UN environment programme

Chemicals and Waste
Issues of Concern

A summary analysis of stakeholders' views on priorities for further work and potential further international action

ANNEX

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LIST OF ACRONYMS

BPA	Bisphenol A
BRS	The Basel, Rotterdam and Stockholm Conventions
EDCs	Endocrine disrupting chemicals
EPPPs	Environmentally persistent pharmaceutical pollutants
EU REACH	European Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals
FAO	Food and Agriculture Organization of the United Nations
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
HHPs	Highly hazardous pesticides
HSLEEP	Hazardous Substances in the Life Cycle of Electrical and Electronic Products
ICCM	International Conference on Chemical Management
ILO	International Labour Organization
IOMC	The Inter-Organization Programme for the Sound Management of Chemicals
OECD	Organisation for Economic Co-operation and Development
PAHs	Polycyclic aromatic hydrocarbons
PFAS	Per- and polyfluoroalkyl substances
RoHS	Restriction of Hazardous Substances in Electrical and Electronic Equipment
SAICM	The Strategic Approach to International Chemicals Management
SDGs	Sustainable Development Goals from the UN 2030 Agenda for Sustainable Development
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
WHO	World Health Organization

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SUMMARY OF WRITTEN CONTRIBUTIONS ON THE 19 ISSUES OF CONCERN

ANNEX

1

The information presented in this annex summarizes the written inputs provided by stakeholders with reference to each issue of concern. The individual submissions are available online (United Nations Environment Programme [UNEP] 2023g). The issues are presented in alphabetical order within groups created to facilitate their consideration. The groups are metals and metalloids, pesticides, pharmaceutical substances and chemicals in products. These issues could be organized differently, and the groups are not intended to pre-empt future consideration of any of these issues.

UNEP received 71 responses by 25 August 2023 (the extended deadline for written submissions). The respondents are listed in Table 2 in the appendix of the main report. Some of these responses were provided on behalf of groups of stakeholders – for example, there were responses from a regional economic integration organization and its member states, and from global trade/industry associations or federations of civil society organizations representing a larger number of national entities/associations.

Please note that not all respondents provided input on each of the 19 issues. Furthermore, respondents did not always answer every question asked about a given issue. The total number of responses therefore varies across questions. The percentages quoted below are calculated based on the number of responses to the relevant question, not the total number who responded to any question about the issue.

Many respondents referenced "the new instrument" as a potential forum for future action on a given issue. In order to ensure accuracy in this report and avoid the risk of misinterpreting these contributions, the authors have reflected these responses as submitted.

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METALS AND METALLOIDS

This group comprises arsenic, cadmium, lead, lead in paint (discussed as a distinct issue, as it was identified as an issue of concern by the second session of the International Conference on Chemicals Management (ICCM2) in 2009), and organotins.

2.1 ARSENIC

Arsenic is a naturally occurring metalloid that is highly toxic to humans and wildlife. The primary route of exposure is ingestion of contaminated food and water, as well as inhalation in occupational settings (UNEP 2020).

Forty-four stakeholders answered at least one substantive question on arsenic. Eighty-nine per cent of respondents indicated that they believe further international action on this metalloid is necessary; 9per cent said they did not know, and 2 per cent said international action is not necessary. Several respondents who supported international action stated that arsenic poses a significant risk to public health, particularly through contaminated groundwater and food. One respondent highlighted the need to assess arsenic in boreholes used to supply drinking water, particularly in developing countries. Two respondents stated that arsenic constitutes "a major occupational risk," particularly in the context of agriculture and metalwork. Another cited the use of arsenic in "many aspects of evolving technologies such as semiconductors."

Many expressed the view that current measures are ineffective in addressing global exposure and more comprehensive action is needed. One government that selected "don't know" stated that some areas in its country are affected by arsenic contamination. The government had therefore taken measures "in a mission mode" to provide safe drinking water in those areas.

Of 35 respondents, 69 per cent said arsenic is either a "high" or "very high" priority for action, and 31 per cent said it is a "medium" priority.

International actions

Respondents expressed support for a range of types of international actions: 42 per cent supported voluntary initiatives including information sharing and awareness-raising; 28 per cent supported the establishment of a legally-binding instrument; 17 per cent supported using soft law; and 10 per cent suggested using other methods to address this substance. Two respondents indicated that no international actions are needed, with one stating that Parties to the Rotterdam Convention receive notifications informing them of the risks and hazards of arsenic.

An NGO that selected "other" said arsenic should be addressed by the Basel, Rotterdam and Stockholm Conventions. The Secretariat of an intergovernmental organization stated that arsenic wastes are covered by the Basel Convention, and that the Conference of the Parties has the authority to amend the text of the Convention and its annexes (for instance, as an outcome of the current exercise to review Annexes I and III), to collect information, and to adopt guidance documents and technical guidelines covering arsenic wastes.

An NGO called for coordination of existing measures, including International Labour Organization (ILO) Conventions. An international organization also supported ratification and implementation of ILO Conventions, "particularly the fundamental occupational safety and health conventions, the Occupational Safety and Health Convention, Number 155, and the Promotional Framework for Occupational Safety and Health Convention, Number 187, as well as the Chemicals Convention, Number 170, and the Occupational Cancer Convention, Number 139."

A government stated that a legally-binding instrument would be necessary "in order to introduce penalties provisions". Another stated that international laws should be forceful. An NGO called for mandatory disclosure of arsenic in products, as well as remediation of contaminated environments financed through the "polluter pays" principle.

Another government stated that "ideally, a legally binding treaty should be adopted with the aim to address (eliminate) those (groups of) substances that due to their intrinsic properties pose a risk

to human health and the environment (e.g., CLP/GHS classifications CMR1a&b etc.). In our view, an individual treaty for each substance would not be effective (long process, high costs). Since it is at the moment rather unlikely that broad agreement for such measures can be found, we should put more focus and always keep on addressing these issues via soft law, voluntary initiatives and information sharing. In that regard the beyond 2020 framework seems like a good place to establish this".

Citing the importance of respecting the right to healthy water for all, an NGO stated that improving information and raising awareness are the best ways to reduce arsenic exposure via water. A government highlighted the importance of active participation in information sharing, awareness campaigns, and other voluntary initiatives, saying "countries can foster mutual learning from shared experiences, best practices, mistakes, and solutions. Moreover, these strategies can equip countries with the necessary knowledge and skills to effectively monitor emissions and construct comprehensive inventories of releases which is key to understanding if more concrete international actions are ultimately pursued."

Approaches or measures to address arsenic at the international level

As indicated by Figure A1 below, respondents expressed support for a range of approaches to addressing arsenic, with some suggesting that a "multifaceted, comprehensive" strategy will be most effective.

In their written comments, several respondents expressed support for many of the measures listed here. A government stated that "these tools are essential to ensure the transition of countries whose certain industries are linked to the use of arsenic". An NGO expressed support for using all of these measures, stating that access to healthy water is a human right.

A government called for regulations regarding occupational exposure to metal and metalloids. An NGO stated that "global regulatory control measures will help countries, especially those with weak environmental and health-related regulations, better control and restrict this hazardous substance and its applications" and noted that the Minamata and Stockholm Conventions have proven the effectiveness of legally-binding measures. An international organization stated that "given the connections between the Basel Convention, WHO policies, and many aspects of national policies in the field of arsenic regulations, enforcement of legally binding measures should form the first layer of international response. Soft law (guidelines) could play a significant role in the form of guidance and best practice generation for containing and mitigating the use and impacts of arsenic".

One government cited the need for financial resources and technical capacity building to address arsenic. Another said that "support to national and regional organizations in the form of guidance, information-sharing and scientific and technical knowledge could be useful. This would perhaps be best accomplished through a partnership-based approach".

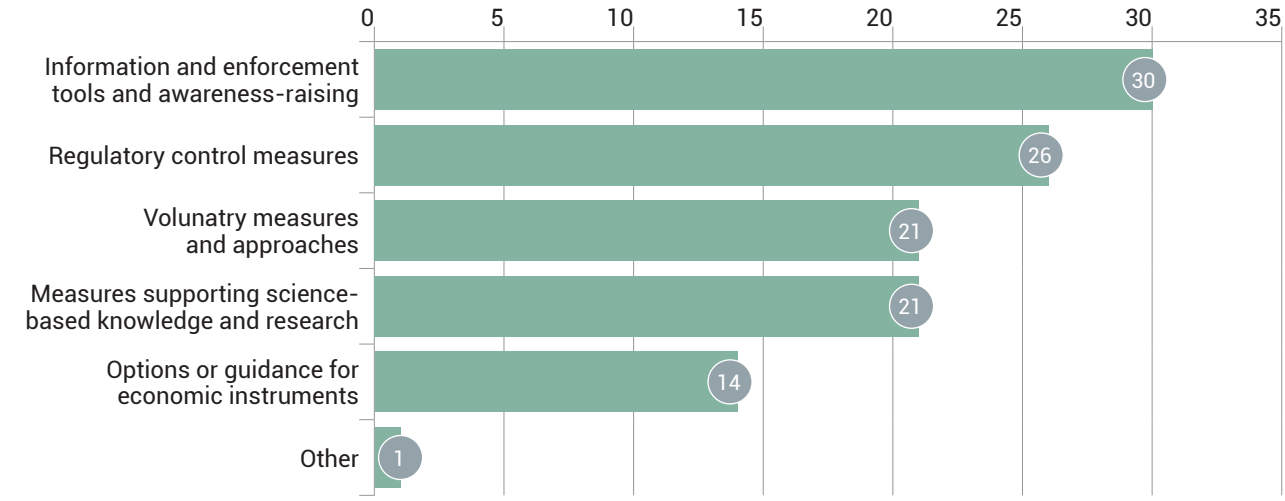
A government called for establishing early warning systems for (main) water basins and critical parameters and implementing programmes aimed at strengthening the analytical capacities of laboratories to measure heavy metals and arsenic.

Factors that prevent action or progress on addressing arsenic

As indicated by Figure A2, respondents stated that key challenges to addressing arsenic pollution include difficulty with resource mobilization and limited knowledge sharing among different stakeholders and across sectors, followed closely by lack of technical capacity. One respondent highlighted the need for mechanisms to facilitate improved coordination. Another noted the lack of transparency in pollution control, "especially from extractive industry and industrial processes." Several highlighted challenges related to resource mobilization and lack of technical capacity.

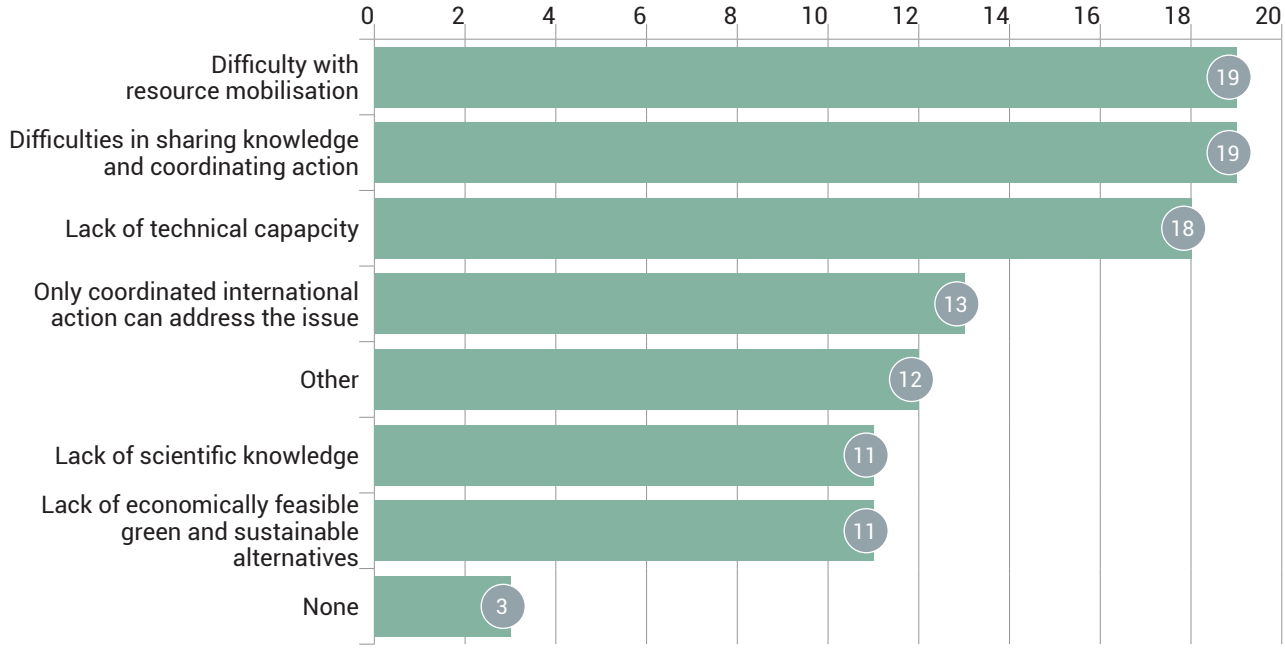
Respondents who selected "other" cited a range of challenges, including "strong influence of the fossil fuel industry on Federal and State elected officials," lack of effective regulatory oversight, and "poor governance and corruption."

Figure A1. Stakeholders' views on the approaches or measures to address arsenic at the international level



Note: Stakeholders could select more than one option. Number of respondents = 39.

Figure A2. Stakeholders' views on the factors preventing action or progress on addressing arsenic in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 41.

One government cited lack of technical capacity as a key challenge, saying this can make it difficult to share knowledge and coordinate action, and the lack of resources can make it difficult to implement effective solutions. Another government stated that "There is a lack of everything (governance, policies, technical and scientific knowledge, etc...) that can favour the prevention and progress on addressing this issue in my country".

An NGO stated that lack of choices due to poverty are a key challenge and underscored the need for a "strict legal and regulatory framework for action".

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, one international organization noted that WHO has established a provisional guideline value

for arsenic in drinking water (10 µg/L). An academic institution cited many initiatives, including, *inter alia*, the Bangladesh Arsenic Mitigation Water Supply Project, the Arsenic Knowledge and Action Network, the Arsenic Treatment Technology Clearinghouse, the KfW Development Bank Arsenic Mitigation Program, and the Global Alliance for Clean Cookstoves. Another noted the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, which monitors progress towards global targets on drinking water.

One government cited two national projects, one that aims to provide arsenic-free water, and a study of natural iron oxide minerals for the development of remediation technologies for waters contaminated with arsenic or persistent organic pollutants (Banco de Proyectos 2021). Another highlighted domestic work undertaken in collaboration with industry to draft a revised "Recommendations for the Design and Operation of Wood Preservation Facilities (2013) - Technical Recommendations Document" (Environment Canada 2013). This respondent further noted that the treated wood industry, via Wood Preservation Canada, has implemented a programme for the tagging of treated wood and continues to work with its member companies and standards organizations to ensure consistent practices within the industry.

Important sectors and value chains

As indicated by Figure A3 below, respondents identified a wide range of sectors and value chains that should be involved in developing solutions to arsenic, with most respondents highlighting the need for engagement from the health sector.

In written comments, one government added that the mining, metallurgical, glass-making and semiconductor industries should be involved in developing solutions. An international organization cited coal burning, mining, and extracting groundwater from rock strata with arsenic. Another international organization cited chemicals, mining and metals. An NGO cited the extractive industry, oil and gas, and mining sectors.

International forums and instruments best placed to lead international action on arsenic

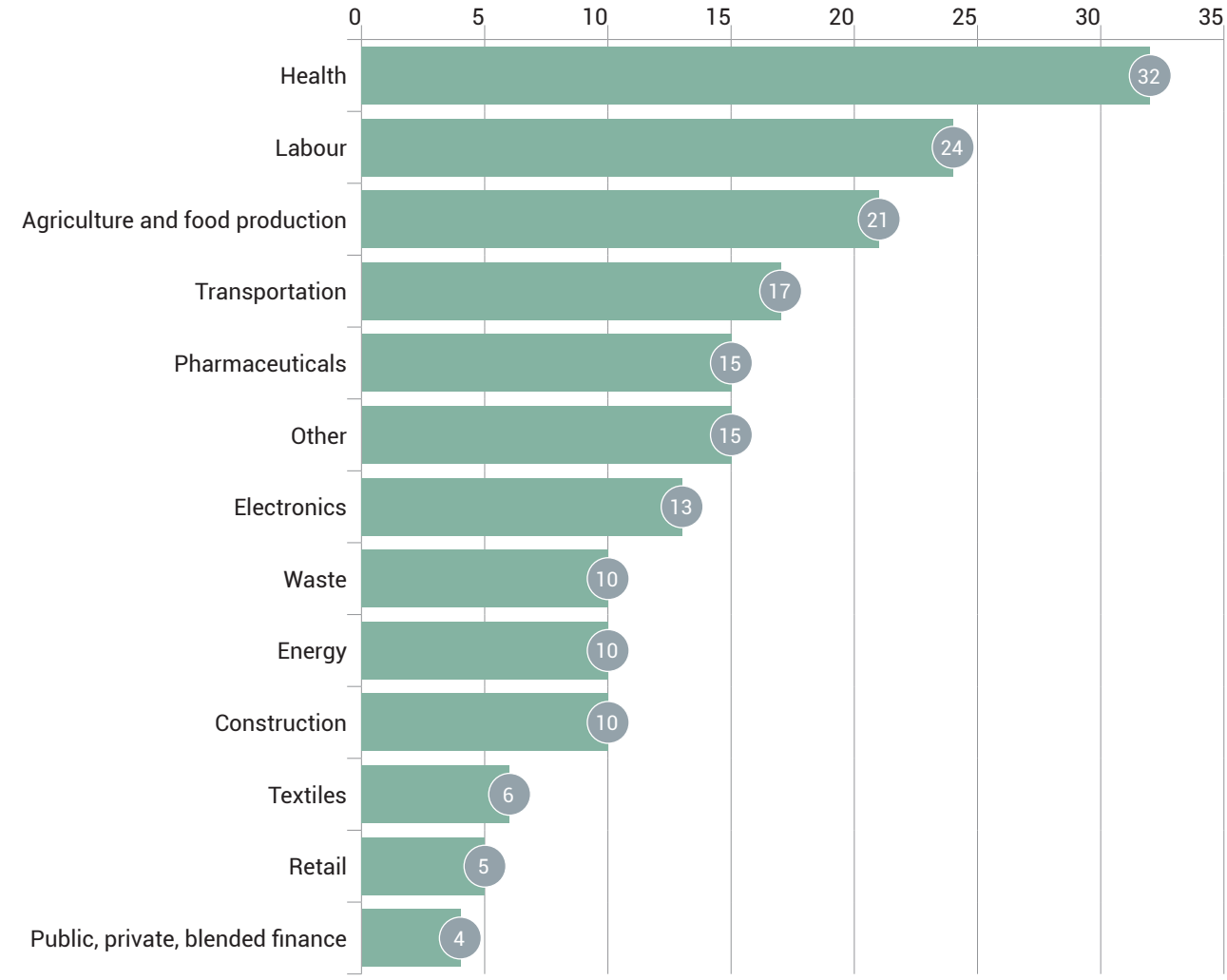
Respondents identified several forums and instruments that could lead international action on arsenic, with particularly strong support for SAICM and the 'beyond 2020' instrument.

The secretariat of an intergovernmental organization noted that there is ongoing work under the Basel Convention concerning wastes that contain arsenic or arsenic compounds. These wastes, as well as metals wastes and waste consisting of alloys of arsenic, are listed as hazardous wastes and are thus subject to the Convention's provisions. The Basel Convention Expert Working Group on the review of annexes under the Convention is mandated to review the relevant annexes to, *inter alia*, improve/update the description of categories of wastes in Annex I and the list of hazardous characteristics in Annex III and improve environmental controls by including any additional categories of wastes and hazardous characteristics that occur in practice. The respondent also noted that Parties to the Basel Convention may decide to update existing or develop new technical guidelines relevant to the environmentally sound management of wastes that have arsenic or contain alloys of arsenic, and that technical guidelines on the environmentally sound recycling/reclamation of metals and metal compounds "appear relevant if further international action is taken".

Some respondents noted potential for collaboration across instruments. For example, an NGO suggested that the ICCM collaborate with WHO to offer amendments to the Basel Convention. Another stated that "it has become clear that having international coordinated action among governing bodies and secretariats is key to successfully dealing with chemical pollution" and suggested that UNEP serve as a clearing house.

A government said that next steps internationally to help address arsenic-related issues could be housed under the SAICM 'beyond 2020' instrument, as "initiatives involving information sharing, awareness-building, and the development of voluntary measures are well suited" to this instrument's mandate. This respondent further

Figure A3. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for arsenic



Note: Stakeholders could select more than one option. Number of respondents = 37

recommended that the instrument consider the model established and the work undertaken by the UNEP Global Mercury Partnership "since there are similarities between mercury, arsenic, cadmium and lead-related issues and potential international actions".

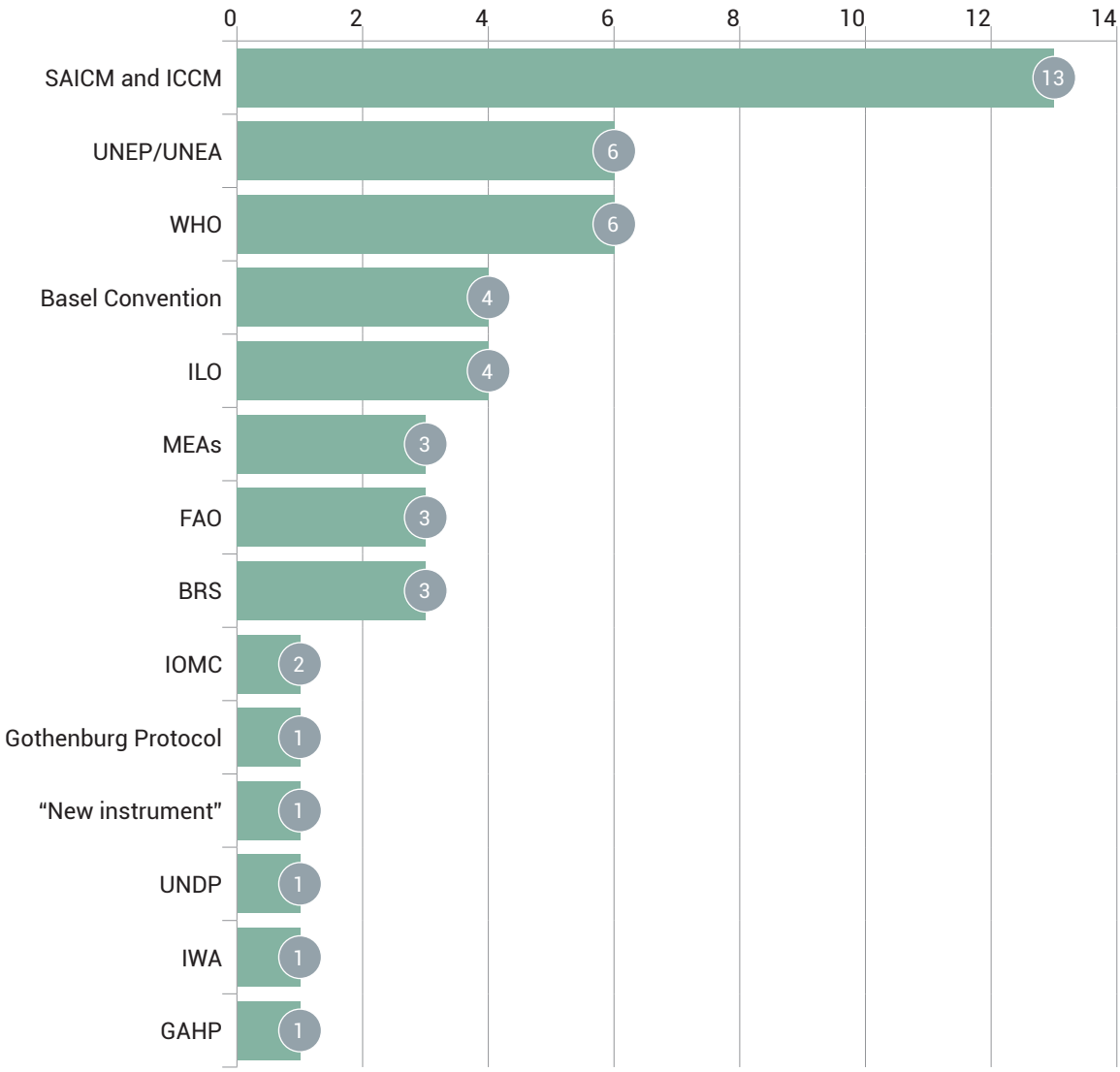
International agendas with linkages to arsenic

As indicated by Figure A5, respondents cited several agendas with linkages to arsenic, with health topping the list, followed closely by agriculture and food.

In their written comments, many respondents elaborated on the connections among arsenic and health, agriculture, and biodiversity, with some noting that high levels of arsenic and groundwater pose a risk to agricultural sustainability and food safety.

One government noted that "water and climate change are inextricably linked," and "decreases in the water level increases the arsenic-rich bed oxidation and mobilization". An NGO stated that

Figure A4. Forums and instruments that could lead international action on arsenic



Note: Stakeholders could select more than one option. Number of respondents = 25.

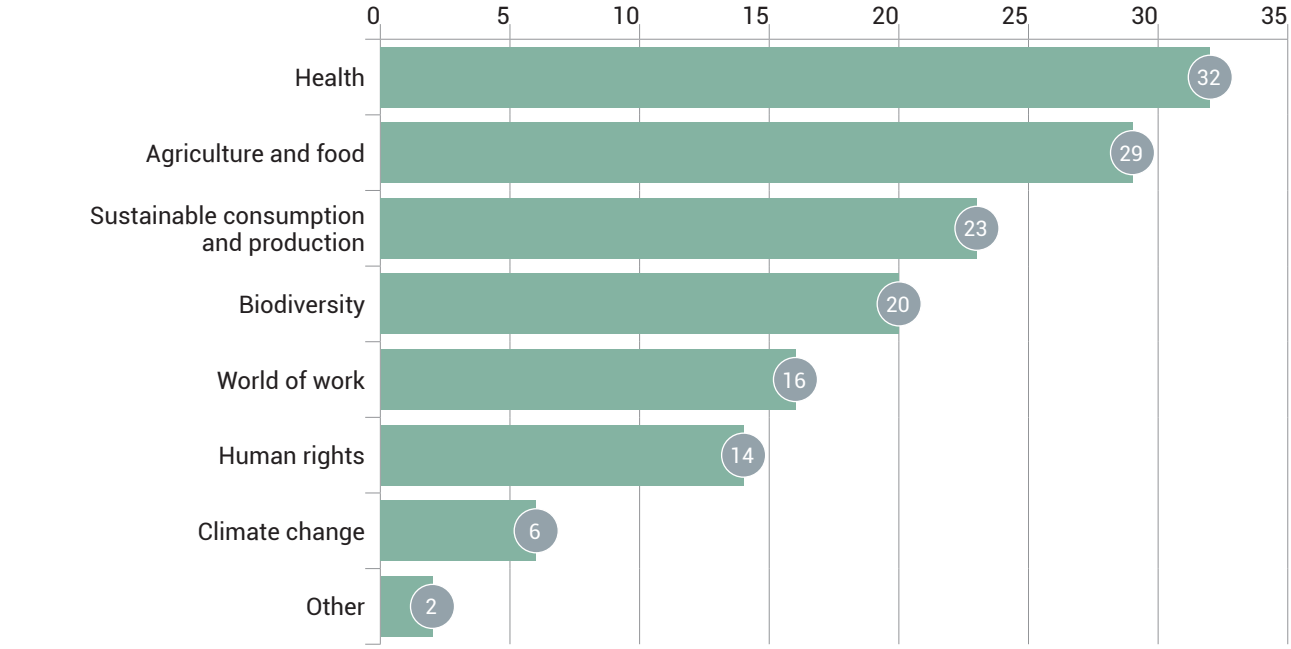
arsenic is a cross-cutting issue that affects access to healthy water, food production and health. Moreover, the high cost of inaction affects the economies of low- and middle-income countries. Another government said management of arsenic should be viewed as key to solving several elements of the triple planetary crisis, noting that arsenic contamination of water sources often occurs in regions experiencing water scarcity, which is exacerbated by climate change.

A respondent from academia highlighted links to the Sustainable Development Goals (SDGs) (United Nations 2015), including SDG 3 (Good Health and Well-being) and SDG 6 (Clean Water and Sanitation), as well as to the Minamata Convention on Mercury, the World Summit on Sustainable Development, and the Paris Agreement on Climate Change. A government noted the links to SDGs 3 and 6, as well as SDG 15 (Life on Land).

Priority work at the national and regional levels

At the national level, several respondents highlighted the need for public awareness-raising of the sources and dangers of exposure to arsenic, as

Figure A5. Stakeholders' views on international agendas with important linkages to arsenic



Note: Stakeholders could select more than one option. Number of respondents = 35

well as the need for the development of technical guidelines to support action and enforcement of regulations. The secretariat of an intergovernmental organization cited the potential for training and capacity-building activities for the prevention and environmentally sound management of wastes that have arsenic or arsenic compounds, noting this could contribute to the control of transboundary movements of hazardous wastes.

A government cited the need for stronger multisectoral cooperation that includes data sharing and capacity-building. Ant NGO called for national regulatory agencies to revoke operating permits for petrochemical facilities which emit arsenic.

A respondent from academia suggested: surveys to identify areas and populations affected by arsenic contamination; developing and implementing national policies and regulations; promoting public awareness and education; developing and implementing mitigation measures; and conducting research and development to identify effective strategies for reducing arsenic contamination in groundwater and drinking water.

Suggestions for regional action were similar; several respondents called for regional guidelines and codes of practice, awareness-raising, monitoring, and tools for enforcement. An NGO called for greater involvement of WHO, UNEP and FAO at the regional level. A government encouraged input from other regions that may identify arsenic management issues and challenges, as well as challenges related to overall regulatory capacity.

A respondent from academia suggested: developing regional guidelines and standards; sharing best practices and lessons learned; developing regional research and development programmes; developing regional funding mechanisms; and building regional capacity.

2.2 CADMIUM

Cadmium is a naturally occurring heavy metal found in the Earth's crust. Cadmium and cadmium compounds are used in a wide range of applications, including nickel-cadmium batteries, alloys, coatings and plating, pigments in plastics, and PVC stabilizers. Anthropogenic sources, including fossil fuel combustion, mining and smelting of metals, as well as the disposal and recycling of cadmium and cadmium-containing products, contribute substantially to current emissions. Identified as one of 10 chemicals of major public concern by WHO, cadmium is highly toxic to humans and animals at very low levels (UNEP 2020).

Forty-four stakeholders answered at least one substantive question on cadmium. Ninety-three per cent supported further international action on this heavy metal, one respondent said international action is not necessary, and two selected "don't know". One of the latter respondents is the Secretariat of an intergovernmental organization without a mandate from its governing body to take a view on this issue. However, this respondent noted that there is ongoing work on cadmium under the Basel Convention, and that Parties to the Convention can decide to update existing - or develop new - technical guidelines relevant to the environmentally sound management of the cadmium wastes.

Respondents who supported international action indicated that cadmium poses a significant risk to public health and biodiversity and is toxic to humans and wildlife at very low levels of exposure. A government stated that prolonged exposure to lower levels of cadmium in the air, food or water can lead to kidney disease, lung damage, and bone fragility. Another noted the risks of occupational exposure, including in mining. One international organization highlighted the carcinogenic nature of cadmium as a justification for action, also noting it had been identified by the WHO as one of the 10 chemicals of major public health concern. An NGO organization noted that there is "high use of consumer products containing cadmium in developing countries".

Of 39 respondents, 77 per cent said cadmium is a "high" or "very high" priority for action, and 23 per cent said it is a "medium" priority.

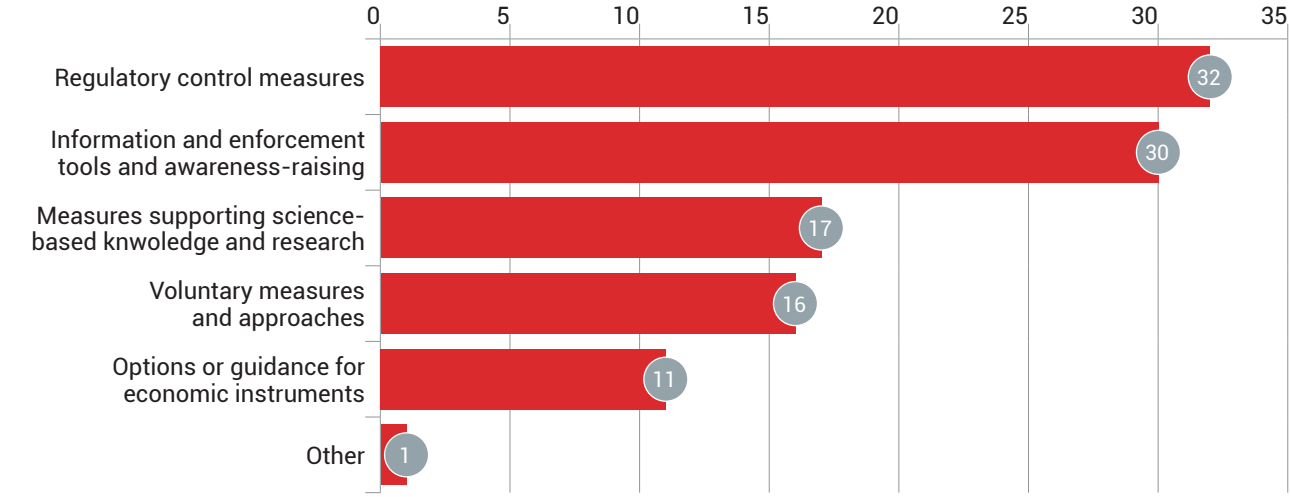
International actions

Respondents called for a range of international actions to address cadmium: 42 per cent supported the establishment of a legally-binding instrument; 33 per cent supported voluntary initiatives including information sharing and awareness-raising; 16 per cent supported using soft law; and 4 per cent (3 respondents) suggested the possibility of other actions. An intergovernmental organization which selected "other" noted ongoing work under the Basel Convention. Five per cent (three respondents) said no international actions are needed.

One government noted that "political commitments are much more effective than voluntary initiatives," and an international organization suggested adding an annex on cadmium to the Minamata Convention on Mercury. Another government called for consideration of a global legally-binding instrument to regulate both cadmium and lead, saying a legal instrument that provides the framework for establishing a global inventory of direct emissions of these trace metals to the different environmental compartments is needed to prioritise management options, as well as to enable regulation of the presence of these metals in different products (including fertilisers, paints, plastics, etc.), articles and electrical and electronic equipment.

One government said that no further action is needed because cadmium is subject to the Rotterdam Convention's prior informed consent procedure. An NGO organization said that while cadmium-containing products are exported globally, no international instrument currently controls or prohibits its use.

Figure A6. Stakeholders' views on the approaches or measures to address cadmium at the international level



Note: Stakeholders could select more than one option. Number of respondents = 39.

Another government stated that awareness-raising, voluntary initiatives, and soft law could spur further action on key global sources of cadmium pollution.

As indicated by Figure A6, respondents expressed support for a range of approaches to addressing cadmium, with strong support for regulatory control measures as well as information-based and enforcement tools.

An NGO noted that effective regulatory control will require capacity-building and market-based instruments. A government noted that various regulatory control measures could be taken, following the example of the Aarhus Protocol, such as limiting values for stationary sources, adoption of best available techniques to reduce emissions, etc., researching and promoting alternatives to cadmium in various products and, where possible, phasing out intention-to-use.

One government noted that it lacks the financial resources or technical capacity to address cadmium pollution. Another government noted that support for national and regional organizations in the form of guidance and information-sharing could be useful and could "perhaps be best accomplished through a partnership-based approach".

Factors that prevent action or progress in addressing cadmium

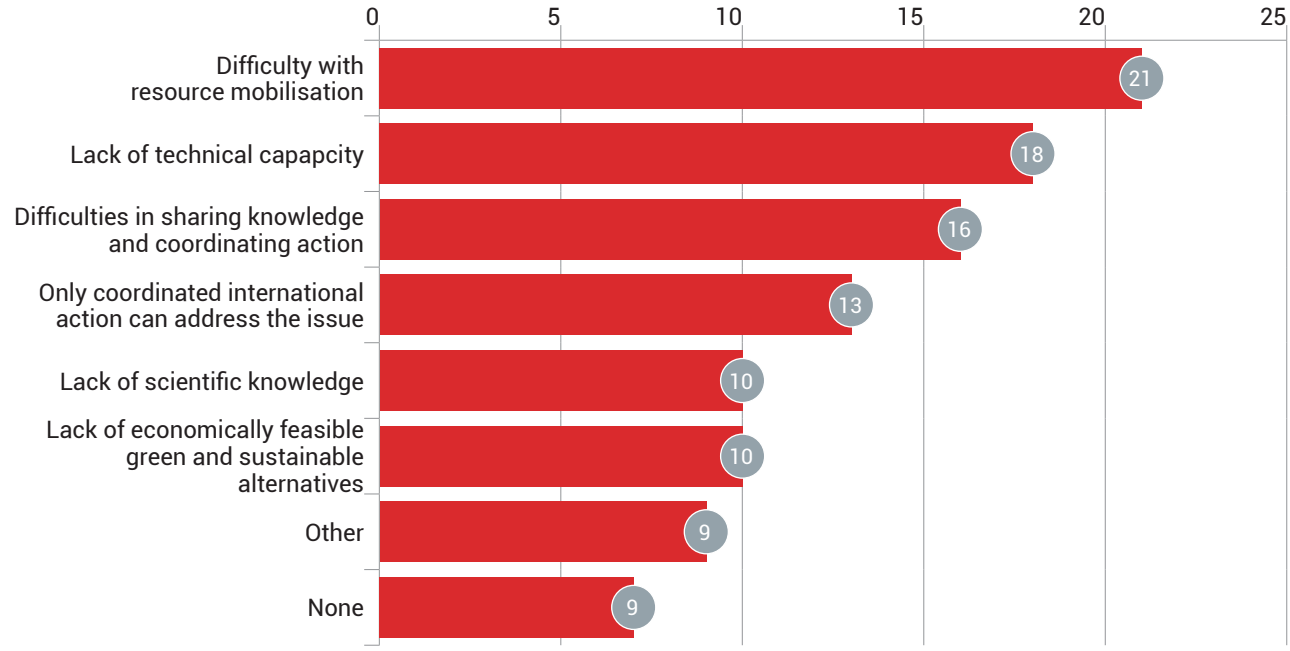
As indicated by Figure A7, respondents stated that key challenges to addressing cadmium pollution include difficulties with resource mobilization, lack of technical capacity, and difficulties in sharing knowledge and coordinating action among stakeholders and across sectors. A respondent from academia noted that lack of political will and short-term thinking can prevent progress on addressing environmental issues.

One government stated that technical assistance and the mobilization of resources are necessary to develop activities such as inventories of sources and sites with the greatest impact, and possible treatment measures and remediation, among others.

Existing initiatives that could be replicated or scaled up

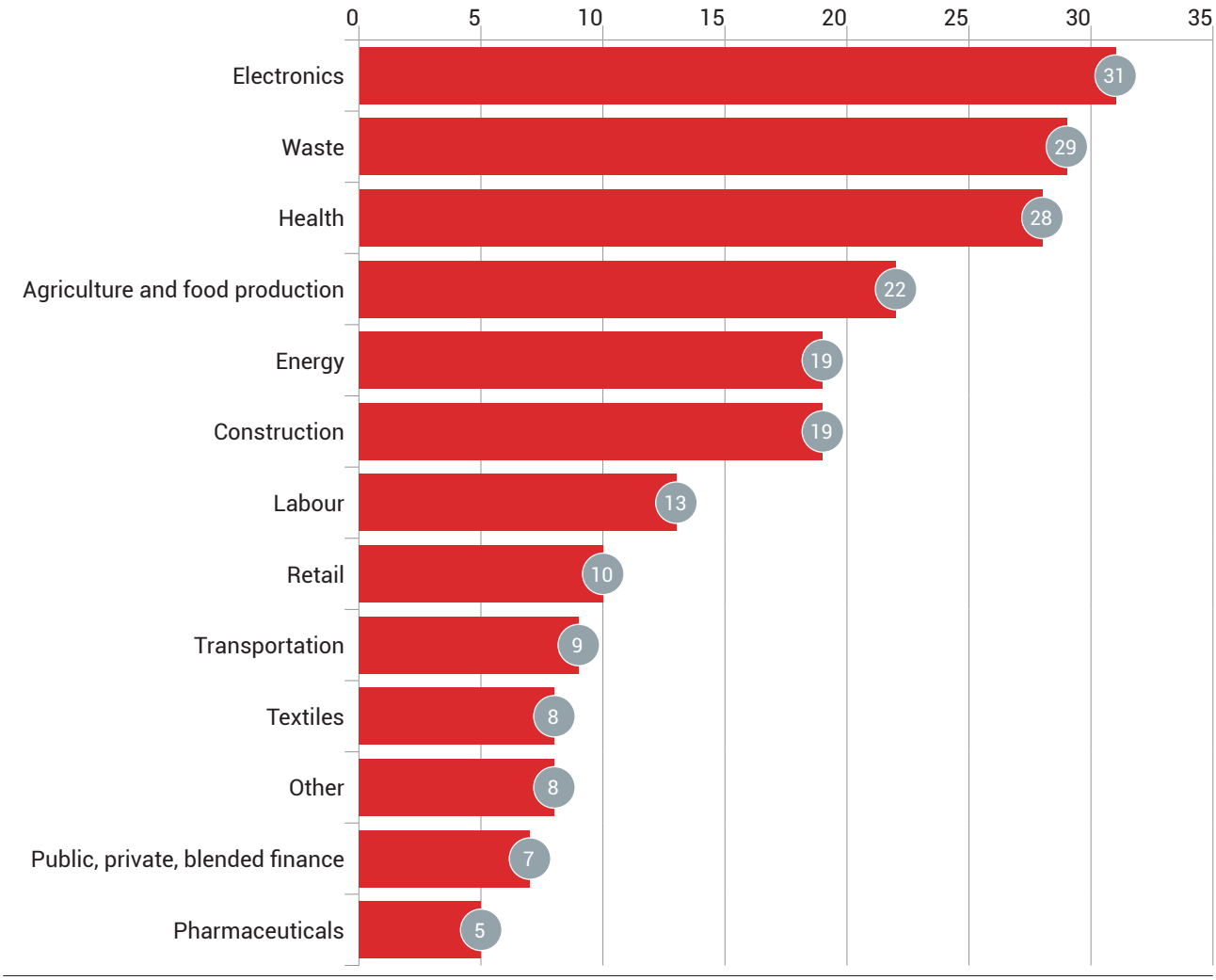
On existing initiatives that could be replicated or scaled up, respondents cited: the EU Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive; the Organization for

Figure A7. Stakeholders' views on the factors preventing action or progress on addressing cadmium in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 39.

Figure A8. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for cadmium



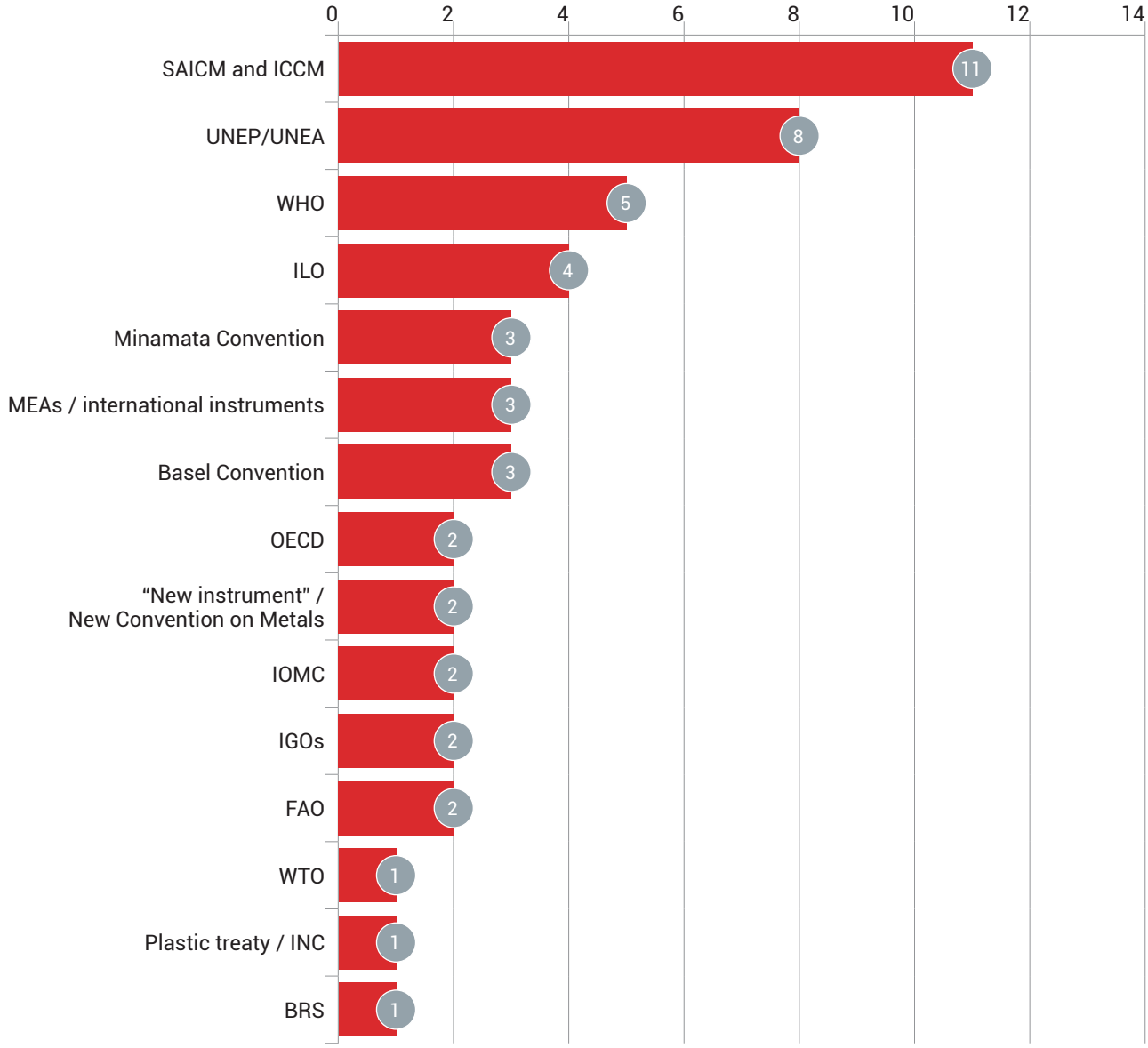
Note: Stakeholders could select more than one option. Number of respondents = 37.

Economic Cooperation and Development (OECD) Stewardship of Chemicals programme; and various national regulations establishing limit values for cadmium in products (e.g. paints and varnishes, phosphate fertilizers, electrical and electronic equipment, and polymers) and processes (e.g. fossil fuel combustion, mining, and smelting of metals). Several respondents cited the Minamata Convention on Mercury, and an NGO said this instrument "could be replicated to address cadmium".

Important sectors and value chains

As indicated by Figure A8 above, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions to cadmium pollution, with electronics, waste, and health heading the list. In written comments, respondents also cited the need for involvement of the mining, metals, chemicals, tobacco, and engineering sectors.

Figure A9. Forums and instruments that could lead international action on cadmium



Note: Stakeholders could select more than one option. Number of respondents = 31.

International forums and instruments best placed to lead intern ational action on cadmium

Respondents identified several international forums and instruments as best placed to lead, with particularly strong support for SAICM, ICCM and the 'beyond 2020' instrument, as well as UNEP/UN Environment Assembly (UNEA).

An NGO stated that "it has become clear" that having multinational coordinated action among governing bodies is key to successfully dealing with chemical pollution, and said coordination under UNEA is imperative and UNEP could serve as a clearing house "without jeopardizing the mandate of other secretariats and governing bodies."

An international organization stated that the Basel Convention, under which cadmium is currently listed, is a strong starting point for international action, but said there is a potential for a nexus with the treaty on plastic pollution currently being negotiated.

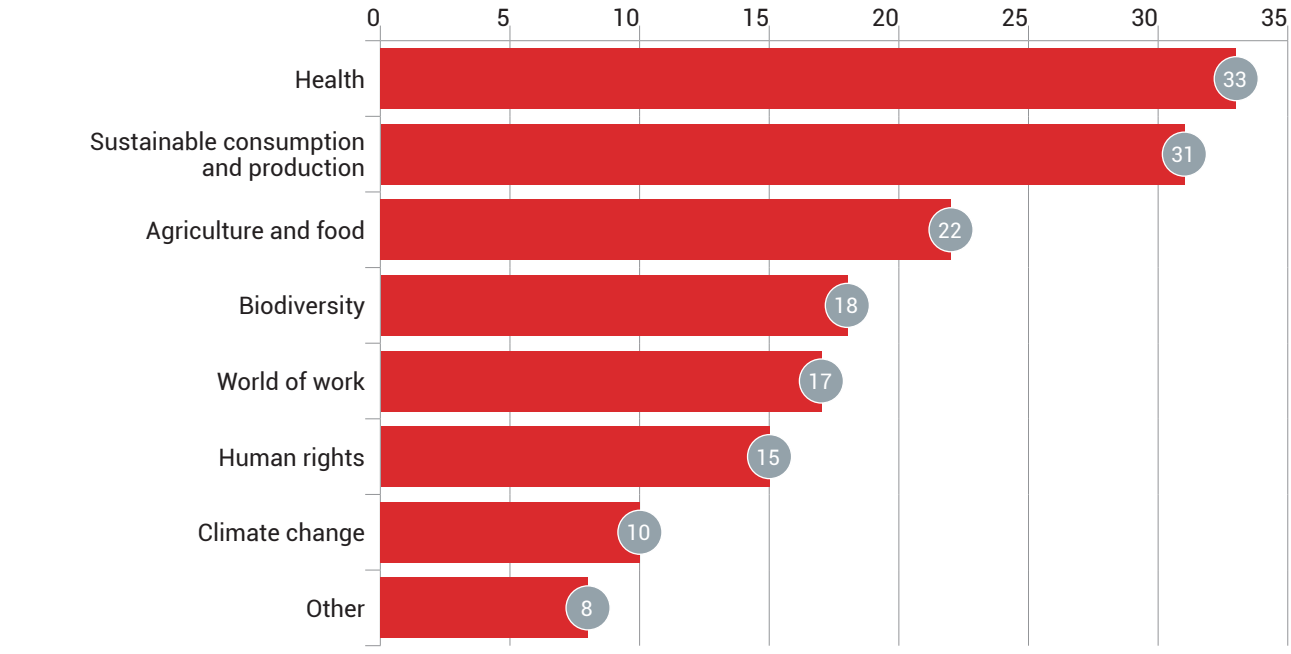
A government said cadmium could be addressed by the 'beyond 2020' instrument which is well suited to initiatives such as information sharing, awareness-building, and the development of voluntary measures. This respondent further recommended consideration of the model established and work undertaken by the UNEP Global Mercury Partnership, as there are similarities among mercury, arsenic, cadmium, and lead-related issues.

International agendas with linkages to cadmium

As indicated by Figure A10, respondents identified several international agendas with linkages to cadmium, with health and sustainable consumption and production at the top of the list.

A government noted links to mining and construction, and a respondent from the private sector cited the "safe and affordable housing" agenda, noting the relevance of construction materials including PVC, pipes and fittings for safe drinking water and sanitation, wires and cables for electrical supply, roofing membranes, and flooring and wall coverings. Others cited SAICM, the Basel

Figure A10. Stakeholders' views on the international agendas which have important linkages with cadmium



Note: Stakeholders could select more than one option. Number of respondents = 39.

Convention, and a future international framework on chemicals and waste.

An NGO noted that resolving cadmium pollution is a cross-cutting issue that is key to solving several elements of the triple planetary crisis. This respondent elaborated that toxic metal pollution disrupts ecosystems, leading to biodiversity loss, impaired ecosystem functions, and reduced resilience to climate change, and is an obstacle to circularity.

One respondent highlighted the link to SDG 12 (Responsible Consumption and Production) and SDG 3 (Good Health and Well-Being), noting that reducing cadmium pollution will contribute to these goals. Another respondent emphasized that waste containing heavy metals is a cross-cutting issue.

Priority work at the national and regional levels

At the national level, a respondent from academia suggested conducting risk assessments to determine the main sources of human and environmental exposure to cadmium within countries, saying these assessments could be used to identify priority areas for action. This respondent also suggested setting national emission limits or standards for industries that release cadmium, such as manufacturing plants, power plants, waste incinerators, and mining operations.

