings. Participants saw a need to set up mechanisms and provide subsidies to protect forests, especially given their role for a clean environment overall (clean air, healthy soil, and clean water). Apart from this, it was suggested that a holistic approach would be adequate (1 Member State) as all different areas are important and all types of pollution challenging.

Two Member States noted that strong links and potential for synergies with other policies on biodiversity, climate change, chemicals, agriculture (farm to fork strategy, CAP), energy and marine pollution exist and should not be neglected. For instance, speeding up the transition towards a circular economy while considering zero pollution was seen as essential. This could also contribute to reducing pollution from chemicals (mentioned by four Member States).

2. Improving implementation: How to tackle implementation gaps on pollution?

According to the results of a poll during the session, more guidance and sharing of good practices (53% of the respondents), capacity building and training of national/local authorities (49% of the respondents) and EU investment (45% of the respondents) are among EU actions necessary to help to close the implementation gap on pollution reduction significantly.

One Member State acknowledged that while there is already a comprehensive framework to prevent pollution in place, there is still a need to learn from previous initiatives.

During the discussion, different elements to improve implementation were raised: the need for **high ambitions** was mentioned by one Member State, while two others suggested to **accelerate policies to prevent and stop pollution** and to integrate the **whole life cycle approach** in legislation and across sectors. Two Member States were in favour of **raising awareness** for the benefits of environmental policies. Additional suggestions included **further investments** (e.g. integrating zero pollution into the EU's sustainable finance taxonomy and the Recovery Plan for Europe) and creating **tools at EU level to enhance the competitiveness of industry and agriculture** (one Member State).

To tackle implementation gaps, seven Member States stressed that the Zero Pollution Action Plan must include mainstreaming across relevant policies and bring forward cross-cutting measures, yielding a **holistic environmental approach**. As such, it is necessary to review existing legislation to reflect shifting needs and improve their effectiveness and efficiency (e.g. the Water Framework Directive). Three Member States suggested to **move beyond existing legislation**. Two other Member States noted that the Zero Pollution Action Plan would be the proper opportunity to close existing regulatory gaps, resolve contradictions and **improve the overall coherence** of policy instruments. This echoed the comment of another Member State who currently missed a systematic approach to promote interactions between different pieces of legislation.

When reviewing existing regulations and creating new laws, all sources of pollution should be considered. Two Member States called for **phasing out all substances of high concern** and accelerating the process for tackling pollutants in general. According to three other Member States, the Zero Pollution Action Plan needs to reflect **differences among Member States** (e.g. the economic context in each Member State). The Action Plan should not create undue additional financial, administrative, or social burden, and adequate impact assessments should accompany relevant proposals. One Member State suggested that it would also be useful to **develop mechanisms to protect vulnerable groups**.

Four Member States supported a holistic approach that fosters cooperation between experts in the different thematic areas of the zero pollution ambition. Authorities should **work more closely with different economic sectors** (including agriculture, energy, and transport) to raise awareness for major pollution sources and problems, to be up to date on established practices within sectors and to have a coherent approach in order to implement measures that tackle pollution effectively.

Finally, the EU should do more according to different Member States to tackle implementation gaps on air pollution, improve air quality and reduce in particular concentrations of the smallest particles. There should be more linkages between different EU policies addressing air pollution, greater awareness, and a horizontal rather than a sectoral approach towards air pollution. Furthermore, the European Commission should bear in mind that the situation is different in various parts of the EU. Lastly, one Member State called for cutting financial support for fossil fuels to reduce air pollution. Funding criteria should include sustainability management in their criteria and not deliver funding based only on economic criteria.

4. Session 2: Cross-cutting issues

1. Integrated monitoring/outlook framework: How to best develop an integrated monitoring and outlook framework?

The Commission stressed that gathering data collection and analysis, including through digital tools, are important tools for achieving the zero pollution ambition. Authorities should address pollution holistically. The Commission invited Member States to seize the opportunities to be strategic and forward-looking, and to modernise their economies when reducing pollution.

According to a brief poll during the session, 87% of the participants stated that better-integrated monitoring of different types of pollution would help improve communication on pollution impacts. One Member State identified **unifying various tools and standards to ensure comparison** across Europe as a key challenge. As such, coordination between different governance levels, notably the national, EU and international level, in an integrated framework is necessary. For instance, according to three Member States, EU monitoring reports should be coordinated with obligations at Member States level to avoid work duplication. Participants also suggested ideas to improve pollution monitoring: early warning systems, dedicated modelling, and further quantification to understand human health impacts.

2. Key enablers for zero pollution – innovation and digitalisation: What is the potential for innovation and digitalization at national level?

Innovation is crucial to achieving the objective of zero pollution. Participants suggested that making use of the Horizon 2020 and Horizon Europe programmes would be highly relevant to boost relevant innovation. Innovative technologies such as satellites and drones, and overall **digitalisation** could provide opportunities to improve pollution monitoring and public information. One Member State suggested making better use of the Best Available Techniques (BAT) reference documents (BREFs) to prevent and control pollution.

5. Concluding remarks

The Commission thanked experts for their participation in this workshop and invited Member States to submit possible additional position papers until 12 February 2021.

Workshop on the preparation of the Zero Pollution Action Plan for air, water and soil

Session with stakeholders



Date: 10 February 2020

Time: 14:00 – 16:30

Place: Online (via WebEx)

Chair: Veronica Manfredi, Director ENV C - Quality of Life of DG Environment

1. Welcome and introduction

The Commission welcomed the participants to the workshop, presented the agenda gave an overview of the preparations for the Zero Pollution Action Plan. The Plan is the result of intensive internal collaboration across Commission services and European agencies. This stakeholder workshop was an opportunity to gather additional inputs from stakeholders to finalise the Action Plan.

2. Towards a Zero Pollution Action Plan for air, water and soil

The Commission presented the policy context of the Zero Pollution Action Plan, a key pillar of the European Green Deal and one of the main initiatives undertaken to address the four intertwined ecological crises that the planet currently faces with regards to climate change, biodiversity, unsustainable use of resources, and pollution.

The Zero Pollution Action Plan aims to protect health and the environment from the impacts of pollution and encourage innovation and business opportunities. The hierarchy of action on pollution should focus on its sources, and be based on key Treaty principles such as prevention and the precautionary and polluter pays principles.

3. Session 1: Flagship initiatives & key actions

The Commission outlined the scope of the first session of the workshop and asked participants to indicate flagship initiatives they would like to see put forward in the Zero Pollution Action Plan (see Annex 1).

Discussion

Stakeholders welcomed the Zero Pollution Action Plan and the possibility to provide input.

Air pollution was most recurrently raised, with eight stakeholders mentioning it. Two NGOs emphasised that air pollution is, in their view, the greatest risk to health and the environment, and one of the most urgent issues to tackle. **Water, plastic and soil pollution** were also mentioned by participants respectively five, four, and two times during the session.

1. Defining “zero pollution”

Several industry and NGO stakeholders found that a common understanding and definition of “zero pollution” is important to understand the implications of the Action Plan. The Commission clarified that **the concept behind “zero pollution”** is a degree of pollution not harmful for human health and the environment. Two NGOs stressed the

importance of having a timeline, milestones and targets to reach the target of zero pollution and one stakeholder reminded the Commission of the importance to have the necessary means (human, financial, and legal resources) to implement the Action Plan and its objectives.

2. Monitoring pollution

Three stakeholders mentioned the importance of **monitoring** within the Zero Pollution Action Plan, to be aware of the environmental footprint as well as to enforce rules on legal limits. One stakeholder indicated that a harmonised monitoring system should be established and acknowledged in the Action Plan. The Commission reminded participants that, while the ambition is to improve, data available is often already sufficient to take action.

Two stakeholders noted that innovative **technologies** and **digitalisation** are key in the context of the Action Plan, including the better monitoring of pollution.

3. Comprehensive and cross-cutting approach

Several stakeholders, including international organisations, businesses and NGOs welcomed the **holistic and integrated approach** of the Action Plan, noting the importance of integrating different pillars – health, environment, and the economy, of considering vulnerable groups and of being aware of possible trade-offs when tackling pollution.

Stakeholders also supported mainstreaming of zero pollution in relevant policies, such as to support industries to innovate, using artificial intelligence (Huawei) or the Taxonomy Regulation to foster innovation. Two stakeholders highlighted the role of technological development in setting effective incentives to reduce pollution. One NGO noted that innovative solutions for climate change mitigation and air quality could go hand in hand.