Others suggested awareness-raising campaigns targeting the general public, labourers, consumers, and the health sector, as well as engaging the public and private sectors to promote voluntary action. One respondent from the private sector called for sharing information from the EU and US, as regulation in the EU has led to the phase-out of cadmium in pigments, paints, and stabilizers for PVC. A government called for enhanced multisectoral cooperation that would build the capacities of all stakeholders.

A government cited the need to maintain the monitoring of cadmium in different environmental matrices, products, fertilizers, and food. A respondent from the private sector called for sustainable management of e-waste.

Another government called for reducing releases from key industrial sectors like base metals smelting and refining. An NGO called for implementing stricter controls of the sources of cadmium pollution, intensifying penalties for polluting enterprises, and providing compensation (including vocational education and other forms of support) for affected communities. Another NGO stated that involvement of "traditional leadership" is critical.

The secretariat of an intergovernmental organization highlighted the potential for training and capacity-building activities for prevention and environmentally sound management of waste that has cadmium or cadmium compounds and wastes containing alloys of cadmium. The secretariat stated that, subject to the availability of resources and upon request, it will provide technical assistance to parties on these issues.

At the regional level, one respondent called for collaboration among WHO, UNEP, ILO, and FAO. A respondent from the private sector highlighted the EU's monitoring of cadmium levels in PVC, allowing recycling and resource recovery. An international organization suggested carrying out a joint risk assessment across regions to identify transboundary sources of cadmium pollution and human exposure risks, noting this could reveal opportunities for coordinated action. One government suggested establishing regional knowledge-sharing networks; a second called for regional regulations addressing the labelling and registration of products that may contain cadmium. A third called for preventing production and trade of products containing cadmium.

2.3 LEAD

Lead, a naturally occurring heavy metal, is used in a variety of applications, such as batteries, paints, ceramics, PVC stabilizers, and ammunition. Lead is ubiquitous in the environment and is toxic to humans and wildlife. No safe level of exposure has been identified (UNEP 2020).

Forty-six stakeholders answered at least one substantive question on lead. Eighty-nine per cent of respondents supported further international action; 4 per cent said that international action is unnecessary, and 7 per cent said they did not know. One respondent who selected "don't know" said "Yes and No is given as the answer because this is a diverse list of complex issues and actions have already been taken at local, national, regional and international level. As discussed during the 2-day UNEP consultation meeting on July 11 and 12, 2023, prioritization criteria should be developed and applied to identify the top issues". A government that responded "don't know" said it is regulating lead domestically on a case-by-case basis. The third respondent was the secretariat of an intergovernmental organization and did not have a mandate to take a view.

Respondents who supported further international action noted that lead is still widely used in products around the world, and one stated that successes in phasing out lead in gasoline have "shown us the potential of international cooperation in solving lead-related problems." An international organization noted that exposure can cause chronic and debilitating health impacts, and that children are particularly vulnerable to its effects. A government described lead as "a secret slow killer" about which the public has limited knowledge. An NGO said lead has an "extremely high impact" and "as large an impact as air pollution". Another stated that the mining and intentional use of lead has led to widespread pollution of food, drinking water, and air. Many respondents stated that lead is highly toxic to humans and wildlife; two noted that lead has been identified by the WHO as one of the 10 chemicals of major public health concern.

A government stated that significant blood lead levels "cause a health burden of 57 billion euros a year in the EU and 400,000 deaths a year in the United States. However, the problems associated with lead exposure are even greater in certain developing countries, where it is estimated that 99 per cent of children have very high levels of lead in their blood. This respondent further stated that "children and pregnant women are particularly vulnerable to exposure to lead because of its effects on the central nervous system, including toxicity on neurological development. The main sources of exposure are informal processing and recycling sites for used electronic waste and lead-acid batteries from combustion engine cars, as well as exposure to lead in ceramics and paints".

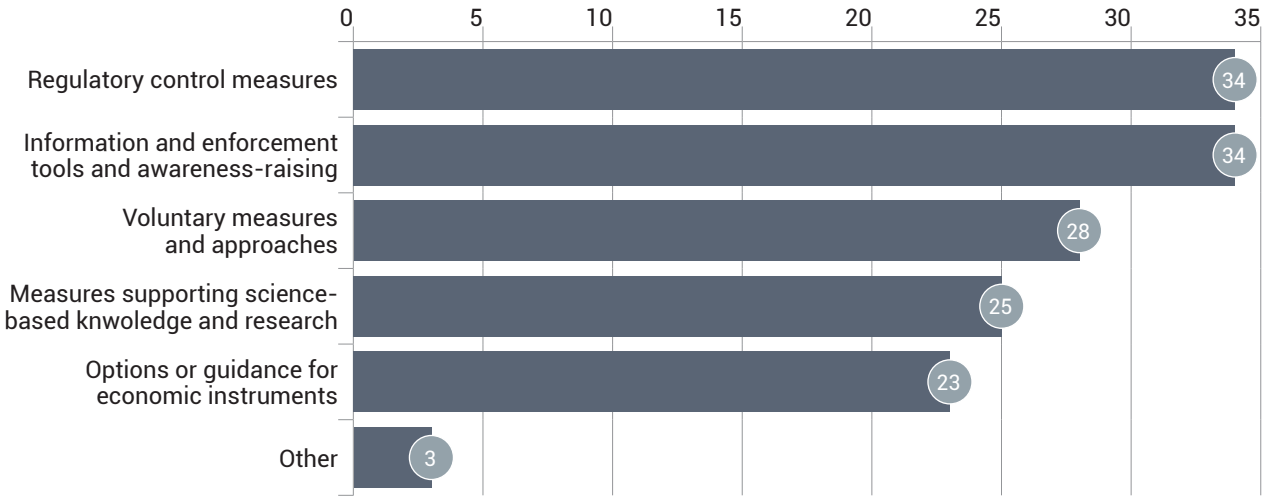
Of 41 respondents, 83 per cent said lead is a "high" or "very high" priority, 12 per cent said lead is a "medium" priority, and 5 per cent described lead as a "low" or "very low" priority.

International actions

Respondents called for a range of international actions to address lead: 41 per cent supported the establishment of a legally-binding instrument; 35 per cent supported voluntary initiatives including information sharing and awareness-raising; 20 per cent supported using soft law; and 2 per cent suggested using other methods to address this substance. A further 2 per cent said no international action is needed.

Of those who selected "other," a government cited the need for technical and financial support, as well as improvement of technologies for production of lead-free paints and reduction of emissions. An international organization noted that the Conference of the Parties to the Basel Convention has the authority to amend the text of the Convention and its annexes, to collect information, and to adopt guidance documents and technical guidelines covering wastes.

Figure A11. Stakeholders' views on the approaches or measures to address lead at the international level



Note: Stakeholders could select more than one option. Number of respondents = 42.

A government stated that all non-essential uses of lead must be prohibited. An international organization suggested adding lead to the Minamata Convention. Several respondents noted the potential for a single international instrument to govern lead, cadmium, arsenic, and other metals and metalloids.

A respondent from the private sector said that "action at international level should only be where it is really needed and can have added value, and where coherence with existing national/regional initiatives can be ensured". A government responded said "given that existing international actions address the major sources of international concern (e.g. hazardous waste), regional and national actions would be best suited to address lead pollution rather than international actions. These may be facilitated through improving existing international initiatives such as SAICM and regional agreements like the UNECE Convention on Long-range Transboundary Air Pollution".

Another government cited the importance of awareness-raising, saying that lead is found in many products that are traded internationally, but "many developing countries are not aware of [its] toxicity".

A respondent from academia highlighted the value of harmonized product standards that would set internationally agreed limits on the permissible levels of lead in products, as well as the need for financial and technical support for developing countries and vulnerable communities.

As indicated by Figure A11 above, respondents expressed support for a range of approaches to addressing lead internationally, with strong support for regulatory control measures and information-based and enforcement tools.

In written comments, several respondents indicated that only coordinated international action could effectively address lead, with some noting the importance of enforcement. One government called for ratification of existing approaches, including ILO chemicals conventions, and any forthcoming instruments. Another said that regulatory control measures would be ideal, but in the absence of broad agreement for such measures, a range of legally non-binding measures should be undertaken to assist countries in their national efforts. A third government stated that sharing of guidelines and best practices could be helpful, including those intended to support enforcement of provisions to fulfil obligations under existing international agreements and national regulatory frameworks.

One government called for support for countries' environmental monitoring work, and another cited the need for capacity-building, noting that "most African countries do not have an accredited laboratory to conduct assessments".

An NGO called for mandatory disclosure of lead in products, as well as remediation of contaminated environments financed through the 'polluter pays' principle.

Factors that prevent action or progress on lead

As indicated by Figure A12, respondents stated that mobilizing resources is a key challenge to addressing lead pollution. One government noted difficulties in controlling products on the market that contain lead, and another said, "in some applications the substitution of lead is currently very difficult due to the lack of feasible, affordable, and/or accessible alternatives and raw materials". Several other respondents highlighted the need for resources to support monitoring efforts.

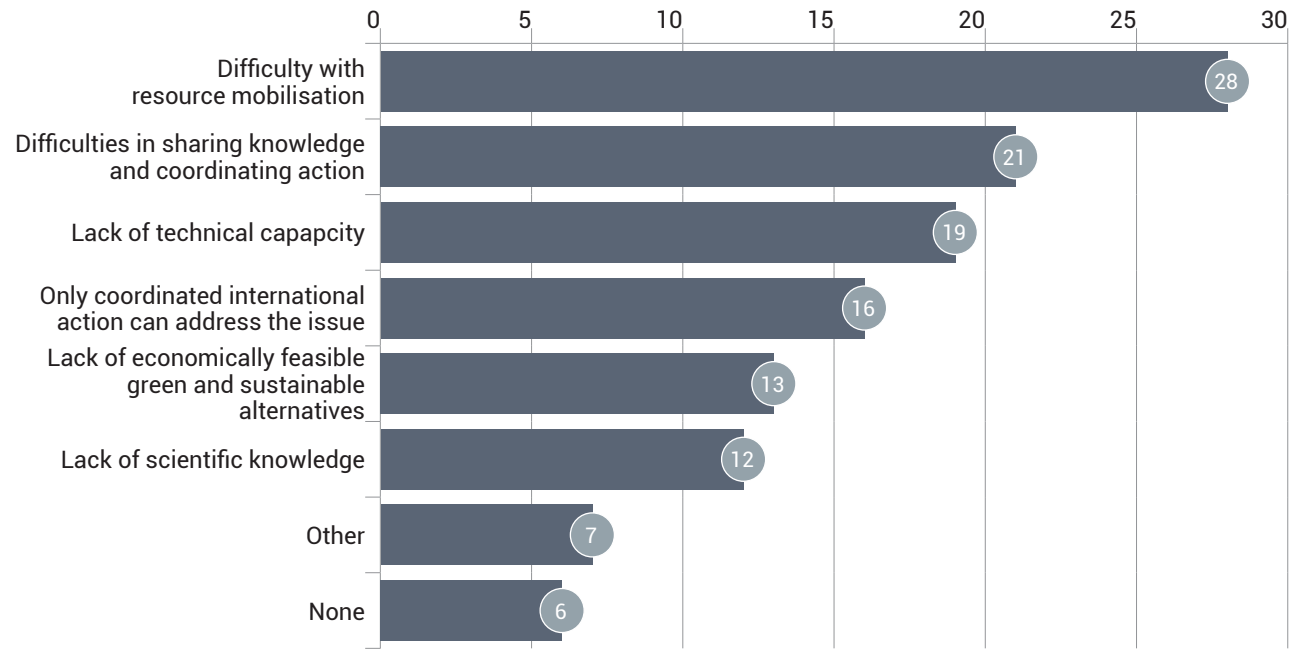
One NGO said "business considerations" are an obstacle to action on lead. Another stated that "corruption and bad governance" prevent the implementation of good policies.

A government said that, in addition to the factors listed above, challenges include: lack of awareness of the dangers of lead; lack of capacity to address lead exposure; and lack of cooperation among domestic organizations and individuals working on this issue, due to the absence of both trust and a common agenda. Another government cited difficulties in mobilizing resources to the most remote locations in their country "which in turn represent a significant portion of the population living in poverty or extreme poverty".

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, a respondent from academia cited: the EU's RoHS directive; the US Environmental Protection Agency's "lead renovation, repair and painting (RRP) rule", which sets requirements for reduction of lead exposures; Canada's lead-free fuel standards; the Global Alliance to Eliminate Lead Paint; WHO's blood lead level intervention level of 5 µg/dL in children; the OECD's chemical safety programmes; and foundation programmes

Figure A12. Stakeholders' views on the factors preventing action or progress on addressing lead in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 41.

(e.g. those of the CDC Foundation and Pure Earth) that demonstrate feasible models for supporting remediation and transition efforts. An NGO cited the GAPROFFA (Action Group for Promotion and Protection of Fauna and Flora) initiative on the lead in the central region in Benin, funded by UNDP in 2014.

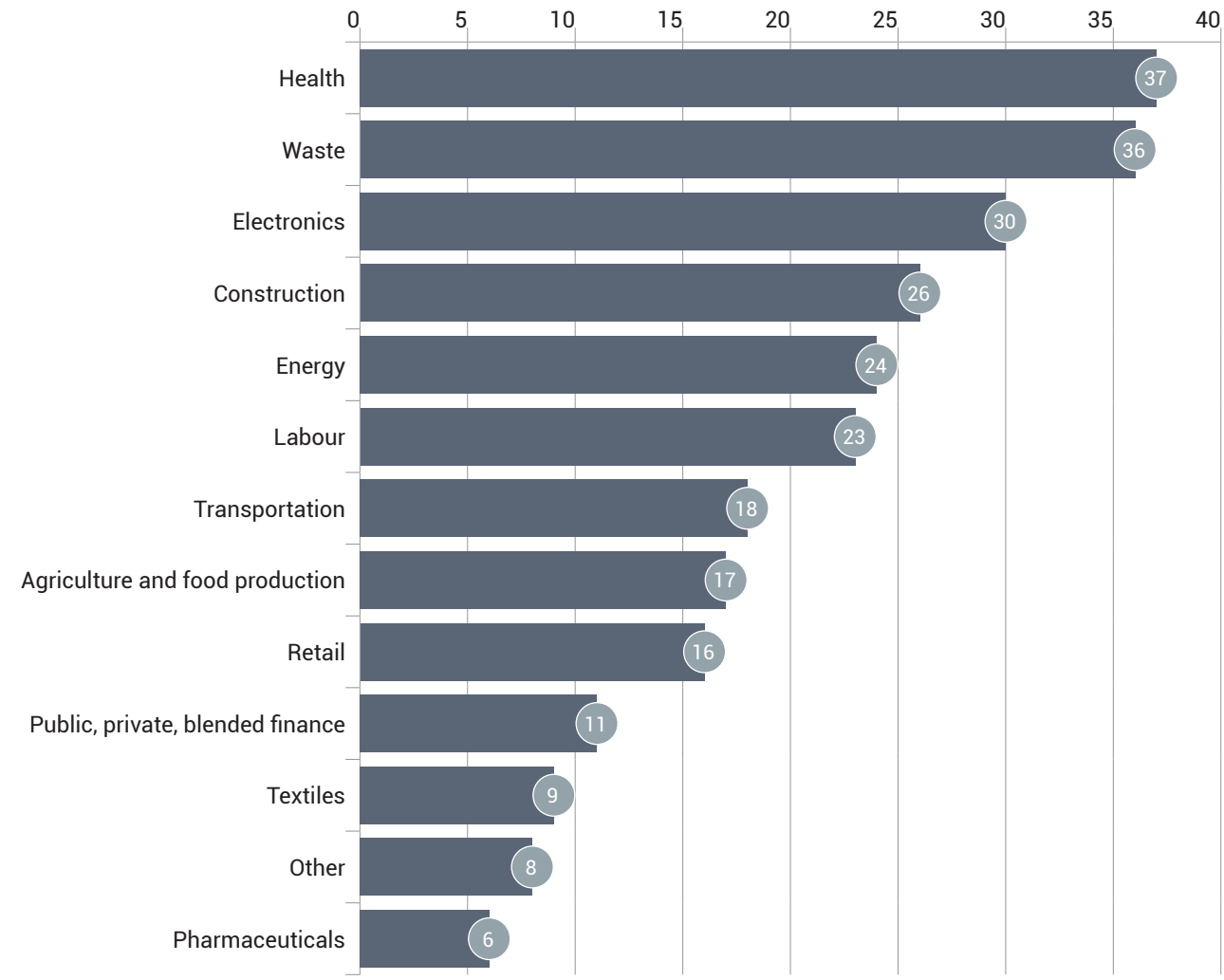
A government said The Global Mercury Partnership "could be a good model for additional information gathering and awareness-raising on metal issues, such as lead". This respondent further noted that "the SAICM 'beyond 2020' framework would be a well-placed forum to undertake this work and could use the Partnership as a model. SAICM could include lead in paint, lead overall, and also other similar substances like cadmium and arsenic".

Important sectors and value chains

As indicated by Figure A13 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions to lead pollution, with health and waste heading the list.

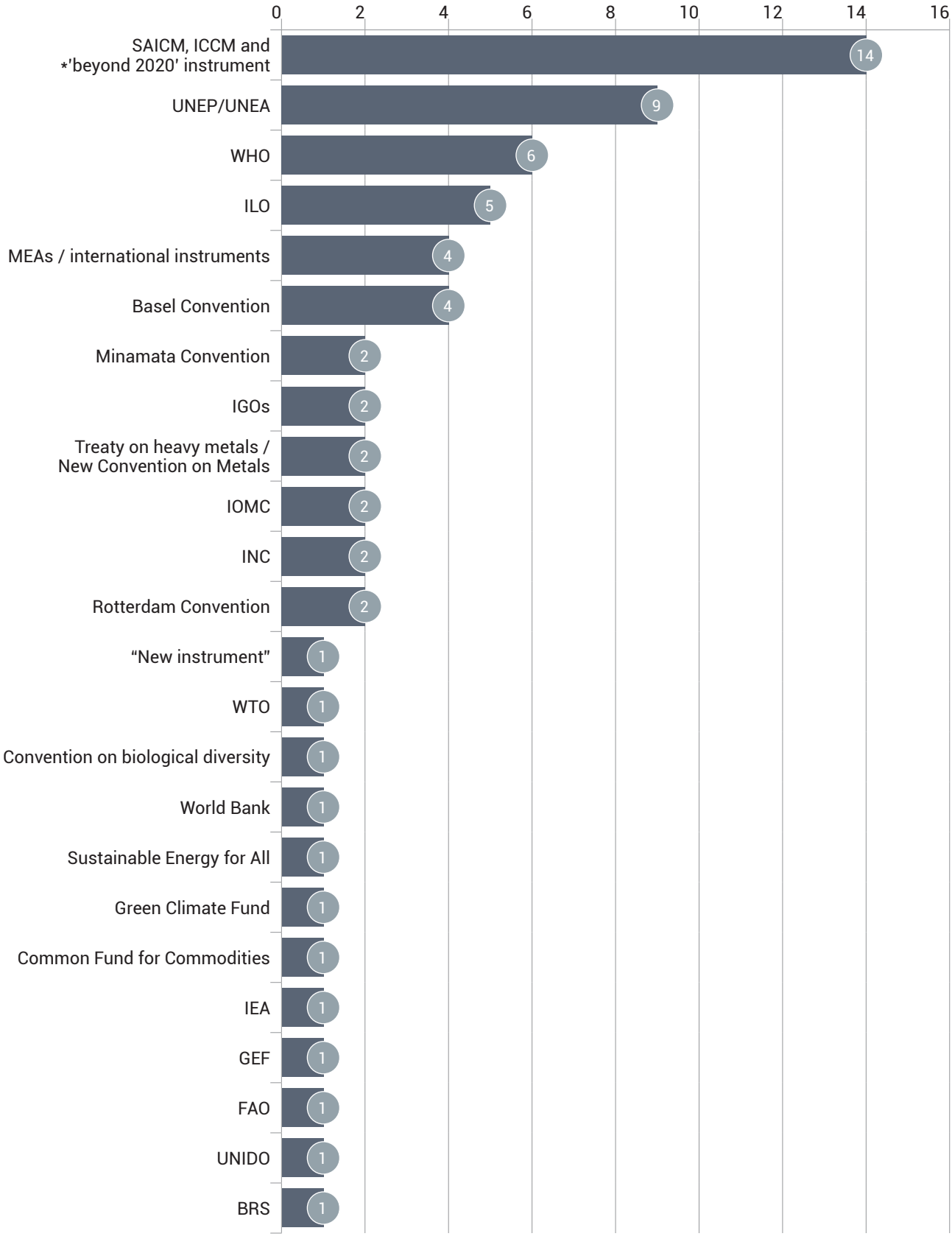
In written comments, an international organization cited the importance of involving the metal and machine industry. One government called for

Figure A13. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for lead



Note: Stakeholders could select more than one option. Number of respondents = 41.

Figure A14. Forums and instruments that could lead international action on lead



Note: Stakeholders could select more than one option. Number of respondents = 34.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

involving the mining sector, and another cited recreational hunting and fishing organizations. Several respondents cited the chemicals, engineering, and metals sector. One NGO cited the importance of involving chemical producers, and a second respondent said "all of them," as lead is widely used.

International forums and instruments best placed to direct international action on lead

Respondents identified several international organizations and instruments as best placed to direct international action, with particularly strong support for SAICM, ICCM and the 'beyond 2020' instrument, Figure A14, above.

In written comments, an international organization said that while certain aspects of lead-containing products are addressed under the Basel Convention, it is important that lead be subjected to additional legal and regulatory measures due to "the cross-sectoral presence of lead at the international level and the known impacts lead has on human health and biodiversity".

International agendas with linkages to lead

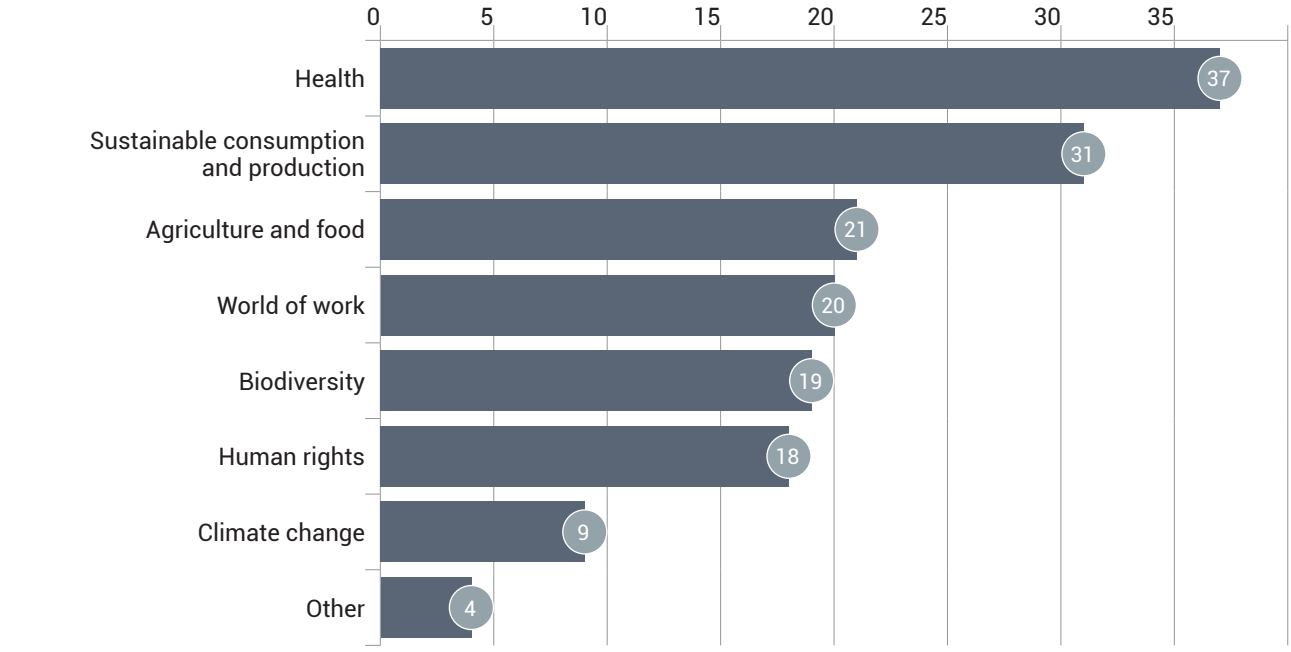
Respondents cited a wide range of international agendas with links to lead, with most respondents citing health, followed by sustainable consumption and production as indicated by Figure A15 below.

In written comments, a respondent from the private sector cited the plastics treaty currently under negotiation, and an NGO pointed to the future international framework on chemicals and waste management. Another respondent, an NGO group, cited the mining sector.

A government cited several agendas, including education, gender, poverty, and urbanization, as well as SDG targets 3.2 (Newborn and Child Mortality) and 8.8 (Protect Labour Rights and Promote Safe and Secure Working Environments for all workers, including migrant workers, in particular women, and those in precarious employment).

An NGO stated that lead is a cross-cutting issue that is key to solving several elements of the triple planetary crisis, contributes to resource depletion, and is an obstacle to circularity.

Figure A15. Stakeholders' views on the international agendas which have important linkages with lead



Note: Stakeholders could select more than one option. Number of respondents = 41.

Priority work at the national and regional levels

At the national level, several prioritized regulations or bans on lead. One government called for phasing out lead used for hunting and fishing. Another called for coordination at the level of the sectors of agriculture, environment, health and industry, as well as support for the implementation of environmental conventions, and particularly the Basel Convention.

An international organization highlighted the potential for training and capacity-building activities for the prevention and environmentally sound management of wastes containing lead, noting this could also address the control of transboundary movements of such wastes. One NGO called for raising awareness of uses of lead in construction (e.g. in roofing materials), and another highlighted the need for data on lead.

A government cited the need for: a system for tracking and responding to lead poisoning cases; public awareness of the sources of lead exposure and symptoms of lead poisoning; education and training for workers at risk of lead exposure; waste management; and research and development of new technologies to reduce lead exposure and clean-up contamination.

Another government prioritized the following: actions to implement guidelines/regulations on hazardous waste and releases from key industrial sectors like base metals smelting and refining; the use of guidelines for lead limits in foods and products; and support for monitoring of lead levels in the environment and human health.

At the regional level, respondents reiterated many of the suggestions they had listed as priorities for work at the national level. In addition, several highlighted the potential for training and awareness-raising. One government called for labelling of products containing lead, as well as the creation of a network of laboratories to detect lead in products and exchange information. An NGO called for sharing of good practices, innovative partnerships, and a creation of a portal for easy sharing of information. Another called for strengthening regional cooperative actions on lead and other toxic metals considering all types of applications and sources of pollution.

One government stated that action must be taken at the regional level to legally restrict or ban lead in a wide range of uses that may go beyond those addressed on a global scale. Another respondent said that, as a co-benefit, effective implementation of existing international and regional treaties or agreements and other domestic measures to reduce emissions and releases of toxic substances would help to reduce lead pollution.

A third respondent suggested that countries in its region with potential for mining exploitation should join efforts to assess the impacts on health and ecosystems from exposure to lead and other heavy metals and metalloids, with the aim of, inter alia, taking joint measures including access to international financing.

2.4 LEAD IN PAINT

Lead in paint is a key source of exposure to this toxic heavy metal, and children are particularly vulnerable to its effects. Stopping the manufacture and sale of lead in paint has been more cost-effective and protective to public health than remediation of buildings, due to the health consequences of lead exposure "after the fact." However, the majority of countries have yet to remove all lead paints from their markets, which may affect other countries (UNEP 2020).

Thirty-three stakeholders answered at least one substantive question on lead in paint. Eighty-eight per cent said they believe further international action is necessary. Nine per cent said international action is not necessary, and 3 per cent said they did not know. Several respondents pointed to the significant health impacts of exposure to lead, with many noting that pregnant women and children are particularly vulnerable. Many noted that lead in paint is particularly prevalent in developing countries. One government that said international action is unnecessary stated that, in its country, lead is not used in production of paint.

Of 30 respondents, 84 per cent said lead is a "very high" or "high" priority for action, 10 per cent said it is a "medium" priority, and 6 per cent said lead in paint is a "low" or "very low" priority.

Many respondents stated that lead in paint should be considered together with lead.

International actions on lead

Respondents called for a range of international actions: 40 per cent supported the establishment of a legally-binding instrument; 33 per cent supported voluntary initiatives including information sharing and awareness-raising; and 25 per cent supported using soft law. One respondent (2 per cent) stated that no international actions are needed.

In written comments, one government noted that a regional project had prompted the establishment of national regulations in some countries, but an international framework will be required to achieve follow-up on commitments. Another government stated that, ideally, a legally-binding treaty should be adopted to eliminate exposure to lead, including through paint, but since it is currently unlikely that broad agreement for such a treaty can be found, soft law, information sharing, and voluntary initiatives should be undertaken to assist countries in their national efforts.

A third government said no additional actions are needed at the international level, but actions "targeted to strengthening existing measures may be appropriate" at the country level.

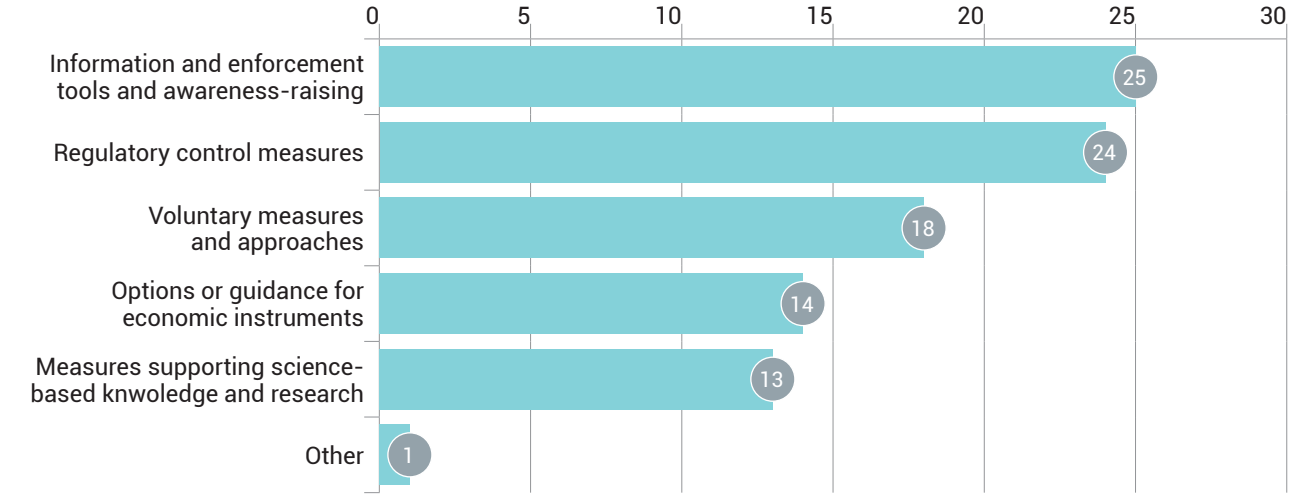
An NGO supported actions to raise public awareness that are "quick, accessible, and feasible". Another NGO stated that lead paint is "mostly manufactured in countries where [it is] not consumed" and a legally-binding treaty would limit its worldwide consumption.

Potential measures and approaches to address lead in paint

As indicated by Figure A16, respondents expressed support for a range of approaches and measures for addressing lead in paint, with particularly strong support for information-based and enforcement tools and regulatory control measures.

An international organization noted that regulatory controls on a range of sources of lead exposure have been demonstrated to protect public health, as reflected in declining population-level blood lead concentrations in many countries. This respondent stated that "primary prevention (i.e. the elimination of exposure to lead at its source) is the single most effective intervention against lead poisoning" and called for monitoring blood lead levels in children and women of childbearing age to mitigate the risk of lead exposure.

Figure A16. Stakeholders' views on the approaches or measures to address lead in paint at the international level



Note: Stakeholders could select more than one option. Number of respondents = 29

An NGO said global regulatory control measures will help countries with weak environmental and health-related regulations to restrict lead in paints, and further noted that the Minamata Convention on Mercury has proven the effectiveness of legally-binding measures to minimize risks caused by a toxic metal.

A government called for financial assistance to help countries implement national initiatives to address lead in paint. Another government said efforts to improve enforcement of national regulations or other measures to phase out lead in paint, in addition to working with paint manufacturers, would be most useful, but added "however, it may take a combination of measures to be able to eliminate lead in paint in a particular country".

Factors that prevent action or progress on lead in paint

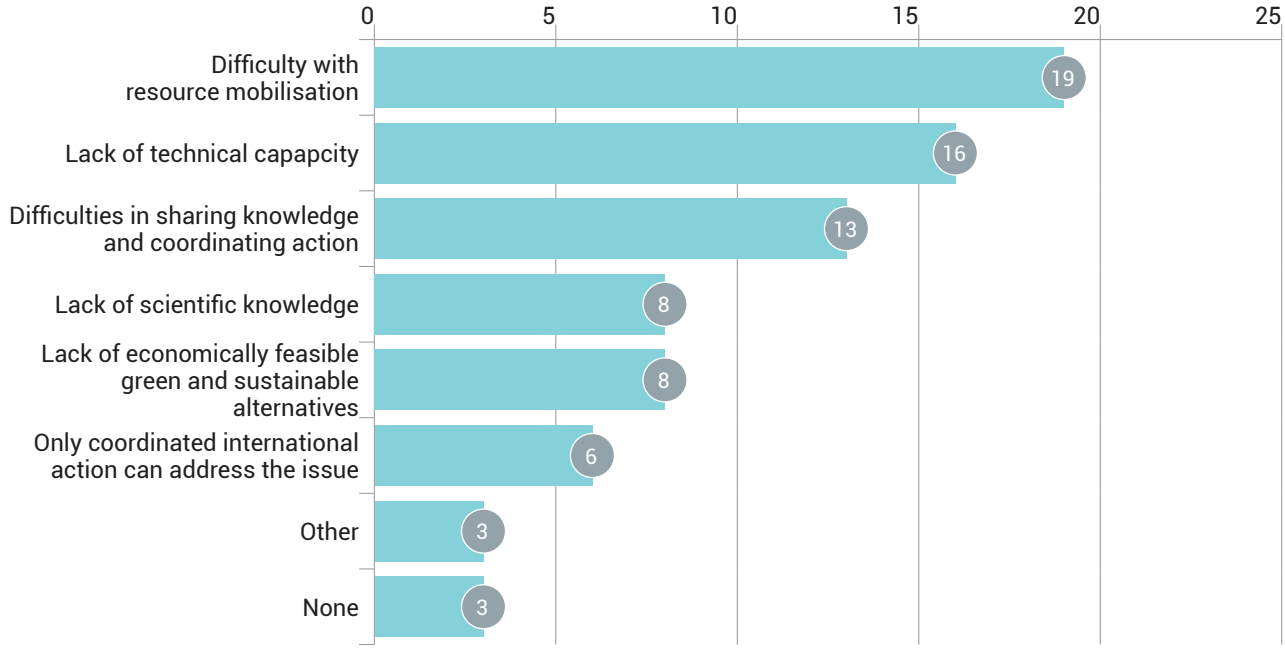
As indicated by Figure A17, respondents stated that key challenges to addressing lead in paint include difficulties with resource mobilization and lack of technical capacity.

In written comments, an international organization noted that while "considerable progress" has been made since this issue was identified by ICCM2 as an emerging policy issue in 2009, at least 73 countries still do not have legally-binding restrictions on lead paint. This respondent stated that "the Global Alliance to Eliminate Lead Paint has encouraged collaboration and sharing resources and has established an important momentum towards resolving the issue. With additional effort the resolution of the issue can be achieved". The organization further highlighted the importance of awareness-raising and funding, pointing particularly to the success of the Global Environment Facility in mobilizing USD 6 million in co-financing, which supported a total of 40 countries in their efforts to enact legally-binding measures on lead.

A government cited challenges including: lack of political will to address the issue; public apathy, potentially due to lack of awareness; or cultural factors (e.g. in some cultures lead paint is seen as a harmless traditional material).

An NGO said governments must commit to supporting NGOs in phasing out lead in paint, through legal measures and enforcement.

Figure A17. Stakeholders' views on the factors preventing action or progress on addressing lead in paint in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 26.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, several respondents pointed to domestic laws and regulatory measures addressing lead in paint. Several respondents cited the Global Alliance to Eliminate Lead Paint, with one respondent stating it is "well-placed to assist remaining countries" in addressing this issue.

Important sectors and value chains

As indicated by Figure A18 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions to lead in paint, with particularly strong support for the health, construction, and waste sectors.

International forums and instruments best placed to lead international action on lead in paint

Respondents identified several international organizations and instruments as best placed to lead action on lead in paint, with particularly strong support for SAICM (or the 'beyond 2020' instrument) and UNEP/UNEA.

International agendas with linkages to lead in paint

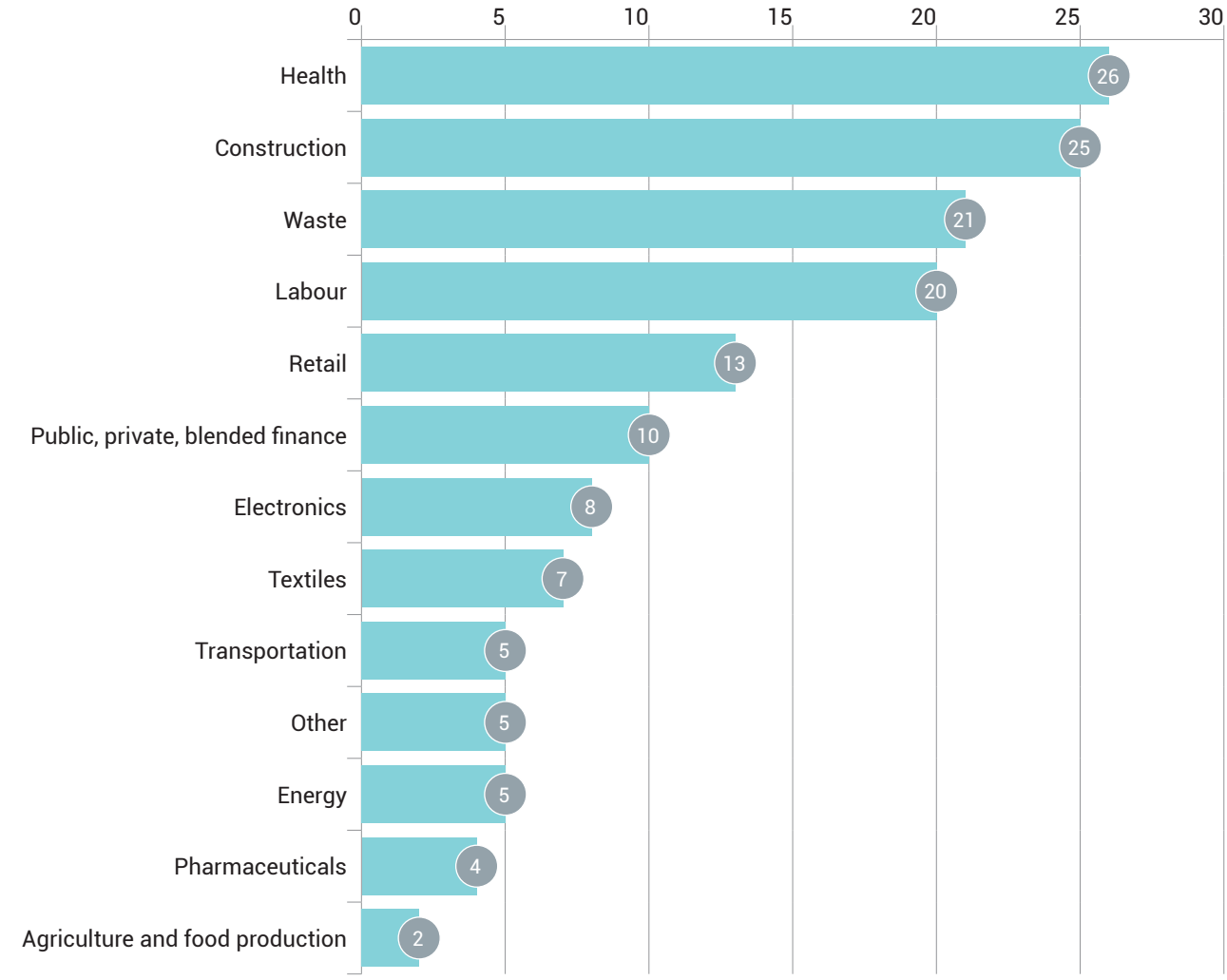
As indicated by Figure A20 below, respondents drew links between lead in paint and a wide range of international agendas, with most respondents highlighting the connections to health and sustainable consumption/production.

In written comments, an international organization also highlighted linkages to waste. A regional economic integration organization cited connections to the "future international framework on chemicals and waste management".

Priority work at the national and regional levels

At the national level, two governments highlighted the need for more monitoring, with one specifying the need for biomonitoring in target populations. Several respondents called for establishing

Figure A18. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for lead in paint



Note: Stakeholders could select more than one option. Number of respondents = 28.

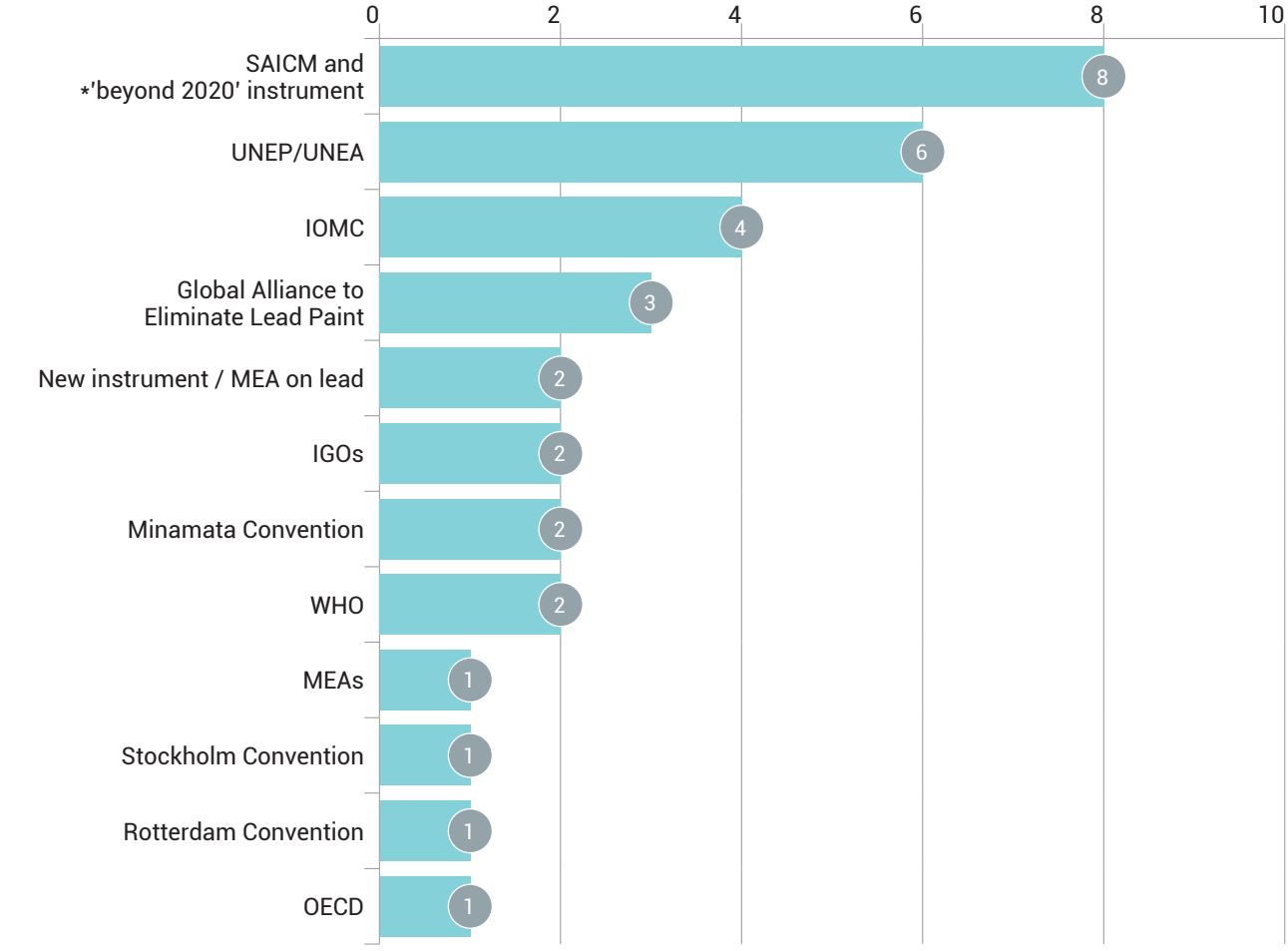
regulations of lead in paint. An NGO called for developing, strengthening, and enforcing national legislation on lead paint, taking into account all types of applications and sources of pollution.

A government and an NGO cited the use of poor-quality lead paint on roofs, saying the general public is unaware of the danger and citing the need to identify the extent of contamination and establish regulations for construction.

At the regional level, several respondents highlighted the need for awareness-raising and knowledge-sharing. An international organization noted that regional work, such as that conducted by regional economic groups including the European Union and the League of Arab States, "can be helpful in sharing resources such as legal drafting as well as identifying higher political commitment to addressing the issue". One government noted that "it would be opportune to resume the proposal for the development of a Central American regulatory instrument for lead levels in paint, as was proposed at the closing meeting of the lead in paint project held in Panama. The elaboration of a RTCA (Central American Technical Regulation) was recommended".

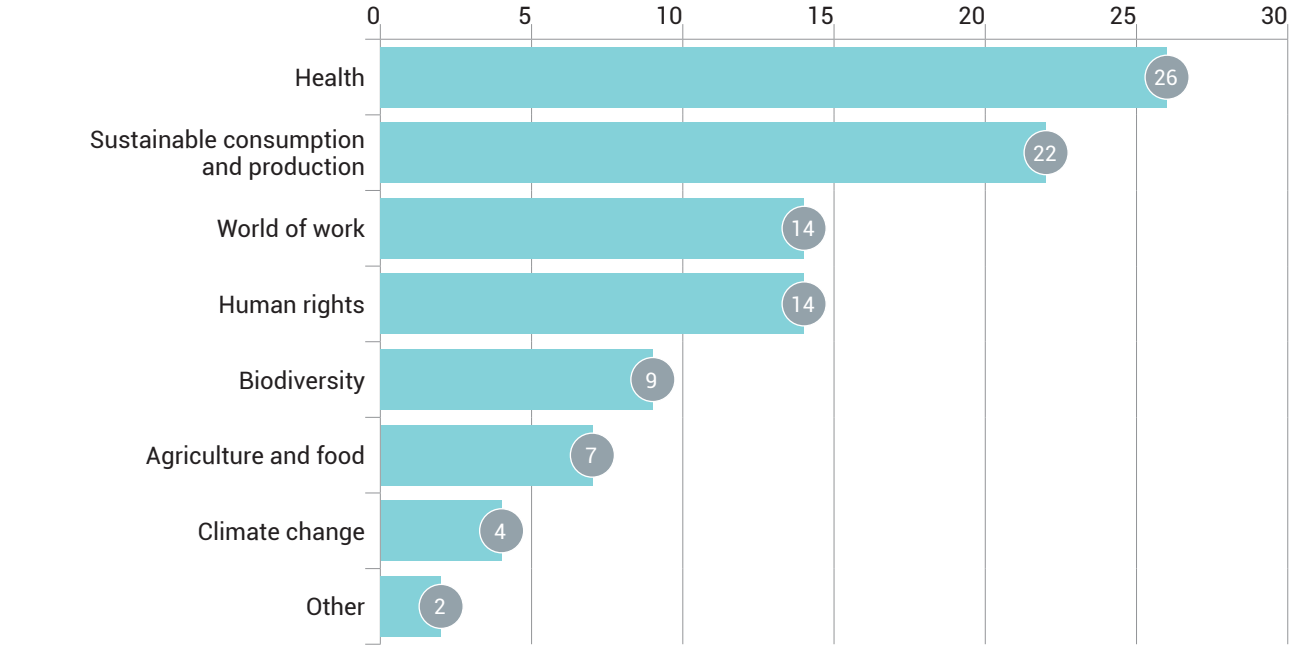
Additionally, several respondents highlighted the need to build capacity, including through the creation of inventories and for waste management.

Figure A19. Forums and instruments that could lead international action on lead in paint



Note: Stakeholders could select more than one option. Number of respondents = 21.

Figure A20. Stakeholders' views on the international agendas which have important linkages with lead in paint



Note: Stakeholders could select more than one option. Number of respondents = 28.

2.5 ORGANOTINS

Organotins, a class of chemicals with at least one tin-carbon bond, are toxic to humans and wildlife and, due to their widespread use in a broad range of applications, are likely to be ubiquitous in the environment (UNEP 2020).

Twenty-nine stakeholders answered at least one substantive question on organotins. Seventy-eight per cent indicated that they believe further international action on this class of compounds is necessary. Eighteen per cent said they did not know, and 4 per cent (one respondent) said international action is not necessary. Several respondents pointed to the significant health impacts of exposure to organotins, including endocrine disruption. Some respondents noted that they are widely used in PVC, and one government noted high levels of exposure among informal workers who are involved in the recycling of this material. Another government said international action is needed to ban the use of organotins, develop safer alternatives, and educate farmers about their risks. A third respondent stated that international action should be taken to reduce or eliminate exposure to organotins, including by preventing the use and emissions/releases of the substance.

A respondent from the private sector that selected "don't know" stated that, "Yes and no is given as the answer because this is a diverse list of complex issues and actions have already been taken at local, national, regional and international level. As discussed during the 2-day UNEP consultation meeting on July 11 and 12, 2023, prioritization criteria should be developed and applied to identify the top issues". A government that selected the same response noted that in 2008, COP 4 of the Rotterdam Convention adopted a decision to add tributyltin compounds to Annex III of the Convention (Chemicals subject to the PIC procedure), and in 2012 tributyltin compounds were phased out in its country. Another respondent in this category is the secretariat of an intergovernmental organization without a mandate from its governing body to take a view.

Of 27 respondents, 71 per cent said organotins are a "very high" or "high" priority for action, and 29 per cent said they are a "medium" priority.

International actions on organotins

Respondents called for a range of international actions: 38 per cent supported voluntary initiatives including information sharing and awareness-raising; 34 per cent supported establishment of a legally-binding instrument; and 26 per cent supported using soft law. One respondent selected "other" and noted that Tributyltin compounds are covered by the Rotterdam Convention.

A government called for a combination of legally-binding measures, soft law, information sharing and awareness-raising, and voluntary initiatives, saying these different actions can be complementary. An NGO called for "all of the above".

Another government said that, ideally, a legally-binding treaty should be adopted to address (eliminate) those (groups of) substances that, due to their intrinsic properties, pose a risk to human health and the environment, and added that an individual treaty for each substance would not be effective. This respondent also added that in the absence of broad agreement for such measures, "we should put more focus and always keep address these issues via soft law, voluntary initiatives and information sharing".

An NGO stated that "legally-binding international action will help countries, especially those with weak environmental and health-related regulations, develop and strengthen their national laws in accordance with the global legally-binding

instrument to ensure better control of these hazardous substances and their applications".

A respondent from the private sector stated that "for the large part, information sharing, awareness and voluntary initiatives are appropriate for this wide range of complex topics. Regulations can then be decided upon as needed by national governments and adapted to local conditions".

An international organization called for a "National or regional legally-binding instrument combined with international soft law". A respondent from academia suggested a range of possible actions, including coordinated monitoring and research, joint risk assessments, global product bans, and amendments to international agreements.

As indicated by Figure A21 below, respondents identified a wide range of approaches and measures for addressing organotins, with regulatory control measures and information and enforcement tools and awareness-raising leading the list.

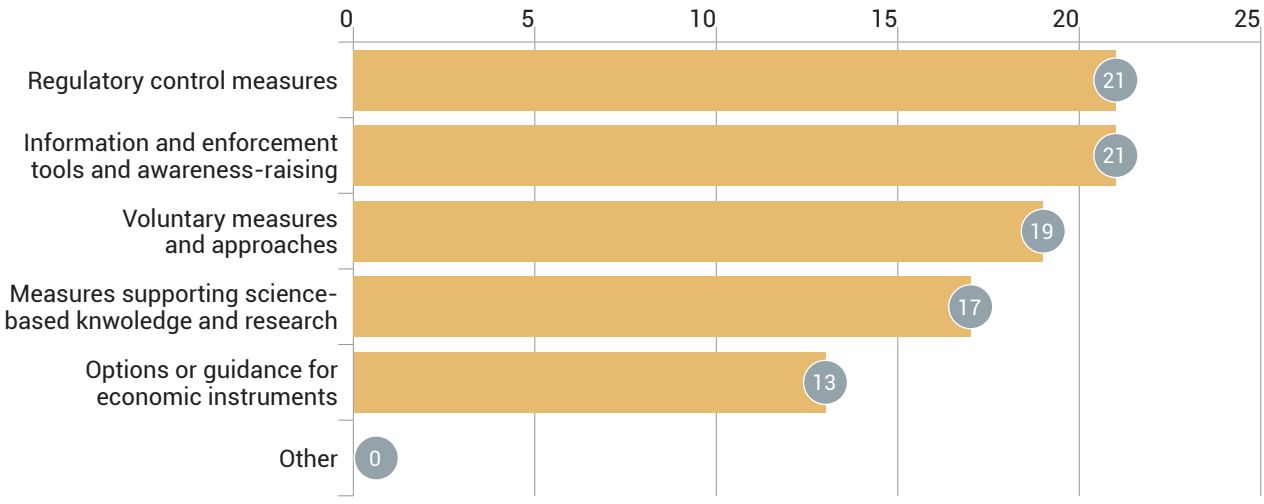
In written comments, a respondent from the private sector called for the EU to share information and best practices, noting that the EU has conducted risk assessments on organotin-based PVC stabilizers. This respondent further noted that "critical uses" include rigid packaging for pharmaceuticals, pipes and fittings, and window profiles and roofing.

A government supported a combination of these measures and approaches and added that it is important to support capacity-building to help countries implement international agreements and regulations, as well as to develop national strategies for reducing use of these chemicals. Another government said that while regulatory control measures would be ideal, in the absence of broad agreement, a range of legally non-binding measures should be undertaken to support national efforts.

A respondent from academia suggested measures including: coordinated monitoring and research; joint risk assessments of organotin hazards and exposures; global product bans; funding for alternatives and incentives; and the creation of information-sharing platforms.

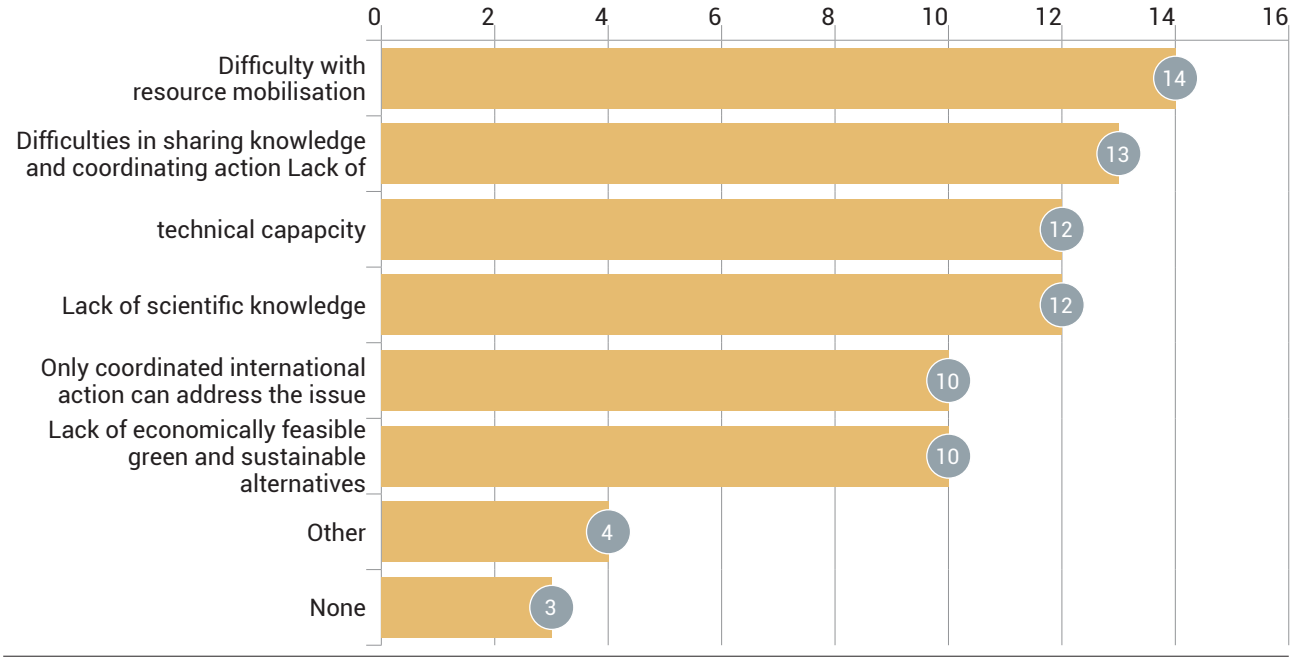
An NGO called for amending the Basel Convention to "forbid Article 11 agreements to export plastics containing organotins to the Global South that violate the PIC provisions of Article 4 and the

Figure A21. Stakeholders' views on the approaches or measures to address organotins at the international level



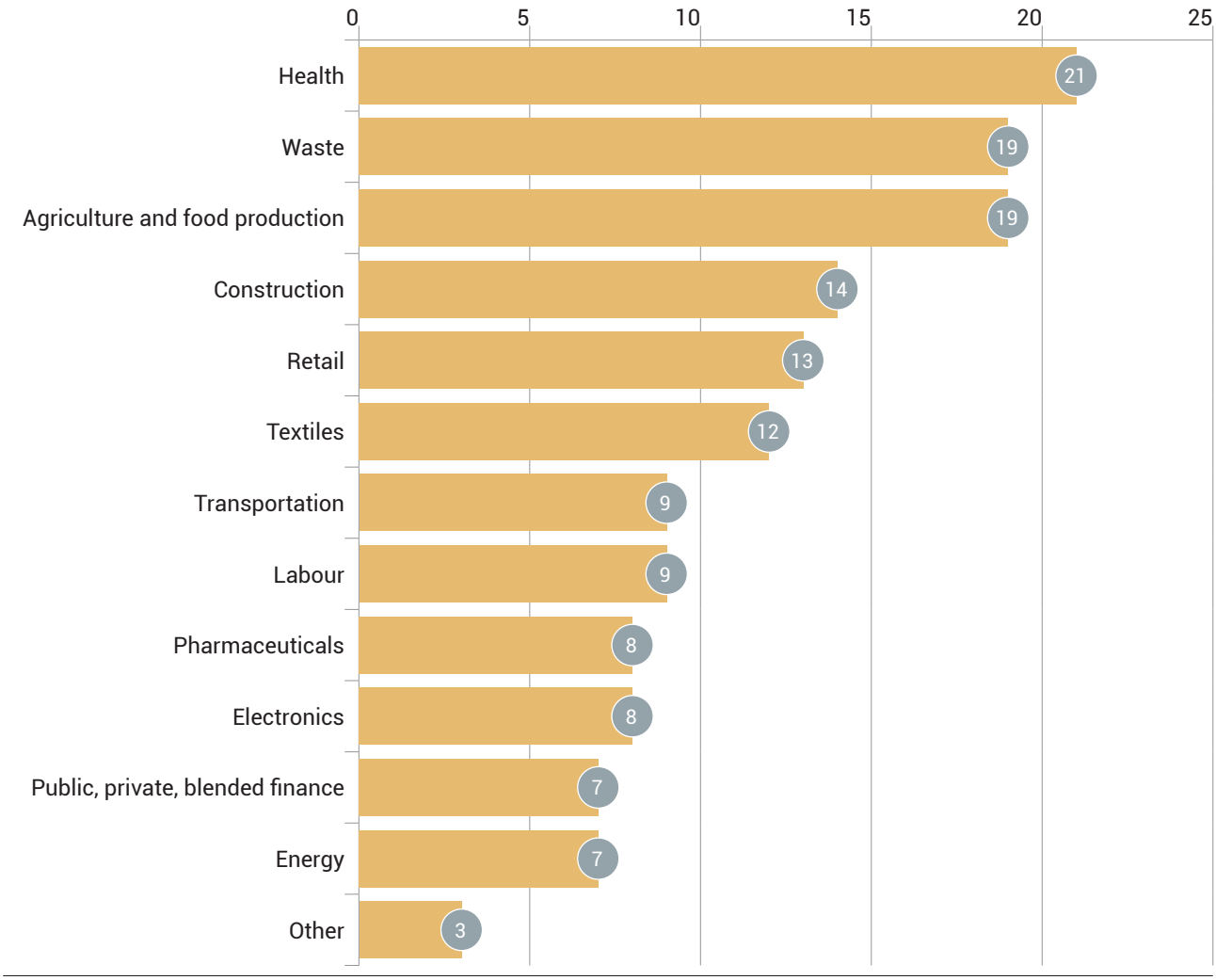
Note: Stakeholders could select more than one option. Number of respondents = 26.

Figure A22. Stakeholders' views on the factors preventing action or progress on addressing organotins in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 26.

Figure A23. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for organotins



Note: Stakeholders could select more than one option. Number of respondents = 24.

January 1, 2021, Amendments to Annexes II, VIII, and IX".

Factors that prevent action or progress in addressing organotins

As indicated by Figure A22, respondents stated that key challenges to addressing organotins include difficulties with resource mobilization, lack of technical capacity, and difficulties in sharing knowledge and coordinating.

In written comments, a government stated that it lacks the legal basis or framework to monitor or track organotins in consumer goods, including biocides. An NGO cited lobbying by the plastic industry.

A respondent from academia stated that factors that prevent action on organotins may include: economic dependence; higher short-term costs of alternatives; industry lobbying; competing priorities; lack of definitive evidence; limited expertise in evaluating issues; and bureaucracy.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, one international organization cited the Swiss Chemical Risk Reduction Ordinance, including on antifouling paints for boats and other applications (Swiss Federal Council 2023).

A respondent from the private sector said that the EU's approach to risk assessment of organotin compounds can be used, resulting in restriction of some uses and allowance of other critical uses. A respondent from academia also cited the EU's approach to organotins, saying its bans on organotins in antifouling paints and other uses demonstrate feasible approaches that could be implemented through an international agreement. This respondent further noted that countries "like Norway, France and the UK track organotin levels in seafood and the marine environment" and the EU, US and Canada fund research on organotin exposures, effects and alternatives. A government noted that regulatory measures adopted by the EU could serve as the basis for development of regulatory measures by others.

An NGO cited work by Australia's National Measurement Institute on organotins in the marine environment (Australian Government 2023).

Important sectors and value chains

As indicated by Figure A23 above, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions to organotins, with particularly strong support for waste, health, and agriculture/food production.

In written comments, one government noted that organotins are used in a variety of agricultural products, including pesticides, fungicides, and wood preservatives, and can enter the food chain through contaminated water and soil. Another cited the importance of raising public awareness of organotins and encouraging people to make choices that reduce their exposure.

International forums and instruments best placed to lead international action on organotins

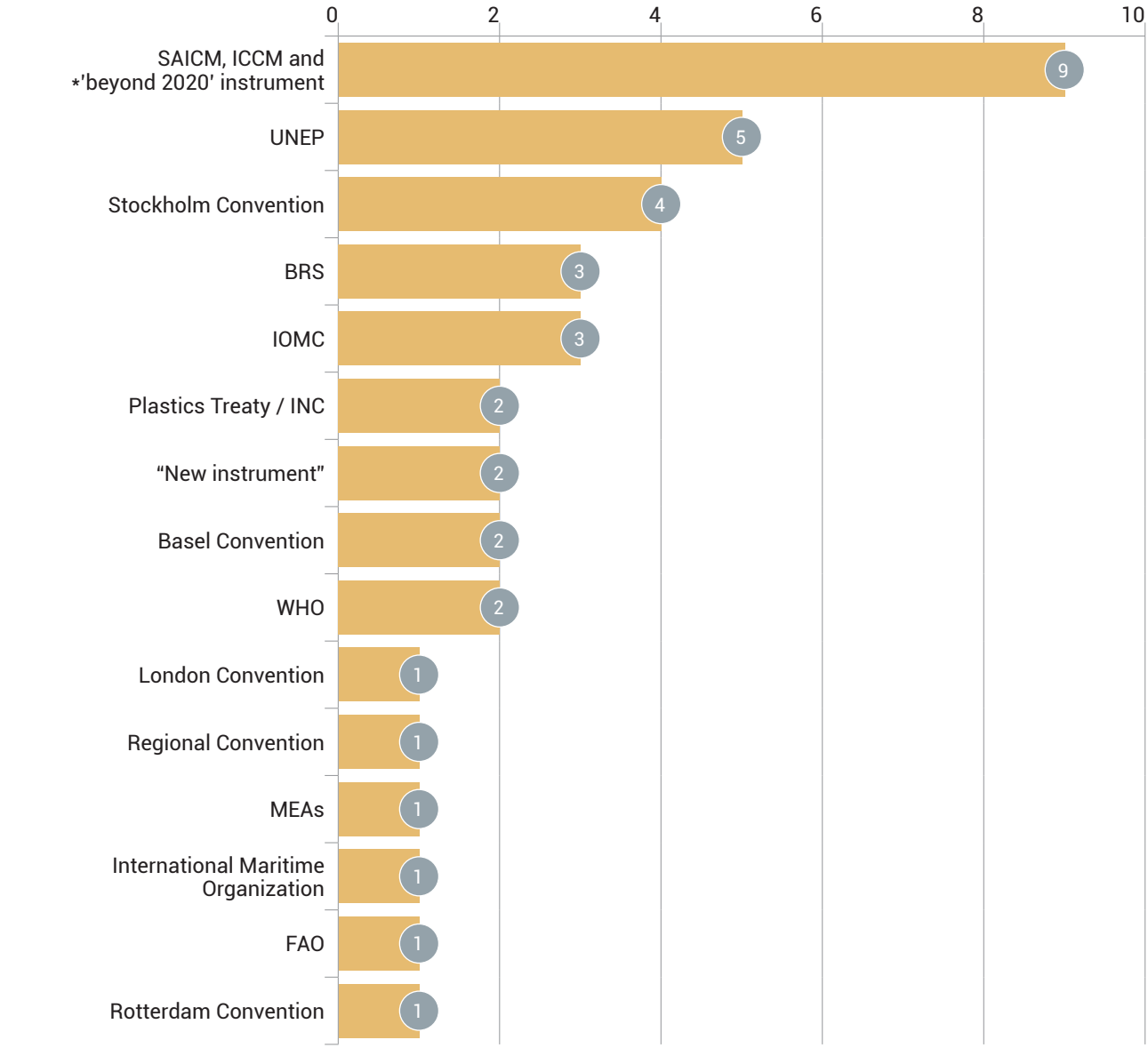
Respondents identified several international organizations and instruments as best placed to lead, with significant support for SAICM, ICCM or the 'beyond 2020' instrument, Figure A24 below.

International agendas with linkages to organotins

As indicated by Figure A25, respondents drew links between organotins and a wide range of international agendas, with most respondents highlighting the connections to health and sustainable consumption/production.

In written comments, a government and an NGO cited the SDGs. Another NGO noted that

Figure A24. Forums and instruments that could lead international action on organotins



Note: Stakeholders could select more than one option. Number of respondents = 17.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

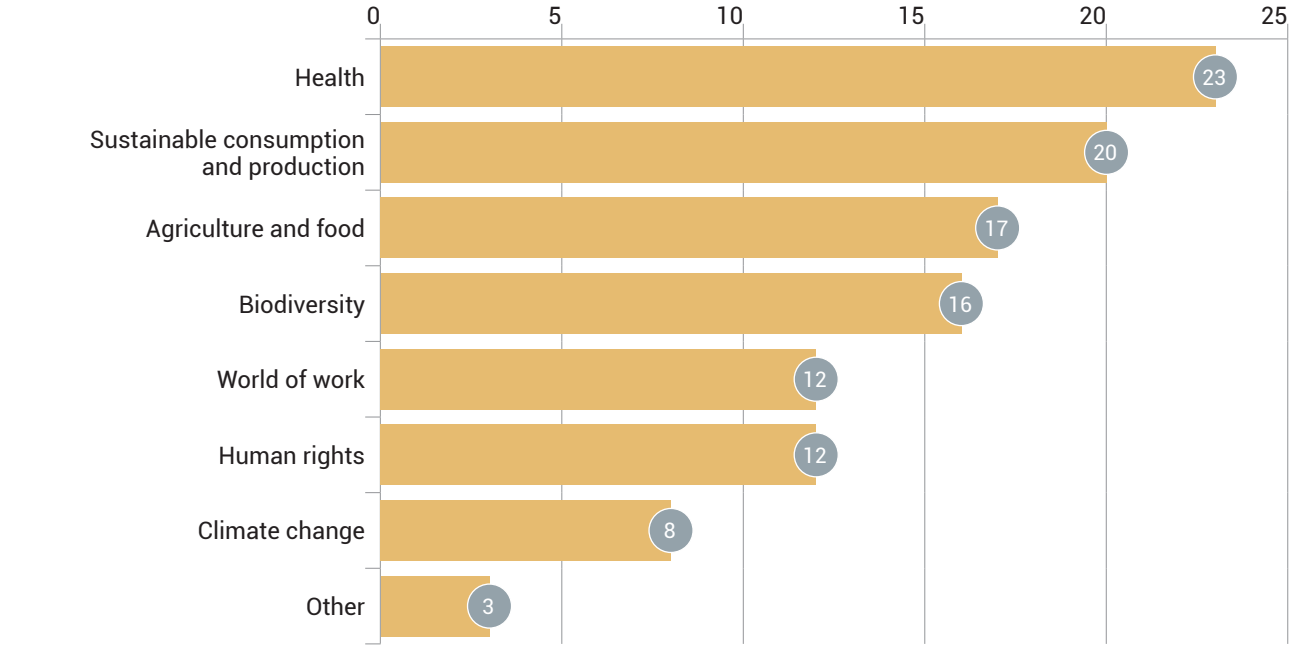
management of organotins is key to solving several elements of the triple planetary crisis.

Priority work at the national and regional levels

At the national level, one government identified a need to assess exposure to organotins, particularly with regard to their use in antifouling paints in ships. Several governments cited the need for capacity-building to support regulation, establishment of inventories, and technical training for regulators. A respondent from academia called for national risk assessments to determine major sources of organotin exposure, including "which industries use organotins the most and which environments face the highest risks". An NGO called for federal legislation in its country to ban the manufacture of plastics containing organotins. Another government prioritized remediation, inventories, and waste management.

At the regional level, one government called for assessment of the magnitude of exposure from ongoing uses, including PVC recycling. Some respondents from NGOs called for information sharing and knowledge networks.

Figure A25. Stakeholders' views on the international agendas which have important linkages with organotins



Note: Stakeolders could select more than one option. Number of respondents = 24.

An intergovernmental organization highlighted the potential for training and capacity-building activities to support implementation of the Rotterdam Convention. Another government suggested using an existing regional group to address organotins as part of its work to review regulations associated with the food industry. A third government called for: strengthening the capacity of regional environmental protection authorities to regulate organotins; developing regional strategies for phasing out organotins; raising awareness; supporting research and development of safer alternatives; and promoting the use of safer alternatives.

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3

PESTICIDES

This group includes HHPs, glyphosate and neonicotinoids. Pesticides are biologically active compounds designed to kill target organisms, and many have been shown to have adverse effects on non-target organisms.

3.1 HIGHLY HAZARDOUS PESTICIDES (HHPS)[1]

Highly hazardous pesticides (HHPs) may have adverse impacts on human health and wildlife, including birth defects, increased risk for some cancers, pulmonary disease, and adverse effects on organs and reproductive systems (UNEP 2020).

Forty-four stakeholders answered at least one substantive question on HHPs. Eighty-two per cent indicated that they believe further international action is necessary. Eleven per cent said international action is not necessary, and 7 per cent said they did not know. An IGO Secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many of those who supported international action cited concerns about the health impacts of HHPs. One government cited the toxicity and high degrees of both direct and indirect exposure to HHPs, and another government noted that many HHPs are "intensely applied, especially in agricultural production". An NGO stated that HHPs "pose serious risks to agriculture workers, farmers, consumers, and ecosystems in developing countries". Several respondents expressed concern about exports of HHPs from developed to developing countries; for example, one government stated that "high-risk pesticide products banned in high-income developed countries that do not meet quality standards are being marketed to low-income countries, and more international measures must be taken to reduce their circulation". An NGO stated that HHPs are "often produced and exported from countries where they have been prohibited, to countries with weaker regulatory controls".

A government noted that food security and economic interests take precedence in developing countries and countries with economies in transition and said that the non-use of a highly dangerous pesticide depends on the availability of an alternative at the same or a lower price. Another stated "…in spite of having research on the damaged caused by pesticides to health and the environment, priority is given to the economic part".

Two international organizations noted that while progress has been made in defining HHPs, many countries have not yet assessed the prevalence of HHPs among their registered pesticides or the use of HHPs by farmers; these respondents added that suicide by consuming HHPs continues at high rates in some countries, and child mortality through accidental consumption of HHPs is still prevalent in many parts of the world.

A respondent from the private sector stated that "any actions need to be aligned with the international code of conduct of pesticide management, which is based on risk assessment, risk benefit considerations as well the availability of alternatives. Blunt calls for just banning HHPs by year X are not really helpful".

Out of 39 respondents, 87 per cent said HHPs are a "very high" or "high" priority for action and 13 per cent said they are a "medium" priority.

International actions

Respondents called for a range of international actions: 40 per cent supported the establishment of a legally-binding instrument; 35 per cent supported voluntary initiatives including information sharing and awareness-raising; 17 per cent supported using soft law; and 5 per cent supported using other measures. Three per cent said no international actions are needed. A respondent who selected

1 Stakeholder comments on HHPs were submitted prior to the September 2023 adoption of the Global Framework on Chemicals, which includes Target A7: "By 2035, stakeholders have taken effective measures to phase out highly hazardous pesticides in agriculture where the risks have not been managed and where safer and affordable alternatives are available, and to promote transition to and make available those targets". Additionally, ICCM5 adopted a resolution to establish the Global Alliance on Highly Hazardous Pesticides, a multi-stakeholder body mandated to develop and implement tangible action to phase out HHPs worldwide.

"other" noted that "a number of HHPs are covered by the Rotterdam and Stockholm Conventions" and the parties have the authority to amend the text of these conventions, to collect information, and to adopt technical guidelines covering HHPs.

In written comments, two international organizations: called for guidance and support to countries to undertake surveillance for adverse human health and environmental effects of pesticides; said all international bodies providing financial support to countries for projects which involve potential pesticide use should mandate that only pesticides which do not meet HHP criteria should be used; said all countries should make public which pesticides (active ingredients) are banned in their jurisdiction to enable better decision-making and enforcement actions by neighbouring countries; and said tools and platforms for national and local level campaigns should be made available (as called for in World Health Assembly Resolution WHA76.17).

As indicated by Figure A26 below, respondents expressed support for a range of approaches to and measures for addressing HHPs, with particularly strong support for regulatory control measures and information-based and enforcement tools. A respondent who selected "other" called for bans and restrictions nationally and under international treaties such as the Rotterdam and Stockholm Conventions.

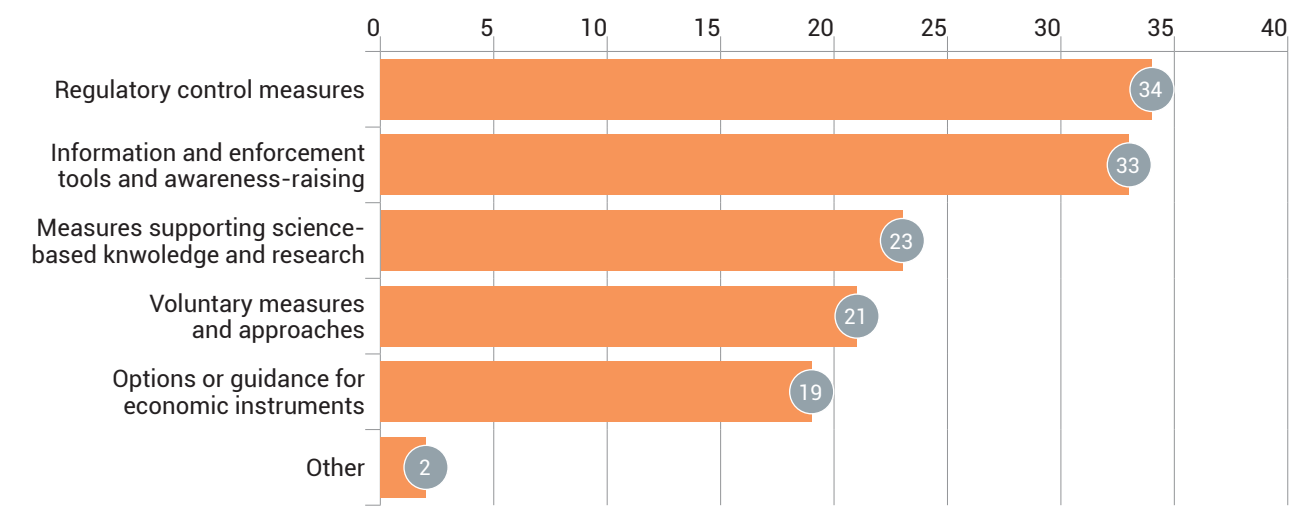
In written comments, many respondents who supported regulatory control measures highlighted the need for strict measures to protect people from exposure to HHPs, with one government noting the impacts on workers in particular.

A government noted that HHPs could be addressed under the Rotterdam and Stockholm Conventions. A respondent from the private sector said that "...we have chemicals conventions, if there is a need for global action besides those existing ones they need to be set up efficiently".

Some respondents noted that some HHPs are also endocrine disruptors. An NGO stated that regulatory control measures to address this subset of pesticides should include but not be limited to: legislation mandating the classification of EDCs against pertinent hazard criteria, de-registrations of EDCs by national registration agencies, the adaptation and strengthening of Maximum Residual Levels (MRL) legislation to exclude EDCs from export-oriented industrial agriculture, and the implementation of prohibitions on the export of pesticides banned from domestic use.

Two international organizations stated that the successful role of national regulatory authorities in reducing the risks from HHPs has been exemplified through actions in several countries, including Sri Lanka, Japan, Korea, Bangladesh. These respondents added that scientific

Figure A26. Stakeholders' views on the approaches or measures to address HHPs at the international level



Note: Stakeholders could select more than one option. Number of respondents = 40.

evidence for the harmful effects of HHPs is strong, but knowledge of the issues often lags behind, and support for information-sharing and enforcement tools to support legislation will therefore be necessary for stakeholders in many countries.

A government said that, ideally, regulatory control measures should be adopted to eliminate exposure to HHPs, but in the absence of broad agreement for such measures, a range of non-binding measures should be undertaken to assist countries in their national efforts. Another government called for application of the precautionary principle.

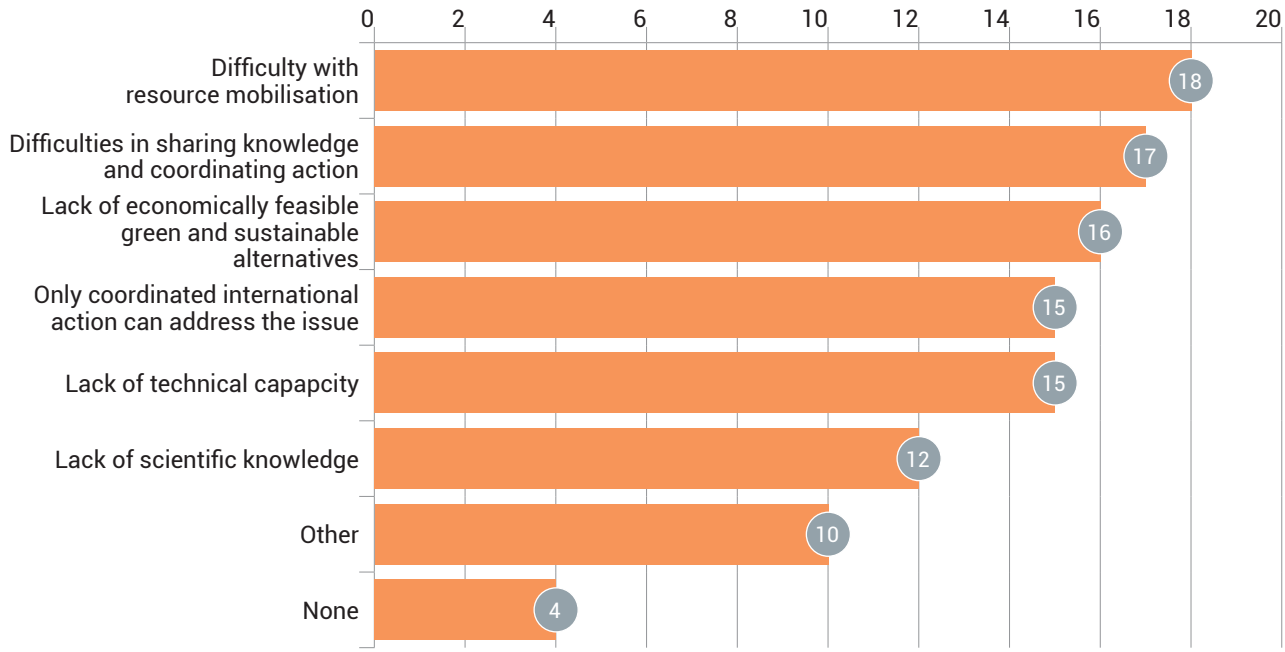
Factors that prevent action or progress on HHPs

As indicated by Figure A27, respondents identified many challenges to domestic action on HHPs, with difficulties with resource mobilization leading the list, followed closely by a lack of economically feasible green and sustainable alternatives and difficulties in sharing knowledge and coordinating action among stakeholders and across different sectors. Respondents who selected "other" cited lack of involvement of governments and the private sector, agrochemical industry influence, industry conservatism on changing processes, misplaced concerns about impacts on profits, the economic strength and influence of the pesticides industry and proponents, and lack of an official HHP substance list.

In written comments, one government stated that "we have the information, but finding substitutes is difficult". Another government noted that there is limited exchange of information, including towards governments and users of HHPs. An NGO cited difficulties with knowledge and practical experience with agro-ecology.

A government stated that "sometimes there is a lack of an operational chemicals management system". Another government cited the need for greater coordination of different state agencies. Two international organizations stated "most countries have insufficient regulatory staff to engage effectively with international actions or obtain the necessary information on adverse effects from other sectors" and called for increasing regulatory capacity across all sectors. Noting challenges associated with the identification of HHPs, another government cited "a lack of a central source of data collating cases of unintentional

Figure A27. Stakeholders' views on the factors preventing action or progress on addressing HHPs in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 39.

poisoning due to exposure to pesticides in developing countries and countries with economies in transition".

Another government stated "we consider that a primary factor is the coordinated action, at a global level, by pesticide manufacturers to trade HHP to countries in which its use has not been prohibited or restricted" as well as illegal trafficking of these products. The government called for the strengthening of national regulations and controls to prevent the entry and use of HHPs.

An NGO stated that more sustainable alternatives to HHPs exist, capacity can be built, and technical solutions can be found and implemented. This respondent added that gathering additional knowledge regarding alternatives is important but should not prevent action now.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up to address HHPs internationally, some respondents cited the evaluation and regulatory work currently being carried out under the Stockholm and Basel Conventions. An international organization cited the Globally Harmonized System for Classification and Labelling of Chemicals (GHS).

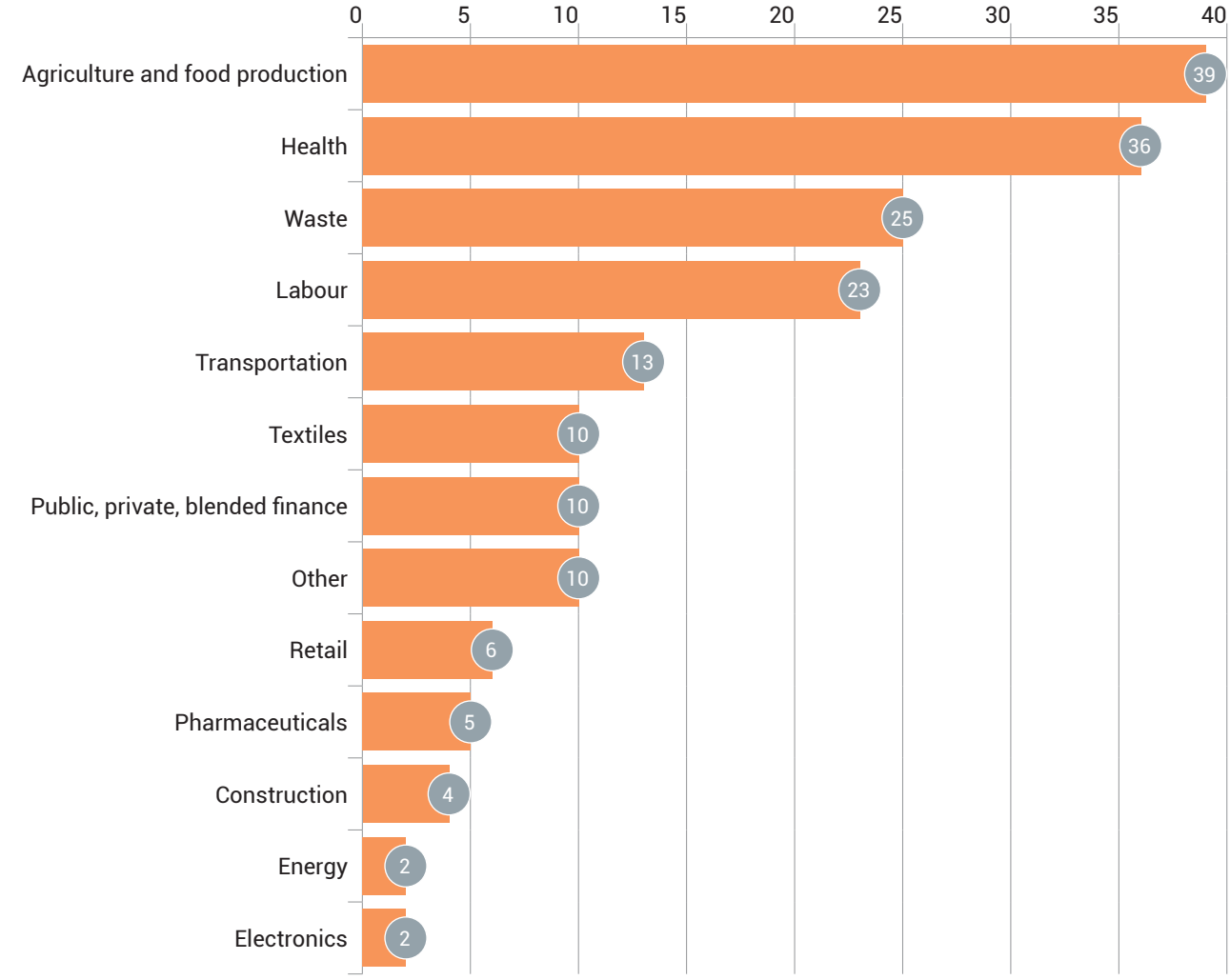
A respondent from academia stated that "restrictions, alternative incentives, public-private innovation programmes, disclosure rules, certification systems, technical guidelines and education campaigns currently in place demonstrate approaches that could be formalized and expanded through international agreements to more sustainably manage risks from HHPs on a global scale".

An NGO stated that "bans and restrictions are widespread. However regulatory double standards means markets still exist in less well-regulated nations. Countries banning production should no longer be allowed to manufacture and market it to other nations".

Important sectors and value chains

As indicated by Figure A28, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing agriculture and food production as well as health. Several respondents who selected "other" cited the chemicals sector and two others said, "all of them". Another respondent who selected "other" said sustainability standards organizations and product certification bodies can mandate requirements or ban the use of products such as HHPs across borders and with more flexibility than legal regulatory controls. Another respondent cited power line companies.

Figure A28. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for HHPs



Note: Stakeholders could select more than one option. Number of respondents = 39.

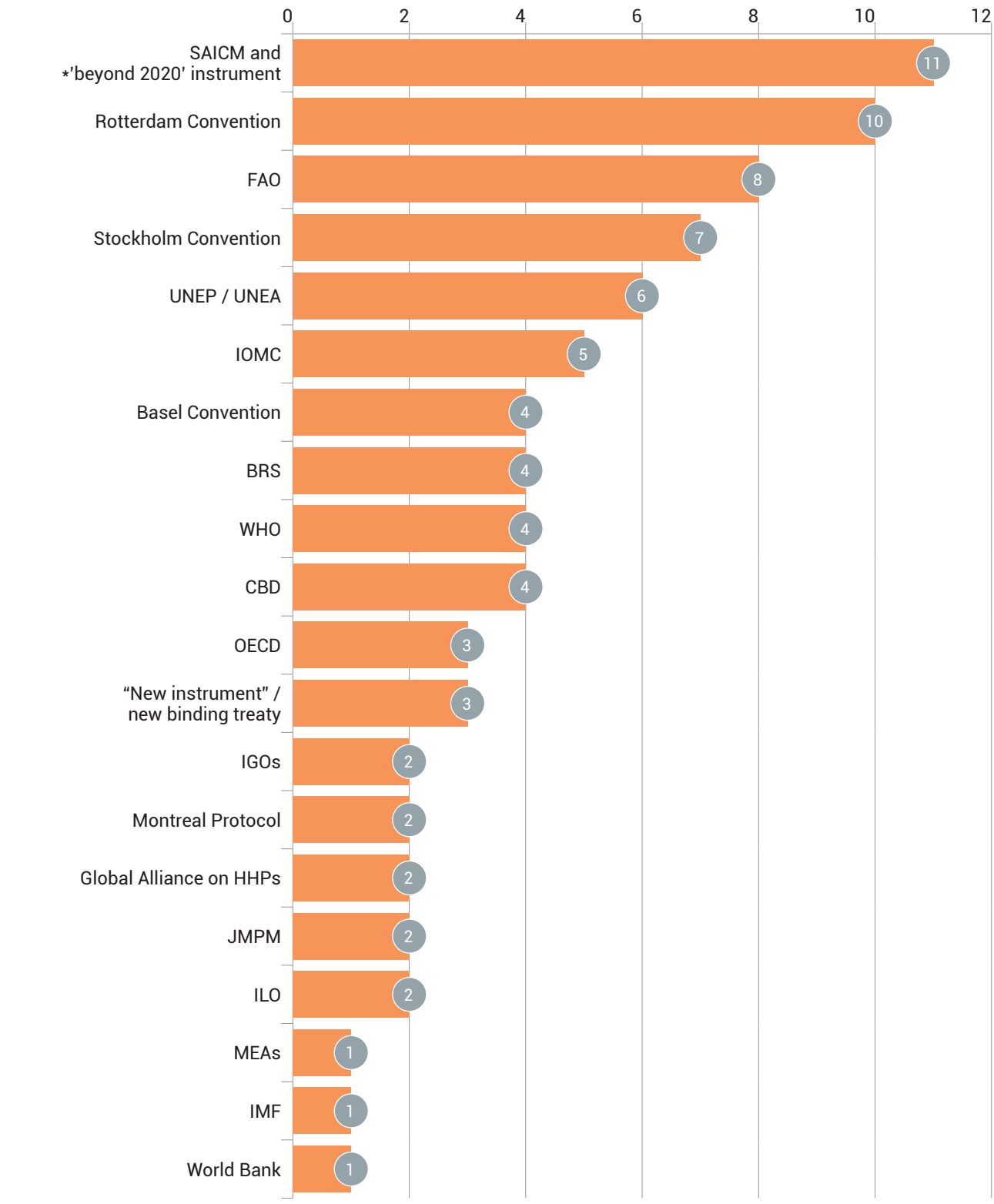
International forums and instruments best placed to lead international action on HHPs

Respondents identified several international organizations and instruments as best placed to lead, including the SAICM and 'beyond 2020' instrument, followed closely by the Rotterdam Convention, Figure A29.

An NGO said that existing mechanisms function adequately. A respondent from the private sector stated that "so much work has been done by the [FAO/WHO Joint Meeting on Pesticide Management], this would be the appropriate place together with countries and ALL relevant stakeholders" to lead international action.

A government called for an intergovernmental body within the chemicals and waste cluster. Another stated that the Rotterdam Convention, Stockholm Convention, and Montreal Protocol are the de facto leads on broad aspects of HHP management, and they are well placed to continue with these long-established roles. This respondent added that other instruments should focus on identifying national and regional issues, prioritization of these issues, and facilitating a broad range of appropriate solutions.

Figure A29. Forums and instruments that could lead international action on HHPs



Note: Stakeholders could select more than one option. Number of respondents = 28.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

International agendas with linkages to HHPs

As indicated by Figure A30, respondents drew links between HHPs and a wide range of international agendas, with most respondents highlighting the connections to health and agriculture and food, closely followed by biodiversity as well as sustainable consumption and production. One respondent who selected "other" cited the "future international framework on chemicals and waste management" and another respondent cited "all of them".

A respondent from academia cited links to SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-Being), SDG 12 (Responsible Consumption and Production).

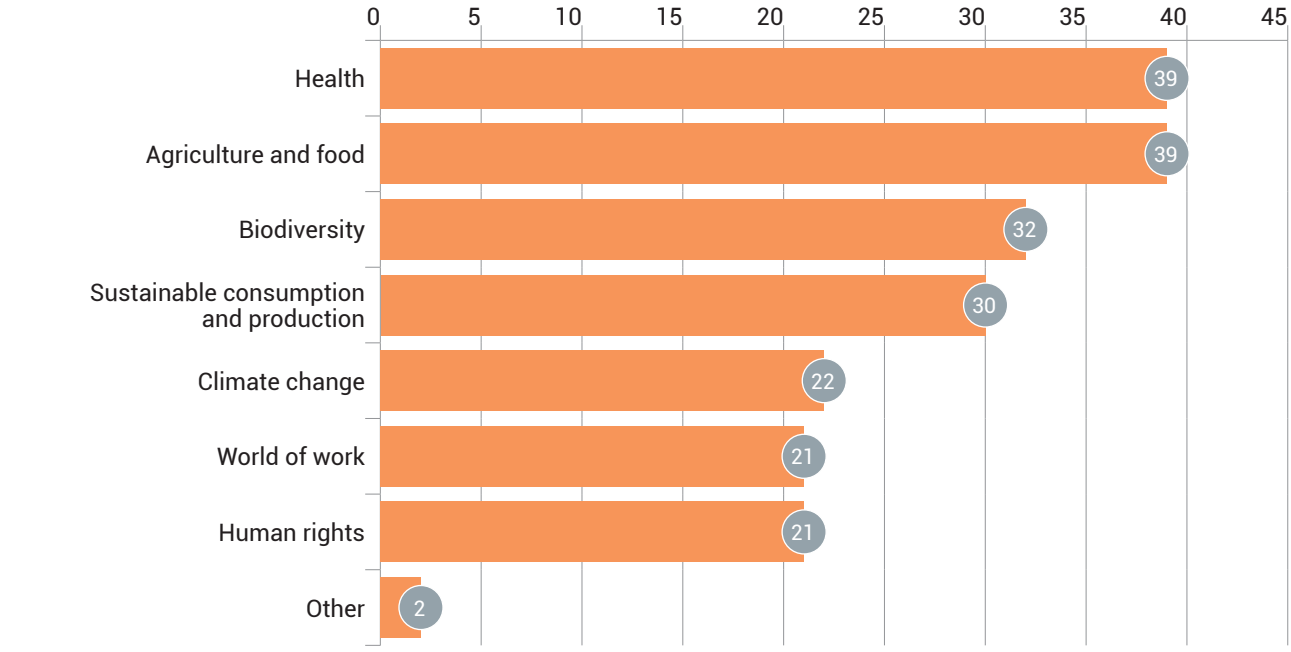
Priority work at the national and regional levels

On priorities for work at the national level, one government called for registration of pesticides for use in public health, animal health, and plant health. Another government called for enhancing "international support to developing countries and countries in transition, possibly through legally-binding instruments and partnerships, including building resources and capacity to develop and enforce" national legislation, combat illegal trade, and address existing stocks of obsolete pesticides. This respondent also called for updating legislation in line with relevant international conventions (e.g. the Rotterdam Convention and creating synergies with SAICM). Several respondents called for regulatory controls to reduce or eliminate exposure, with one NGO calling for prohibition of the use and export of HHPs.

Several respondents prioritized capacity-building and training, including for smallholder farmers. One government called for strengthening national capacity to conduct risk assessment and risk management "mindful of the responsibility of national and multinational enterprises". A respondent from the private sector called for capacity-building involving all sectors.

Two international organizations stated that "for countries where HHPs are used in a high proportion of suicides, suicide prevention through regulatory bans of acutely toxic pesticides should be a priority".

Figure A30. Stakeholders' views on the international agendas which have important linkages with HHPs



Note: Stakeholders could select more than one option. Number of respondents = 38.

An NGO called on countries to support the initiative proposed by the African Region to establish a global alliance on HHPs under SAICM[2], supported publication of an official HHP list by the FAO/WHO, and suggested governments make use of all possible mechanisms to support the replacement of HHPs with non-chemical alternatives.

A respondent from academia called for a range of work, including: risk assessments; restricting the highest-risk pesticides; investing in integrated pest management; providing incentives for safer substitutes; improving labelling requirements; and developing an action plan to phase out HHP uses that present intolerable risks while balancing the need for effective pest control.

Respondents prioritized similar actions at the regional level. A government called for obliging developed countries to: facilitate the flow of information and provide the necessary expertise to improve the management of chemicals and to produce and export safer alternatives; develop and establish specialized research centres locally and regionally, with financial support; and bridge the scientific gap between developed and developing countries.

Another government called for regulating manufacturer transparency, including by ensuring proper labelling and providing detailed lists of chemical constituents with their quantities for all products, as well as enforcing or incentivizing manufacturers to opt for safer alternatives.

An NGO stressed that professional organizations and schools of agriculture should educate professionals and the community on better options and on the health effects of HHPs.

A respondent from academia called for: pooling data to identify key sources of HHPs and supply chains that transport crop protection products within the region; establish consistent protocols and data-sharing mechanisms; provide regional funding for research into safer alternatives; adopt harmonized standards; create integrated pest management strategies and guidelines for the agricultural industry to minimize HHP use; foster information exchange; and offer financial and technical assistance to least developed countries.

2 ICCM-5 endorsed the formation of a Global Alliance on HHPs and invited the FAO to the coordination of its activities, in cooperation with UNEP, WHO, UNDP and the ILO.

3.2 GLYPHOSATE

Glyphosate is an organophosphorus herbicide that kills or suppresses all weed types, with the exception of those genetically modified to tolerate the active ingredient. Glyphosate is ubiquitous in surface waters and croplands, and research shows that glyphosate is toxic to aquatic life and may pose risks to non-target terrestrial plants. Scientific research on potential adverse effects on human health, including its carcinogenicity, is ongoing (UNEP 2020).

Forty-two stakeholders answered at least one substantive question on glyphosate. Eighty-three per cent indicated that they believe further international action is necessary. Fourteen per cent said international action is not necessary, and three per cent per cent (one respondent) said they did not know. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many of those who supported international action cited concerns about the health impacts of glyphosate, with two respondents noting that it is one of the most used herbicides in the world. An NGO said glyphosate is an occupational and environmental health concern and encourages damaging agricultural practices. Another NGO said glyphosate has contributed to the loss of a range of biological species of plants and animals, and particularly those animals that burrow, fertilize the soils, and pollinate the plants.

A respondent from academia stated that while the current evidence on the impacts of glyphosate is mixed, the disagreement among studies and regulators, potential for transboundary impacts, and uncertainties around long-term effects suggest that further international action - in the form of coordinated research, risk assessment, and risk management - could help create a more precautionary, evidence-based approach to glyphosate.

A respondent from the private sector said that glyphosate has been well researched and many concerns about this chemical are "related to the use of herbicides and generally due to its association with specific types of agriculture" including genetically modified crops and intensive agriculture. This respondent also said that these "larger questions need broader stakeholder engagement and should not narrowly focus on just a specific chemical".

Of 34 respondents, 80 per cent said glyphosate is a "very high" or "high" priority for action, 11 per cent said they are a "medium" priority, 6 per cent said they are a "low" priority, and 3 per cent said they are a "very low" priority.

International actions

Respondents called for a range of international actions to address glyphosate: 35 per cent supported the establishment of a legally-binding instrument; 35 per cent supported voluntary initiatives including information sharing and awareness-raising; 20 per cent supported using soft law; and 6 per cent supported using other measures. Four per cent said no international actions are needed. Respondents who selected "other" called for: "strict international regulation" and strengthening "communication on the safe use of the product and controls/monitoring of its correct application" and "starting with soft law and awareness-raising/voluntary initiatives".

Another respondent stated "only legally-binding actions taken internationally will sufficiently regulate the production, trade and use of glyphosate in order to adequately mitigate the risks it presents. While soft law, voluntary initiatives and information sharing and awareness-raising can play a part in reducing the use of glyphosate, there is a plethora of data indicating that such voluntary or non-mandatory initiatives to remove harmful substances or practices from value chains are insufficient to normalise reforms".

A government said countries should apply the precautionary principle and prohibit glyphosate and, in the medium term, an international instrument should gradually eliminate the use of this and other pesticides that pose similar risks.

As indicated by Figure A31 below, respondents expressed support for a range of approaches to, and measures for, addressing glyphosate, with particularly strong support for information-based and enforcement tools and regulatory control measures. Several respondents who selected "other" called for bans or a legally-binding instrument.

In written comments, an NGO said that it is not possible for glyphosate to be used safely, and the "only way is to get rid of it". A government stated that "for management to be homogeneous, it must be regulatory". A government called for regulation when alternatives are available, taking into account the need to avoid regrettable substitutions.

A government called for a broad range of non-binding measures to assist countries in their national efforts. An NGO said the measures and approaches should be organized mainly by an NGO.

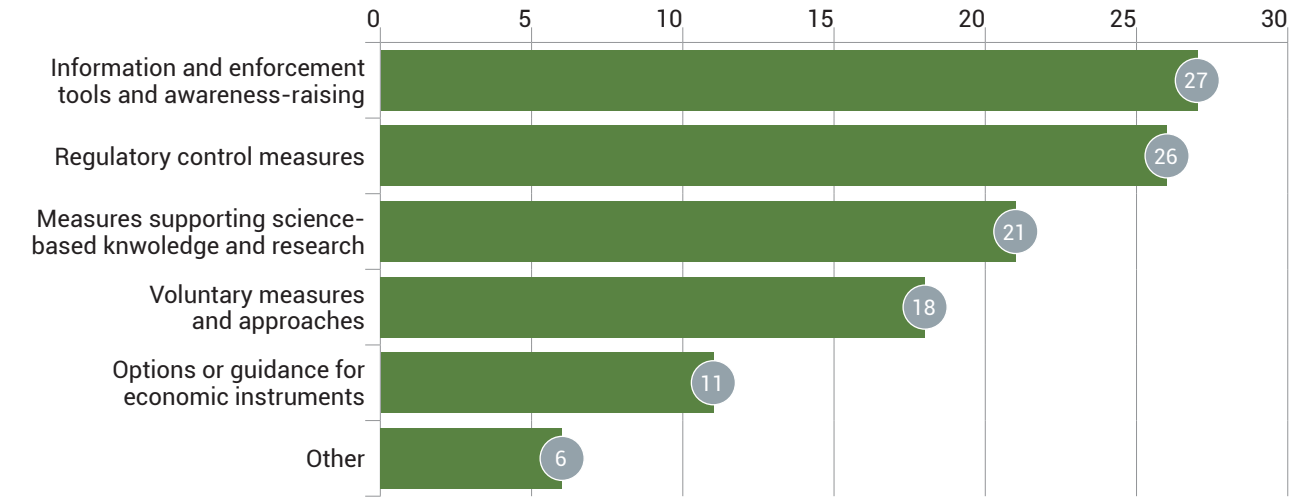
A respondent from academia called for additional research, a joint risk assessment, and international monitoring programmes, noting that "only after there is greater clarity around glyphosate's actual risks - based on robust research and risk assessment - would more restrictively approaches like harmonized use restrictions or market incentives potentially be warranted". A government said countries must apply the precautionary principle and prohibit the use of glyphosate.

An international organization cited WHO's International Code of Conduct on Pesticide Management (WMO 2014), which outlines voluntary standards of conduct for stakeholders engaged in or associated with the management of pesticides throughout their lifecycles. Another international organization called for promoting the ratification and implementation of existing normative instruments, including ILO chemicals conventions, particularly Convention No.170 and Convention No.139 (and any forthcoming instruments, including a proposed chemicals protocol).