4. Legislation

Many stakeholders stressed the importance and the **need for legislation** to prevent pollution and called on the Commission to accompany the Zero Pollution Action Plan with legal acts to make it binding and effective. Three stakeholders underlined the importance of strengthening the existing rules on the polluter pays principle, internalising environmental costs and addressing pollution at the source (Surfrider Europe).

Stakeholders saw a need for legislation for **several policy areas**, starting with **maritime pollution**. One NGO would regret if no flagship initiative on zero maritime pollution were to be part of the Action Plan, and advocated for new legislation related to shipping, offshore, underwater noise, micro-plastics, and nanoparticles. Stakeholders also called for stronger enforcement of the Maritime Framework Strategy Directive and the Water Framework Directive.

Stakeholders also asked for additional legislation at EU level on **soil pollution**. Two stakeholders stressed the need to strengthen legislation that might be outdated in this area such as the Nitrates and the Strategic Environmental Assessment Directives.

Four stakeholders also discussed the approach towards **restrictions of chemicals**, with some stakeholders (HEAL, EurEau) favouring a hazard-based approach and others preferring a risk-based approach.

One industry stakeholder wondered whether it would not be more cost-efficient to promote electric vehicles more strongly than to develop a new generation of EURO emission standards for combustion engine vehicles.

Stakeholders considered that changes in the EU legislation can be a key enabler of innovation but also hinder innovation, such as by increasing legislative complexity. Impact

assessments should take these as well as other economic and societal aspects into account.

One NGO pointed out that legislation is often ambitious but **lacks enforcement** tools such as strong sanctions and access to justice for citizens.

Finally, two stakeholders underlined the importance of aligning EU legislation with WHO standards and other international initiatives and standards, while another mentioned the possibility to build on existing instruments such as the Basel, Rotterdam and Stockholm conventions.

5. Governance

Several stakeholders stressed that effective **multi-level governance** - both vertically and horizontally – is key to achieve the zero pollution ambition including effective action by local authorities as well as international commitments.

6. Points of attention and actions to implement

During this session, stakeholders identified additional actions they would like to see implemented within the scope of the Zero Pollution Action Plan, such as:

- Implement an EU environmental inspectorate
- Integrate a zero-pollution conditionality in national recovery plans to incentivise a cleaner recovery
- Consider including noise pollution in the action plan
- Revise the Ambient Air Quality Directives
- Enforce the water cost recovery principle up to the 2027 chemical status achievement

4. Session 2: Engaging society and stakeholders - Key enablers for zero pollution, business, and jobs

The Commission introduced the second session of the workshop, which was dedicated to the societal challenges and the potential for business and job opportunities. Participants were invited to answer two questions via the Slido poll app.

95% of the respondents identified a need for an EU push of all actors to help societal change on the zero-pollution ambition, with 48% indicating no change would happen otherwise. 78% completely (40%) or somewhat (38%) agreed that digital and other innovative solutions offer a significant potential to reduce pollution and offer business opportunities.

Participants were then invited to take the floor and express their views on ways to create the necessary societal engagement and the potential for business and job opportunities to help achieve the zero pollution ambition.

Discussion

1. Engaging with consumers and producers

Stakeholders pointed out the shared responsibility between consumers and producers to reduce pollution. Two stakeholders pointed out that **availability of information** was key to engage consumers, while another reminded that this also depended on **availability and affordability of choices**. One stakeholder stressed that while information is

important to enable consumers to make informed decisions, **contextualisation** of the information is also an important element.

2. Engaging with citizens and society

Three stakeholders welcomed the proposal to establish a Zero Pollution Stakeholder Platform, noting that engaging with society and citizens was an important aspect to consider in the Action Plan. One stakeholder stressed that science should have a strong voice in the platform to base discussions on evidence.

Concluding remarks

The Commission thanked all participants for attending the workshop and providing their views on the Zero Pollution Action Plan, and the Commission invited them to send possible additional position papers to the Commission by 12 February. The Commission further reminded stakeholders to participate in the different sessions of the upcoming EU Green Week (31 May – 4 June).

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by email via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications

You can download or order free and priced EU publications from: <https://op.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: <http://eur-lex.europa.eu>

Open data from the EU

The EU Open Data Portal (<http://data.europa.eu/euodp/en>) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.



Publications Office
of the European Union