Factors that prevent action or progress on glyphosate

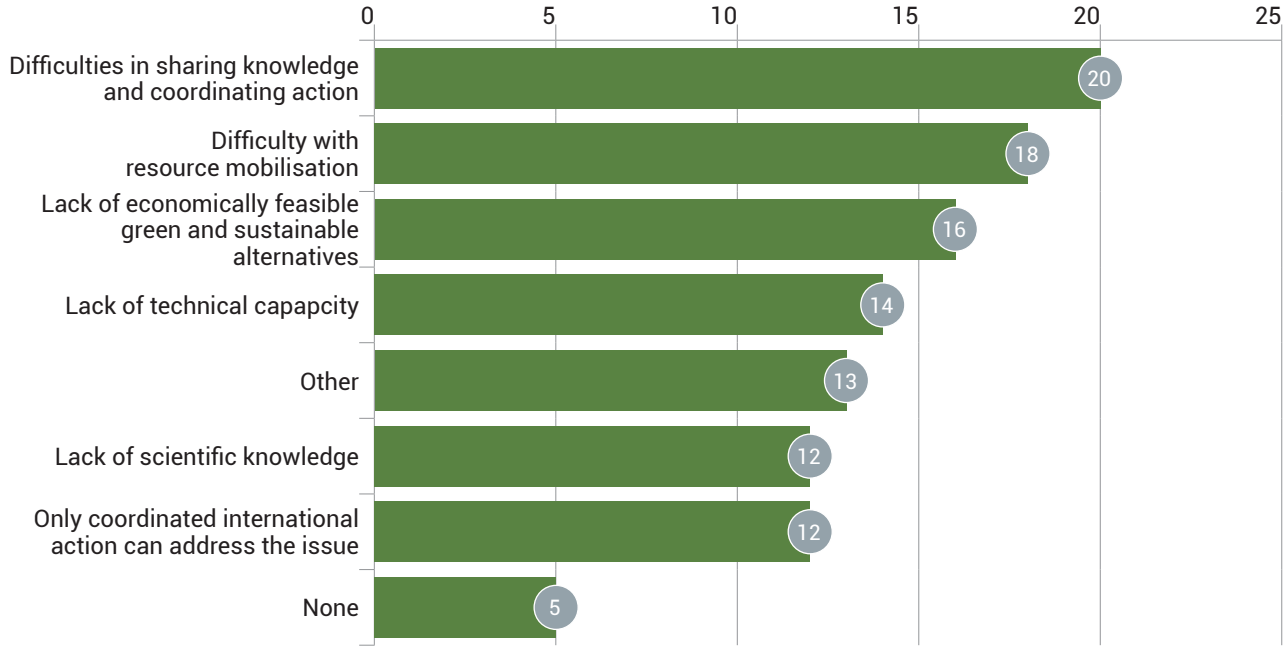
As indicated by Figure A32 below, respondents identified many challenges to action on glyphosate, with difficulties in sharing knowledge and coordinating action among stakeholders and across different sectors topping the list, followed closely by difficulties with resource mobilization. Respondents who selected "other" cited lobbying by producers and/or distributors, low cooperation

Figure A31. Stakeholders' views on the approaches or measures to address glyphosate at the international level



Note: Stakeholders could select more than one option. Number of respondents = 35.

Figure A32. Stakeholders' views on the factors preventing action or progress on addressing glyphosate in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 35.

of industry, lack of interest from governments, lack of means of implementation, lack of processes that allow "progress by the majority (rather than consensus decision-making), corruption, and lack of enforcement of existing legislation.

In written comments, one government stated that "the herbicide is a weapon of mass destruction" and efforts to manage it "have not been able to prevent toxicity to people and ecosystems". An NGO described a multi-year awareness campaign it had run for agricultural workers in Africa and said that "this couldn't prevent exposure to glyphosate". A second government noted that in its country, there is "no information at the local level". Another government cited challenges with finding "immediate, technically and economically viable substitutes" as well as resistance among farmers to giving up the product, given that they have been using it "for many years, with very good results".

Three governments cited "corruption". One government cited lobbying by distributors and "external influence at decision-making levels" as factors that prevent action, saying that "every time a decision is made about restriction or prohibition, the lack of technical capacity in the institutions makes it difficult for them to defend what is proposed against the industry experts brought by the distributors. Two governments cited the influence of the agrochemical lobby.

An NGO cited "lack of interest from the governments and very low cooperation of the industry". Another NGO cited a "lack of processes that allow progress by the majority (rather than consensus decision-making)" as well as "strong influence from a mighty chemical industry lobby".

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up to address glyphosate, several respondents noted national regulations. An NGO cited the Global Alliance to Eliminate Lead Paint as a model for addressing HHPs.

A respondent from academia cited several examples, including: monitoring programmes by Health Canada to track glyphosate residues in food, water and human urine; the European Commission's funding for research into alternatives; public information campaigns launched by some regions

and organizations; and evaluations by international bodies of glyphosate's hazards and risks.

Important sectors and value chains

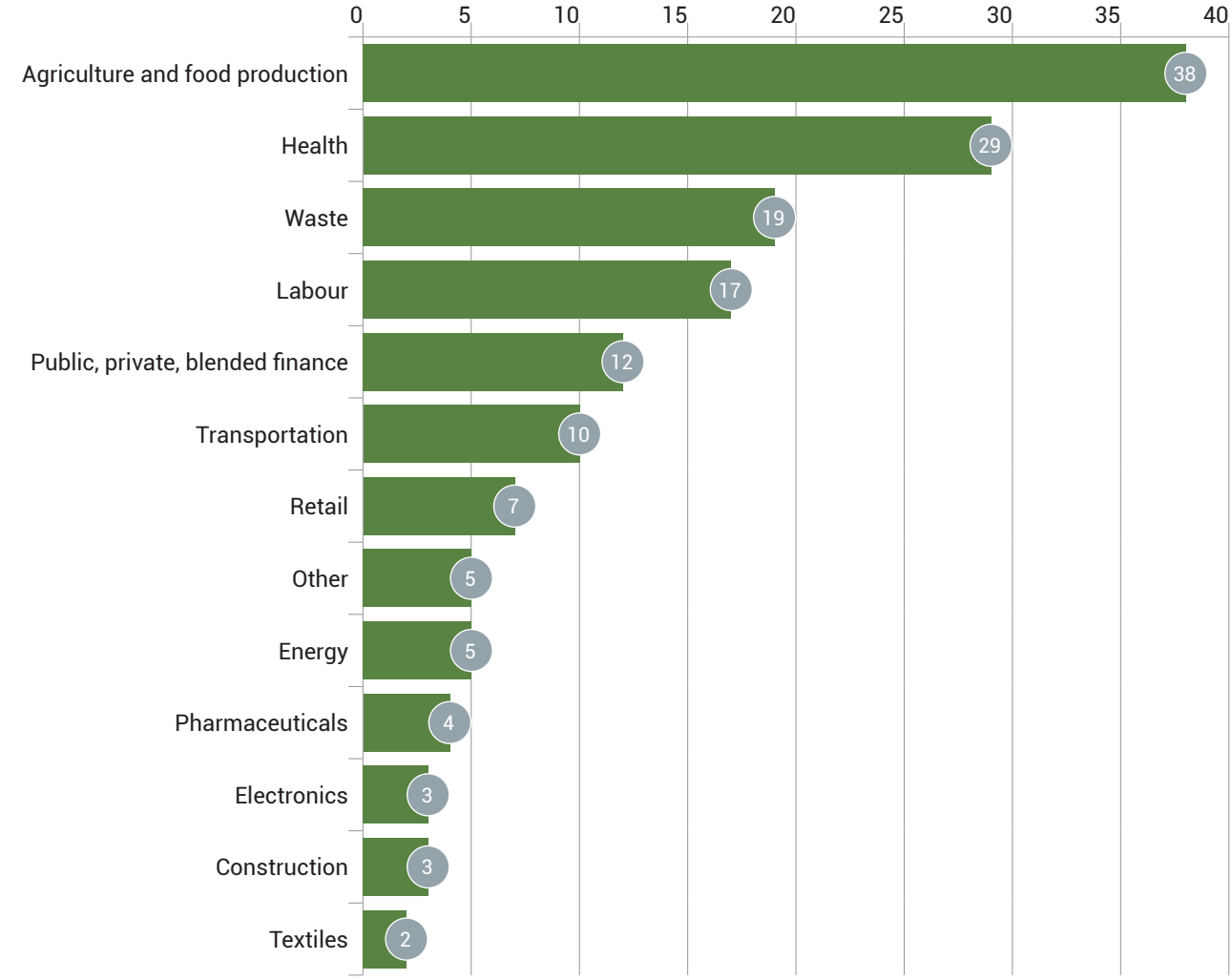
As indicated by Figure A33, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing agriculture and food production as well as health. In written comments, one NGO said the chemicals sector needs to be involved, and another said "all of them".

International forums and instruments best placed to lead international action on glyphosate

Respondents identified several international organizations and instruments as best placed to lead, including SAICM and the 'beyond 2020' instrument, the FAO, and WHO at the top of the list.

One NGO stated that none should lead, as "each country must act through its official bodies and reinforce its actions". An NGO organization called for leadership where NGOs "can be

Figure A33. Stakeholders views on the sectors or value chains which need to be closely involved in developing solutions for glyphosate

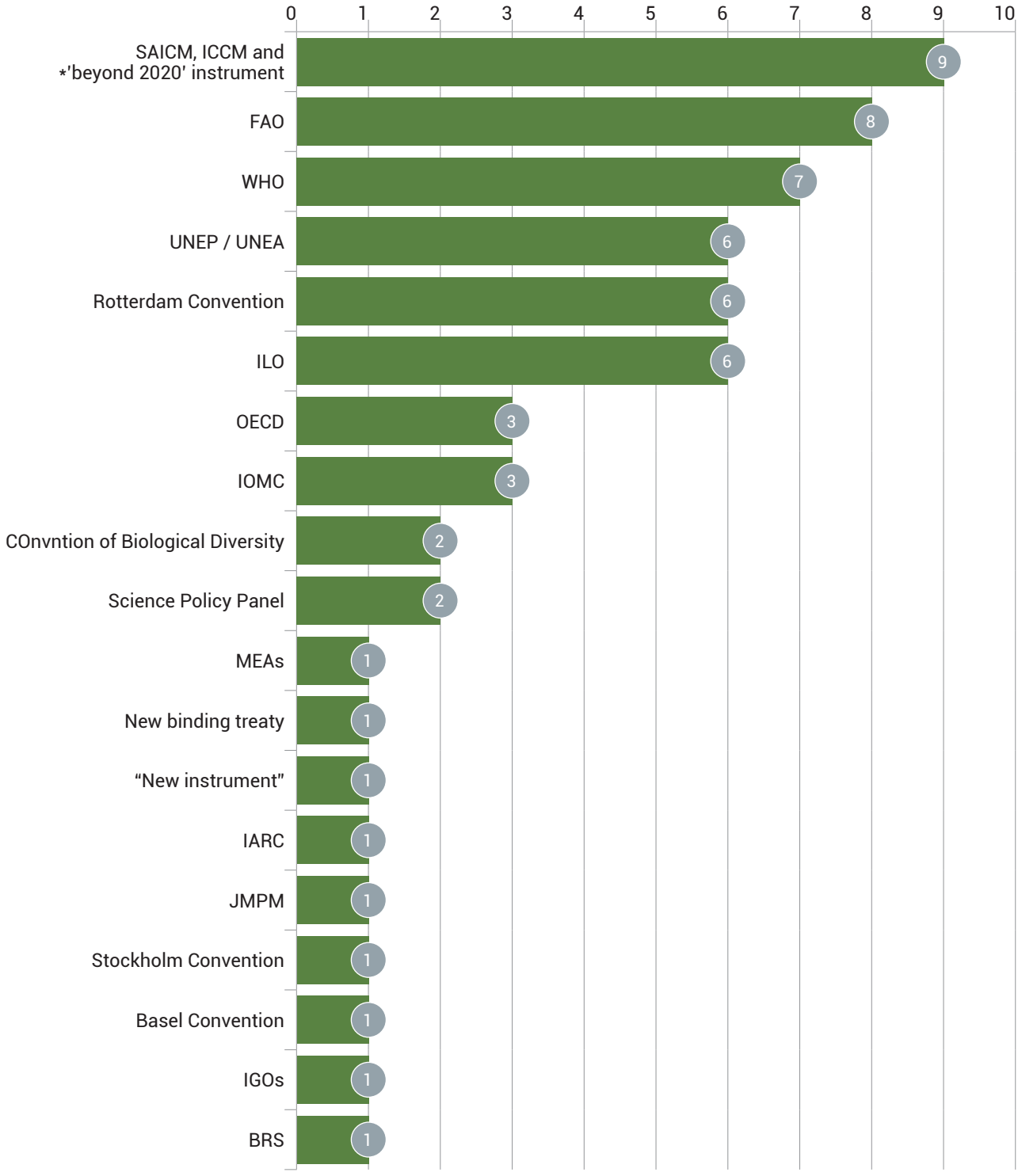


Note: Stakeholders could select more than one option. Number of respondents = 38.

included and participate, as we need learning and capacity-building".

An NGO said that while the 'beyond 2020' framework may set policy direction for pesticides for the next decade or longer, "there is clear evidence that ICCM and SAICM may not be up to the task. Over a nearly 18-year history, ICCM and SAICM have been woefully unambitious, and have failed to take any widespread or global action on glyphosate or any pesticides commensurate with the harm they cause". This respondent said the UN may

Figure A34. Forums and instruments that could lead international action on glyphosate



Note: Stakeholders could select more than one option. Number of respondents = 26.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

need to consider developing a new binding treaty on pesticides.

A government said the OECD, "perhaps through its Working Party on Pesticides, may be the best placed international instrument to lead a scientific and risk-based identification of any particular regional issues pertaining to the management of glyphosate (as opposed to policy-based issues)". This respondent added that glyphosate is not listed under the major MEAs as it has not been demonstrated to meet the conventions' respective criteria, and the potential relevance of glyphosate under other conventions, such as the Convention on Biological Diversity, has yet to be comprehensively established.

International agendas with linkages to glyphosate

As indicated by Figure A35, respondents drew links between glyphosate and a wide range of international agendas, with most respondents highlighting the connections to agriculture and food as well as health. Respondents who selected "other" cited the "future international framework on chemicals and waste management", the Escazu Agreement on access rights and considerations for vulnerable and marginalized groups, and another respondent cited "all of them".

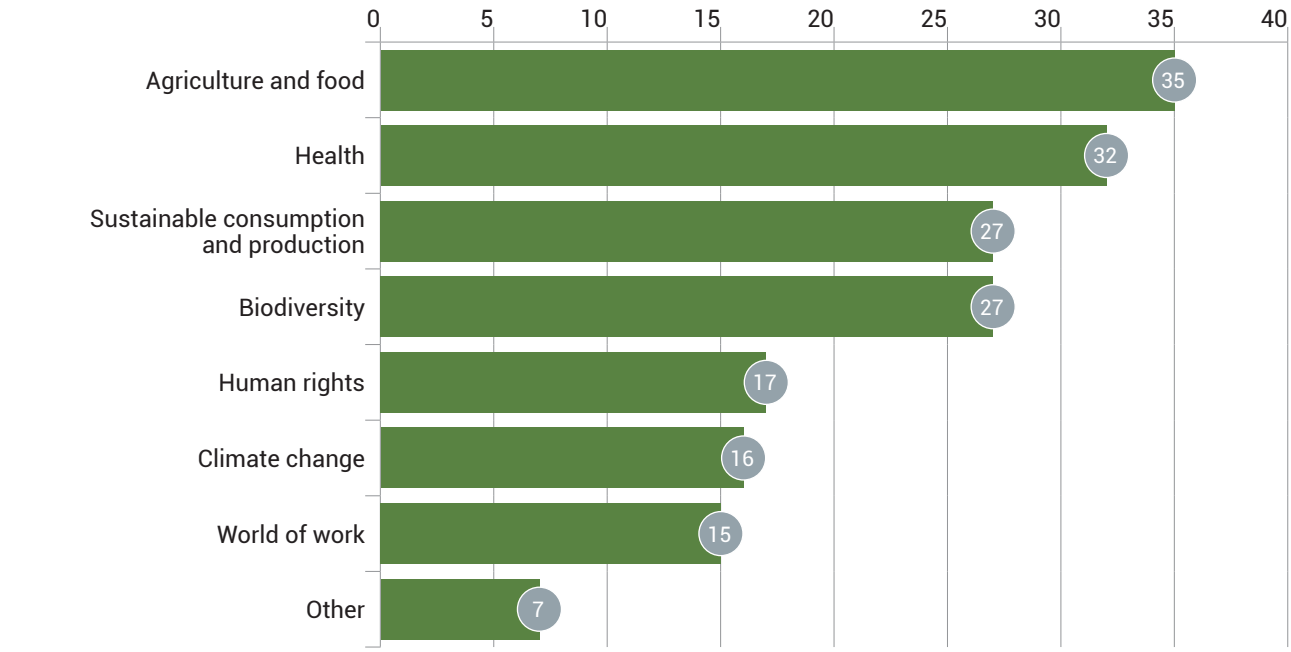
A government stated that "greater international ties are required to continue with research and studies on the effects of glyphosate on the environment and human health".

An NGO said that "sensible and principled regulation that cuts off the supply of glyphosate at source will result in immediate positive outcomes in all these areas of activity". Another NGO said glyphosate is a cross-cutting issue and should be viewed as key to solving several elements of the triple planetary crisis.

A government said the "potential relevance of glyphosate to many of the "international agendas" items presented above has yet to be comprehensively established, with the exception of "agriculture and food".

A respondent from academia cited links to SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-Being), as well as the Aichi Biodiversity Targets, the International Code of Conduct on Pesticide Management, the Paris Agreement,

Figure A35. Stakeholders' views on the international agendas which have important linkages with glyphosate



Note: Stakeholders could select more than one option. Number of respondents = 37.

sustainable agriculture and food security agendas, and international chemical safety agendas.

Priority work at the national and regional levels

On priorities for work at the national level, one government called for creating analytical, diagnostic, and statistical research capabilities to generate evidence on environmental and human impacts. An NGO said UNEP, ILO, FAO and WHO "should be involved in a better and stronger way" at the "international, regional, and national" levels.

Two governments highlighted the need for better monitoring of glyphosate. An NGO called for building the capacity of smallholder farmers, saying this is essential for its sound management.

A respondent from academia called for: funding additional research; conducting a national risk assessment; setting appropriate exposure limits; investing in alternatives; providing support for safer use; restricting usage selectively, if needed; and improving transparency.

Respondents prioritized similar actions at the regional level, with a respondent from academia stating that priorities should include: conducting a joint risk assessment; harmonizing exposure guidelines; establishing shared monitoring systems; funding collaborative research on alternatives; adopting harmonized restrictions, if needed; providing technical support to less developed countries; and conducting joint communication.

One government called for establishing a regional knowledge-sharing network on pesticides of concern. Another government called for establishing a list of priority pesticides for prohibition or restriction within the framework of regional technical regulations on pesticides. A third government called for removing silos and spreading information. An NGO called for increasing the capacities of stakeholders concerned in the supply chain of glyphosate.

3.3 NEONICOTINOIDS

Neonicotinoids are a class of insecticides used to protect plants, livestock, and pets from pest insects, as well as for malaria vector control. Neonicotinoids target the central nervous system and are highly effective, with low rates of resistance in pest insects. Some neonicotinoids are highly to very highly toxic and may be lethal or sublethal for adult honeybees. EFSA identified thiacloprid – a neonicotinoid – as an endocrine disrupting chemical that meets the 2013 EFSA Scientific Committee criteria and WHO definition for an endocrine disruptor (UNEP 2020).

Thirty-three stakeholders answered at least one substantive question on neonicotinoids. Seventy-nine per cent indicated that they believe further international action is necessary. Six per cent said international action is not necessary, and 15 per cent said they did not know. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many of those who supported international action cited the increasing use of neonicotinoids, with some noting that their effects are not well understood. Others stated that neonicotinoids are toxic to bees and other pollinators. Two international organizations cited concern about the implications for fruit production, noting that the effects of neonicotinoids on production in tropical environments has received little research attention despite possible differences between impacts in tropical and temperate regions.

Another government stated that neonicotinoids have the characteristics of persistent organic pollutants, and said the regulatory actions already taken by developed countries confirm the significant risks associated with these substances for bees, certain wildlife, and humans. A third government noted that "in many jurisdictions (…) several neonicotinoid insecticides are registered for use under the authority of robust and well-resourced regulatory regimes".

A respondent from academia stated that given neonicotinoids' "persistence, mobility, transboundary spread, limited effectiveness of isolated national actions, disproportionate impacts, uncertain risks, complex supply chains and slow alternative adoption, further international coordination and agreements seem warranted to characterize, manage and mitigate their risks in an equitable manner".

Of 27 respondents, 81 per cent said neonicotinoids are a "high" or "very high" priority for action, 15 per cent said they are a "medium" priority, and 4 per cent (one respondent) said they are a "low" priority.

International actions

Respondents called for a range of international actions on neonicotinoids: 37 per cent supported voluntary initiatives including information sharing and awareness-raising; 35 per cent supported the establishment of a legally-binding instrument; 20 per cent supported using soft law; and 6 per cent supported using other measures. Two per cent said no international actions are needed. In written comments, respondents who selected "other" called for international labelling and prior informed consent procedures for export.

Two international organizations stated that specific neonicotinoids that are potentially harmful to health could be included under relevant binding agreements, such as the Rotterdam Convention. An NGO called for international, legally-binding actions, saying where use of neonicotinoids "remains legally permitted, it is unrealistic to expect companies, farmers and consumers to dramatically reduce or to avoid the use of neonicotinoids – regardless of how much they know about their negative impacts".

A government called for a combination of actions, including legally-binding instruments, soft law, information sharing and awareness-raising campaigns, and voluntary initiatives. Another government said that ideally a legally-binding treaty

should be adopted, but in the absence of support for such measures, focus should be put on addressing these issues via soft law, voluntary initiatives, and information sharing.

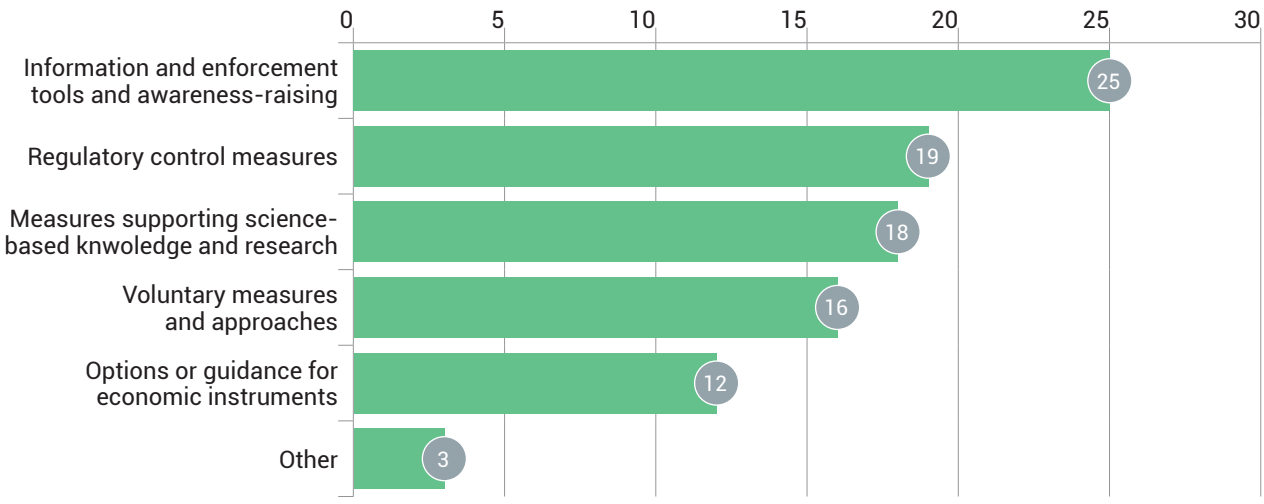
As indicated by Figure A36 below, respondents expressed support for a range of approaches to and measures for addressing neonicotinoids, with particularly strong support for information-based and enforcement tools. A respondent who selected "other" specified that regulatory management would allow appropriate measures to be taken. Another suggested the Rotterdam Convention's PIC procedures for exports. A third cited the need for labelling.

In written comments, a respondent from academia called for: collaboratively funding and implementing harmonized programmes to close data gaps; conducting comprehensive reviews and analyses of neonicotinoid hazards and exposures; establishing consistent, restrictive limits on the concentration of neonicotinoids allowed in treated seeds and plant protection products traded globally; providing support for research into safer, more sustainable pest management techniques, and funding initiatives to accelerate the commercialization of viable alternatives; and creating mechanisms for communicating research findings, emerging issues, challenges and case studies of alternatives that work.

An NGO stated that national regulatory control measures will need to be the basic conduit of control over neonicotinoids, including but not limited to deregistration of neonicotinoids, the adaptations and strengthening of maximum residual levels legislation to exclude neonicotinoids from export-oriented industrial agriculture, and prohibitions on the export of pesticides banned from domestic use. This respondent added that a new legally-binding treaty on pesticides could ensure national regulatory control measures are sufficiently harmonized and global. A government stated that global regulatory control measures will help countries with weak environmental and health-related regulations better control and restrict neonicotinoids.

Two governments called for a combination of regulatory control measures, information-based enforcement tools, options/guidance for economic instruments, voluntary measures and approaches, and measures for supporting science-based knowledge and research. Another government said that ideally regulatory control measures should be adopted to eliminate exposure to neonicotinoids and to prevent emissions/releases, but in the absence of agreement for such measures, a range

Figure A36. Stakeholders' views on the approaches or measures to address neonicotinoids at the international level



Note: Stakeholders could select more than one option. Number of respondents = 28.

of non-binding measures should be undertaken to assist countries in their national efforts.

Factors that prevent action or progress on neonicotinoids

As indicated by Figure A37, respondents identified many challenges to action on neonicotinoids, with difficulties with resource mobilization topping the list, followed closely by lack of technical capacity, lack of scientific knowledge, lack of economically feasible green and sustainable alternatives, and difficulties in sharing knowledge and coordinating action. One respondent who selected "other" cited agrochemical industry influence, and another cited "all of them".

In written comments, one government stated that monitoring and replacement of neonicotinoids requires resources. An NGO stated that lack of technical capacity is an issue in some places, but said technical and knowledge capacity can be built and technical solutions can be found and implemented.

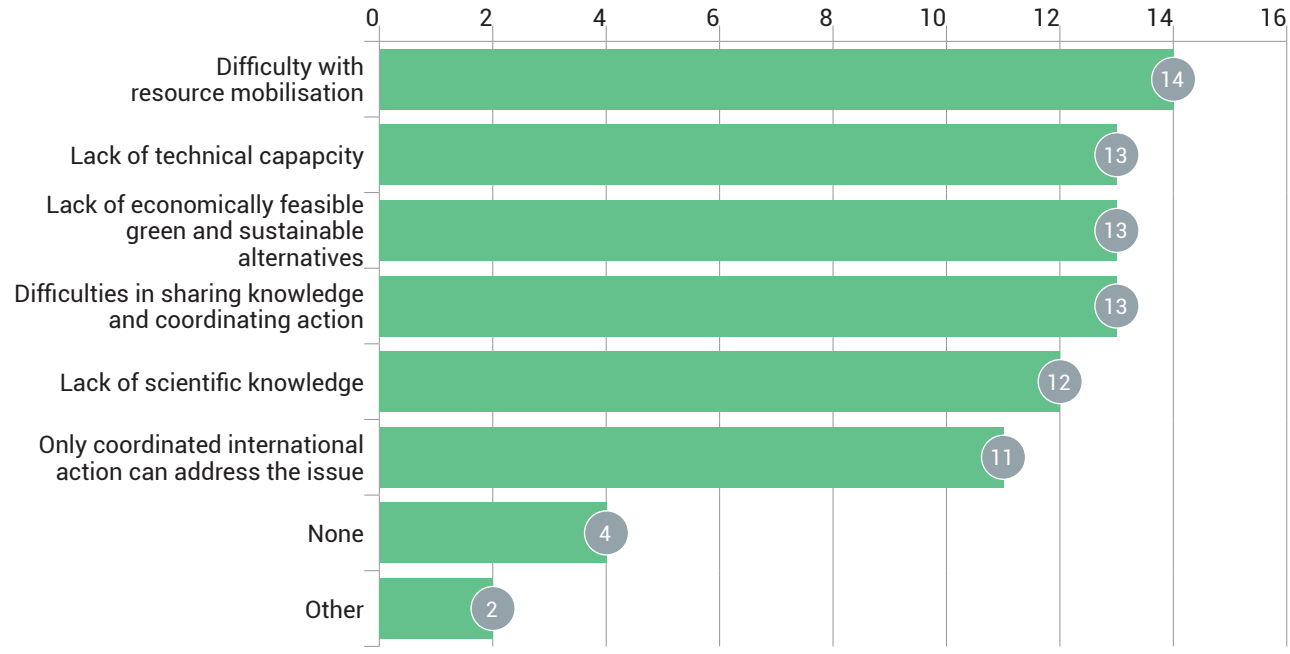
Another NGO said all of the factors cited in the bar chart are undermining progress, and said enhancing action aimed at ensuring the issue of chemicals is addressed appropriately will require a holistic approach.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up to address neonicotinoids, a government noted that some countries have banned or restricted these chemicals. Another government cited discussions that have taken place within the UCT Pesticide Discussion Forum.

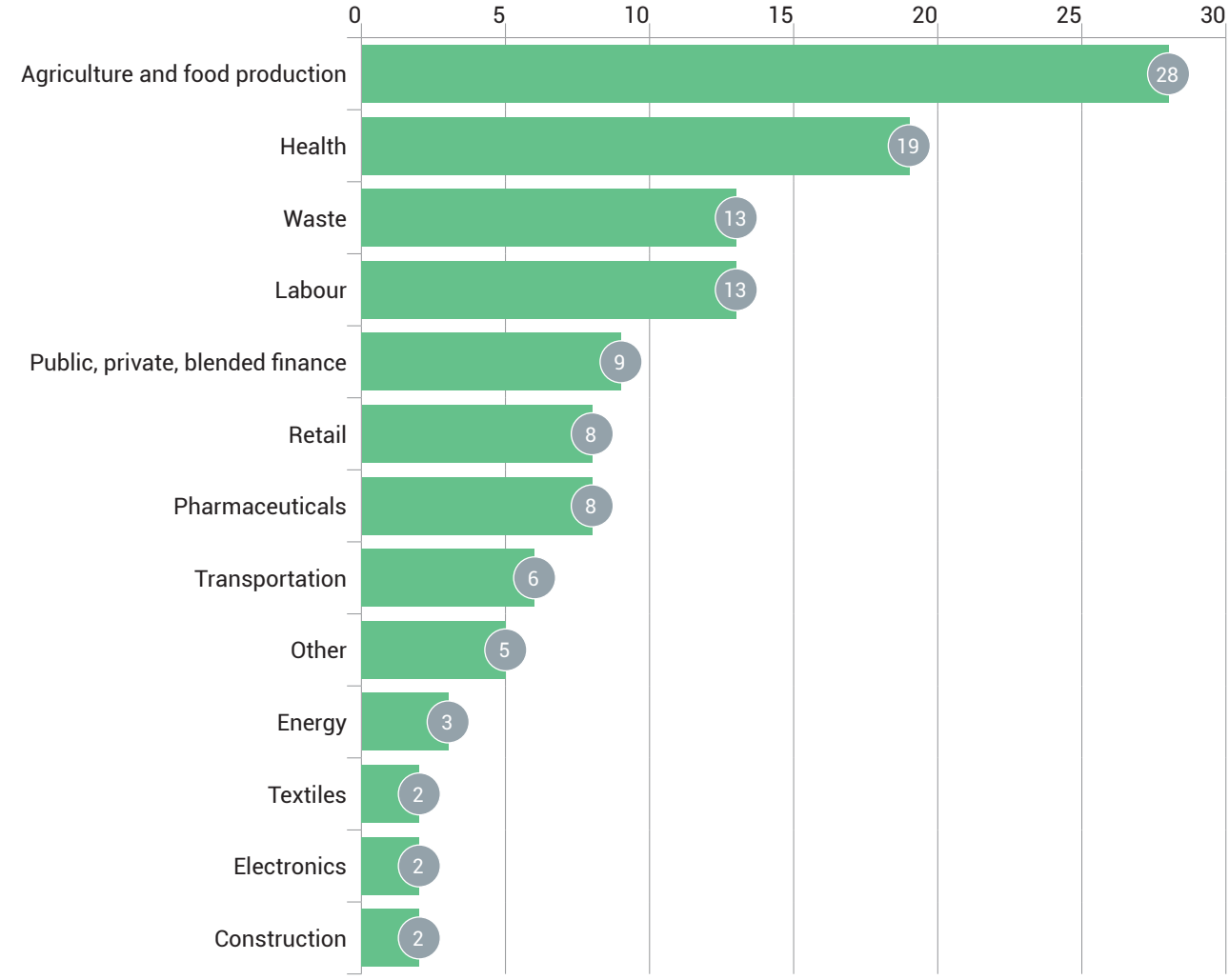
An NGO stated that "the de-registration of various neonicotinoids in the European Union in 2018 shows that national and regional regulatory action to stem the use and negative impacts of neonicotinoids is feasible and replicable". Another respondent noted that in January 2020, the US Environmental Protection Agency released proposed interim decisions for multiple chemicals that are neonicotinoids (United States Environmental Protection Agency 2023).

Figure A37. Stakeholders' views on the factors preventing action or progress on addressing neonicotinoids in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 27.

Figure A38. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for neonicotinoids



Note: Stakeholders could select more than one option. Number of respondents = 28.

A government cited Health Canada's work to provide education on pollinators and best management practices for pollinator protection and the use of neonicotinoid treated seeds (Government of Canada 2022).

Important sectors and value chains

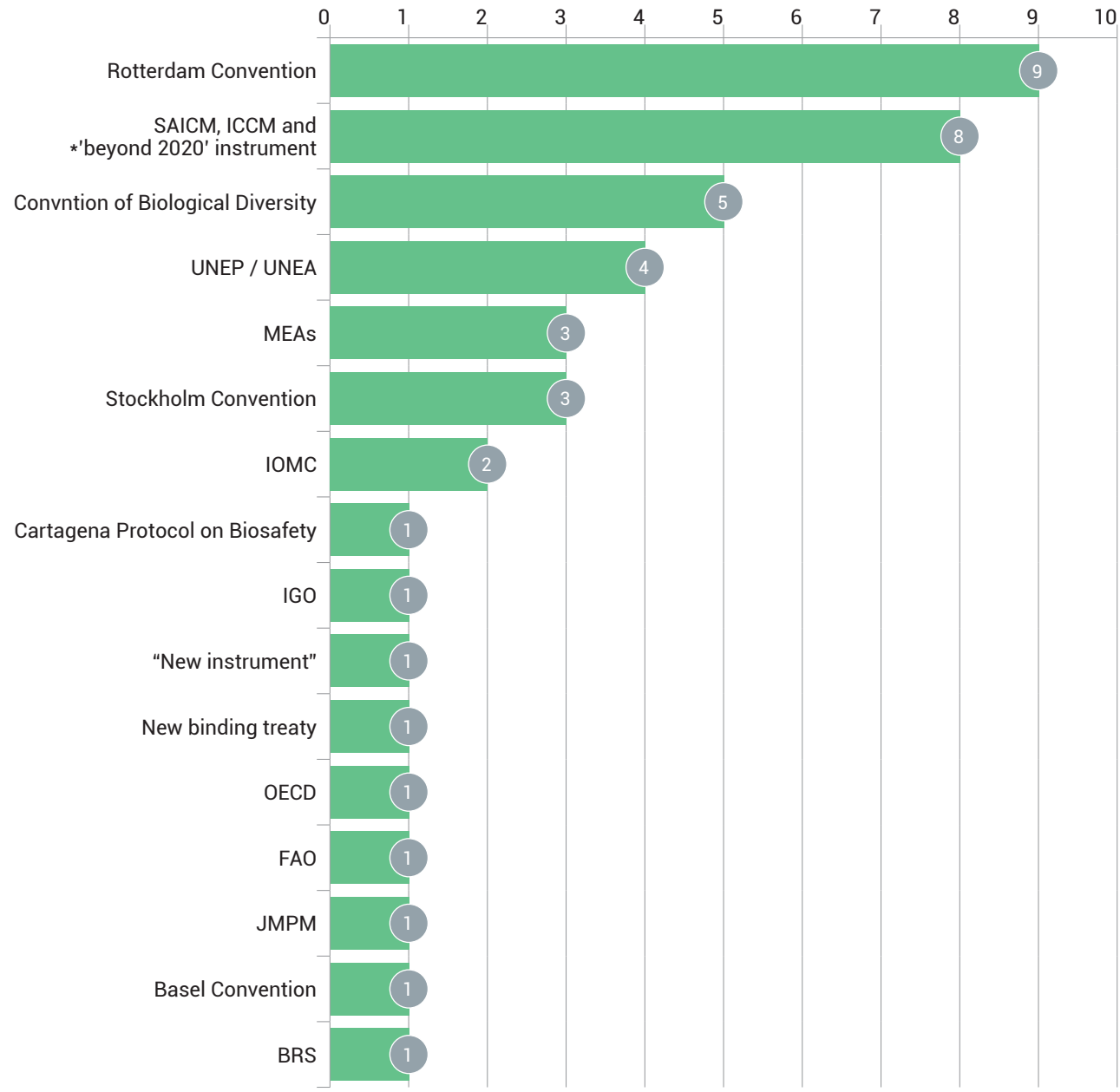
As indicated by Figure A38 above, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing agriculture and food production. In written comments, respondents who selected "other" added sectors including education, environment, the chemicals industry, and apiculturists (beekeepers). Some respondents who selected "other" cited the environment, education, the chemicals and pesticide industries, and apiculturists (as part of the agriculture and food production sector).

International forums and instruments best placed to lead international action on neonicotinoids

Respondents identified several international organizations and instruments as best placed to lead, with particularly strong support for the Rotterdam Convention, closely followed by SAICM and the 'beyond 2020' instrument.

One government stated that none should lead, as "the actions of national organizations must be

Figure A39. Forums and instruments that could lead international action on neonicotinoids



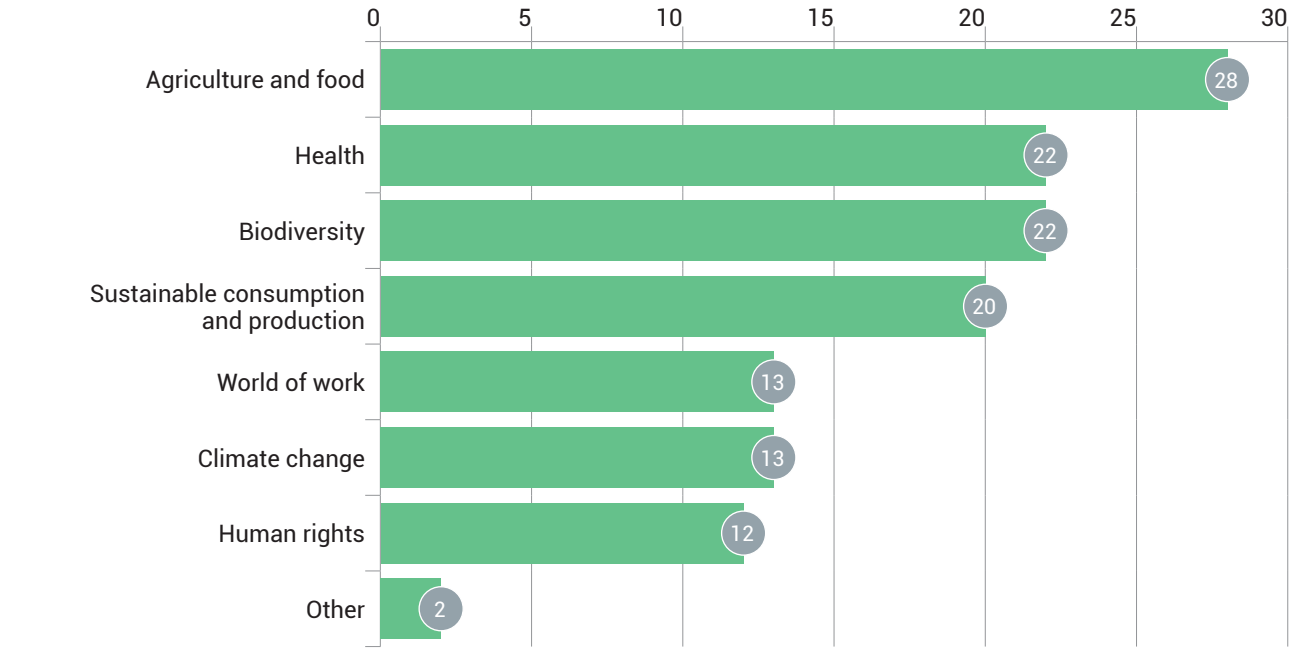
Note: Stakeholders could select more than one option. Number of respondents = 19.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

strengthened based on the agronomic use of each country".

An NGO cited the commitment to reduce the risk to biodiversity from pesticides by at least 50 per cent by 2030 made by all parties to the Convention on Biological Diversity, under Target 7 of the Kunming-Montreal Global Biodiversity Framework (KMGBF), and said "reducing the use of neonicotinoids would obviously need to play a major role in reaching that target".

A government stated that the OECD, "perhaps through its Working Party on Pesticides, may be the best placed international instrument to lead a scientific and risk-based identification of any particular regional issues pertaining to the management of neonicotinoids (as opposed to policy-based issues)".

Figure A40. Stakeholders' views on the international agendas which have important linkages with neonicotinoids



Note: Stakeholders could select more than one option. Number of respondents = 28.

International agendas with linkages to neonicotinoids

As indicated by Figure A40, respondents drew links between neonicotinoids and a wide range of international agendas, with most respondents highlighting the connections to agriculture and food as well as health. Respondents who selected "other" cited the "future international framework on chemicals and waste management" and "all of them".

An NGO cited the "future international framework on chemicals and waste management". A respondent from academia cited links to SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-Being), as well as SAICM, the UN Convention on Biological Diversity, agendas for sustainable food systems, and public health initiatives.

An NGO stated that the major impact of neonicotinoids on biodiversity critical to both agricultural and natural ecosystems, including pollinators, make them an issue of particular concern for biodiversity conservation.

A government said neonicotinoids are a global problem that is particularly severe in its country, and cited concern that the use of these substances is contributing to the decline of pollinator populations and degradation of the environment.

Priority work at the national and regional levels

On priorities for work at the national level, one government called for coordination with the Rotterdam Convention. Three respondents – one from government and two from an NGO – called for regulatory measures. Three governments called for monitoring the use of neonicotinoids.

Two international organizations called for greater support for developing technical and infrastructure capacity for research on the impacts of neonicotinoids.

A government called for: a national ban on the use of neonicotinoids; development of alternative pest control methods; educating farmers about their risks; support for research into the development of alternatives; and strengthening the regulatory capacity of government agencies.

A respondent from academia called for: national risk assessments; restricting highest risk uses, allowing continued use where alternatives do not exist; investing in alternative pest control methods; strengthening product regulation; improving transparency; educating farmers; and developing a national action plan.

At the regional level, a respondent from academia called for: research to assess which crops, regions and environments within the region face the greatest exposure risks and to identify major emission sources and exposure pathways; harmonize monitoring programmes; provide regional funding for research on alternatives; adopt harmonized standards; develop best practice guidelines; provide financial and technical assistance to least developed countries within a region; and foster information exchange.

A government highlighted the "need to look beyond alternatives with other chemicals". Another government called for establishing regional knowledge-sharing networks. A third government called for training.

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4

PHARMACEUTICALS

4.1 ENVIRONMENTALLY PERSISTENT PHARMACEUTICAL POLLUTANTS (EPPPS)

Pharmaceuticals designed to degrade slowly or not at all may have adverse effects on wildlife and ecosystems when they enter, persist, or are disseminated in the environment. They may also contribute to developing antimicrobial resistance. Pharmaceuticals enter the environment through a variety of pathways, including: wastewater and solid waste from manufacturing; consumption and excretion; improper disposal of unused products; animal husbandry; and aquafarming (UNEP 2020).

Twenty-eight stakeholders answered at least one substantive question on EPPPs. Eighty-two per cent indicated that they believe further international action is necessary. Seven per cent said international action is not necessary, and 11 per cent said they did not know. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

In written comments, an NGO referred to EPPPs as "a rapidly growing but very silent problem". Several respondents expressed concern about the impacts of EPPPs on the environment, and some noted their impacts on human health. An NGO said that "due to their widespread distribution, addressing EPPPs requires international cooperation to prevent cross-border pollution and mitigate their global impact". Another government stated that "the increase in the world population, increase in the number of drug products on the market, increase in diagnoses of stress/anxiety/depression amongst young people in addition to the ageing of the population overall … are increasing the amount of pharmaceuticals being used". This respondent added that "climate change may impact the receiving environment, as well as lead to an increase in the incidence of disease and the need for pharmaceuticals".

One government cited concerns about the development of antibiotic resistant pathogens resulting from pollution of antibiotics in the environment. Another NGO said, "the definition should be expanded to all pharmaceutical agents because of the repeated use and excretion".

A respondent from academia said international action is likely necessary due to: the complex exposure pathways of EPPPs; uncertainties about the safety of many pharmaceuticals; slow substitution of less persistent pharmaceuticals; disproportionate impacts on developing countries; and the inadequacy of isolated actions.

Of 23 respondents, 96 per cent said EPPPs are a "high" or "very high" priority for action, and 4 per cent said they are a medium priority.

International actions

Respondents called for a range of international actions on EPPPs: 38 per cent supported voluntary initiatives including information sharing and awareness-raising; 29 per cent supported the establishment of a legally-binding instrument; and 25 per cent supported using soft law. Eight per cent called for other actions, including joint guidance, standard operating procedures, municipal waste treatment regulations to remove pharmaceutical agents, inclusion of environmental aspects into "Good Manufacturing Practice" to verify effluent from manufacturing. Noting that pharmaceutical wastes are covered by the Basel Convention, an intergovernmental organization stated that the Conference of the parties has the authority to amend the text of the Convention and its annexes to collect information and adopt guidance documents and technical guidelines covering these wastes.

In written comments, many respondents cited the need for legally-binding actions at the international level. An NGO stated that "it is not possible to

regulate this issue without the commitment of governments regulating the pharmaceutical industry at the international level". A government said legally-binding instruments can be used to set standards for the control of EPPPs and can be used to establish monitoring and enforcement mechanisms.

A government said "the action choice involves disseminating information" about EPPPs to raise awareness among policymakers and stakeholders, and said voluntary initiatives can encourage collaboration and participation from relevant actors. Another government called for extended producer responsibility and taking a life cycle approach.

As indicated by Figure A41 below, respondents expressed support for a range of approaches to and measures for addressing EPPPs, with particularly strong support for information-based and enforcement tools. A respondent who selected "other" supported "all of them".

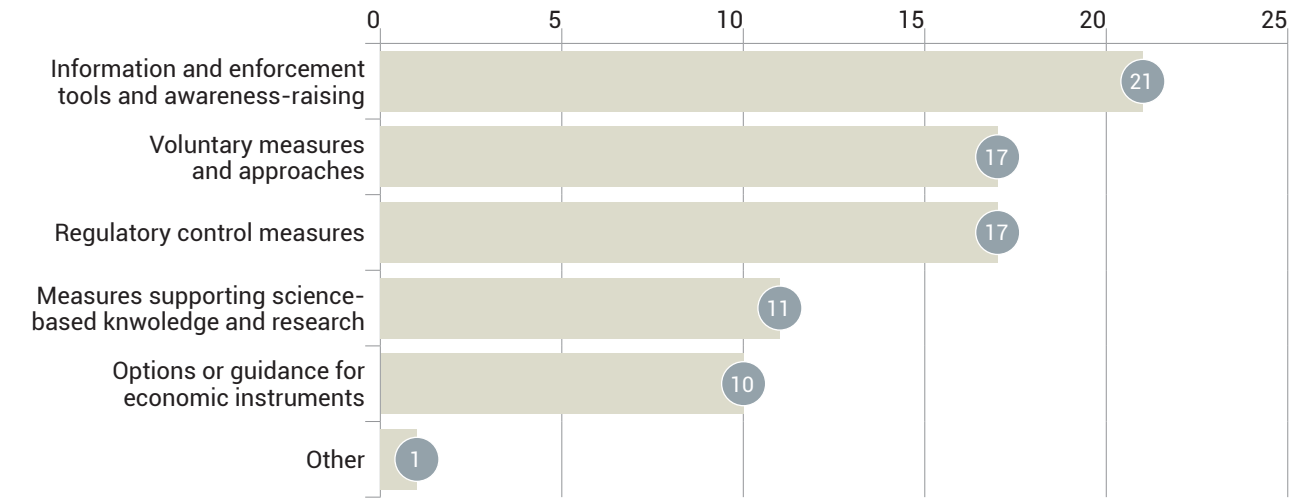
In written comments, a government supported a "multifaceted approach that combines various measures", including regulations, restrictions, standards, and voluntary measures such as guidelines, principles and strategies. Another government said that, ideally, regulatory control measures should be adopted to eliminate exposure to EPPPs, but in the absence of broad agreement for such measures, a range of non-binding measures should be undertaken to assist countries in their national efforts.

An NGO said global regulatory control measures would help countries with weak environmental and health-related regulations to better control EPPPs.

Another government recognized that having a comprehensive toolbox that contains all the approaches or measures listed above could be important in addressing EPPPs, and said taking an international approach such as the one used by UNEP's Persistent Organic Pollutants Review Committee (POPRC) could be beneficial for managing pharmaceuticals. This respondent added that robust regulatory control measures at the national level are key to preventing an influx of drug producers and suppliers to countries with the lowest environmental standards, and to promote fair and equitable trade.

A respondent from academia called for: funding and implementing harmonized programmes to detect EPPPs in the environment; conducting comprehensive reviews of hazards, persistence, bioaccumulation potential and known routes of

Figure A41. Stakeholders' views on the approaches or measures to address EPPPs at the international level



Note: Stakeholders could select more than one option. Number of respondents = 23.

exposure; pollution reduction plans; and information sharing platforms.

Factors that prevent action or progress on EPPPs

As indicated by Figure A42, respondents identified many challenges to action on EPPPs, with difficulties related to the lack of technical capacity and of scientific knowledge topping the list, followed closely by difficulty with resource mobilization and difficulties in sharing knowledge and coordinating action. A respondent who selected "other" added "lack of interest of the governments and lack of commitment from the private sector, lack of information and education of the medical community and general public".

Existing initiatives that could be replicated or scaled up

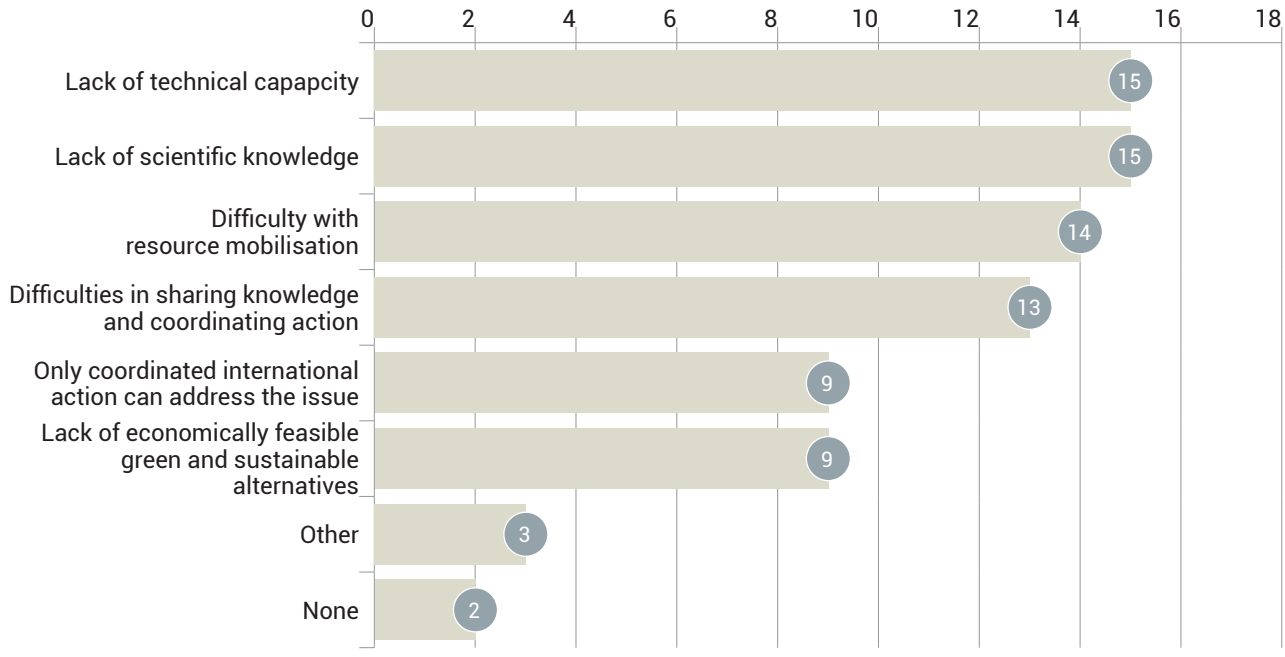
On existing initiatives that could be replicated or scaled up to address EPPPs, a respondent from academia noted that "while initiatives specifically targeting environmentally persistent pharmaceutical pollutants are limited, some existing programmes regarding wastewater management, pollution reduction and safer pharmaceutical design could potentially be scaled up internationally", including: The Global Water Partnership, which works with governments and stakeholders to promote integrated water resources management and improve wastewater treatment; EU research initiatives to identify measures for reducing releases of pharmaceutical contaminants from wastewater treatment plants; and the US EPA's Green Chemistry Program, which "incentivizes and recognizes the design of more environmentally benign pharmaceuticals and chemicals".

An international organization cited the European Medicines Agency's scientific guideline on the environmental risk assessment of medicinal products for human use. A government cited SAICM, saying that "since 2006, it has led to substantial progress in regulating chemicals".

Important sectors and value chains

As indicated by Figure A43 below, respondents identified a wide range of sectors and value chains that need to be closely involved in

Figure A42. Stakeholders' views on the factors preventing action or progress on addressing EPPPs in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 22.

developing solutions, with most respondents citing pharmaceuticals and health.

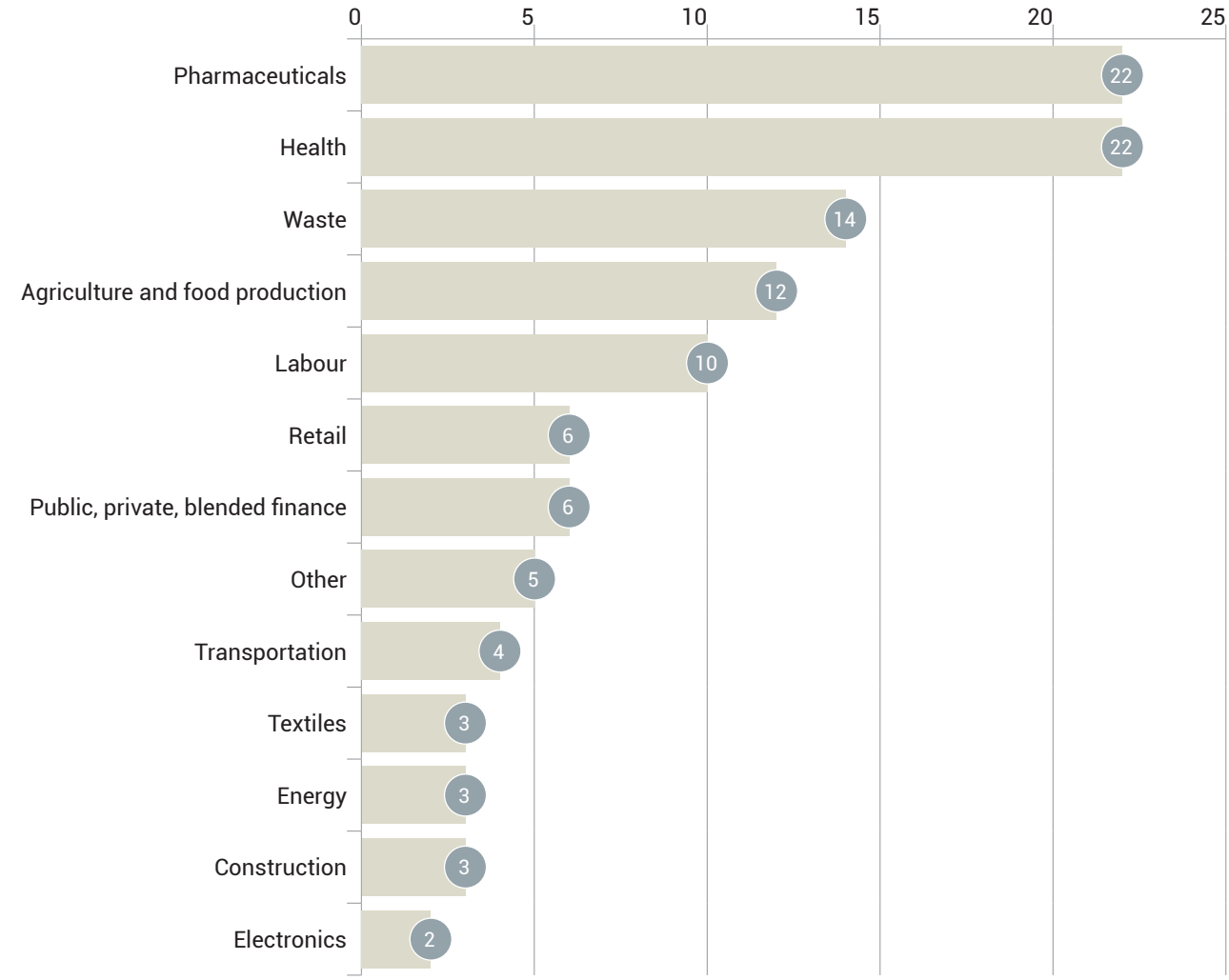
In their written comments, respondents from an international organization and an NGO cited the need for involvement of regulatory agencies responsible for water treatment or protection.

International forums and instruments best placed to lead international action on EPPPs

Respondents identified several international organizations and instruments as best placed to lead, with strongest support for WHO and SAICM and the 'beyond 2020' instrument, followed closely by UNEP.

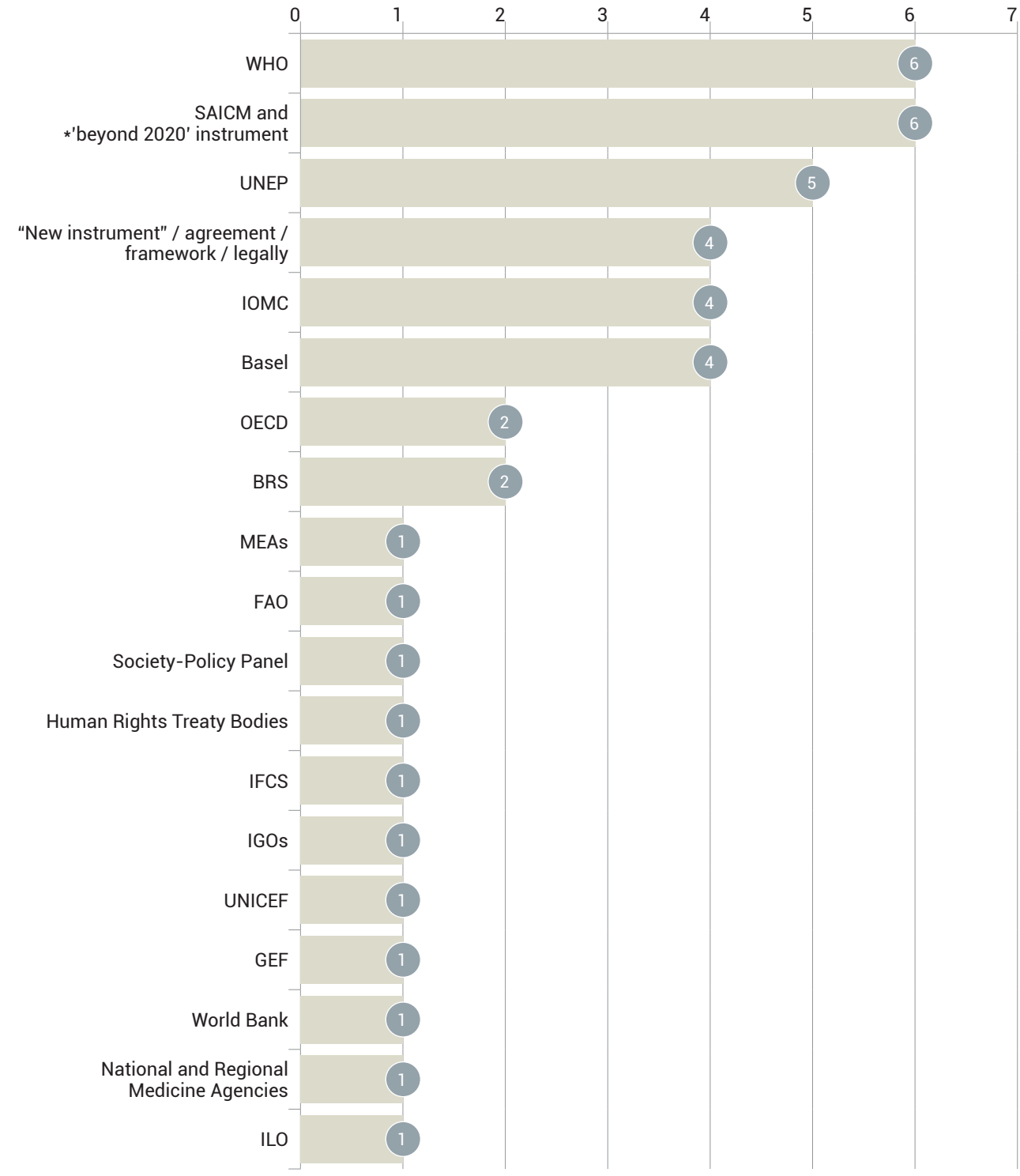
In written comments, one government stated that "it would be necessary to establish a new global framework and define surveillance and control

Figure A43. Stakeholders views on the sectors or value chains which need to be closely involved in developing solutions for EPPPs



Note: Stakeholders could select more than one option. Number of respondents = 22.

Figure A44. Forums and instruments that could lead international action on EPPPs

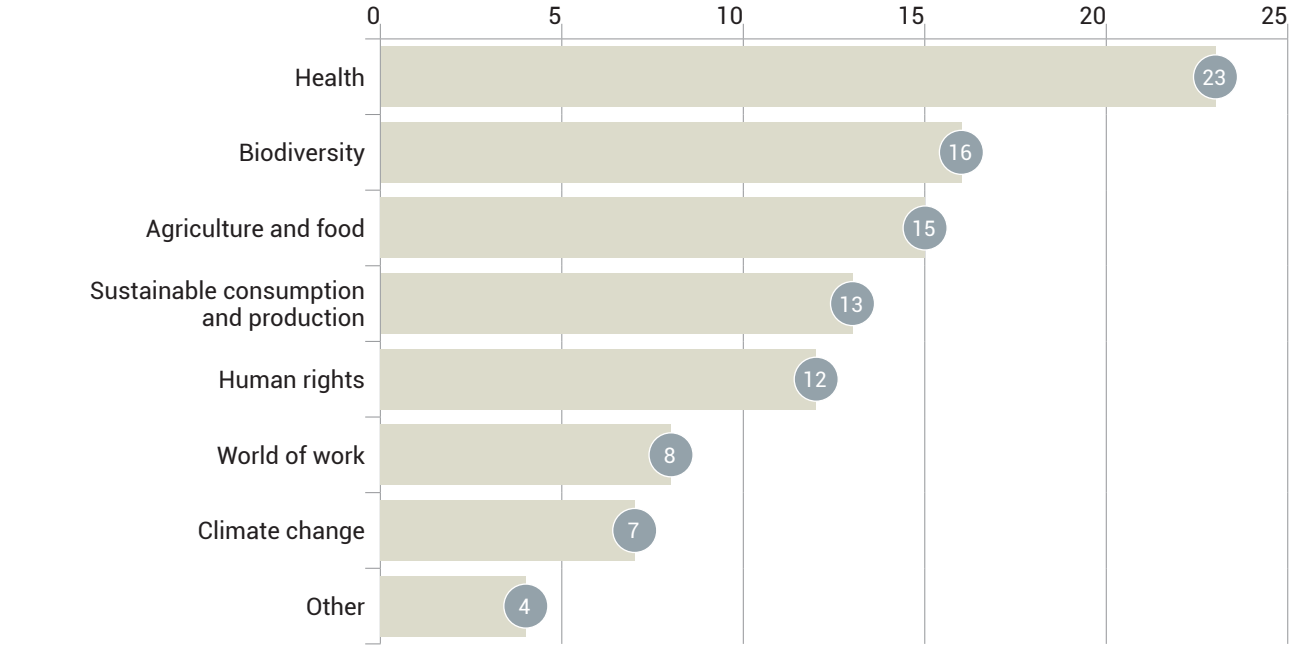


Note: Stakeholders could select more than one option. Number of respondents = 19.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

criteria". Another government called for a new legally-binding treaty.

A government highlighted the need for extended producer responsibility and said "what needs to be improved is management and not a prohibition. This issue has no clear international instrument to lead the initiative".

Figure A45. Stakeholders' views on the international agendas which have important linkages with EPPPs



Note: Stakeholders could select more than one option. Number of respondents = 23.

International agendas with important linkages to EPPPs

As indicated by Figure A45 below, respondents drew links between EPPPs and a wide range of international agendas, with most respondents highlighting connections to health. Two respondents who selected "other" cited the "future international framework on chemicals and waste management" and another cited "all of them".

An NGO stated that "the excessive use of antibiotics in aquaculture can contaminate water sources. To prevent health risks to humans, enhancing immunity can also help reduce the need for antibiotic usage".

An NGO stated that "WHO and UNEP mainly, but FAO and ILO as well, should be working at regional and national levels to engage governmental regulatory measures and information. Professional organizations and schools of medicine should be strongly involved to inform and educate medical professionals and the community".

A respondent from academia highlighted connections to SDG 3 (Good Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water). The respondent also noted connections to SAICM, the Minamata Convention on Mercury, and efforts to transition to a circular economy.

An intergovernmental organization stated that "further work at the national level could encompass training and capacity-building activities for the prevention and environmentally sound management (ESM) of biomedical and healthcare wastes. This could also address the control of transboundary movements of such wastes".

Priority work at the national and regional levels

On priorities for work at the national level, a government called for: building knowledge on the issue; creating a database on existing pharmaceutical waste; developing a strategy for the full life cycle of pharmaceuticals; and preventing pharmaceuticals from entering the waste stream. Another government called for implementing extended producer responsibility. Several governments called for monitoring of EPPPs in water.

A respondent from academia called for: conducting risk assessments; restricting unnecessary uses; investing in pollution reduction; encouraging green drug design; strengthening wastewater treatment; improving reporting requirements; and developing an action plan.

At the regional level, one government called for: strengthening support for developing countries and countries in transition; strengthening the participation of pharmaceutical manufacturers; and filling gaps in the assessment and management associated with existing pharmaceutical products. Another government called for establishing regional knowledge-sharing networks. A third highlighted the need for studies on the impact of EPPPs on microorganisms and other species in aquatic systems.

An intergovernmental organization stated that training and capacity-building activities could take place at the regional level on biomedical and healthcare wastes, making use of existing Basel Convention regional centres which have been established to support Basel Convention parties to implement the Convention.

A respondent from academia called for: developing incentives and recognition programmes to reward companies, hospitals, and wastewater treatment plants that demonstrate best practices for minimizing EPPPs; promoting safer alternatives; improving efficacy of wastewater treatment; reducing excess use and over-prescription of pharmaceuticals; improving disposal practices; enhancing pollution prevention; and institutionalizing EPPPs minimization and management into policy frameworks.

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5

CHEMICALS IN PRODUCTS

5.1 CHEMICALS IN PRODUCTS (CIP)

In 2009, ICCM2 identified chemicals in products as an issue of concern under SAICM, highlighting the need to "improve the availability of and access to information on chemicals in products in the supply chain and throughout their life cycle" (UNEP 2020).

Thirty-nine stakeholders answered at least one substantive question on chemicals in products. Ninety-seven per cent indicated that they believe further international action is necessary. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many respondents pointed to lack of information about chemicals in products, highlighting common issues such as poor labelling and the need for improved information exchange. A government stated that most products "coming to Africa are poor quality" and contain high amounts of chemicals. An NGO stated many chemicals known or suspected to be toxic are used in products without mandatory requirements for disclosure and are unregulated by current global agreements. Citing the broad use of hazardous chemicals in "many products", another government stated that international action should be taken to reduce or eliminate exposure, including through better information on their presence. Two respondents from the private sector stated that addressing transparency in the value chain is a nuanced and broad topic and said they would recommend that any international action be voluntary and sector-specific.

Of 37 respondents, 81 per cent said chemicals in products are a "high" or "very high" priority for action and 19 per cent said they are a medium priority.

International actions

Respondents called for a range of international actions: 40 per cent supported voluntary initiatives including information sharing and awareness-raising; 36 per cent supported the establishment of a legally-binding instrument; 20 per cent supported using soft law, and 4 per cent supported using other measures. An NGO called for a "toolbox" that would allow action depending on the risk and impacts of hazardous chemicals and the "source-pathway-receptor situation" noting that highly hazardous chemicals require "more legally-binding actions than less hazardous/risky chemicals".

Citing the presence of 7,000 chemicals in tobacco, a respondent from academia stated that "multinational tobacco trade and industry influence require binding international agreements to reduce their health and environmental impacts".

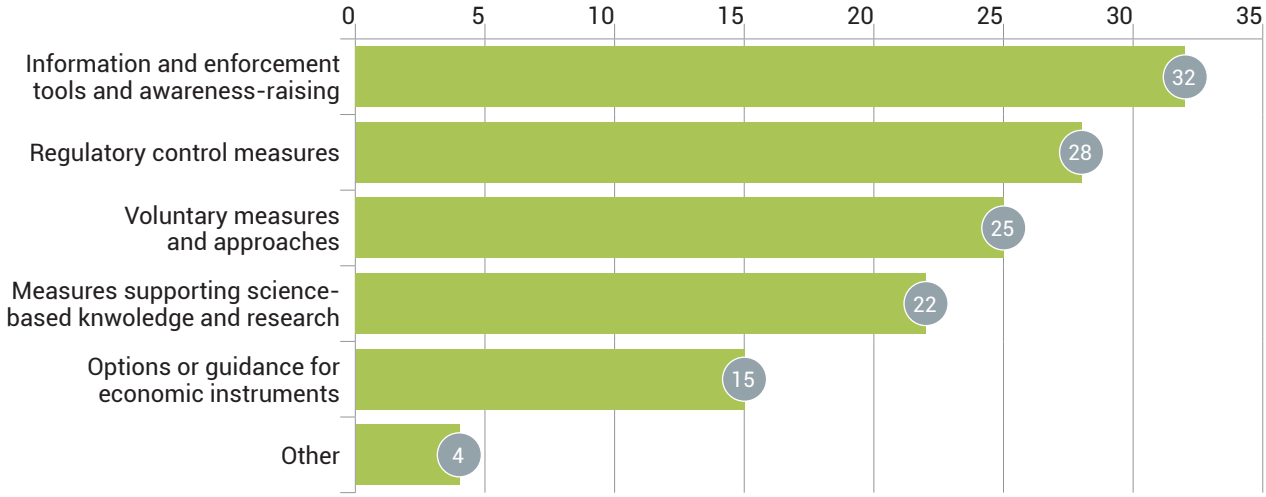
An international organization called for a national or regional legally-binding instrument combined with international voluntary initiatives. A government stated that ideally a legally-binding treaty should be adopted to ensure appropriate availability of information on the presence of hazardous chemicals in products but said that in the absence of agreement for such a treaty, soft law, information sharing, and voluntary initiatives should be undertaken to assist countries in their national efforts.

A government noted the importance of improving access to information on chemicals in products throughout their life cycle and said voluntary initiatives and awareness-raising, without enforcing legal obligations, are the best options. Another government called for extended producer responsibility, focusing on the life cycle of products.

Two respondents from the private sector called for narrowing this issue to focus on supply chain transparency or information sharing, and said what chemicals are regulated and how that information is shared is best handled under a chemicals management law.

As indicated by Figure A46, respondents expressed support for a range of approaches to addressing the

Figure A46. Stakeholders' views on the approaches or measures to address chemicals in products at the international level



Note: Stakeholders could select more than one option. Number of respondents = 37.

main chemicals in products, with particularly strong support for information-based and enforcement tools and regulatory control measures.

In written comments, an NGO that selected "other" indicated that all of these measures and approaches are necessary. A government stated that only coordinated international action can address the issue due to transboundary effects and the prevalence of chemicals in international trade. Two respondents cited the importance of public procurement, with one calling for procurement standards requiring transparency of chemicals in products for eligibility to apply to a UN, public, or private tender.

Several governments highlighted the importance of knowledge and information exchange, with one stating that "this issue is so broad it can only be addressed through dissemination of information". Another stated that the exchange of information, knowledge, procedures and technology between countries is the "better alternative" to addressing this issue. A third stated that sharing information is essential "but we need support for capacity-building" on risk assessment, measurement of substances, and alternatives. A fourth government called for regional training and pilot projects.

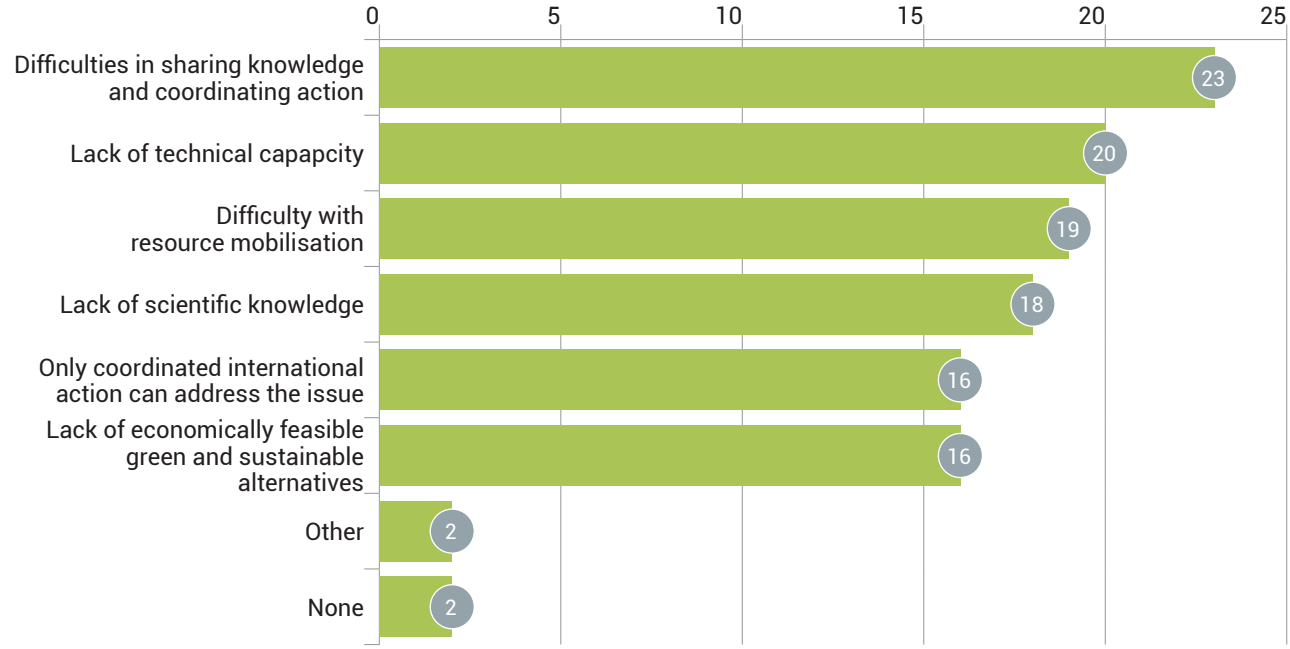
Two respondents from the private sector reiterated that the scope of this issue should be narrowed to focus on supply chain transparency or information sharing and added that the use of voluntary measures/guidelines can help identify chemicals of concern and promote disclosure within key value chains.

Factors that prevent action or progress on addressing chemicals in products

As indicated by Figure A47, respondents stated that key challenges to addressing chemicals in products include difficulties in sharing knowledge and coordinating action, lack of technical capacity, and difficulties with resource mobilisation. In written comments, one government indicated that the breadth of this issue is challenging, and that scientific information is not always available.

An NGO cited "lack of interest and commitment" saying that "governments, the private sector and communities are not involved strongly enough" and that information needs to be regulated at the international level. Another NGO cited lack of strict control of "our porous borders" and said corruption is a key factor, "because the economic stakes of these distributors are enormous". Another respondent stated that a legally-binding instrument is "the most plausible" way to achieve good policies in countries where corruption and "bad governance is the daily exercise of decision makers".

Figure A47. Stakeholders' views on the factors preventing action or progress on addressing chemicals in products in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 34.

Two respondents from the private sector stated that "due to the complexity of global supply chains, it can be very difficult to garner information about what substances are in what products".

Existing initiatives that could be replicated or scaled up

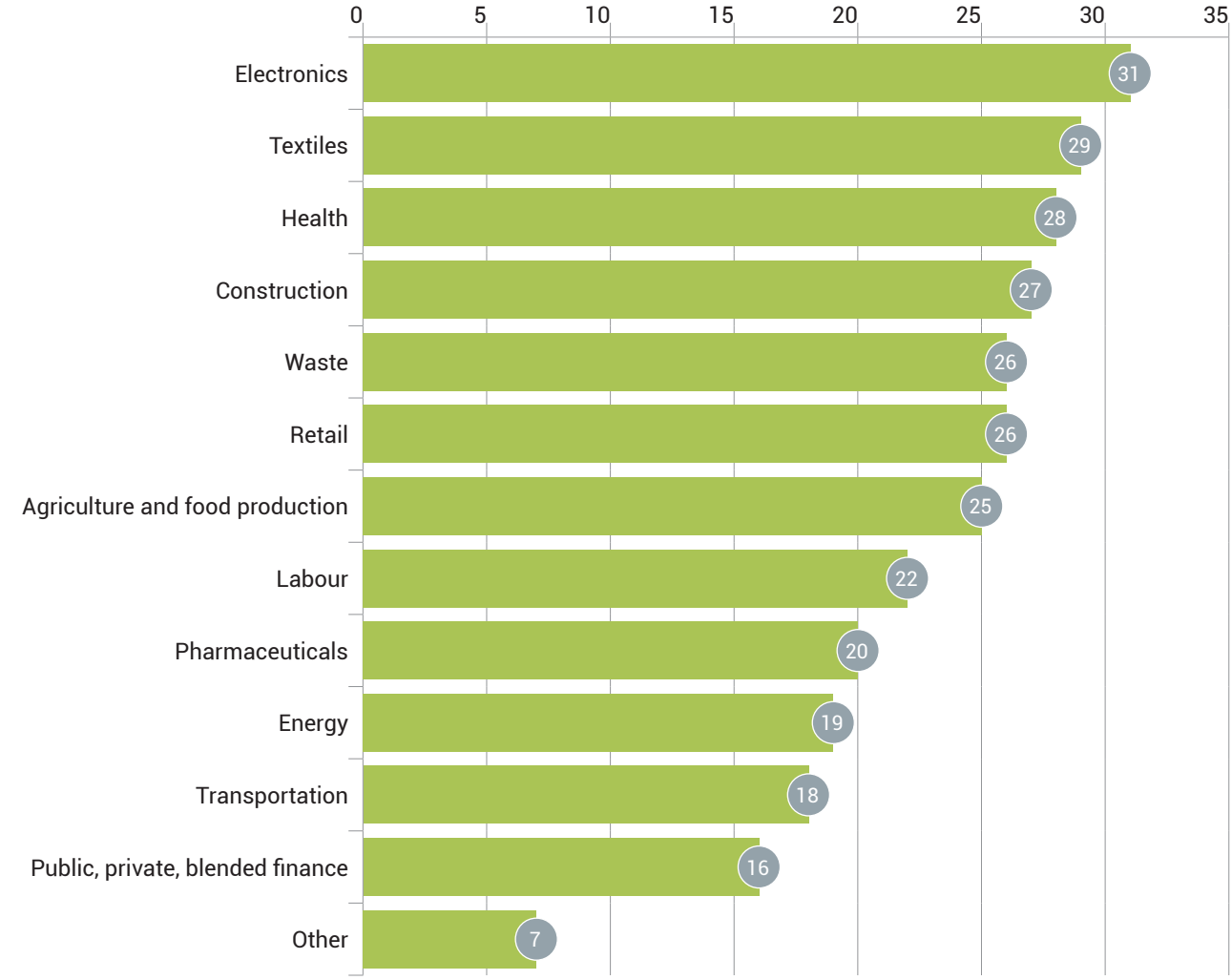
On existing initiatives that could be replicated or scaled up, several respondents cited ongoing work under SAICM, and a government noted the current work to establish a global science-policy panel on chemicals and waste.

Another government cited Peru's National Registry of Chemical Substances saying this provides an up-to-date record of substances and their use in production chains. A third government cited the EU's database on hazardous chemicals in products (European Chemicals Agency 2023).

Noting that the Global Automotive Declarable Substance List (American Chemistry Council 2023) already exists at the international level, two respondents from the private sector said "rather than "scaling up", we would recommend sector-specific initiatives driven by particular industries".

A respondent from academia stated that existing restrictions, disclosure requirements, initiatives for alternatives, research funding, certification schemes and information drives demonstrate approaches that could be scaled up, harmonized, and implemented through international agreements in order to more sustainably manage chemical risks from globally traded products.

Figure A48. Stakeholders' views on the sectors and value chains which need to be closely involved in developing solutions for chemicals in products



Note: Stakeholders could select more than one option. Number of respondents = 34.

Important sectors and value chains

As indicated by Figure A48 above, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with electronics, textiles and health among the top three sectors, followed closely by waste, construction, and retail. One NGO emphasized that all of the sectors listed are important, as chemicals in products "is a cross-cutting issue".

International forums and instruments best placed to lead international action on chemicals in products

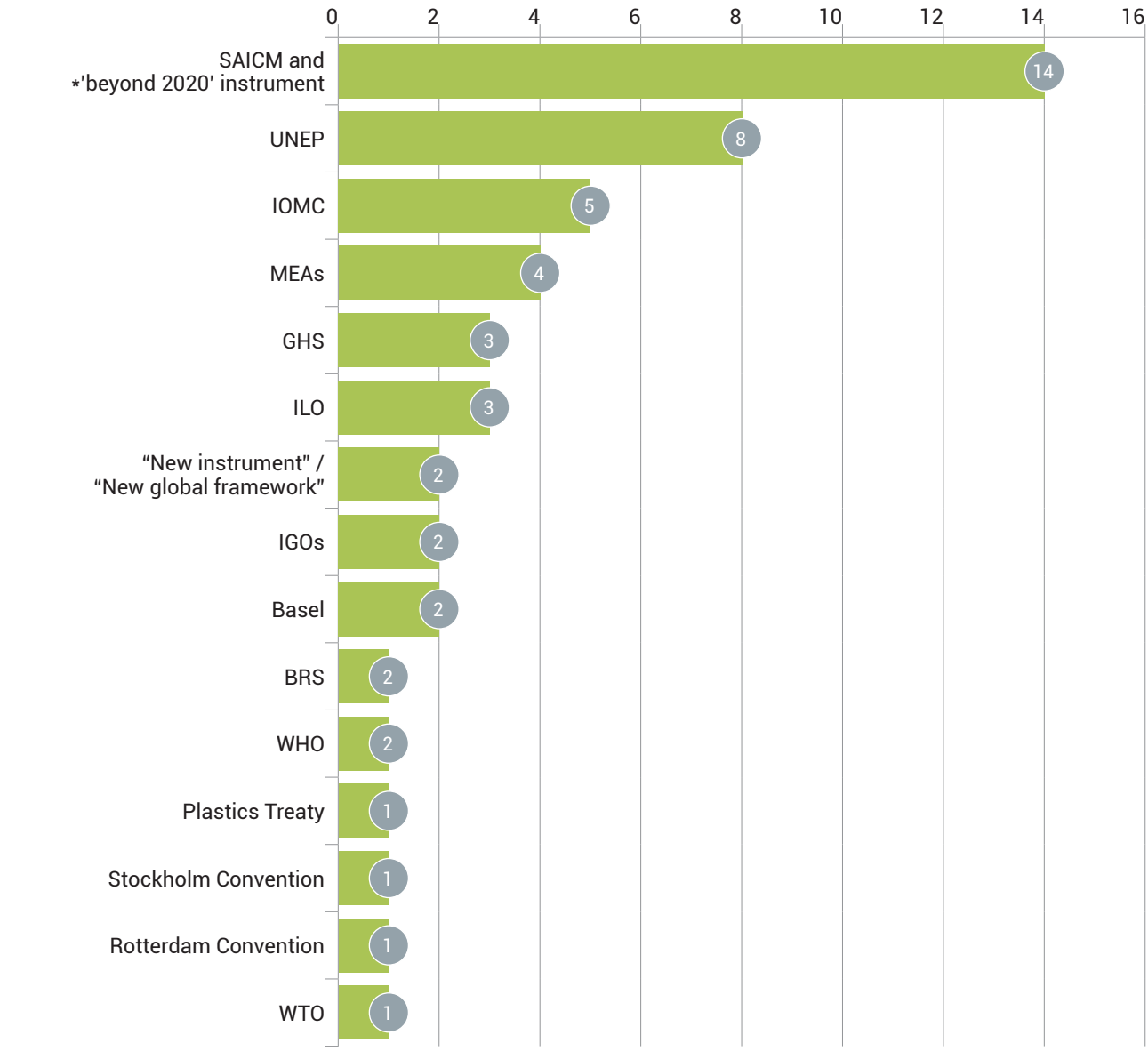
Respondents identified several international organizations and instruments as best placed to lead, with SAICIM (or the 'beyond 2020' instrument) receiving the most support.

International agendas with linkages to chemicals in products

As indicated by Figure A50, respondents drew links between chemicals in products and a wide range of international agendas, with most respondents highlighting the connections to health and sustainable consumption/production.

In written comments, one respondent highlighted connections to SDG 3 (Good Health and Well-being), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water). Others highlighted

Figure A49. Forums and instruments that could lead international action on CiP



Note: Stakeholders could select more than one option. Number of respondents = 28.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

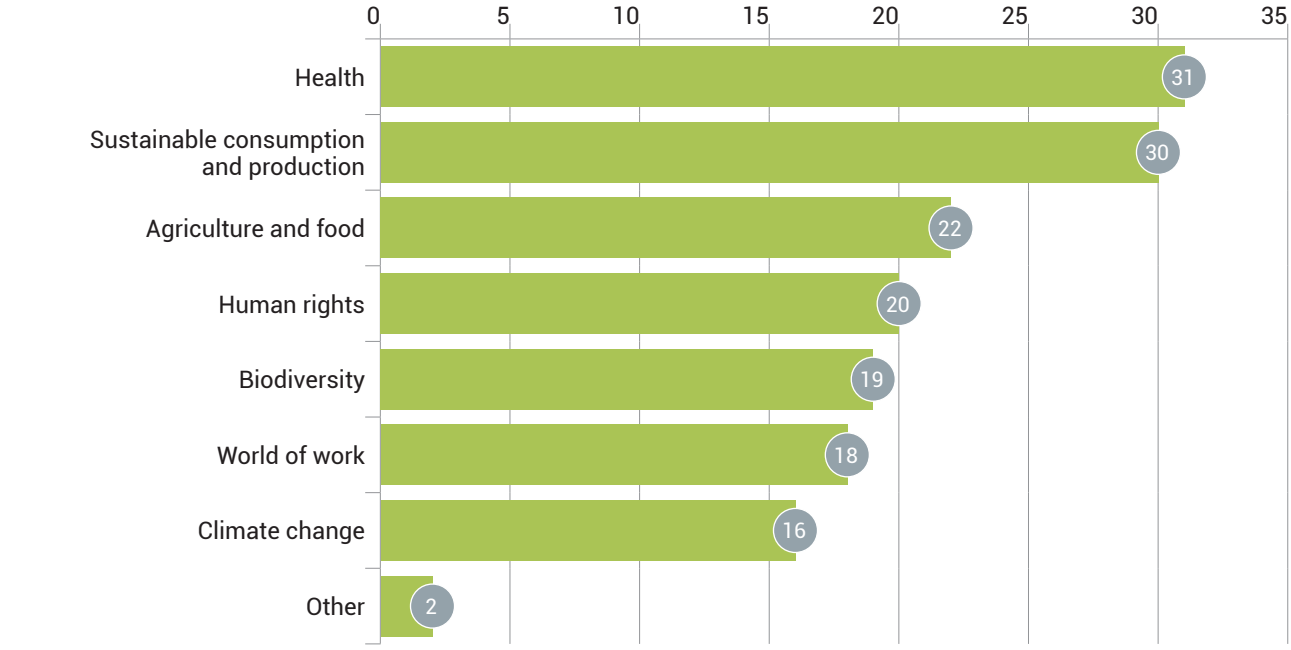
the cross-cutting nature of this topic, with one noting that "all sectors" have interests in chemicals in products.

An NGO stated that data on chemicals in products and building the capacity of key players supported by The Inter-Organization Programme for the Sound Management of Chemicals (IOMC) is crucial. Another stated that chemicals in products is a cross-cutting issue and management is key to solving several elements of the triple planetary crisis, as toxicity considerations limit the efficient use of already manufactured materials and products and is an obstacle to circularity.

Priority work at the national and regional levels

Respondents identified several priorities for work at the national level, including conducting assessments, imposing limits or bans on dangerous chemicals in imported products, improvement of reporting and disclosure requirements to enhance transparency from manufacturers. Several called for stricter national standards, as well as assessments and improved generation of data related to chemicals in products. Some noted the need for awareness-raising and capacity building. One government called for development of a

Figure A50. Stakeholders' views on the international agendas which have important linkages with chemicals in products



Note: Stakeholders could select more than one option. Number of respondents = 33.

roadmap for the safe management of chemicals in the context of circularity.

At the regional level, respondents called for establishing knowledge networks, strong regulatory and voluntary measures to improve the transparency of product information, and effective monitoring and enforcement. Some respondents called for greater engagement of UN bodies at the regional level. One respondent called for regional regulation of manufacturers to improve transparency, as well as either enforcement or incentives to encourage manufacturers to opt for safer alternatives.

5.2 BISPHENOL A (BPA)

Bisphenols are organic compounds used, for example, in polycarbonate plastics and epoxy resin, and can be found in common products such as water bottles, medical devices, thermal paper, and the linings of food and beverage cans. BPA is the most common of these compounds, and food and beverage cans are the primary route of exposure to BPA (UNEP 2020).

Forty-three stakeholders answered at least one substantive question on BPA. Eighty-three per cent indicated that they believe further international action is necessary. Ten per cent said international action is not necessary, and 7 per cent said they did not know.

Many of the respondents who supported international action cited risks to public health. One government stated that "BPA poses a high risk to children's health in developing countries particularly when it is used in toys and other children's products". Another respondent stated that, given the serious risks of BPA "and the possibility of its presence in many products that are used on a daily basis, the scope of procedures must be expanded to address all sources of exposure". An NGO stated BPA is an endocrine disruptor that is not adequately regulated.

A respondent from the private sector stated that several studies have found that "foreseen exposure to BPA is currently deemed to fall below the threshold linked to health risks". Two other respondents from the private sector stated that BPA has been assessed by government scientists around the globe and they have found that it is safe when used in materials that come into contact with food, such as reusable food-storage containers. Therefore, we do not agree that further international action is necessary".

Out of 37 respondents, 76 per cent said that BPA is a "high" or "very high" priority for action, 16 per cent said it is a "medium" priority, and 8 per cent said it is a "very low" priority.

International actions

Respondents called for a range of international actions: 40 per cent supported voluntary initiatives including information sharing and awareness-raising; 32 per cent supported the establishment of a legally-binding instrument; 18 per cent supported using soft law; 6 per cent supported using other measures, and 4 per cent said no international actions were needed.

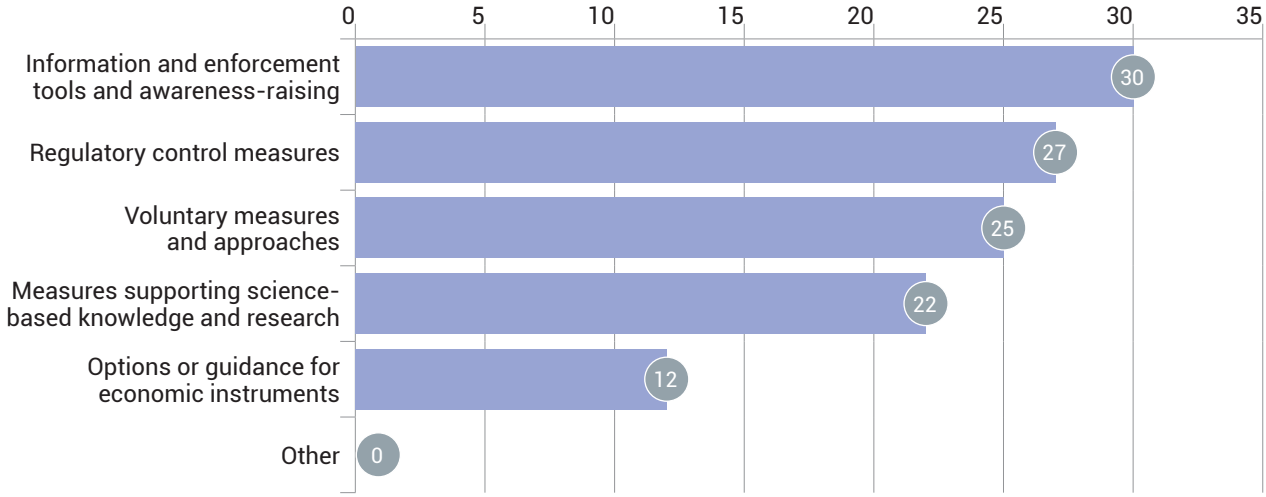
An NGO called for an international legally-binding agreement that would include a "sanction/ compensation mechanism and a multi-stakeholder monitoring infrastructure" saying this should be supported by national laws and an information clearing house. Another NGO said laws regulating chemicals are fragmented and called for consistency at the international level. Another stated that international legally-binding actions will help countries, especially those with weak environmental and health-related regulations, to strengthen their national laws. A government stated that BPA should be regulated and knowledge gaps should be addressed. An NGO stated that BPA is "exported throughout the whole world" in products but is not controlled by any international instrument.

A respondent from academia called for, inter alia, developing international guidelines and standards, implementing restrictions and bans of BPA in certain products, awareness-raising, and research into the effectiveness of different mitigation strategies. Several respondents highlighted the importance of addressing products designed for food or for babies and children.

Two respondents from the private sector stated that no international action on BPA is needed since it is being addressed and managed by national and regional regulatory schemes, and "risk-based action is the responsibility of national or regional authorities".

As indicated by Figure A51 below, respondents expressed support for a range of approaches to

Figure A51. Stakeholders' views on the approaches or measures to address BPA at the international level



Note: Stakeholders could select more than one option. Number of respondents = 39.

addressing BPA, with particularly strong support for information-based and enforcement tools and regulatory control measures.

One government stated that regulatory action is the only means of achieving lasting action. An NGO stated that global regulatory control measures will help countries with weak environmental and health-related regulations to better control BPA.

Other respondents noted that a combination of measures would be useful. A government stated that ideally regulatory control measures should be adopted to eliminate exposure to BPA, but in the absence of broad agreement for such measures, a range of legally non-binding measures should be undertaken to assist countries in their national efforts. An international organization called for a multiphase approach that includes consumer education and the use of guidelines for industry.

A respondent from the private sector stated that "international alignment on scientific guidelines for sound and robust hazard assessments would be needed" as different methods used in studies of BPA have led to different conclusions. Two respondents from the private sector stated that they "believe the focus should be on creating robust chemicals management systems so that countries are best equipped to effectively regulate this chemical under their own jurisdiction". A government cited the need for shared research on toxic effects of BPA alternatives, effects on sensitive species, effects of temperature on BPA exposure, and methodologies for testing cumulative effects, adding that countries need information on sources of risk for both BPA and BPA alternatives, and how to manage these risks.

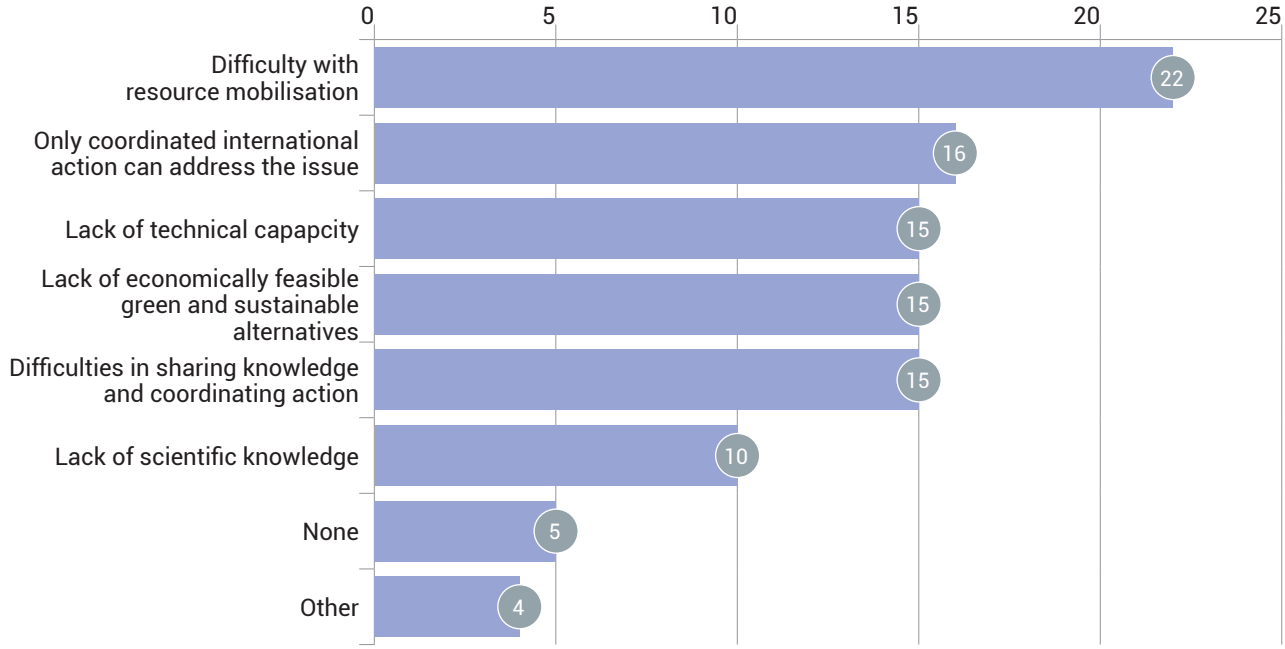
Factors that prevent domestic action

As indicated by Figure A52, respondents cited resource mobilisation as a key challenge to addressing BPA, although many said a combination of factors listed above prevents action. One NGO called for ensuring the availability of safe alternatives to BPA, avoiding substitutes with "similar chemical structures and impacts" on human bodies.

A government described use of BPA as a "necessary evil" and said imports are increasing. A respondent from the private sector noted that BPA is widely regulated around the world and the use of BPA as an intermediate in the production of polymers contributes only minimally to BPA emissions.

A government stated that "technical capacity is absolutely lacking especially in the area of detection" noting that there is no accredited laboratory in its country. This respondent further noted that, as a least developed country, securing funds to support programmes "is difficult in

Figure A52. Stakeholders' views on the factors preventing action or progress on addressing BPA in their country or organization



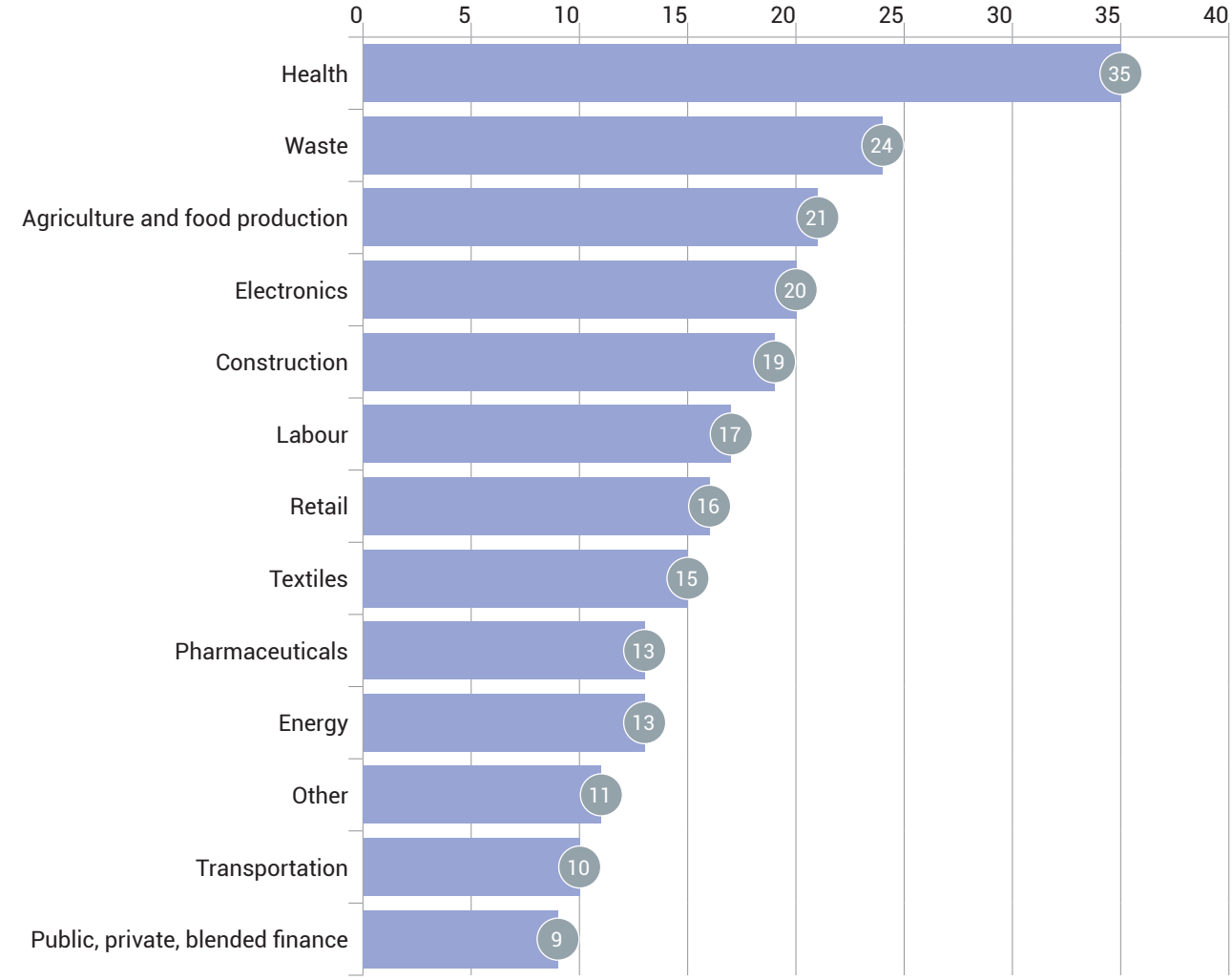
Note: Stakeholders could select more than one option. Number of respondents = 40.

combination with political willingness to address chemical issues (pollution)".

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, a respondent from academia noted that several countries, including Canada, France and China, have implemented regulations or bans on the use of BPA in certain products (e.g. baby bottles and food packaging), and said these measures could be scaled up and supported by international

Figure A53. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for BPA



Note: Stakeholders could select more than one option. Number of respondents = 39.

guidelines and standards for the use of BPA in products. An NGO noted that the growing adoption of electronic payment systems, including electronic receipts, has reduced the use of thermal paper containing BPA. Another said that regional bans have been effective.

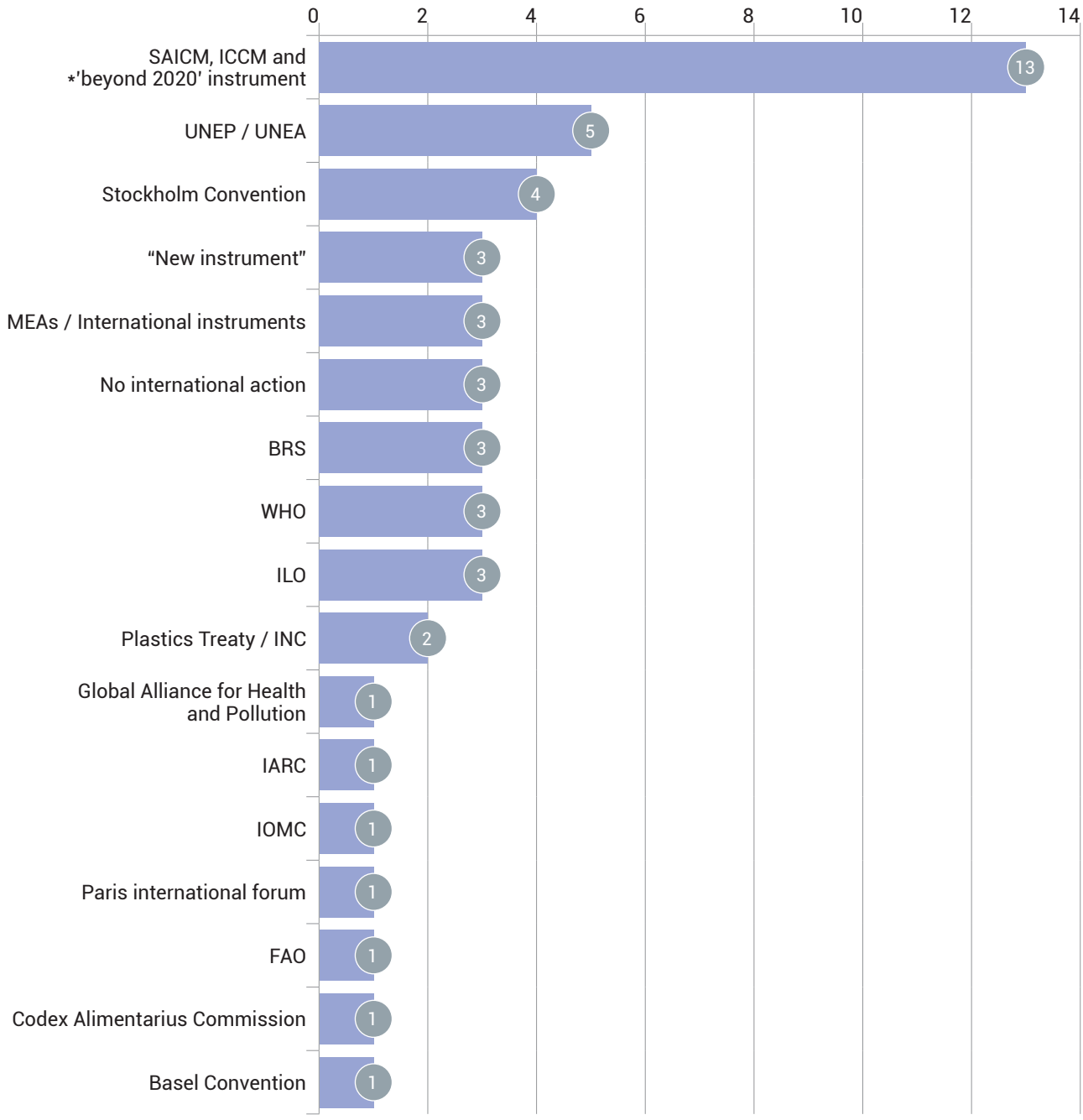
Important sectors and value chains

As indicated by Figure A53 above, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with health taking the lead. In written comments, one respondent noted that "all" of these sectors and value chains are important. One industry group highlighted the use of polycarbonate in a wide range of applications "where no alternative polymers are suitable" (e.g. safety glazing, spectacle lenses, and medical equipment), as well as in "applications essential to achieve the sustainable transition" (e.g. LED lighting and battery casings for electric vehicles") and said these value chains should be involved in the development of proposals on BPA.

International forums and instruments best placed to lead international action on BPA

Respondents identified several international organizations and instruments as best placed to lead, as illustrated in Figure A54.

Figure A54. Forums and instruments that could lead international action on BPA



Note: Stakeholders could select more than one option. Number of respondents = 28.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

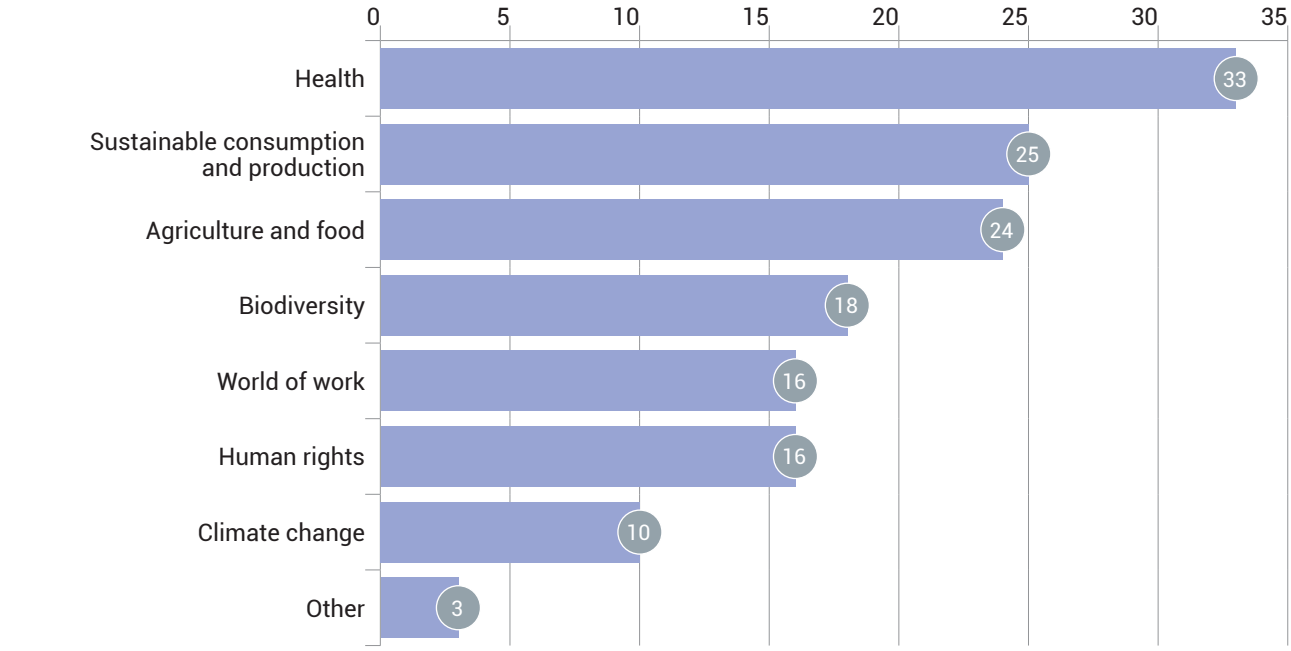
One respondent from the private sector stated that they do not believe that international action on BPA is necessary or that BPA falls within the scope of existing chemicals conventions "owing to its intrinsic properties and that of polycarbonate". Two others stated that they "do not believe that any international forum or instrument should take the lead on this issue".

International agendas with linkages to BPA

As indicated by Figure A55, respondents drew links between BPA and a wide range of international agendas, with most respondents highlighting connections to health.

In written comments, an NGO stated that manufacturing of BPA affects workers' health,

Figure A55. Stakeholders' views on the international agendas which have important linkages with BPA



Note: Stakeholders could select more than one option. Number of respondents = 37.

its use affects consumers, and its disposal affects the environment. Another stated that the release of BPA during recycling "poses a threat to the rights and well-being of recycling workers, particularly workers in the informal sector in global south countries where this issue is more prevalent" and said that BPA in "maternal and infant products pose a threat to the health of mothers and infants".

A government cited a range of health and environmental concerns for humans as well as aquatic and terrestrial organisms, and noted that BPA can reach the baby if its mother consumes BPA that has been passed from a can or plastic container. The respondent linked water scarcity due to climate change to the potential for increased use of water bottles and higher releases of BPA into the environment.

A respondent from academia noted that BPA is linked to the SDGs, the Minamata Convention on Mercury, the Rotterdam Convention, and World Trade Organization agreements on technical barriers to trade and sanitary and phytosanitary measures.

A respondent from the private sector stated that BPA is linked to solutions that address climate change, as it is primarily used to make polycarbonate and epoxy resins that are used in "various durable applications that contribute to sustainable consumption and reduction of greenhouse gas emissions".

Priority work at the national and regional levels

Respondents identified several priorities for work at the national level, including raising awareness of BPA across sectors and improving legislation. An NGO called for identifying sources of BPA, analysing its presence in air and soil, and finding methods for removing it from the environment. A respondent from academia called for further research and monitoring, regulations and bans, consumer education, industry engagement, and international collaboration. Another NGO called for imposing stricter limits on the use of BPA in specific sectors and promoting technologies that avoid its use (e.g. electronic invoicing).

At the regional level, respondents called for similar measures, including facilitating research and risk assessments, raising awareness, and enacting guidelines or legislation to limit or ban the use of BPA.

5.3 ENDOCRINE DISRUPTING CHEMICALS (EDCS)

"An endocrine disrupting chemical (EDC) is an exogenous substance or mixture that alters the function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub) populations" (UNEP 2020). Commonly known EDCs include Triclosan and phthalates. There is no internationally agreed definition for an EDC. At its resumed fifth session, the United Nations Environment Assembly requested the Executive Director of UNEP, in cooperation with the WHO, to update the report entitled State of the Science of Endocrine Disrupting Chemicals 2012 prior to its sixth session.

Thirty-seven stakeholders provided comments on EDCs, 87 per cent of whom indicated that they believe further international action is necessary. Eight per cent said international action is not necessary, and 5 per cent said they did not know.

Those respondents who supported international action cited concerns about the adverse health impacts of exposure to EDCs, with some noting that EDCs pose particular risks to children and especially those in developing countries. Others underscored the need to develop clear definitions of EDCs, with one NGO noting the importance of establishing "a harmonised global position about the evidence of the effects/or otherwise of endocrine disrupting substances." Another respondent stated that "there is a large number of substances and products that may represent risks because they are endocrine disruptors, as well as another considerable number that require studies to be able to identify them as such" and called for information that allows for analysis of the relationship between cause and effect of different substances.

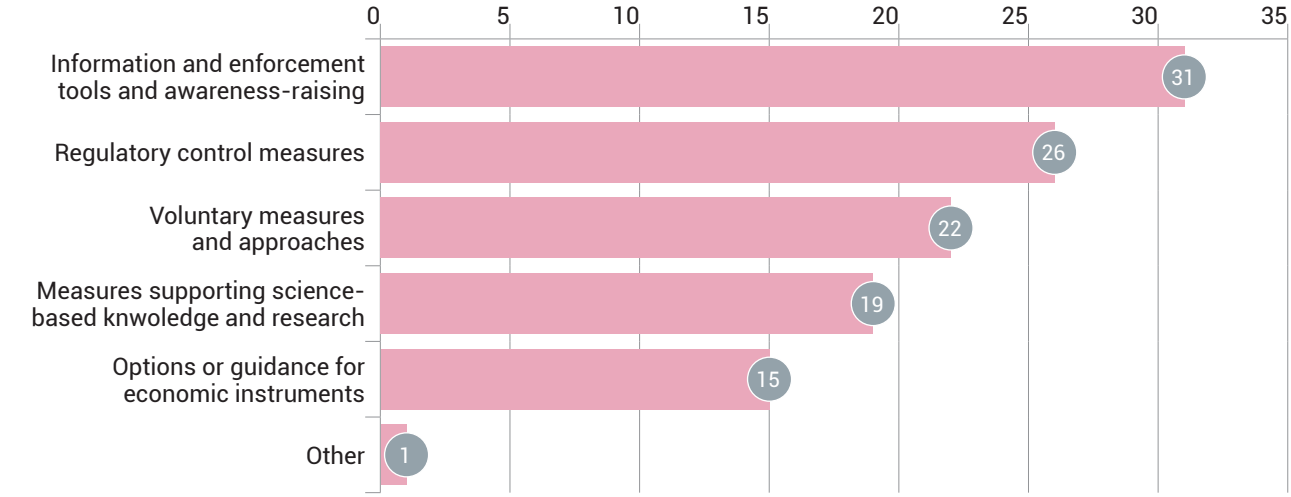
Of 35 respondents, 89 per cent said that EDCs are a "very high" or "high" priority for action, and 11 per cent said they are a "medium" priority.

International actions

Respondents called for a range of international actions on EDCs: 38 per cent supported voluntary initiatives including information sharing and awareness-raising; 35 per cent supported the establishment of a legally-binding instrument; 23 per cent supported using soft law, and 4 per cent supported using other measures. Noting that countries are increasingly taking action on EDCs, an NGO that selected "other" called for a global convention to reach consensus on the definition of EDCs and what actions should be taken. A second NGO that selected "other" noted that "authoritative review of the globally available evidence could in principle be performed by a new science-policy panel for chemicals, waste, and pollution prevention". A third respondent called for including EDC criteria in the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

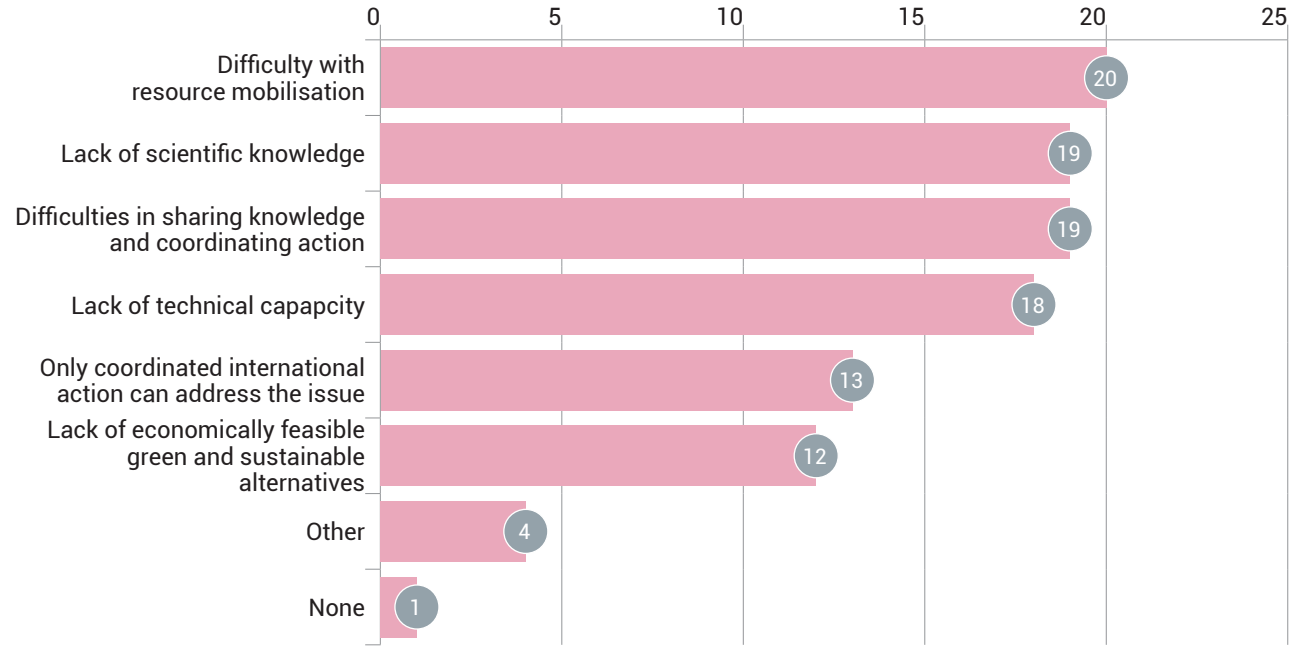
As indicated by Figure A56, respondents expressed support for a range of approaches to addressing EDCs, with particularly strong support for information-based and enforcement tools. One government cited the potential for joint

Figure A56. Stakeholders' views on the approaches or measures to address EDCs at the international level



Note: Stakeholders could select more than one option. Number of respondents = 34.

Figure A57. Stakeholders' views on the factors preventing action or progress on addressing EDCs in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 32.

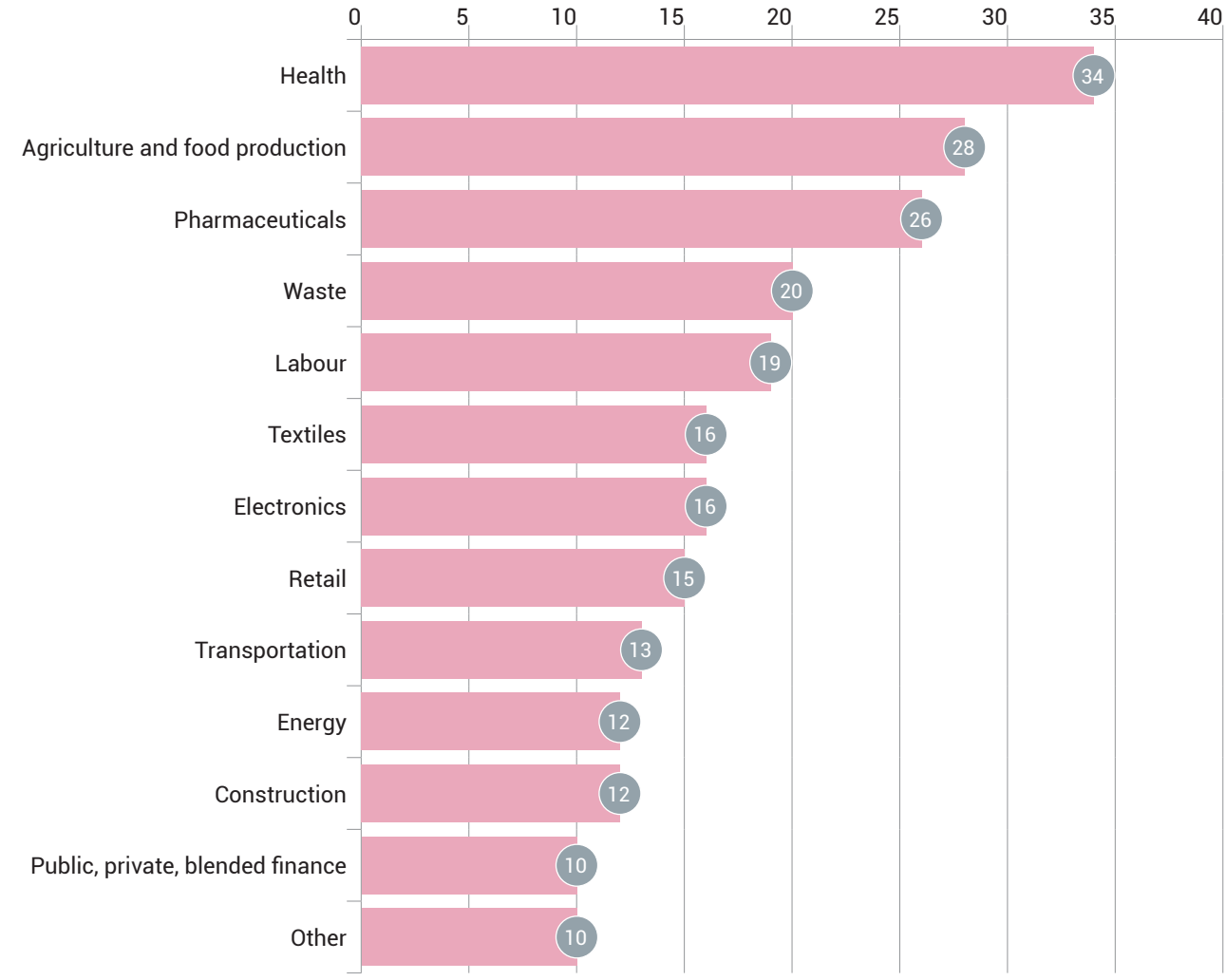
work on issues such as plastics and pesticides. A respondent from academia said the "most appropriate initial measures at the international level" would be coordinated monitoring programmes to detect EDCs in the global environment, comprehensive reviews and analyses of hazards and exposures of identified EDCs, restrictions on EDCs that pose the greatest threats, incentivizing use of safer substitutes, and creation of information sharing platforms. Noting the lack of scientific consensus on how to assess and manage risks posed by EDCs, an NGO called for further research on how endocrine active substances cause adverse effects in "intact organisms," and supported adopting the WHO International Programme on Chemical Safety definition of an endocrine disruptor and added "suspicion alone of being an EDC should not always lead to regulatory action".

Factors that prevent action or progress on EDCs

As indicated by Figure A57, respondents cited resource mobilisation as a key challenge to addressing EDCs, closely followed by lack of scientific knowledge, difficulties in sharing knowledge and coordinating action, and lack of technical capacity. According to one NGO, "the biggest challenge is scientific differences of opinion in this field and controversial views about the evidence. There is a significant difference of opinion between scientists across the world as to whether EDCs can be risk assessed like other chemicals in the normal way. There is the proposition by some scientists based on some observations, that EDCs do not follow the classical toxicological paradigm that we have worked to for a century or more, that the dose makes the poison". Another NGO stated that a key factor preventing action or progress on EDCs "is lack of political will to act and priority setting. The science and knowledge are there".

On existing initiatives that could be replicated or scaled up, a respondent from academia noted that some countries have restricted or banned certain EDCs due to health concerns and said harmonized restrictions could be implemented internationally; this respondent also noted that harmonized

Figure A58. Stakeholders' views on the sectors and value chains which need to be closely involved in developing solutions for EDCs



Note: Stakeholders could select more than one option. Number of respondents = 34.

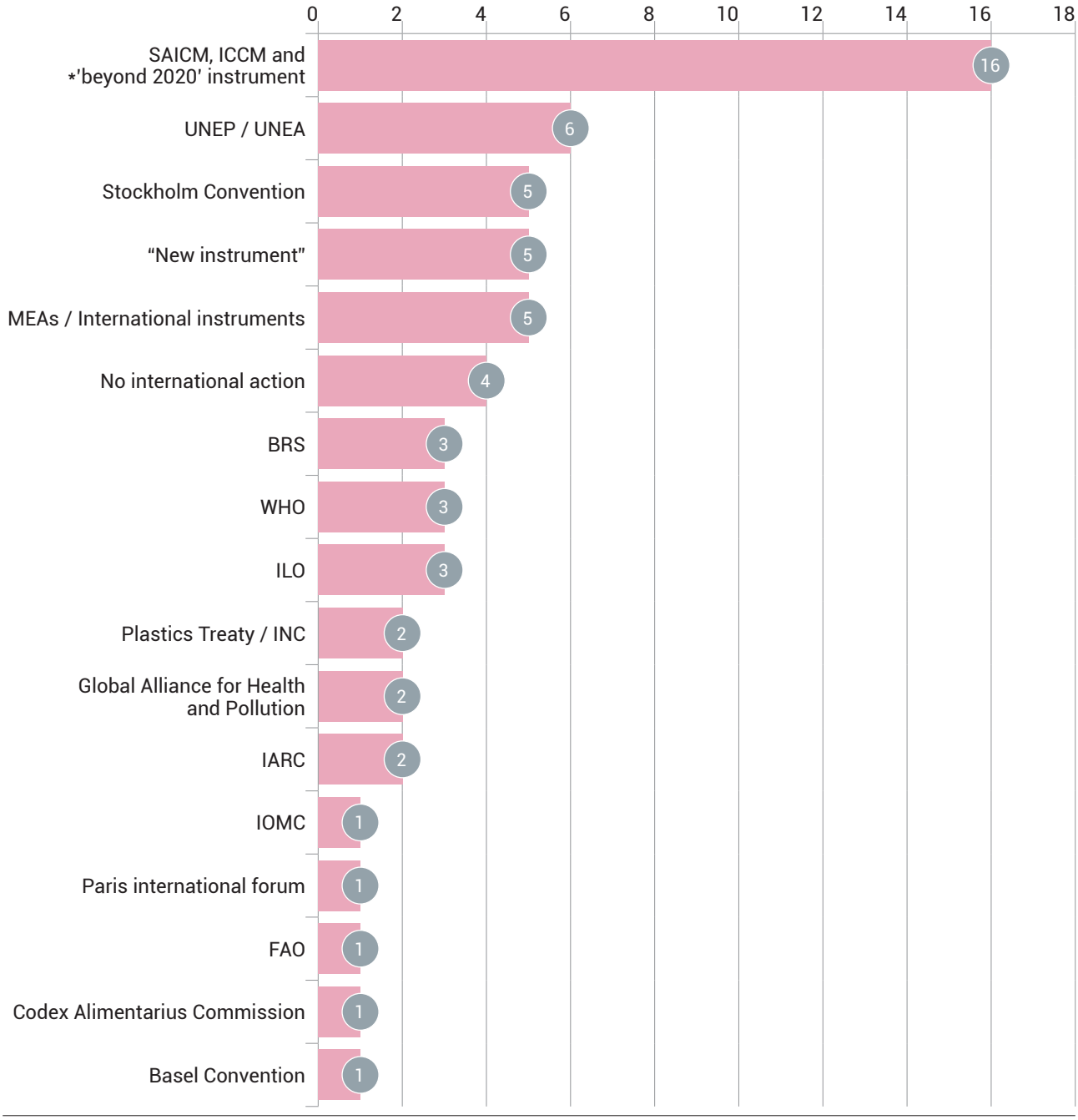
disclosure rules related to EDCs in specific product categories could reshape global supply chains. An NGO suggested that an authoritative review of globally available evidence could be performed by the science-policy panel for chemicals, waste, and pollution prevention, the establishment of which is currently being negotiated.

Important sectors and value chains

As indicated by Figure A58 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with health taking the lead.

One respondent that selected "other" flagged the importance of "everyday products" such as toys, plastics, and food packaging. Two others cited the chemical industry, and some said "all of them".

Figure A59. Forums and instruments that could lead international action on EDCs



Note: Stakeholders could select more than one option. Number of respondents = 25.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

International forums and instruments best placed to lead international action on EDCs

Respondents identified several international organizations and instruments as best placed to lead, with very strong support for SAICM, ICCM and the 'beyond 2020' instrument.

In written comments, one government stated that "EDCs directly align with SAICM's objectives of increasing awareness, understanding, and cooperation among policymakers and stakeholders to address chemical-related concerns". Several respondents also highlighted the potential for the proposed science-policy panel to play a key role in filling gaps in knowledge.

A government stated that the Global Chemicals Outlook and SAICM took up this issue "but did not keep the fire going."

International agendas with linkages to EDCs

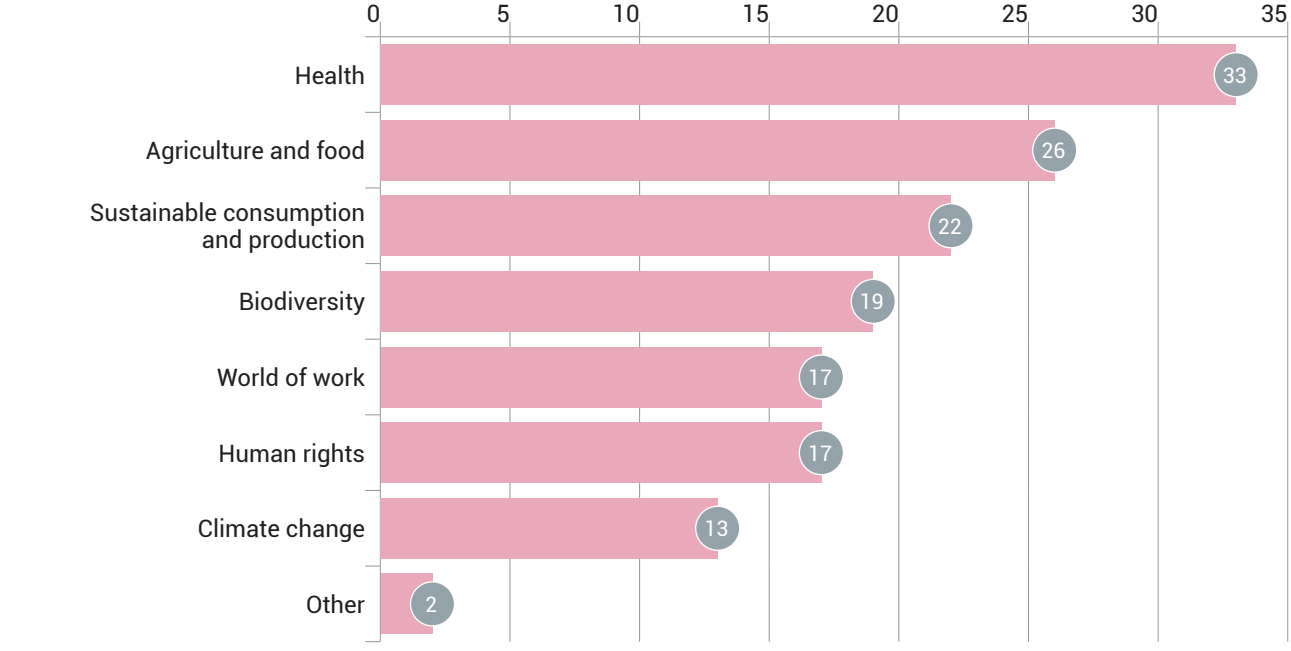
As indicated by Figure A60, respondents drew links between EDCs and a wide range of international agendas, with most respondents highlighting the connections to health.

An NGO that selected "other" cited children's rights and drinking water protection. In written comments, this respondent stated that "the link to children's rights is very important because of the high impacts that endocrine disrupting chemicals have on the unborn, babies and young children, including their potential to cause developmental defects of the brain (behaviour) and their effects on the reproductive organs. EDCs can also negatively affect the health and survival of animals. They can affect their growth, sex, behaviour and reproduction, which can lead to negative population effects".

A government stated that the spraying of herbicides that are EDCs where poor pastoralists graze, or near seasonal streams, affects their human rights. Another government stated that "given that [antimicrobial resistance (AMR)] is a top threat to human health, the most important linkages on the horizon may be those between EDCs and AMR".

In written comments, a respondent from academia highlighted connections to SDG 3 (Good Health and Well-Being), SD6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation, and Infrastructure),

Figure A60. Stakeholders' views on the international agendas which have important linkages with EDCs



Note: Stakeholders could select more than one option. Number of respondents = 34.

SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water), saying that reducing threats from EDCs contributes to achieving these goals. The respondent further noted connections to SAICM, the Minamata and Stockholm Conventions, and efforts to transition to a circular economy.

Priority work at the national and regional levels

On priorities for work at the national level, several respondents highlighted the need for awareness-raising and information sharing. Some governments called for creating national inventories of EDCs and improved monitoring. One government prioritized efforts to develop infrastructure to regulate and identify endocrine disrupting chemicals, as well as a strategy and legal framework to examine, evaluate, and identify EDCs. An NGO called for regulatory controls to prohibit the use of toxic chemicals in products, coupled with mandatory transparency measures to disclose all chemicals used in products.

A government proposed the continuation of WHO work on EDCs, but at the national level, and called for the establishment of a subregional network for knowledge sharing. Another called for "identifying chemicals that: (1) have poorly reversible and/or heritable effects, and (2) are widely dispersed in the environment, and (3) have increasing levels in the environment, and (4) are widely used for societal and technological applications, and (5) are very persistent in the environment. Such chemicals include but are not limited to EDCs (i.e. genotoxic compounds). A chemical profile such as this presents the worst chemical threat to vital earth systems that sustain life on the planet (i.e. see chemical threats to the planetary boundary)".

An NGO called for harmonizing approaches for EDCs and technical guidance in product regulations, saying current guidance and regulations can be divergent and inconsistent. Another respondent said adopting EDC action plans, as has been done by several European countries, should be a global priority.

At the regional level, respondents called for similar measures, including monitoring, information sharing, and awareness-raising. An NGO called for regional labelling of EDCs. Two respondents from the private sector called for creation of chemicals management systems and exchange of information between regulators.

A respondent from academia identified several possible actions, including: conducting a joint risk assessment using data from across the region; harmonizing monitoring programmes; funding research into safer, non-EDC alternatives for regionally prioritized EDCs; adopting harmonized product standards; developing best practice guidelines; and providing financial and technical support to least developed countries within a region to strengthen capacity.

5.4 HAZARDOUS SUBSTANCES IN THE LIFE CYCLE OF ELECTRICAL AND ELECTRONIC PRODUCTS (HSLEEP)

Chemical additives to electrical and electronic products may include heavy metals, persistent organic pollutants, and other hazardous substances. These additives may be released during the life cycle of devices, including production, use, transport, and disposal or recycling. As electrical and electronic products are the fastest growing waste stream in the world, adopting a life cycle approach – including through preventative actions – would "facilitate minimizing the use of certain hazardous substances" (UNEP 2020).

Thirty-seven stakeholders answered at least one substantive question on HSLEEP. Ninety-four per cent indicated that they believe further international action is necessary. Three per cent (one respondent) said they did not know and another 3 per cent (one respondent) said further international action is not necessary. The respondent who selected "don't know" is an IGO secretariat which clarified that, in the absence of a mandate from their governing body, they were not in a position to express a view on this question.

Many of those who supported international action cited concerns about the impacts of HSLEEP on human health and the environment, with some noting the importance of addressing these issues early in the life cycle of electrical and electronic products.

An international organization noted that illegal export and dumping of HSLEEP is a problem. A respondent from academia stressed the need for international action to adequately address risks of HSLEEP arising from: complex supply chains that limit the effectiveness of individual country restrictions; data gaps and uncertainty about the safety of many substances used in electrical and electronic products; and slow rates of substitution. This respondent stated that developing countries that rely heavily on e-waste recycling are disproportionately affected by this issue and would benefit from international support.

Of 36 respondents, 92 per cent said HSLEEP is a "high" or "very high" priority for action, 5 per cent said it is a "medium" priority, and 3 per cent (one respondent) said it is a "very low" priority.

International actions

Respondents called for a range of international actions on HSLEEP. 39 per cent supported voluntary initiatives including information sharing and awareness-raising; 34 per cent supported the establishment of a legally-binding instrument; 20 per cent supported using soft law; 4 per cent supported using other measures, and 3 per cent said no international actions were needed.

A government stated that "the current challenge is the transboundary movement of used electronics, which are not considered waste and are not properly recorded in international trade statistics (identical commodity code for new and second-hand electronics). In fact, some used electronics are now being imported into developing countries as functional or repairable equipment rather than as waste, even though around 30 per cent of them are non-functional. Depending on the country, up to 95 per cent of this waste is processed by the informal sector without adequate equipment or training, which can lead to dangerous exposure of people and the environment to these chemicals."

Another government stated that, ideally, regulatory control measures should be adopted, but in the absence of broad support for such measures, a range of legally non-binding measures should be undertaken to assist countries in their national efforts.

An NGO stated that "effective implementation of the Basel Convention – and potentially the Science-Policy Panel on Chemicals, Waste and the Prevention of Pollution – will play an important

role in stemming the e-waste tide, in particular in countries not set up to deal safely with this growing waste stream. In addition, soft law initiatives, awareness-raising and voluntary initiatives to establish principles and tools to deal with and prevent e-waste will be useful".

A government expressed support for "information-based and enforcement measures as well as voluntary measures and approaches that tackle earlier life-cycle stages of EEP and that aim to find solutions to phase out or minimize the use of certain hazardous substances. Initiatives such as extended producer responsibility programmes and third-party verification and labelling schemes can also be useful to address certain hazardous substances in defined product categories and to influence consumers' purchasing decisions".

Another NGO called for "support for ratification, implementation and enforcement of existing normative approaches, including ILO chemicals conventions, particularly C170 and C139 (and any forthcoming instruments, including a proposed chemicals protocol)".

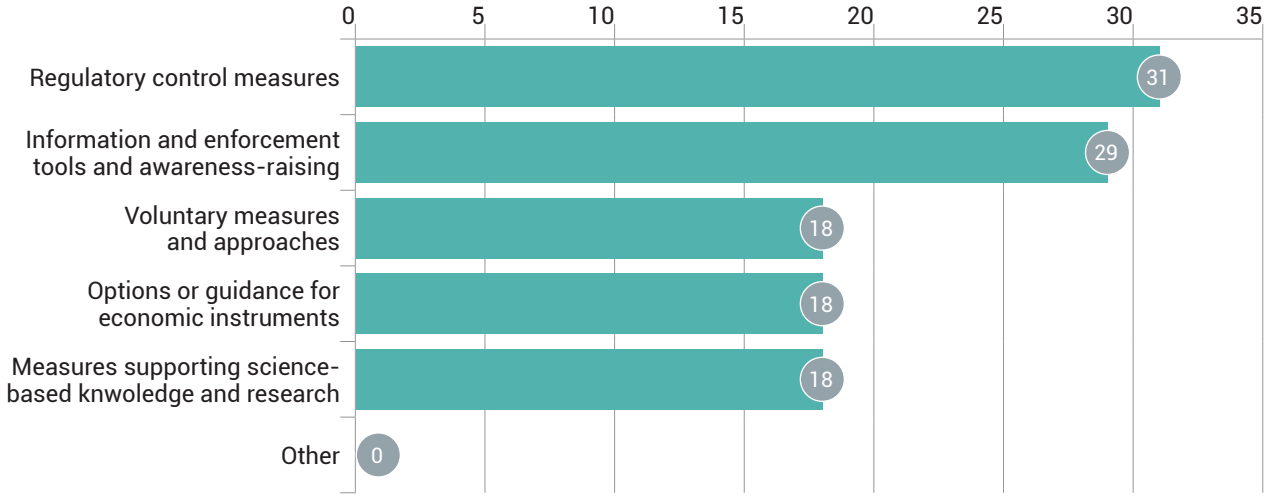
As indicated by Figure A61 below, respondents expressed support for a range of approaches or measures to address HSLEEP, with particularly strong support for regulatory control measures and information-based and enforcement tools.

In written comments, a respondent from academia stated that "regulatory controls have been irregularly applied and rely on consumers' voluntary management of the disposed products". Several respondents called for global regulatory control measures, with one respondent stating that these will be particularly helpful to countries with weak environmental and health-related regulations.

Three respondents – two NGOs and one international organization – called for support for ratification, implementation, and enforcement of existing normative approaches, including ILO chemicals conventions (particularly the ILO Chemicals Convention, No. 170, and the Occupational Cancer Convention, No. 139), and any forthcoming instruments.

A government said that, ideally, regulatory control measures should be adopted to eliminate exposure to hazardous chemicals due to their presence in electrical and electronic equipment, but in the absence of broad agreement, a range of legally non-binding measures should be undertaken to assist countries in their national efforts. Another government supported further information-based and enforcement measures as well as voluntary measures and approaches that tackle earlier life-cycle stages of EEP. This respondent added that initiatives such as extended producer responsibility programmes and third-party verification and labelling schemes could be useful.

Figure A61. Stakeholders' views on the approaches or measures to address HSLEEP at the international level



Note: Stakeholders could select more than one option. Number of respondents = 36.

A respondent from academia suggested additional measures, including: mandating full disclosure of HSLEEP traded across borders; developing best practice guidance for product designers and manufacturers; setting pollution reduction targets; establishing common international standards for HSLEEP; funding green chemistry research; and capacity-building in least-developed countries.

Factors that prevent action or progress on HSLEEP

As indicated by Figure A62 below, respondents cited several factors that are preventing action or progress on HSLEEP, with particular emphasis on difficulties with resources mobilization, lack of coordinated international action; difficulties with sharing knowledge and coordinating action; and lack of technical capacity.

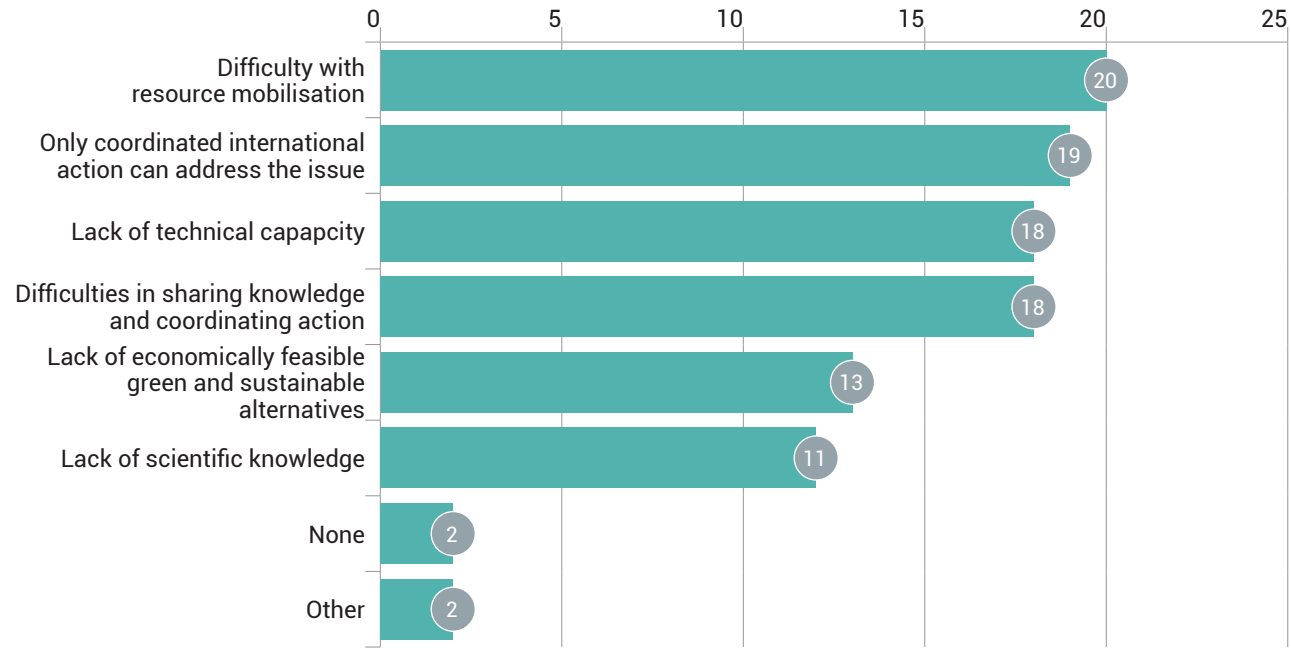
In written comments, a government noted that "the definition and classification of e-waste differ widely due to the existence of various national and international standards and regulations, which causes gaps resulting in inconsistencies regarding compliance between exporters and importers".

Another respondent cited challenges including lack of transparency in the supply chain, jurisdictional division of powers, and lack of harmonization within its regional market. This respondent further noted that alternative substances used for EEP could be an emerging issue of regrettable substitutions adopted at the earlier stages of the EEP lifecycle.

Existing initiatives that could be replicated or scaled up

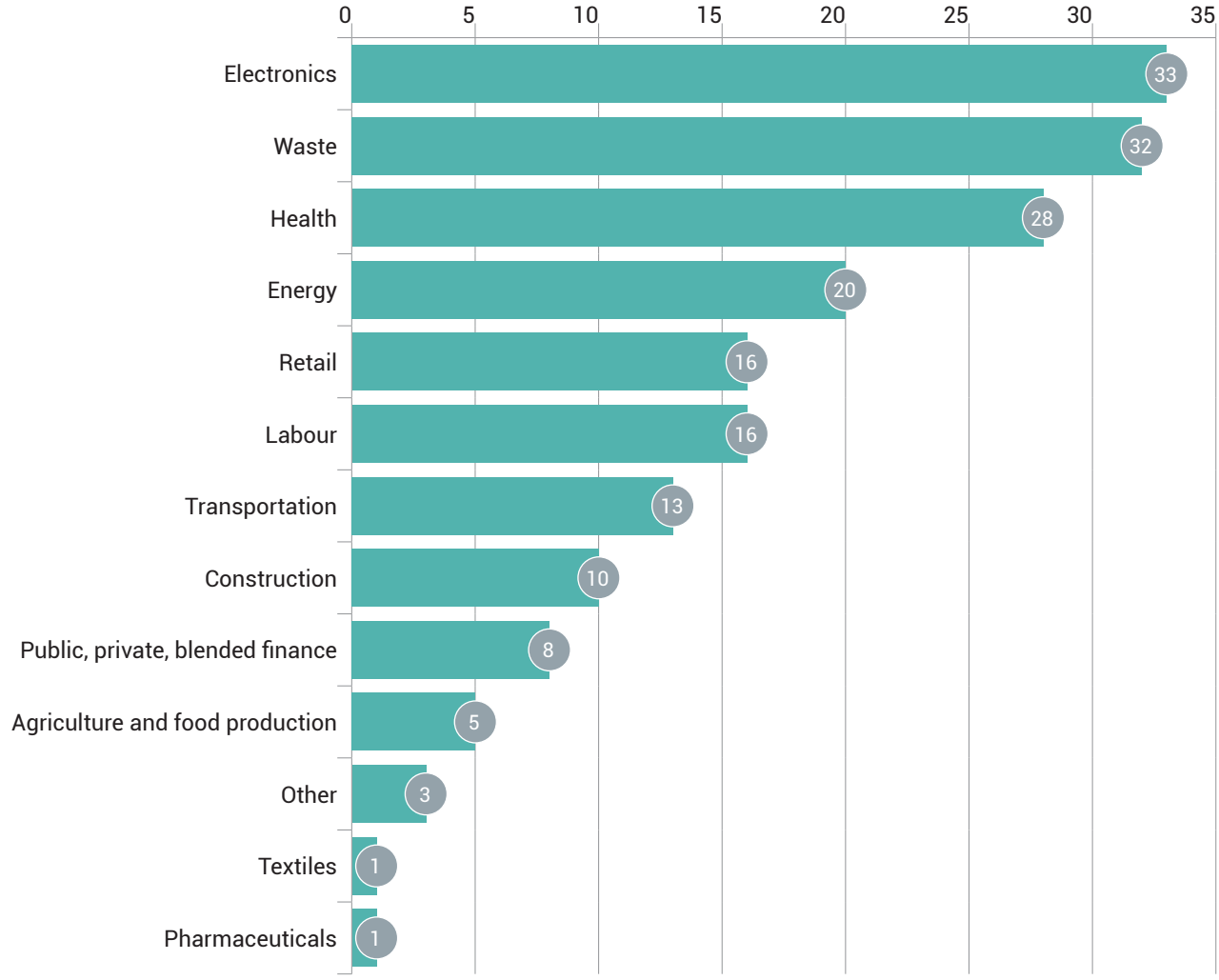
On existing initiatives that could be replicated or scaled up, a government highlighted the importance of extended producer responsibility. A government and an NGO cited The GoodElectronics Network (GoodElectronics 2023), with the latter describing it as an existing global campaign that is effectively addressing chemical risks in production.
An international organization cited the EU's RoHS directive, which currently restricts the use of ten substances: lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP). Several governments cited domestic regulatory actions.

Figure A62. Stakeholders' views on the factors preventing action or progress on addressing HSLEEP in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 34.

Figure A63. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for HSLEEP



Note: Stakeholders could select more than one option. Number of respondents = 35.

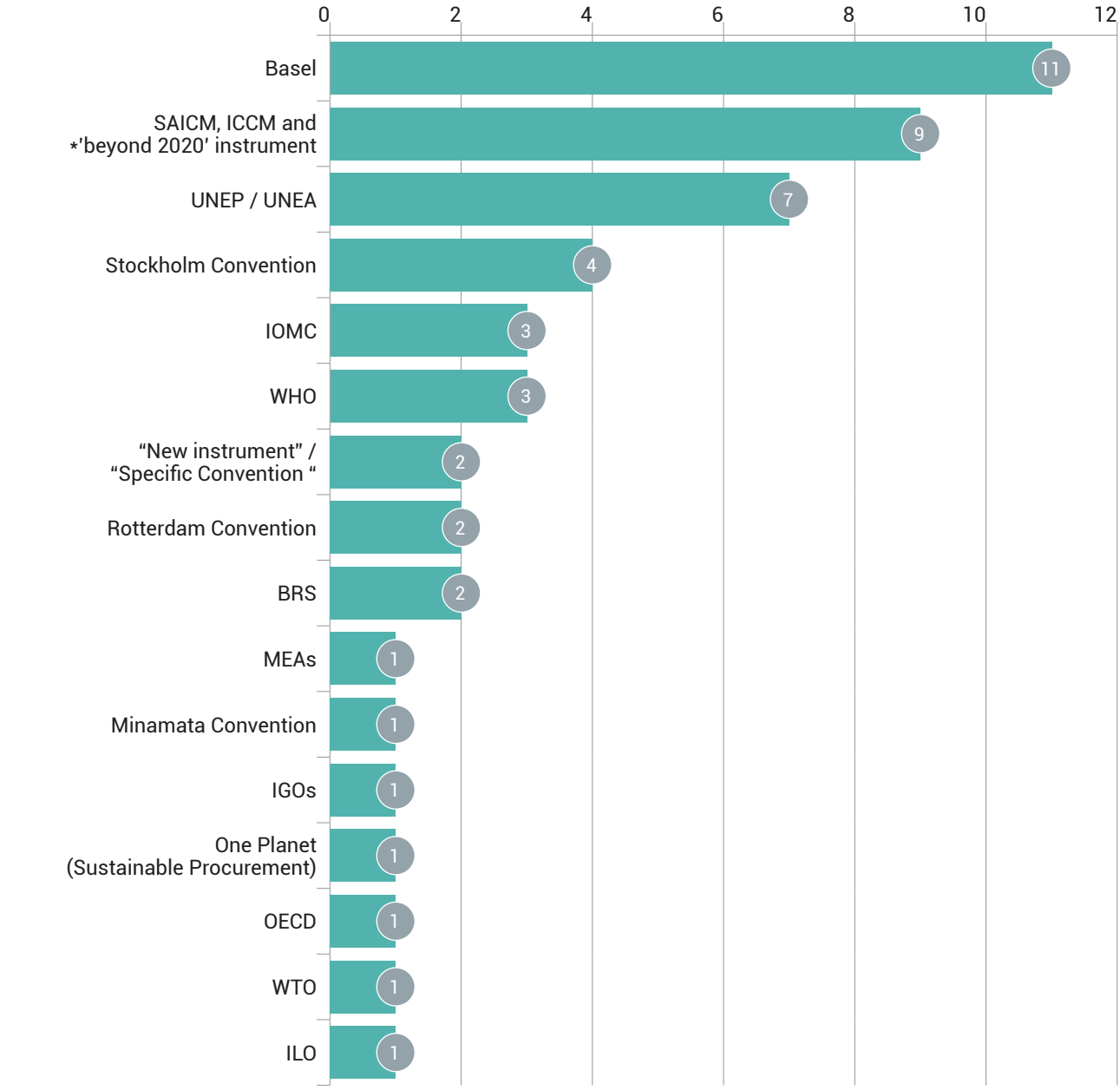
Important sectors and value chains

As indicated by Figure A63, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with electronics and waste taking the lead. In written comments, an NGO stated that "viable solutions will require the electronics, waste management sector, product design, materials scientists, the primary and mid-stream extraction and processing sector and manufacturers to work together."

International forums and instruments best placed to lead international action on HSLEEP

Respondents identified several international organizations and instruments as best placed to lead, with particularly strong support for the Basel Convention, followed by SAICM and the 'beyond 2020' instrument. Several respondents identified multiple instruments or forums, highlighting the multifaceted nature of this issue. For example, one government recommended that work on HSLEEP continues under the SAICM 'beyond 2020' instrument, the OECD, the Stockholm Convention (for phasing out POPs), and the Basel Convention (for transboundary movement of e-waste and their environmentally sound management), and other

Figure A64. Forums and instruments that could lead international action on HSLEEP



Note: Stakeholders could select more than one option. Number of respondents = 28.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

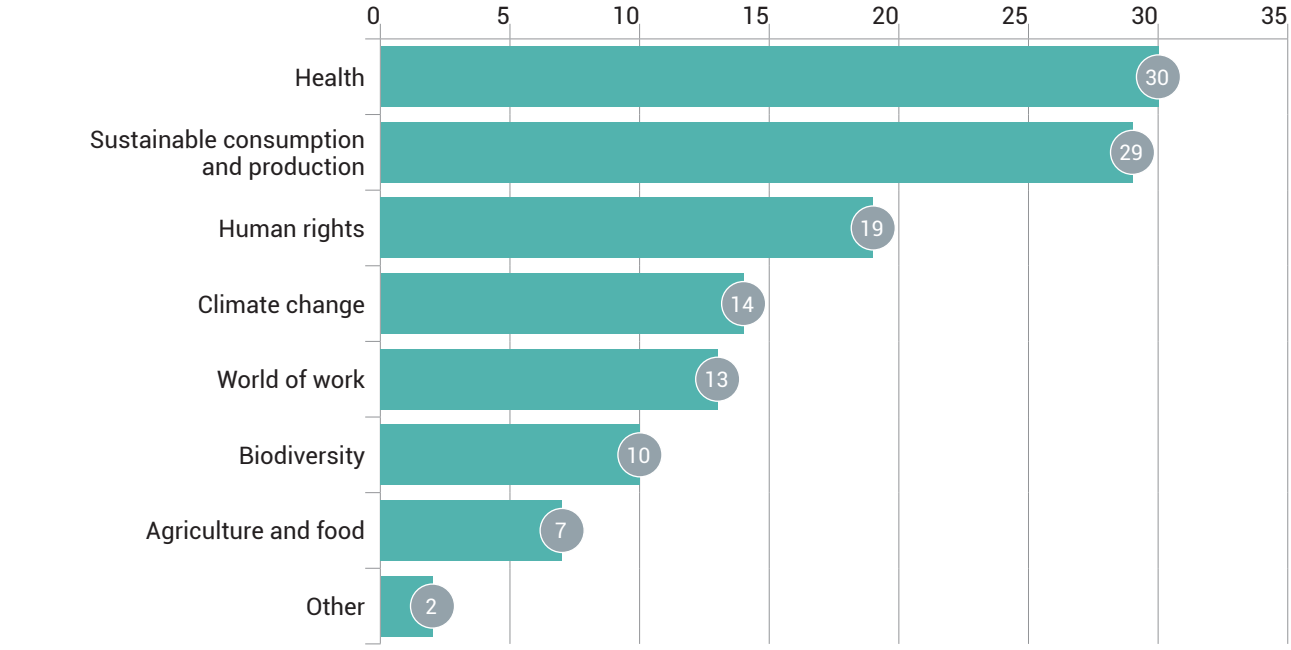
initiatives that have been established to share information relevant to preventing and addressing the e-waste problem at the national, regional, and international level.

International agendas with linkages to HSLEEP

As indicated by Figure A65, respondents drew links between HSLEEP and a broad range of international agendas, with most respondents highlighting the connections to health and sustainable consumption and production.

In written comments, an NGO cited direct links to health, biodiversity and human rights, noting that mismanaged e-waste and unsafe manufacturing can have significant impacts on human health and the environment, particularly in least-developed countries. This respondent also identified links to sustainable consumption and production.

Figure A65. Stakeholders' views on the international agendas which have important linkages with HSLEEP



Note: Stakeholders could select more than one option. Number of respondents = 35.

A respondent from academia cited links to SDG 3 (Good Health and Well-Being), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 12 (Responsible Consumption and Production). This respondent also cited links to the Minamata Convention, the Basel Convention, public health agendas, and efforts to transition to a circular economy.

Priority work at the national and regional levels

Respondents identified several priorities for work at the national level, including establishing guidelines, raising awareness of hazardous materials in electronics, and reducing the generation of electronic waste, with several respondents noting this is a particular issue in developing countries.

A respondent from academia cited the need for the review of environmental hazards associated with electronic smoking devices, including fire risk, battery waste, metals, and plastic waste.

A government highlighted the importance of addressing the situations of workers in informal sectors. A respondent from academia called for, inter alia, conducting risk assessments, restricting the highest-risk chemicals, investing in pollution reduction, and incentivizing safer design. An intergovernmental organization cited the potential for training and capacity-building activities, as well as the provision of technical assistance to support parties in minimizing the generation of e-waste, controlling transboundary movements of such waste, and environmentally sound management of these wastes. An NGO called for greater investment in appropriate recycling infrastructure and sustainable alternatives.

At the regional level, respondents called for similar measures, including proper labelling of electrical and electronic products, as well as incentivizing transitions to safer alternatives. A government called for addressing the early stages of the life cycle of electrical and electronic products by adopting viable financial policies and designing guidelines to promote the development and manufacturing of these products with the lowest possible amount of hazardous materials. Two other governments prioritized the establishment of regional knowledge-sharing networks. An NGO prioritized greater coordination around eco-design, waste management, and finding suitable alternatives to HSLEEP.

5.5 MICROPLASTICS

Microplastics, synthetic polymers smaller than 5mm, can be found in a wide range of products such as cosmetics, detergents, medical devices, food supplements, plastics, and adhesives. They are intentionally added to these products and, due to their small size, are virtually impossible to eliminate after they are released into the environment. Microplastics may also be formed unintentionally during the production and processing of larger plastics, and so called "secondary microplastics" may be generated as a result of progressive plastic degradation. Microplastics are highly persistent and may have adverse effects on human health and the environment (UNEP 2020).

Forty-five stakeholders answered at least one substantive question about microplastics. Ninety-five per cent indicated that they believe further international action is necessary, and 5 per cent said international action is not necessary. Those who supported international action cited concerns about the adverse impacts of microplastics on human health and the environment, with some noting that microplastics threaten the food chain and food security. Several respondents noted that microplastics are pervasive in the environment and indicated that the problem is too big for any nation to solve alone. One government stated that there are no economic incentives for business to take steps to reduce microplastics.

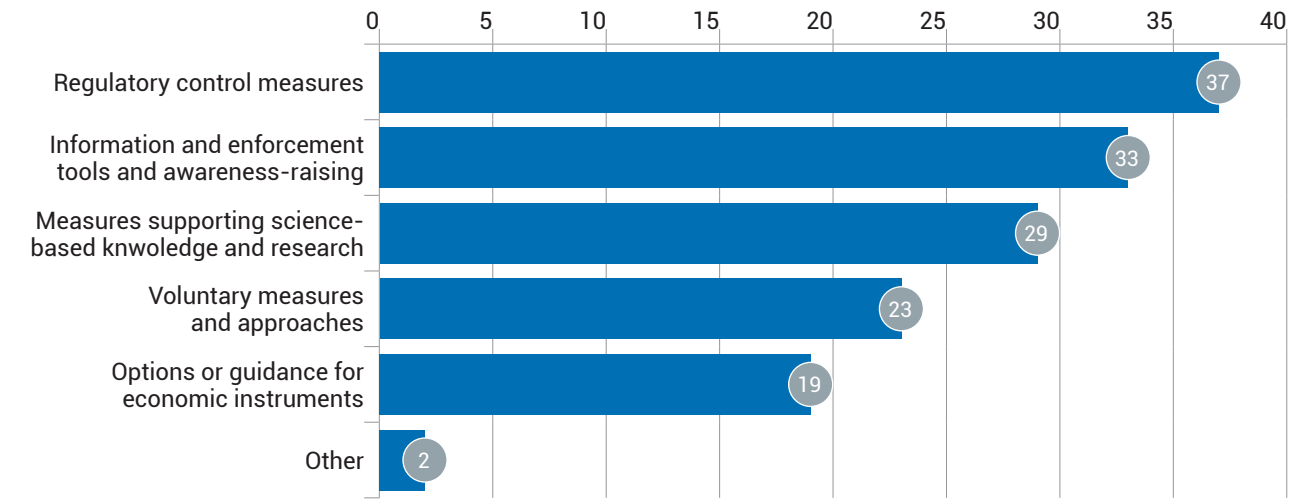
Of 38 respondents, 89 per cent said microplastics are a "very high" or "high" priority for action, and 11 per cent said they are a "medium" priority.

International actions

Respondents called for a range of international actions: 45 per cent supported the establishment of a legally-binding instrument; 32 per cent supported voluntary initiatives including information sharing and awareness-raising; 18 per cent supported using soft law; and 4 per cent supported using other measures. One respondent indicated that international action is unnecessary.

Several respondents highlighted the urgent need for action on microplastics, and many stated that coordinated international action is

Figure A66. Stakeholders' views on the approaches or measures to address microplastics at the international level



Note: Stakeholders could select more than one option. Number of respondents = 41.

necessary. One NGO called for a legally-binding instrument that adopts a rights-based approach that would be supported by an international court on environmental crime. Another stated that the legally-binding instrument on plastic pollution (currently under negotiation) will be a pillar of international action, but its implementation needs to be coordinated with relevant multilateral environmental agreements, including the BRS Conventions, SAICM, and the proposed Science-Policy Panel to contribute further to the sound management of chemicals and waste and to prevent pollution.

As indicated by Figure A66 above, respondents expressed support for a range of approaches to, and measures for, addressing microplastics, with particularly strong support for regulatory control measures and information-based and enforcement tools/awareness-raising.

In written comments, one NGO called for consideration of bans for certain intentionally-added microplastics, including plastic tobacco filters. Another respondent stated that control measures, similar to those used to restrict the movement of other hazardous substances, should also be used to restrict the transboundary movement of microplastics. An international organization called for including rinse-off products containing microplastics in the new plastics convention.

Two respondents from the private sector stated that "multiple intergovernmental and national reports" from the past five years "agree that scientific information is of poor quality and hinders the ability to make sound, scientific recommendations". These respondents added that "given that current concentrations of microplastics are not obviously harmful to health or the environment, our priority should be to reduce the amount of plastic entering the environment that goes on to forming secondary microplastics. This can be accomplished by the ongoing Plastics Agreement negotiations".

A government stated that the future legally-binding plastic treaty should include provisions to eliminate exposure to microplastics, including through restrictions on intentionally-added microplastics and policy tools to tackle unintentional releases, including product design, handling requirements, best available techniques, and guidance for production and use. This respondent added that information sharing and voluntary initiatives should be undertaken to assist countries in their national efforts "and to achieve fast progress".

Another government stated that "further legally-binding action will help countries, especially those with weak environmental and health-related regulations, develop and strengthen their national laws in accordance with the global legally-binding instrument on plastic pollution to ensure better control of microplastic and its sources".

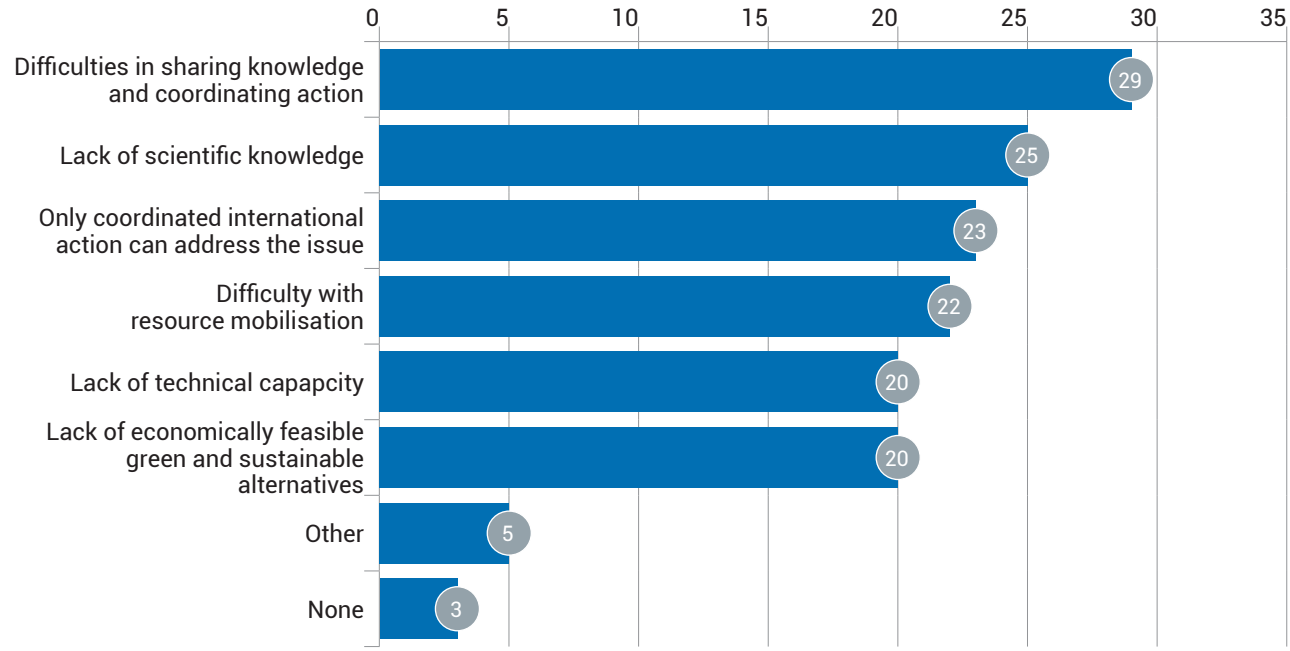
Factors that prevent action or progress on microplastics

As indicated by Figure A67, respondents cited difficulties in sharing knowledge and coordinating action among stakeholders and across sectors as a key challenge. An NGO that selected "other" cited concern about a "western-centric perspective on microplastic regulation". Another cited "continued manufacturing of plastics by the industry, despite the need for source reduction". Two other NGOs cited lobbying by the chemical industry.

In written comments, one government noted that "there are not many alternatives for environmentally sound management of plastic in general". Some respondents highlighted challenges related to the complexity of supply chains; one NGO stated that jurisdictional bans have limited effectiveness, as supply chains are global. A respondent from the private sector stated that "...engaging the entire value chain has presented consistent challenges. An internationally binding legislation would overcome these obstacles and bring the entire value chain to the same level".

Several respondents cited challenges caused by the lack of understanding or visibility of the problem, gaps in data, and scientific uncertainty. A government stated that "... there is not enough data for national programmes. The scientific sector is also insufficiently involved in chemicals and waste management policy". An NGO stated that "there are still many (scientific) unknowns regarding the impacts of micro- and nanoplastics. There is a lack of low-harm alternatives to chemicals

Figure A67. Stakeholders' views on the factors preventing action or progress on addressing microplastics in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 42.

of concern currently used in plastics, and of technologies to prevent microplastic formation and remedy contamination at scale". Another NGO cited the need for more scientific and technical expertise.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, an NGO called for strengthening the Global Marine Litter Partnership, the Basel Convention Plastic Waste Partnership, SAICM, and other existing mechanisms, and said there is "no need to establish new mechanisms". A respondent from the private sector called for a global mandatory labelling and loss reporting scheme addressing uses of intentionally-added microplastics exempted under EU REACH regulations. An NGO stated that legislation to restrict intentionally-added microplastics is currently being considered by the EU, and said restrictions should include detergents, fertilizers, and some leave-on cosmetics (including those which are glitter-based).

Several respondents also cited the potential of two instruments currently under negotiation – the proposed Science-Policy Panel and the legally-binding instrument on plastic pollution – to address microplastics.

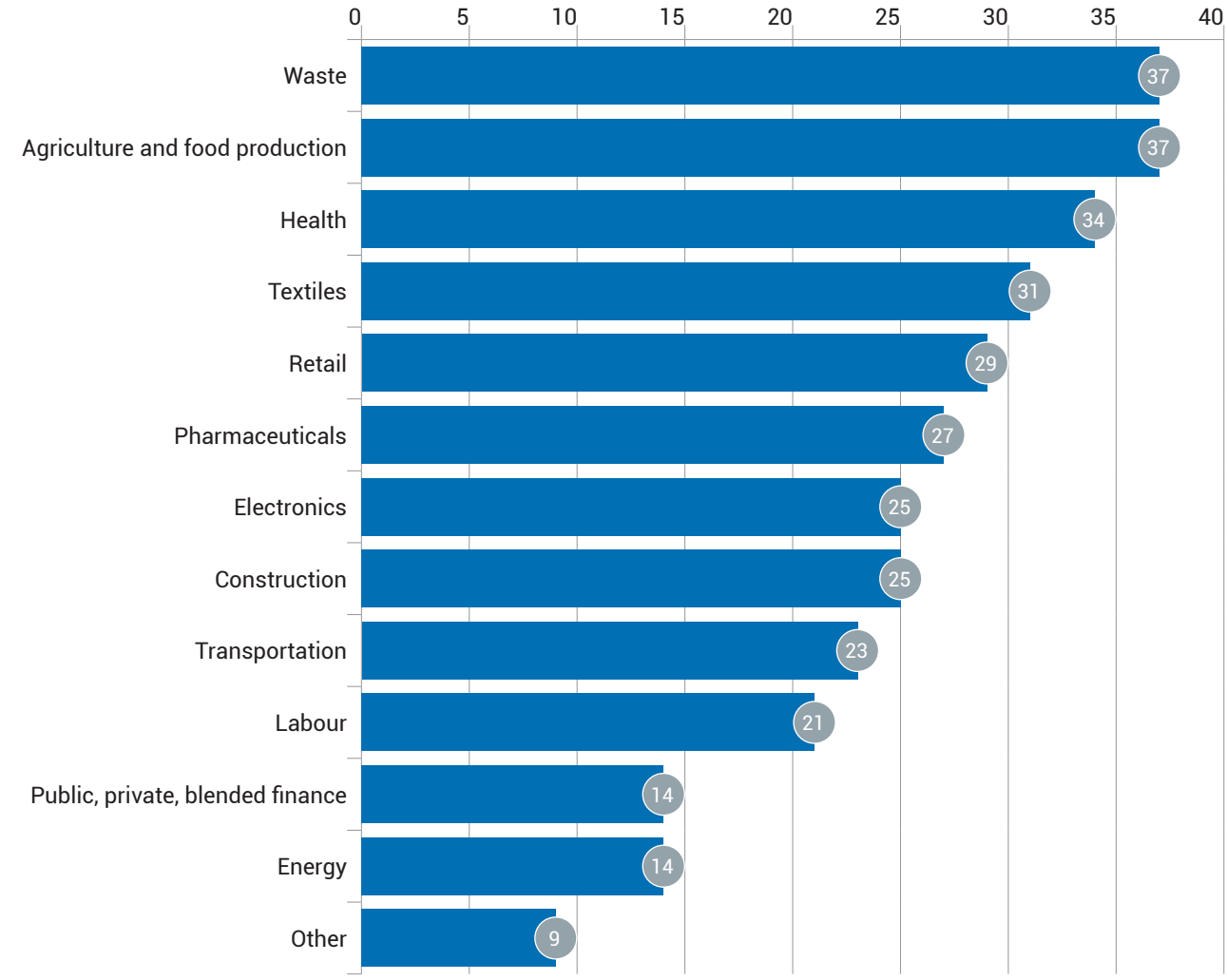
Important sectors and value chains

As indicated by Figure A68 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing waste, agriculture and food production, and health.

Respondents who selected "other" cited: the detergent industry; the chemical industry; engineering; industries that manufacture microplastics or use them in their products; and "all of them."

In their written comments, several respondents noted that many or all of these sectors are important to addressing microplastics. An industry group noted that the "success of loss reporting and containment measures is highly dependent on the involvement of the whole plastics value chain – i.e. producers, converters, transporters, brand owners. It is paramount that all these stakeholders are held up to the same legislative standard globally

Figure A68. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for microplastics



Note: Stakeholders could select more than one option. Number of respondents = 42.

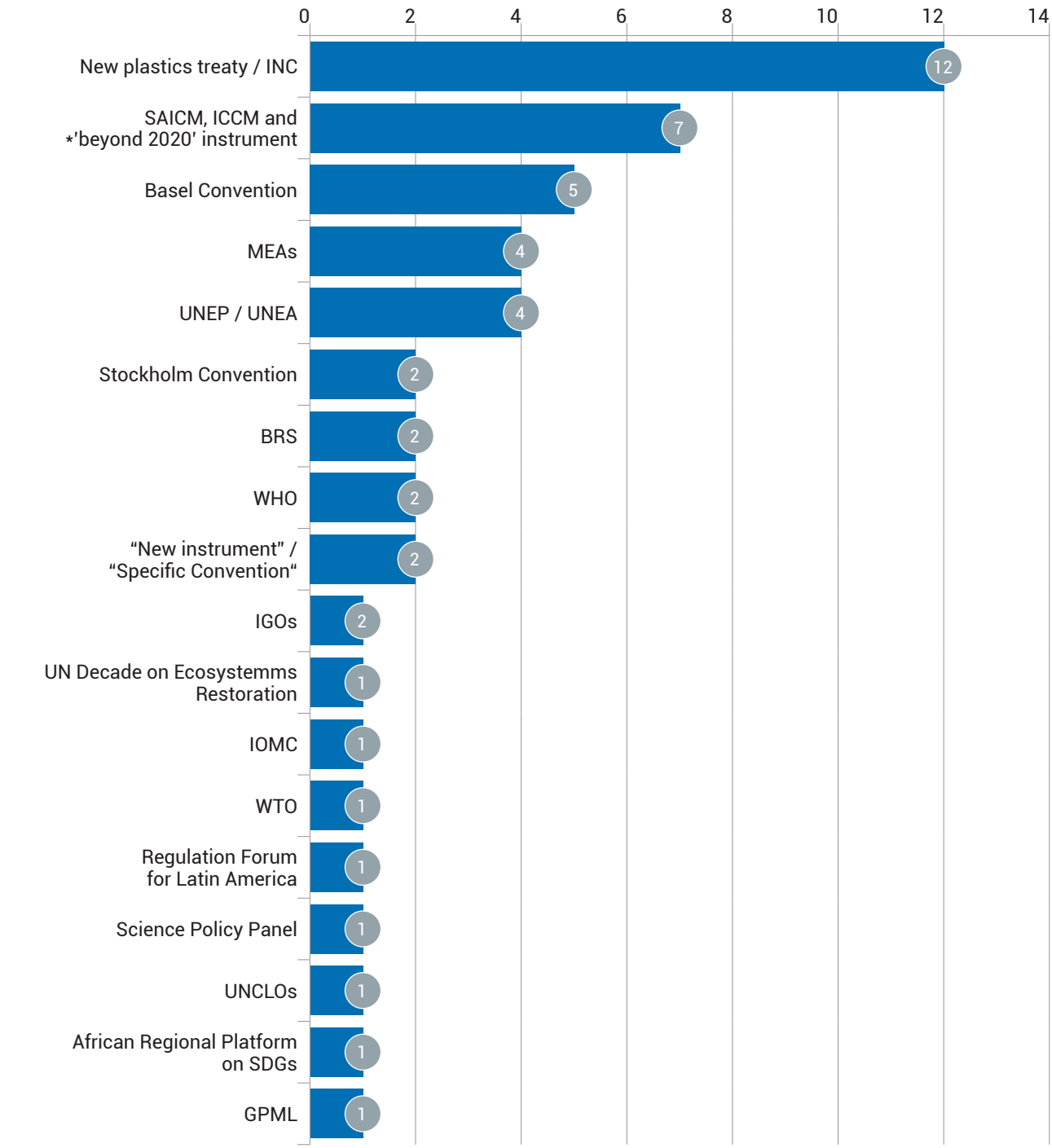
to ensure homogeneity of implementation and thus of results".

International forums and instruments best placed to lead international action on microplastics

Respondents identified several international organizations and instruments as best placed to lead, with particularly strong support for the treaty on plastic pollution that is currently under negotiation.

In written comments, one government expressed concern about gaps in knowledge on microplastics. A respondent from the private sector stated that the "future plastics agreement would be the best place to address this issue as a mechanism to prevent plastic waste from entering into the environment in the first place, thereby decreasing the creation of secondary microplastics".

Figure A69. Forums and instruments that could lead international action on microplastics



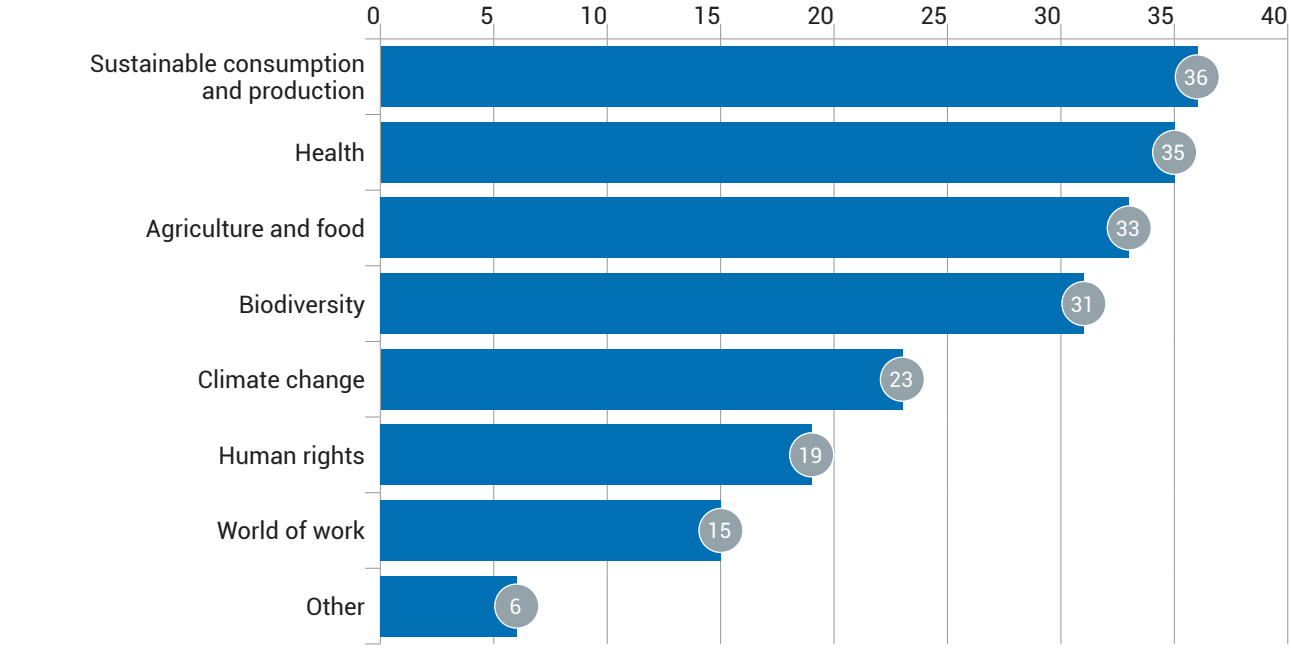
Note: Stakeholders could select more than one option. Number of respondents = 29.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

International agendas with linkages to microplastics

As indicated by Figure A70, respondents drew links between microplastics and a wide range of international agendas, with most respondents highlighting the connections to sustainable consumption and production and health.

Respondents who selected "other" cited: the 2030 Agenda for Sustainable Development, Agenda 2063: The Africa We Want (African Union 2020), SDG 14 (Life Below Water), and "all of them". An NGO called for "the provision of authoritative review and consistent global evidence" from the proposed science-policy panel.

Figure A70. Stakeholders' views on the international agendas which have important linkages with microplastics



Note: Stakeholders could select more than one option. Number of respondents = 39.

In written comments, a government cited links to plastic recycling and efforts to transition to a circular economy. A respondent from academia highlighted connections to SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water), as well as the UN Ocean Decade and agendas for sustainable cities, among others.

A government stated that the links between microplastics and the agendas stated above "are complex and multifaceted" and further research is needed to better understand the connections and develop effective solutions to microplastics pollution.

Another government said a future legally-binding plastic treaty should include obligations to reduce the releases of microplastics from the degradation of macroplastics and from intentional use and unintentional releases, focusing on the main sources of pollution to the environment.

Priority work at the national and regional levels

On priorities for work at the national level, some respondents highlighted the need for national standards or legislation. A government called for improved monitoring and enforcement. Two governments cited the need for circularity and enhanced waste management, including through recycling. One NGO noted that legislation to increase recycling of plastics is counterproductive, because mechanical recycling can create microplastics. Another called for caution regarding biodegradable plastics, noting that these materials could generate more microplastics.

A respondent from the private sector called for prioritizing data on the human health effects of microplastics exposure. Several respondents highlighted the need to raise awareness of microplastic pollution, and one cited the need

to invest in research and development of new technologies to address microplastic pollution. Two other respondents from the private sector said it is "imperative that the scientific research is done by investigators that are properly trained to avoid contamination, and that the research is done with relevant conditions and exposures."

An NGO called for the involvement of "traditional leaders and schools."

At the regional level, respondents called for a range of measures, including several actions that would improve understanding of and data about microplastics. For example, some governments called for: establishing laboratories at regional level to facilitate research on microplastics, especially in bodies of water; creating an inventory of products that contain intentionally added microplastics; and establishing a regional knowledge sharing network.

Additionally, one government called for controlling cross-border movements of plastic waste, and an NGO called for regulatory controls to prohibit the use of microplastics and products that generate microplastics.

Another government called for a regional knowledge sharing network. An NGO prioritized greater regional cooperation among global south and global north countries. Another called for "better and stronger" involvement of UNEP, the ILO, FAO, and WHO at the international, regional, and national levels.

5.6 NANOTECHNOLOGY AND MANUFACTURED NANOMATERIALS

Nanomaterials, which are typically defined as having at least one internal or external dimension between 1 and 100 nanometres, are used in a wide range of consumer products (e.g. food packaging, textiles, and personal care products) and industrial applications. The impacts of nanomaterials on human health and the environment are not well understood, and the rapid rise in their use led ICCM2 to identify them as an issue of concern in 2009 (UNEP 2020).

Twenty-six stakeholders provided comments on nanotechnology and manufactured nanomaterials. Eighty-eight per cent indicated that they believe further international action is necessary. Eight per cent (two respondents) said it is not necessary. An IGO secretariat selected "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

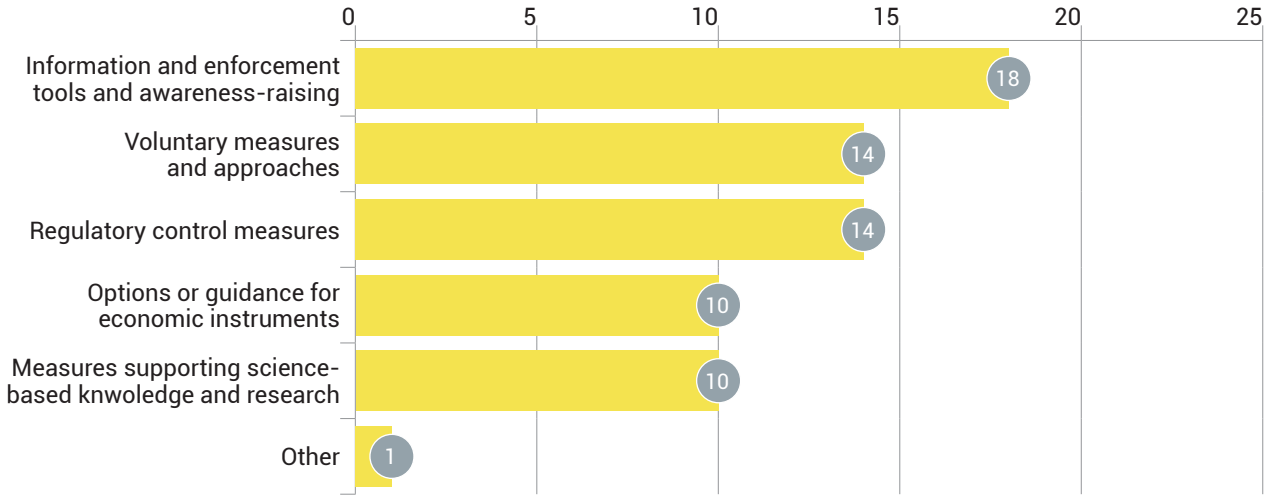
Those who supported international action cited concerns about the rapid rise of applications using nanotechnology and manufactured nanomaterials, as well as poor labelling and unknown effects. One government noted the importance of correct assessment of their uses and appropriate control of risks. An intergovernmental organization noted the Basel Convention has been considering the issue of waste containing nanomaterials since 2017 (UNEP 2018).

Out of 22 respondents, 67 per cent said nanotechnology and manufactured nanomaterials are a "very high" or "high" priority for action, 26 per cent said they are a "medium" priority, and 8 per cent (two respondents) said they are a "very low" priority.

International actions

Respondents called for a range of international actions: 42 per cent supported voluntary initiatives including information sharing and awareness-raising; 30 per cent supported the establishment of a legally-binding instrument; and 20 per cent supported using soft law. One respondent supported using other measures, and two others indicated that international action is unnecessary. The respondent who supported other measures noted that the proposed science-policy

Figure A71. Stakeholders' views on the approaches or measures appropriate to deal with nanotechnology and manufactured nanomaterials at the international level



Note: Stakeholders could select more than one option. Number of respondents = 22.

panel could provide an "authoritative review and consistent global evidence".

As indicated by Figure A71 above, respondents expressed support for a range of approaches to and measures for nanotechnology and manufactured nanomaterials, with particularly strong support for information-based and enforcement tools.

In written comments, an IGO called for "promotion of the ratification and implementation of existing normative instruments, including the ILO Chemicals Convention, No. 170, and the Occupational Cancer Convention, No. 139, as well as any forthcoming instruments, including the proposed ILO chemicals protocol". One NGO said there should be more support for ratification and enforcement of existing normative approaches, including ILO chemicals conventions. Another respondent said that WHO guidelines for nanotechnology workers' health should be widely implemented.

A government said that, ideally, a legally-binding treaty should be adopted with the aim to address those substances, including nanomaterials, that due to their intrinsic properties pose a risk to human health and the environment, and said an individual treaty for each substance would not be effective due to factors such as length of the process and high costs. This respondent stated that in the meantime, "we should put more focus and always keep on addressing these issues via soft law, voluntary initiatives and information sharing."

Another government called for voluntary initiatives including: development of a globally recognized definition of nanomaterials by relevant IGOs; labelling of products containing nanomaterials, with information on the specific risks and available management options; continuation of work to develop technical guidelines to characterize the physico-chemical properties, effects on the biotic system, environmental fate, and health effects; development of a nanomaterials-specific database to assist stakeholders in risk assessment; and development and improvement of analytical methods for detecting and quantitating nanomaterials to better characterize dose-response relationship and exposure assessment.

A third government said, given that a limited number of risk assessments of nanomaterials have been conducted, it would welcome international initiatives and efforts intended to build capacity on risk assessment methodologies and to share relevant tools, results, and approaches within jurisdictions. This respondent further supported voluntary labelling initiatives to raise public awareness and increase supply chain transparency, and said further international actions (e.g. a legally-binding instrument) could be explored once a better understanding and conclusive evidence on the human health and environmental risks imposed by nanomaterials are developed.

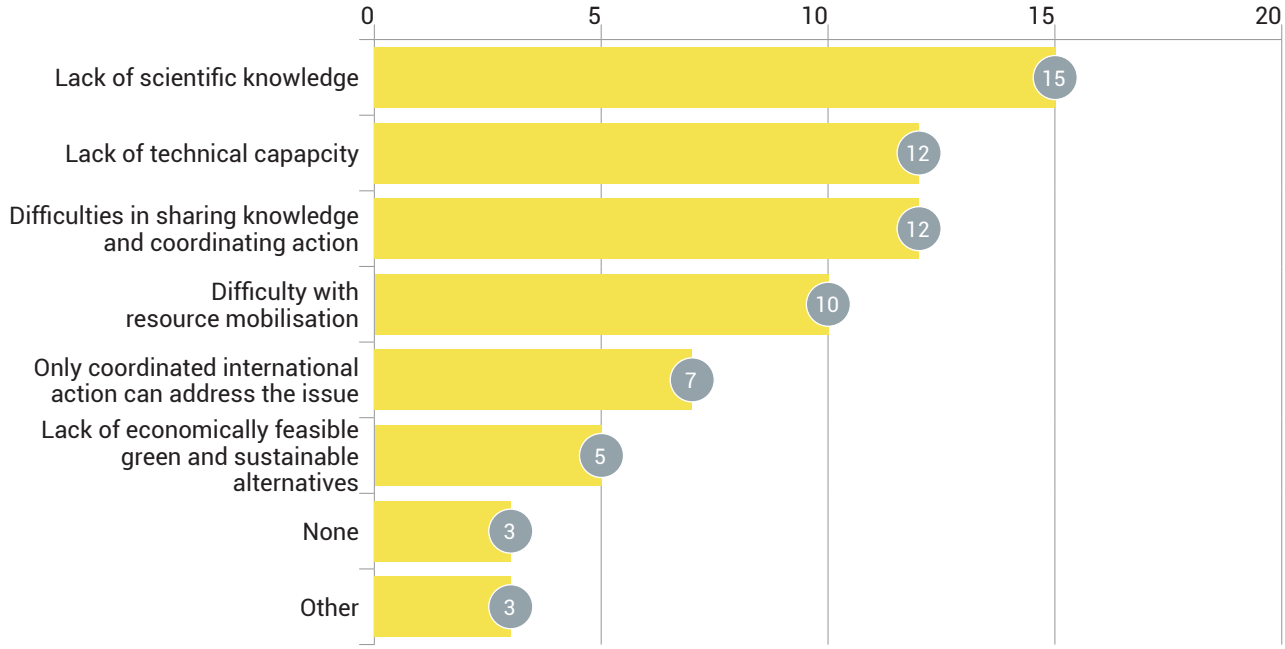
Factors that prevent action or progress on nanotechnology and manufactured nanomaterials

As indicated by Figure A72, respondents identified many challenges to domestic action on nanotechnology and manufactured nanomaterials, with lack of scientific knowledge heading the list.

Two respondents – one from government and one from an NGO – who selected "other" cited failure to take a precautionary approach where sufficient data are not available. A government that selected "other" stated that "the main challenges are currently being addressed with regard to the adoption of a new applicable definition, the development of technical guidelines for risk assessment and the updating of the legal framework" for regulation of nanomaterials.

In written comments, a government called for a coordinated effort from all stakeholders, including government agencies, businesses, NGOs and the international community. Another government cited challenges including "very few publications of risk assessments internationally for nanomaterials", inconclusive research efforts for some nanomaterials due to their size and property varieties, and limited sharing of information between industry stakeholders and government or between jurisdictions.

Figure A72. Stakeholders' views on the factors preventing action or progress on addressing nanotechnology and manufactured nanomaterials in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 23.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up, an IGO cited the EU Observatory for Nanomaterials (European Chemicals Agency 2023a) which aims to increase transparency of information on nanomaterials and is hosted by the European Chemicals Agency. An NGO cited the GRACIOUS Framework, which facilitates grouping read-across of nanomaterials/nanoforms for regulatory risk assessment and to support innovation.

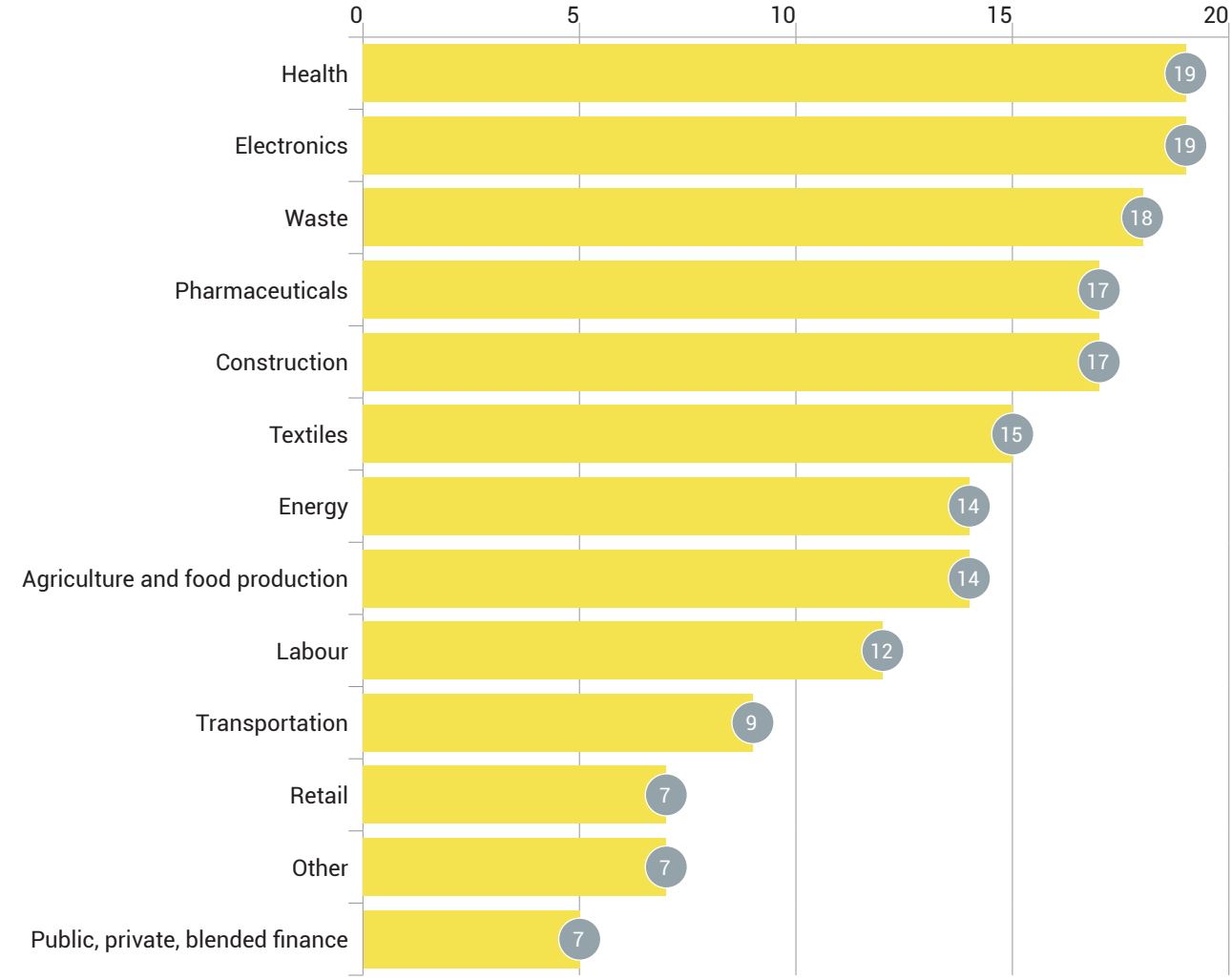
Another government suggested building on the Safe and Sustainable-by-Design and the Safe-and-Sustainable-Innovation Approach for nanomaterials as part of the OECD and IOMC (OECD 2023). This respondent further noted that the OECD Working Party on Manufactured Nanomaterials currently coordinates the generation of test guidelines and guidance documents for safety and assessment of nanomaterials and said this work could be scaled up and leveraged to increase input/collaboration on international level regulatory actions.

Important sectors and value chains

As indicated by Figure A73 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing health, electronics, and waste, closely followed by pharmaceuticals and construction.

Respondents who selected "other" cited: materials sciences, consumer products, cosmetics and self-care products, industries that produce or use nanomaterials in their products, and "every sector".

Figure A73. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for nanotechnology and manufactured nanomaterials



Note: Stakeholders could select more than one option. Number of respondents = 23.

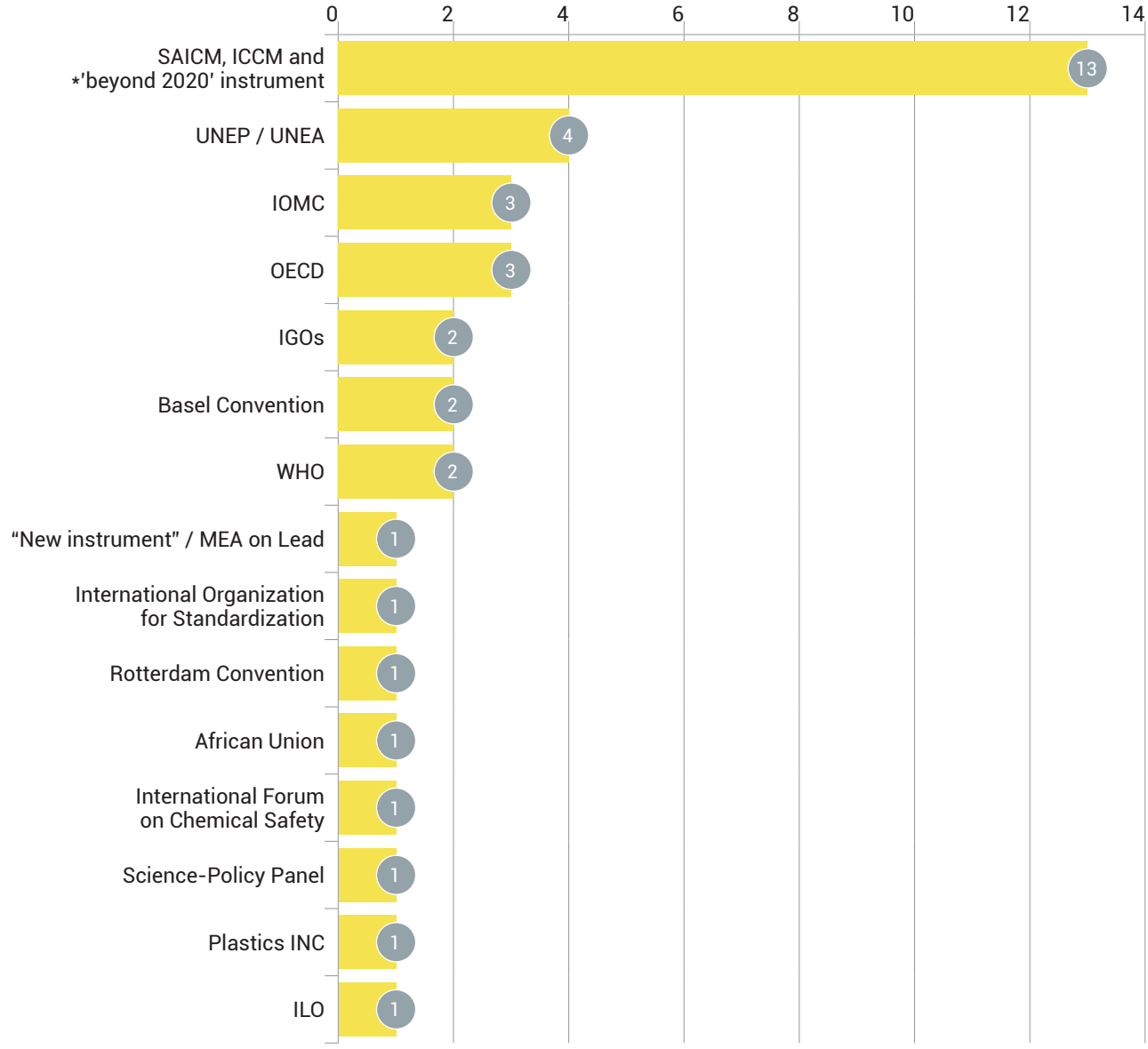
International forums and instruments best placed to lead international action on nanotechnology and manufactured nano materials

Respondents identified several international organizations and instruments as best placed to lead, with SAICM and the 'beyond 2020' instrument receiving the most support.

In written comments, an NGO stated that SAICM "is the only international agreement that addresses the full range of health and environmental issues or newly discovered ones, linked to the production and use of chemicals". An international organization stated that "since this is such a new and emerging topic, and one in which awareness of impacts is constantly evolving, the best option could be for SAICM to continue as the leading entity with the goal of coordinating with relevant treaty bodies and international organizations, as well as with NGO actors. If this model were followed, it could ultimately lead to a request for further UNEA action at UNEA 7 or 8".

Noting that nanomaterials are "a cross-border sector and cross-regulatory area (industrial chemicals, pharmaceuticals, electronics, cosmetics, food additives, pesticides, medical devices, etc.)", a government stated that the OECD is "the most competent institution to develop new test guidelines for characterising nanomaterials, identifying and characterising hazards, recommending exposure models, exploring alternatives (where appropriate), and developing pre-regulatory risk assessment tools". A second government stated that the OECD's

Figure A74. Forums and instruments that could lead international action on nanotechnology and manufactured nanomaterials



Note: Stakeholders could select more than one option. Number of respondents = 18.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

Testing Programme of Manufactured Nanomaterials "could be a good place to start, as it already coordinates with many of the leading experts in this field among OECD member countries".

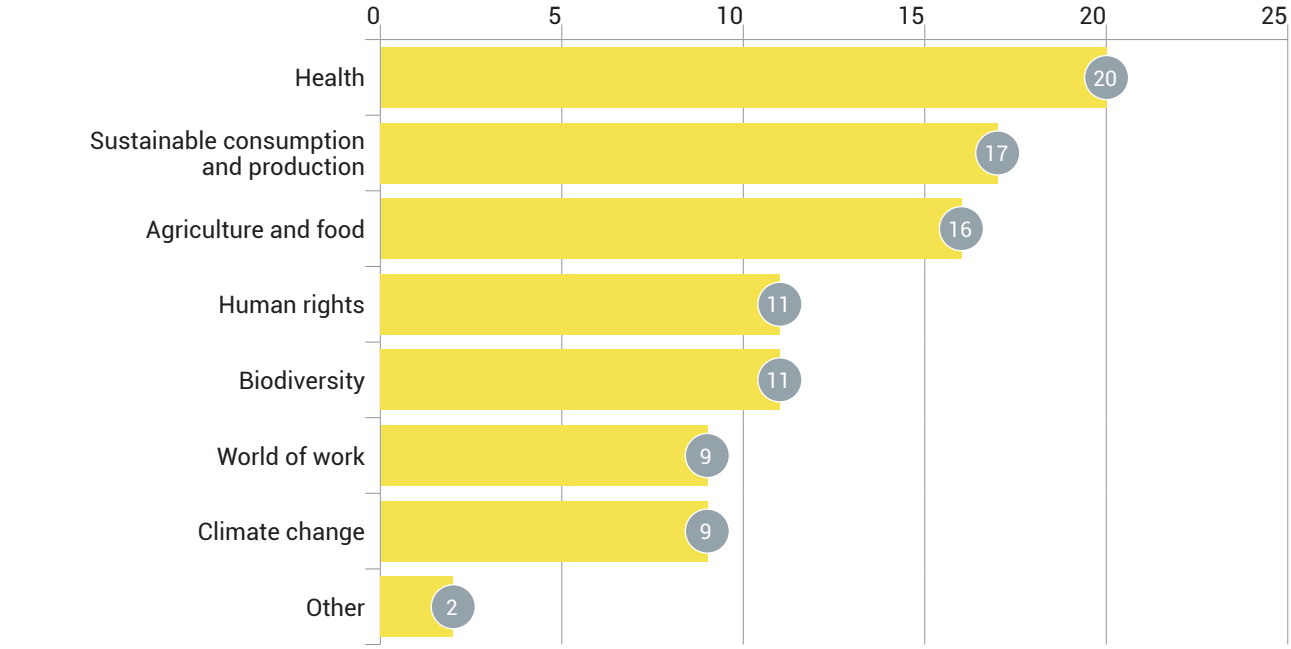
International agendas with linkages to nanotechnology and manufactured nanomaterials

As indicated by Figure A75, respondents drew links between nanotechnology and manufactured nanomaterials and a wide range of international agendas, with most respondents highlighting the connections to health, followed by sustainable consumption and production and agriculture and food. Respondents who selected "other" cited the "future international framework on chemicals and waste management" and pharmaceuticals.

Priority work at the national and regional levels

On priorities for work at the national level, an NGO cited the need for national legislation, standards, and labelling. One government called for training, and another called for a uniform definition of

Figure A75. Stakeholders' views on the international agendas which have important linkages with nanotechnology and manufactured nanomaterials



Note: Stakeholders could select more than one option. Number of respondents = 22.

nanotechnology and manufactured nanomaterials. A third government cited the need for a national coordination mechanism to: bring together all stakeholders involved in the development and use of nanomaterials; develop and implement a national strategy for their safe use; and coordination of research and development activities.

At the regional level, one government called for adapting "regulatory data requirements to take into account the properties and life cycles of nanomaterials, and thus inform hazard and risk assessments". Another government called for establishing regional knowledge-sharing networks, and a third respondent highlighted the need for training. A fourth government cited "an urgent need for testing methods, approaches, risk assessments and risk management frameworks to better understand risk and impacts of nanomaterials on human health and the environment". This respondent added that "nanomaterials can offer societies many benefits and this would enable better protection of human health, biodiversity, and the environment from potentially hazardous nanomaterials, and continue their safe use".

5.7 PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

PFAS, a class of chemicals composed of thousands of substances with at least one perfluorocarbon moiety in their molecular structures, are often used in applications which require water or oil repellence (e.g. fire-fighting foams, stain-resistant textiles, and non-stick cookware). Long-chain PFAS are highly persistent, bioaccumulative, and toxic, and they are ubiquitous in the environment, biota and humans (UNEP 2020).

Thirty-nine stakeholders answered at least one question on PFAS. Ninety-seven per cent indicated that they believe further international action is necessary. The remaining stakeholder, an IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Those who supported international action cited concerns about the global impacts of PFAS, with one government citing "scientific evidence of damage to health and the environment as well as poor labelling and unknown effects". Others said that coordinated international action will be necessary to solve this global problem.

A respondent from the private sector stated that PFAS are a "large, diverse group with different chemical, physical, thermal, and biological properties" and that PFAS include "distinct substances with very different properties: polymers and non-polymers, solids, liquids and gases; persistent and non-persistent substances; highly reactive and inert substances; mobile and insoluble (non-mobile) substances; and (eco)toxic and nontoxic chemicals".

One NGO called for regulating PFAS "as a class to prevent further contamination and harm to human and environmental health" saying PFAS are extremely persistent and PFAS pollution must be prevented. Another noted that the EU is "making some strides in regulating PFAS as a broad chemical class using the OECD definition".

A government stated that "it would be opportune to work with these substances with the Conventions on hazardous chemicals that already exist, such as the Rotterdam Convention and the Stockholm Convention, which have been created out of concern for the high risks to health and the atmosphere". An IGO stated that most efforts at the international level have focused on phasing out long-chain PFAS, and the Stockholm Convention has been a key platform for doing so. The IGO further noted that the Stockholm Convention has carried out assessments of PFAS and alternatives to listed PFAS and their related compounds, developed guidance on inventories of certain PFAS as well as on best available techniques and best environmental practices in order to assist parties in the sound management and disposal of listed PFAS, and provided capacity-building and technical assistance to developing countries and countries with economies in transition to support their efforts to phase out PFAS and manage their waste in an environmentally sound manner.

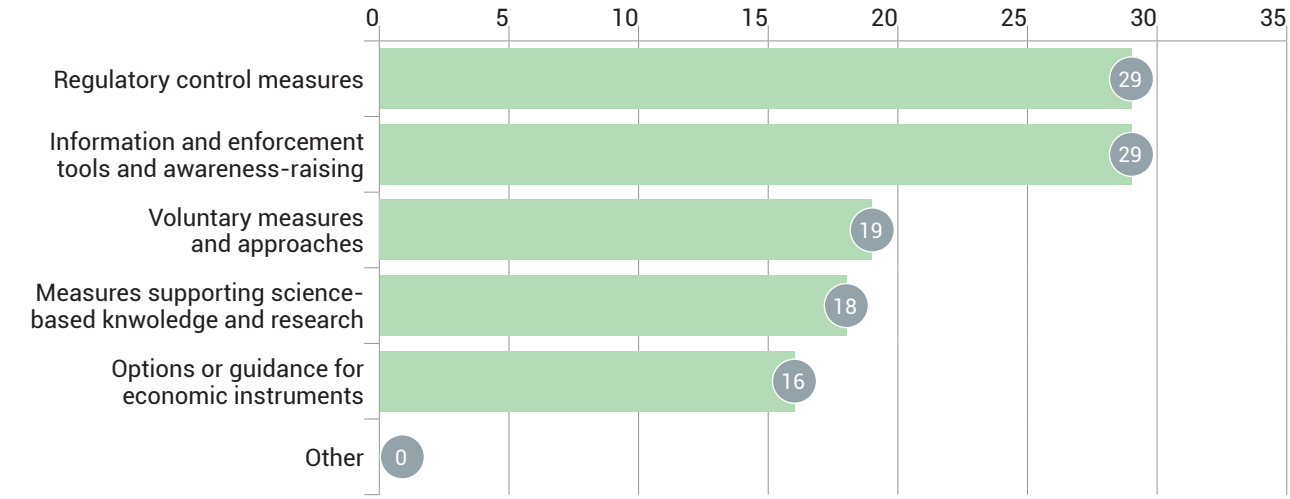
Of 35 respondents, 91 per cent said PFAS are a "very high" or "high" priority for action, and 9 per cent said they are a "medium" priority.

International actions

Respondents called for a range of international actions: 42 per cent supported the establishment of a legally-binding instrument; 34 per cent supported voluntary initiatives including information sharing and awareness-raising; 21 per cent supported using soft law; and 3 per cent supported using other measures. An IGO who selected "other" noted that several PFAS are covered by the Stockholm Convention.

As indicated by Figure A76, respondents expressed support for a range of approaches to and measures for addressing PFAS, with particularly strong

Figure A76. Stakeholders' views on the approaches or measures appropriate to addressing PFAS at the international level



Note: Stakeholders could select more than one option. Number of respondents = 35.

support for information-based and enforcement tools and regulatory control measures.

In written comments, one government said that ideally, a legally-binding treaty should be adopted to address those substances that, due to their intrinsic properties, pose a risk to human health and the environment The respondent added that an individual treaty for each substance would not be effective due to factors like a lengthy process and high costs. This respondent also stated that in the absence of agreement for such measures "we should put more focus and always keep on addressing these issues via soft law, voluntary initiatives and information sharing".

A second government said measures should be legally-binding but differentiated, taking into account the situation and the country's capacity to implement the management measures, and added that it is essential that the exchange of information be guaranteed and that measures be implemented that mobilize financial resources for countries that require it.

Another government called for a comprehensive approach that includes a mix of regulatory, information-based, and voluntary measures, including a legally-binding treaty that would set deadlines for phasing out the production and use of PFAS and establish standards for the safe use and disposal of these chemicals. This government said the measures would need to be: tailored to national circumstances; based on best available scientific evidence; transparent and inclusive; flexible and adaptable; and supported by adequate resources. Another government called for a combination of legally-binding international measures (e.g. listing of additional groups of PFAS in annexes to the Stockholm Convention), soft law (where adoption is less difficult and lengthy) and information sharing/ awareness-raising, as well as voluntary initiatives. This respondent added "since there are currently very different levels of awareness and concern in different regions, raising awareness will be crucial, for example, to encourage the development of effective policies with better global coverage".

An NGO called for amending the Basel Convention to expand the definition of plastic wastes covered by Annex II (wastes requiring special consideration) to include a class-based definition (such as "one fully fluorinated carbon atom") in category Y48, which took effect in 2021.

A respondent from the private sector said there are sufficient data proving the safety of fluoropolymers and, based on "established scientific knowledge, the legal framework at international/global level should be improved and homogenized". Two other respondents from the private sector stated that countries' "own respective chemicals management systems are still the best way to safely and effectively manage PFAS, but additional international

coordination might be useful to aid in the spread of information between countries. Additionally, coordinated scientific research on PFAS, and the risks associated with different chemical types could benefit numerous stakeholders as they decide how to best regulate the class of chemicals".

Stating that "thousands of per- and polyfluoroalkyl substances have been invented by industry over many decades" an NGO said the problem is so complex and relevant to so many chemicals in products that a toolbox of policy approaches is necessary. This respondent further noted that regulatory frameworks have not captured the substances' safety evaluation or mandated safety data to be generated, often due to low tonnages being manufactured or by virtue of some being fluoropolymers.

Factors that prevent action or progress on PFAS

As indicated by Figure A77, respondents identified many challenges to domestic action on PFAS, with lack of technical capacity leading the list. A respondent who selected "other" cited the costs and technological challenges of moving to alternative processes and substances.

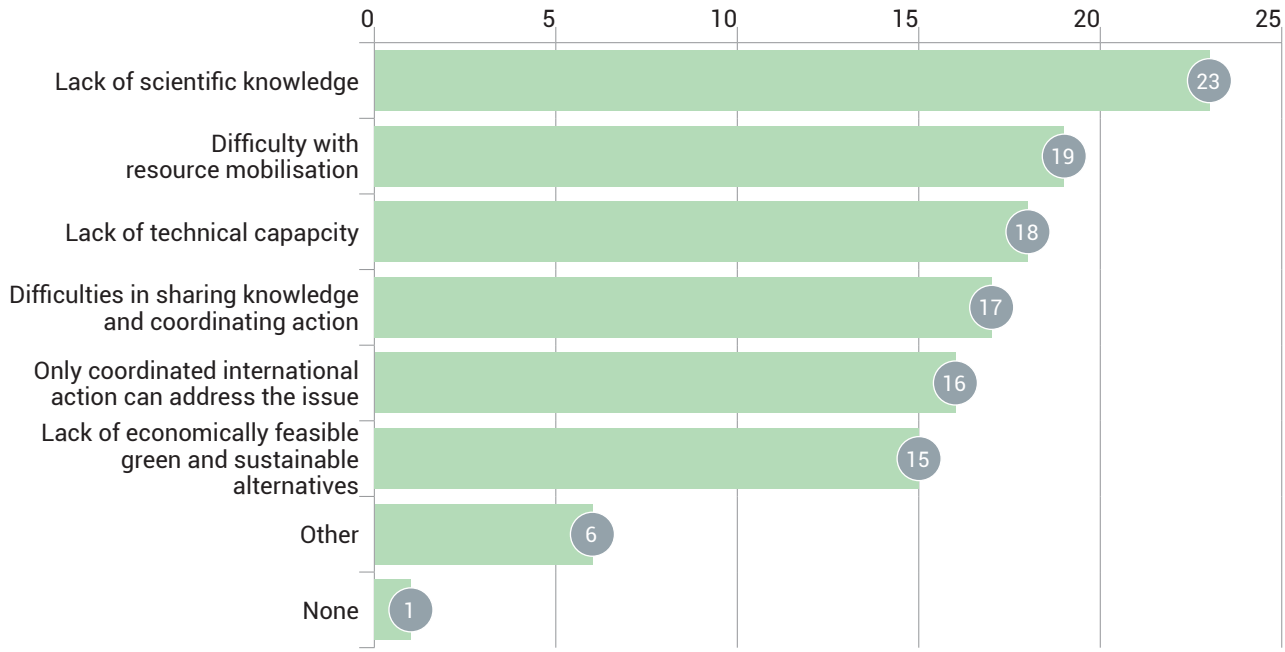
In written comments, an NGO stated that there is a lack of understanding about the mechanisms of harm, exposure scenarios, and safety of alternatives to PFAS, and more examples of translating academic knowledge into actionable measures are needed.

A respondent from the private sector stated that there are no analytical methods for most non-polymeric PFAS chemicals, especially to detect them in small quantities, and noted this may become an issue for a number of recycling activities.

A government cited challenges including lack of technical capacity for identification and elimination of PFAS, as well as lack of research on issues related to treatment and elimination, and highlighted the need for resources to support this work.

Another government highlighted limited information on PFAS within the supply chain, as well as lack of efficient destruction capacities for PFAS, especially for spent or decommissioned aqueous film-forming foam (AFFF) containing PFAS system/equipment.

Figure A77. Stakeholders' views on the factors preventing action or progress on addressing PFAS in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 33.

Existing initiatives that could be replicated or scaled up

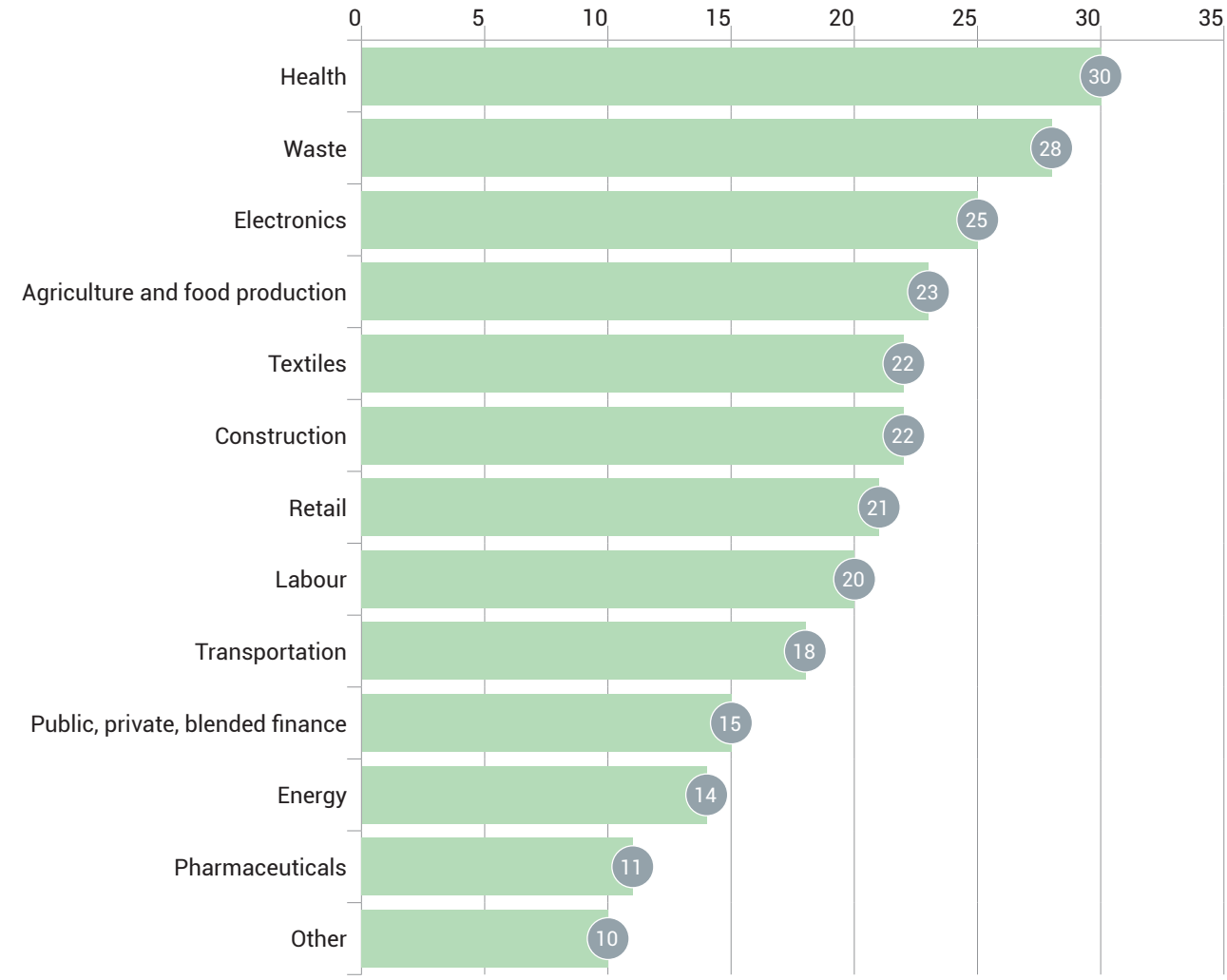
A government noted that the EU had adopted a number of regulatory measures that could be used as a basis for development of measures by others. Another government stated that actions have been taken in several jurisdictions, including the EU, Canada, the US (both at the national and state level), Australia, New Zealand, to guide the programmes of measures needed to address PFAS over time, including bans in firefighting foams, carpets, textiles, food packaging, cosmetics, and other consumer products.

Important sectors and value chains

As indicated by Figure A78 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing health and waste. Respondents who selected "other" cited the chemical industry, aerospace and defence industries, the water sector, public procurement, the plastic industry, firefighting, cosmetics, food packaging, and the automotive industry.

In written comments, an NGO noted that because PFAS are used across a range of sectors, broad

Figure A78. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for PFAS



Note: Stakeholders could select more than one option. Number of respondents = 35.

engagement will be necessary, and bodies that represent many businesses could be useful points of engagement. This respondent also noted the importance of involving the waste management and drinking water sectors "as they will most directly deal with PFAS in the environment".

International forums and instruments best placed to lead international action on PFAS

Respondents identified several international organizations and instruments as best placed to lead, with most citing the Stockholm Convention, which currently addresses some PFAS.

In written comments, a government stated that the Stockholm Convention is especially important for countries in which regulations on PFAS are sparse or in earlier stages of development, but the Convention lacks provisions that would allow concerns about the class of PFAS, "or at least the subclasses", to be addressed. The respondent further stated that "one possibility would be to amend the criteria of Annex D of the Stockholm Convention to allow the inclusion of extremely persistent substances, even if their bioaccumulation potential is limited or not yet demonstrated".

Several respondents highlighted the potential for the proposed science-policy panel on chemicals and waste to take a leadership role in addressing PFAS. One government stated that the "future international framework on chemicals and waste management would be best placed to take action. Such action should be led by appropriate IOMC organizations and should involve relevant sectors, in particular the private sector, where voluntary measures should be undertaken".

International agendas with linkages to PFAS

As indicated by Figure A80, respondents drew links between PFAS and a wide range of international agendas, with most respondents highlighting connections to health, followed by sustainable consumption and production and biodiversity. Respondents who selected "other" cited the "future international framework on chemicals and waste management" and the Chemicals Outlook.

In written comments, a respondent from the private sector highlighted connections to environment and health monitoring and surveillance systems, safety guidelines, and norms regarding water, air, soil, and food, as well as labourers' "need for, and right to, information about the chemicals they use at work".

With reference to sustainable consumption and production, an NGO noted that "PFAS have been an important component in many products and processes, but they may do more harm than good once they get into the environment. Therefore, PFAS are a prime example of the need to design products with the full life cycle of the materials in mind".

Another NGO stated that management of PFAS is key to solving several elements of the triple planetary crisis.

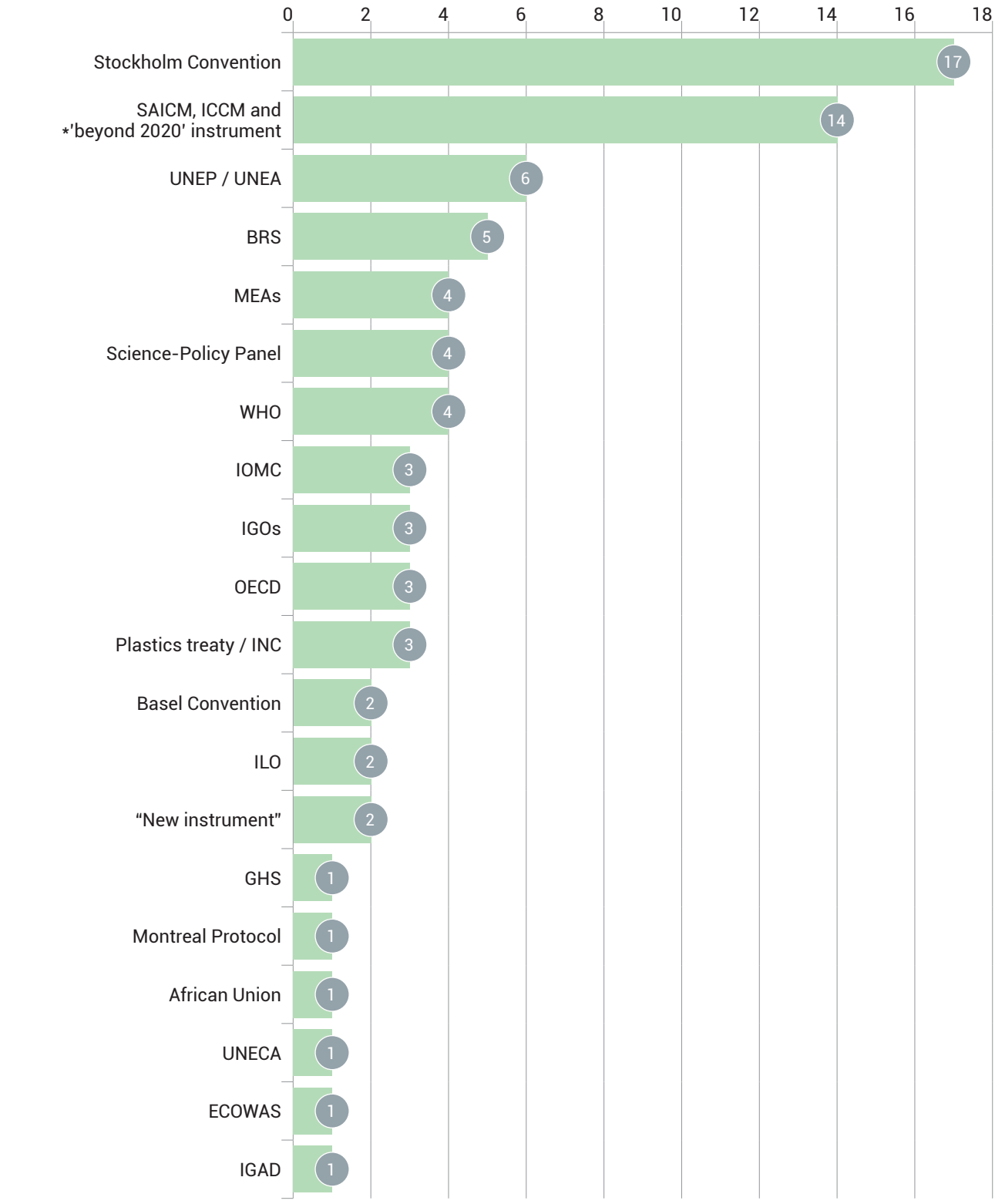
Priority work at the national and regional levels

On priorities for work at the national level, one government called for adopting regulatory measures to reduce or eliminate exposure to PFAS. A second highlighted the need to achieve better transparency on the use of PFAS in products, industrial processes, and on PFAS contamination hotspots, and called for promoting the development of alternatives to current uses of PFAS and to ensure that they are environmentally sound and sustainable.

Another cited the need to assess human and ecosystem exposure. Several respondents called for improved monitoring, as well as training and capacity-building activities.

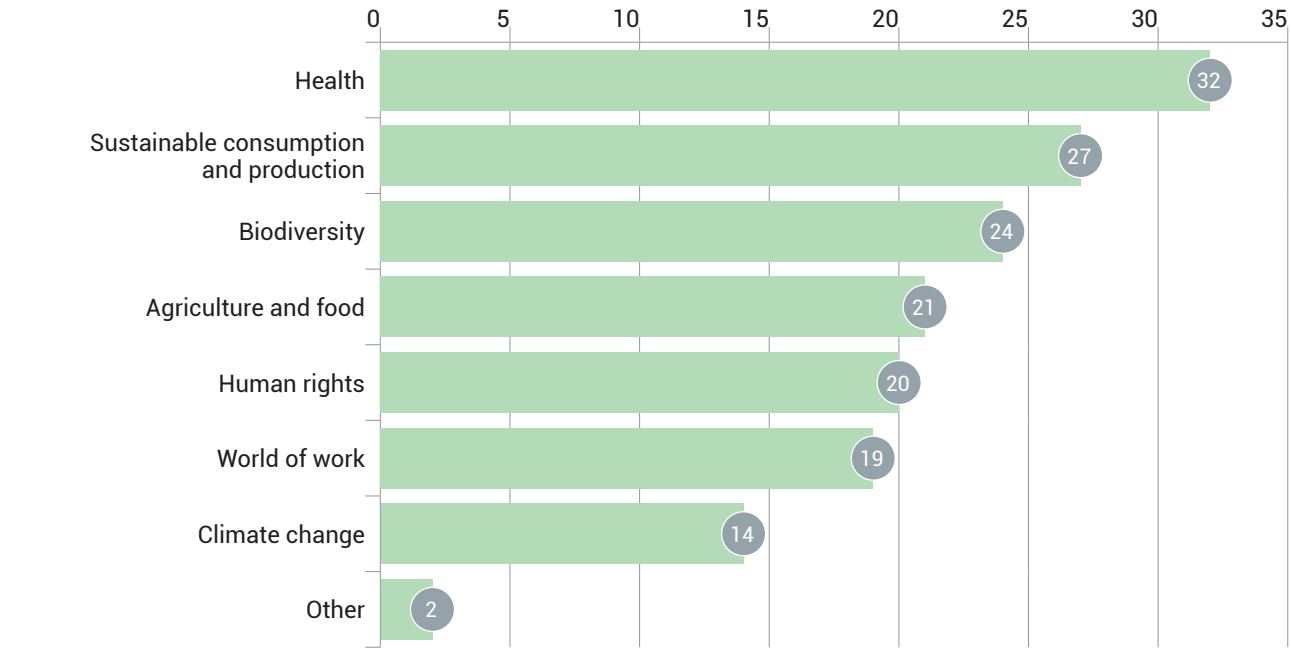
One NGO called for ensuring that international brands entering the domestic market adhere to their home country's environmental standards, thereby avoiding the transfer of environmental costs. Another called for PFAS-specific regulations to establish stricter drinking water standards locally, enforcement of stricter factory emissions into air,

Figure A79. Forums and instruments that could lead international action on PFAS



Note: Stakeholders could select more than one option. Number of respondents = 29.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

Figure A80. Stakeholders' views on the international agendas which have important linkages to PFAS



Note: Stakeholders could select more than one option. Number of respondents = 34.

land and water, and increased monitoring of PFAS in drinking water and factory effluents.

Another NGO stated "regulations should rely on broad class-based definitions such as 'one fully fluorinated carbon atom' or at least the OECD definitions". A respondent from the private sector stated "segmentation of the PFAS family according to known physico-chemical and (eco)toxicological properties rather than a structure-based classification alone is needed for a risk-based regulatory approach which is scientifically sound. Fluoropolymers should not be grouped together with other PFAS". This respondent added "regulating all PFAS as one homogenous group may result in nonreplaceable fluoropolymers being unjustly banned from critical applications with high societal value".

At the regional level, one government called for training, and another called for establishing regional knowledge sharing networks. An IGO noted that "training and capacity-building activities could take place at the regional level on PFAS, through the effective implementation of the Stockholm Convention, making use of existing Stockholm Convention regional centres".

Another government called for promoting regional cooperation to address PFAS, including by developing regional standards and regulations, promoting safer alternatives, supporting research on PFAS, and raising awareness of their risks. An NGO called for regulatory controls to prohibit the use of PFAS in products, coupled with mandatory transparency measures to disclose all chemicals used in products.

A government noted that in some regions, human biomonitoring and environmental monitoring studies are largely lacking, including for top predators and in remote areas, and said current monitoring activities in all regions need to be expanded to cover a wider range of PFAS. Another government encouraged input from other regions that may identify particular assessment and management challenges related to PFAS, as well as general challenges related to overall scientific risk assessment and regulatory capacity.

5.8 PHTHALATES

Phthalates are plasticizers with softening and elastic effects and are used in a wide range of applications, such as vinyl flooring, adhesives, detergents, clothing, and personal care products. Many phthalates or phthalate mixtures have been identified as endocrine disruptors that are harmful to humans and wildlife. Phthalates exposure occurs globally, and the chemicals have been "detected in air, water, drinking water, sediment, sludge, wastewater, soil, dust and biota" (UNEP 2020).

Thirty-seven stakeholders answered at least one substantive question on phthalates. Eighty-three per cent indicated that they believe further international action is necessary. Nine per cent said international action is not necessary, and 8 per cent said they did not know. An IGO secretariat selected "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many of those who supported international action cited concerns about the health impacts of phthalates, with one citing the particular impacts on children and others noting the intergenerational risks of exposure. Two respondents stated that phthalates pose risks to occupational safety in multiple sectors and industries. Some noted that action has been taken nationally or regionally, but said global coordination is necessary to address this issue effectively. One stated that "an international instrument and regulatory actions are essential, unless these substances are treated within the framework of the global legally-binding instrument relating to the fight against plastic pollution".

Two respondents from the private sector stated that the evaluation of phthalates should be conducted under a country's chemicals management system, as regulation of phthalates as a class is highly complex and nuanced. These respondents said a "unilateral response would be too overarching and would prohibit countries from assessing the utility of these chemicals and in achieving circularity".

Of 31 respondents, 77 per cent said phthalates are a "very high" or "high" priority for action, 16 per cent said they are a "medium" priority, and 7 per cent said they are a "low" priority.

International actions

Respondents called for a range of international actions: 35 per cent supported the establishment of a legally-binding instrument; 35 per cent supported voluntary initiatives including information sharing and awareness-raising; 24 per cent supported using soft law; 3 per cent supported using other measures, and 5 per cent said no international actions are needed. The respondent who selected "other" called for mandatory disclosure of phthalates in products, as well as regulatory financial control measures that move the market away from these chemicals.

Two respondents from the private sector indicated that no international actions are needed, as "even when scientists hypothesize extreme exposures, because of the unique properties of high phthalates [phthalates with seven or more carbon atoms in their chemical backbone], the predicted exposure levels are hundreds or thousands of times below the safe level established by regulatory authorities".

An NGO stated that phthalate-containing products are exported globally but no current international instrument controls and prohibits the use of these chemicals or requires mandatory labelling or information sharing. A second NGO stated that legally-binding action will help countries with weak environmental and health-related regulations develop and strengthen their national laws.

A government stated that, ideally, a legally-binding treaty should be adopted with the aim to address or eliminate those (groups of) substances that, due to their intrinsic properties, pose a risk to human health and the environment, and said an individual treaty would not be effective due to factors such as the long process and high costs. This respondent stated

that in the absence of broad agreement for such measures, stakeholders should continue addressing these issues via soft law, voluntary initiatives, and information sharing.

As indicated by Figure A81 below, respondents expressed support for a range of approaches to and measures for addressing phthalates, with particularly strong support for information-based and enforcement tools and regulatory control measures.

In written comments, a respondent from academia made several suggestions, including: harmonized programmes to measure phthalate exposure in humans and the environment; science-based, transparent joint risks assessments of phthalate hazards, involving independent experts; targeted bans on those phthalates found to pose the greatest risk to human health and the environment; support for research into safer alternatives to accelerate the adoption of viable substitutes; and information sharing platforms to communicated research findings, challenges, and case studies of substitutes that work.

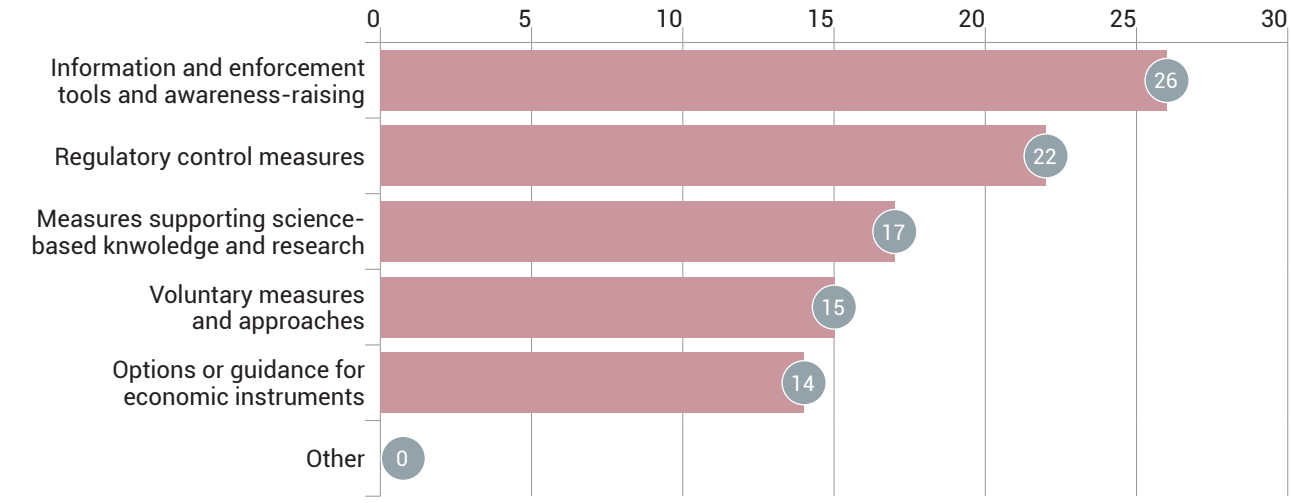
A government supported a combination of the above approaches. Another government said that, ideally, regulatory control measures should be adopted, but in the meantime a range of legally non-binding measures should be undertaken to assist countries in their national efforts. A third stated that "robust regulatory measures at the national level are key to prevent an influx of producers and suppliers to countries with the lowest environmental standards, and to promote fair and equitable trade".

One NGO called for amending the Basel Convention to restrict exports of plastic waste containing phthalates. Two other respondents – one international organization and one NGO – called for supporting the ratification and enforcement of existing normative approaches, including ILO chemicals conventions, particularly the ILO Chemicals Convention No. 170 and the Occupational Cancer Convention No. 139 (and any forthcoming instruments, including a "proposed chemicals protocol"). Another respondent noted that global regulatory control measures will be particularly helpful to countries with weak environmental and health-related regulations.

Factors that prevent action or progress on phthalates

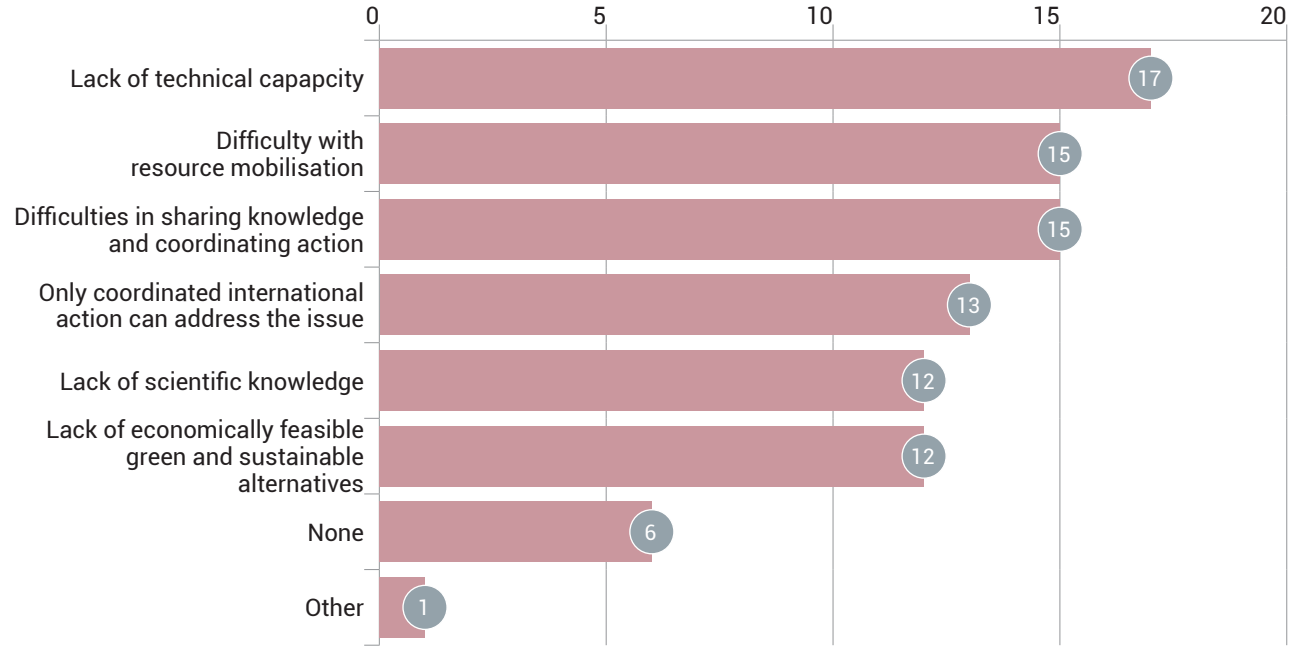
As indicated by Figure A82, respondents identified many challenges to action or progress on phthalates in their country or organization, with the lack of technical capacity leading the list, followed closely by difficulties with resource mobilization and difficulties in sharing knowledge and coordinating

Figure A81. Stakeholders' views on the approaches or measures to address phthalates at the international level



Note: Stakeholders could select more than one option. Number of respondents = 32.

Figure A82. Stakeholders' views on the factors preventing action or progress on addressing phthalates in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 29.

action among stakeholders and across different sectors.

In written comments, one government noted that "...it is not known in detail in which products [phthalates] are used and the quantities that the products contain cannot be quantified". Another government said the scientific sector is insufficiently involved in chemicals and waste management policy. A third government cited a lack of up-to-date data on the total quantity of a particular phthalate (Di(2-ethylhexyl)phthalate) manufactured in its country, as well as a lack of both staff and money to proceed with a monitoring programme.

A respondent from the private sector said that "robust, weight-of-evidence scientific assessments are critical for providing some degree of regulatory predictability to industry" and this predictability supports investment in existing and new substances and polymers.

Existing initiatives that could be replicated or scaled up

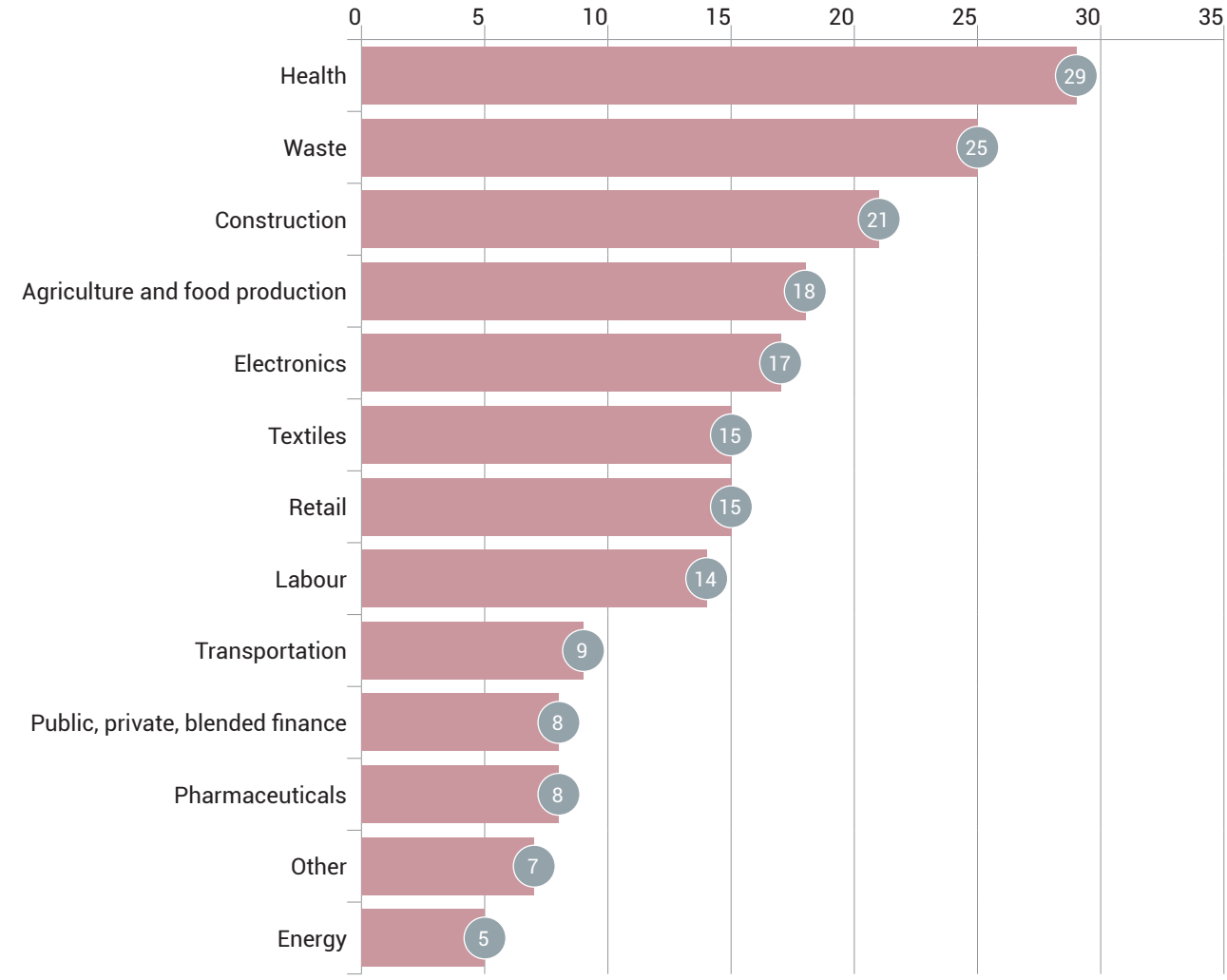
On existing initiatives that could be replicated or scaled up to address phthalates internationally, some respondents cited the work of the Stockholm Convention. An NGO cited EU initiatives including REACH, the EU's RoHS directive, cosmetic regulations, the EU Toys Directive, and food contact materials regulations.

A respondent from academia cited: the EU bans on certain phthalates in toys and childcare products; monitoring programmes such as those in Germany, Canada and the US which track phthalate levels in the environment; research funding initiatives in the EU, US and Japan to support research on substitutes and human health impacts; and schemes that certify products as 'phthalate-free' and thereby encourage best practices.

Important sectors and value chains

As indicated by Figure A83 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing

Figure A83. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for phthalates



Note: Stakeholders could select more than one option. Number of respondents = 30.

solutions, with most respondents citing health and waste. Respondents who selected "other" cited: automotive manufacturing, cosmetics, personal care products, chemicals, engineering, plastics, polymer compounding companies, material science consultants, and parts manufacturers.

International forums and instruments best placed to lead international action on phthalates

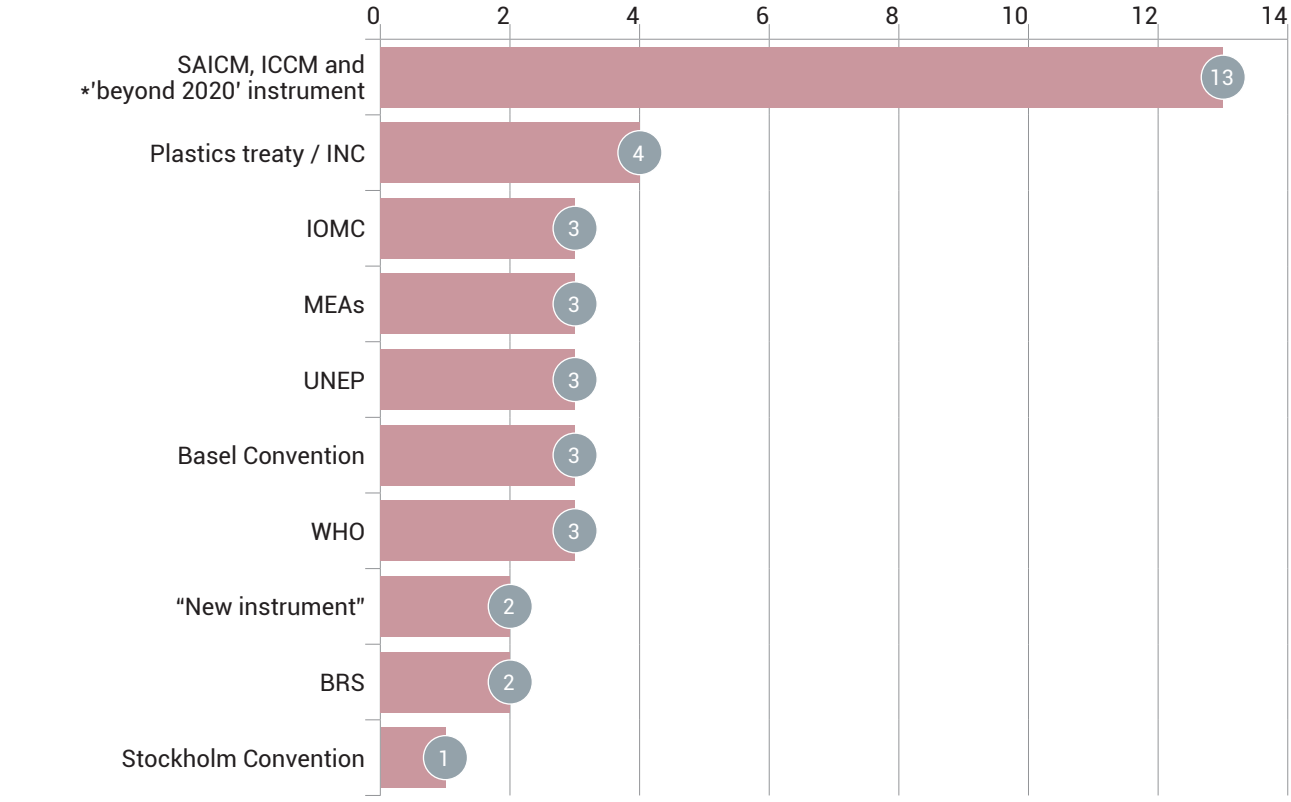
Respondents identified several international organizations and instruments as best placed to lead, with SAICM and the 'beyond 2020' instrument receiving particularly strong support.

In written comments, one government cited the potential leadership role of all "multilateral agreements on chemicals and waste in all sectors involved in solving the [chemicals in products] problem".

Another government said that substances that are proven to be toxic, but do not meet the Stockholm Convention's criteria for listing for bioaccumulation or persistence, need a new legally-binding instrument.

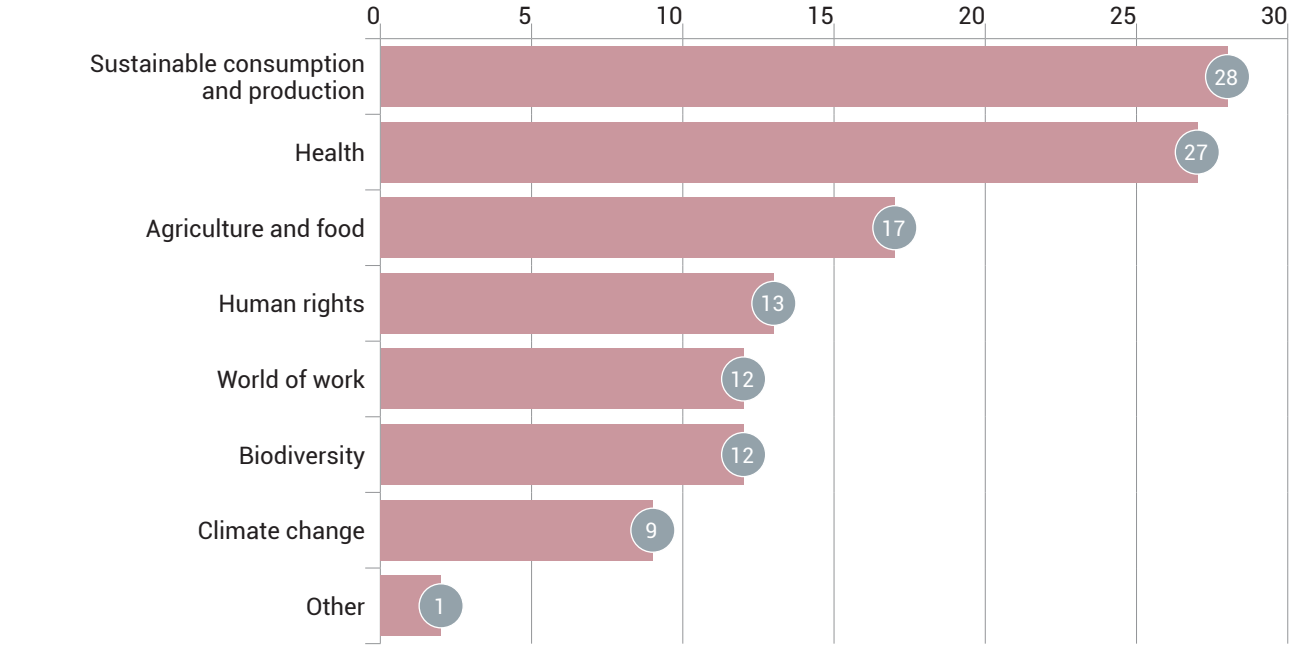
Two respondents from the private sector said "the focus should be on creating robust chemicals management systems, so that countries are best equipped to effectively regulate this chemical under their own jurisdiction. Ideally, this could be done under SAICM".

Figure A84. Forums and instruments that could lead international action on phthalates



Note: Stakeholders could select more than one option. Number of respondents = 19.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

Figure A85. Stakeholders' views on the international agendas which have important linkages with phthalates



Note: Stakeholders could select more than one option. Number of respondents = 30.

International agendas with linkages to phthalates

As indicated by Figure A85, respondents drew links between phthalates and a wide range of international agendas, with most respondents highlighting the connections to sustainable consumption and production and health.
A respondent who selected "other" cited the "future international framework on chemicals and waste management".

A respondent from academia cited links to SDG 63 (Good Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 14 (Life Below Water) and SDG 15 (Life on Land).

Priority work at the national and regional levels

On priorities for work at the national level, several respondents called for regulatory measures to reduce or eliminate exposure. A government called for restricting phthalates in toys, baby care products, and materials in contact with food and cosmetics, as well as setting maximum allowable limits for phthalates. A third government called for assessing the use of phthalates used by national industries, and another called for the development of a road map on the same management of chemicals in a circular economy.

Two governments called for monitoring, with one specifying the need for human biomonitoring studies.

Two an NGO organizations called for national laws and guidelines, and another called for rigorous implementation of domestic standards.

A respondent from the private sector called for "best practice and information sharing on how to transition a major product group from GHS classified substances to non-GHS classified substances" noting that "this process took over 25 years and over 6 billion EUR of investment by the European plasticizers industry, and via EU processes for hazard and risk assessment and regulation, all stakeholders being involved in the process - overall an EU success story from which others may be able to learn". Two other respondents from the private sector said "high phthalates have been thoroughly studied and reviewed by a number of government scientific agencies and regulatory bodies worldwide. These agencies agree that high phthalates are safe for existing uses".

A respondent from academia called for several actions, including: risk assessments; restriction of highest-risk uses, starting with children's products; investment in alternatives; strengthening product regulation; improved transparency; educating industries; and developing national action plans.

At the regional level, a government called for addressing exposure for all vulnerable populations. Another government cited the need for more comprehensive sets of measures in most countries, such as taxation on products containing phthalates, and voluntary phase outs by manufacturers.
A third government called for improving customs controls to identify products containing hazardous substances.

Respondents from a government and from the private sector called for best practice and information sharing. An NGO called for regulatory controls to prohibit the use of phthalates. Another called for cooperative regional actions on phthalates "considering all types of applications and sources of pollution throughout the life cycle".

A respondent from academia stated that regional cooperation would facilitate information sharing, coordinated monitoring, joint research, knowledge dissemination, capacity-building, and negotiated agreements, which would complement and reinforce national bans to manage phthalate risks.

5.9 POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

PAHs occur naturally in coal and crude oil, and are also by-products of incomplete combustion (e.g. burning of coal, oil and gas; vehicle emissions; industrial processes; and food preparation). PAHs are not intentionally added to products but may be present due to pollution. Many PAHs have been classified as toxic, carcinogenic, or mutagenic, and some are persistent, bioaccumulative, and toxic to humans and other organisms (UNEP 2020).

Twenty-eight stakeholders answered at least one substantive question on PAHs. Eighty-three per cent indicated that they believe further international action is necessary. Ten per cent said international action is not necessary, and 7 per cent said they did not know. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

Many of those who supported international action cited risks to human health, and some cited limited domestic regulations. One government noted that its country would be "producing oil soon" and said there is already much open burning of waste, which can generate PAHs. Another government stated that voluntary standards alone are unlikely to address PAHs in consumer products. An NGO stated that in many cases there are "no or grossly inadequate legislative controls" and cited the need for exposure limits in occupational settings (e.g. mining, construction, firefighting).

A government stated that, due to the broad occurrence of PAHs in many products and their high toxicity, international action should be taken to reduce or eliminate exposure, including by preventing the use and emissions/releases of PAHs. Another stated that evidence suggests that previous management actions have had only limited success, climate change will exacerbate environmental burdens, and existing information is based on a suite of compounds that is not sufficiently broad to fully evaluate risks to human and environmental health. This respondent added that "due to the transboundary nature of this substance class, and the increase in global forest fires, international action to reduce these substances would be warranted".

Another NGO noted that the potential for "transboundary transfer" necessitates collaborative international action. A respondent from academia noted that PAHs are highly persistent in the environment and can contaminate soil, water and air, spreading across borders; they have disproportionate impacts on developing countries; stronger international policies may be needed to address lagging adoption of alternatives; and individual country restrictions have had limited impact.

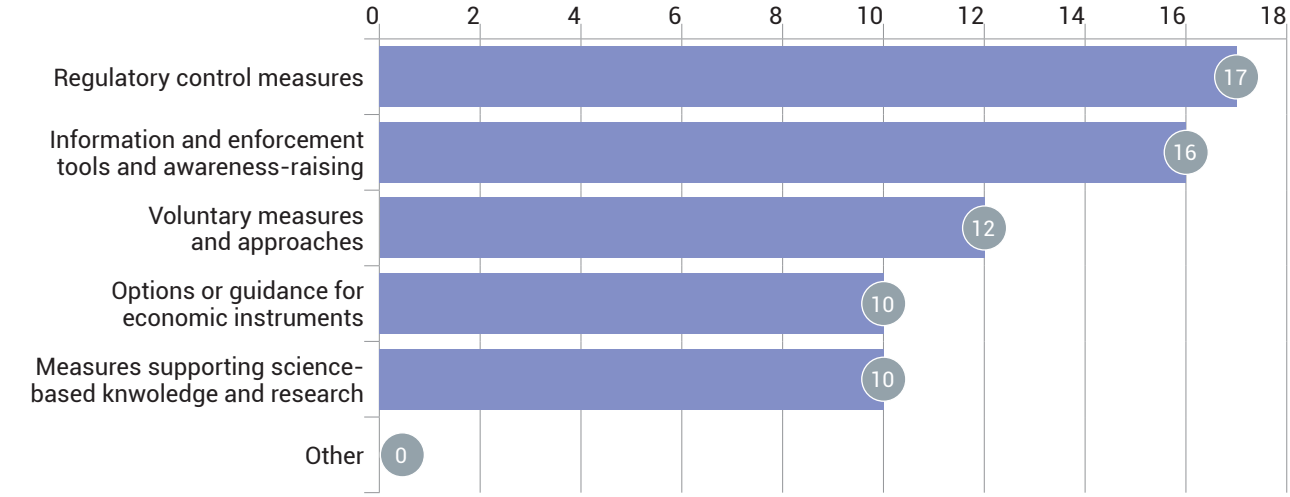
Out of 21 respondents, 86 per cent said PAHs are a "very high" or "high" priority for action, and 14 per cent said they are a "medium" priority.

International actions

Respondents called for a range of international actions: 43 per cent supported the establishment of a legally-binding instrument; 41 per cent supported voluntary initiatives including information sharing and awareness-raising; 13 per cent supported using soft law and 3 per cent said no international actions are needed.

Two respondents – one from government and one from an NGO – said PAHs could be addressed under the Stockholm Convention. A government said that it did not support a new legally-binding framework for PAHs that does not meet the Stockholm POPs criteria, and said information sharing and awareness-raising/voluntary initiatives to promote education are best practices for responsible use and disposal of these substances.

Figure A86. Stakeholders' views on the approaches or measures to address PAHs at the international level



Note: Stakeholders could select more than one option. Number of respondents = 20.

As indicated by Figure A86, respondents expressed support for a range of approaches to and measures for addressing PAHs, with regulatory control measures receiving the most support, followed closely by information and enforcement tools and awareness-raising.

In written comments, an international organization called for a national or regional legally-binding instrument combined with voluntary measures. Respondents from an NGO and an international organization called for the ratification and enforcement of existing normative approaches, including ILO chemicals conventions, particularly C170 and C139, and any forthcoming instruments, including a proposed ILO chemicals protocol.

A government said that regulatory control measures should be adopted to eliminate exposure to PAHs, but in the absence of agreement for such measures, a range of legally non-binding measures should be undertaken to assist countries in their national efforts.

Another government stated, "...it would be useful to (1) evolve environmental PAH management away from emission reductions towards consideration of environmental targets, and (2) expand the suite of compounds considered/tracked. The full extent of PAH-induced harm is not yet known. Furthermore, several new studies have shown that the existing priority PAH list may be outdated and does not include the transformed PAHs".

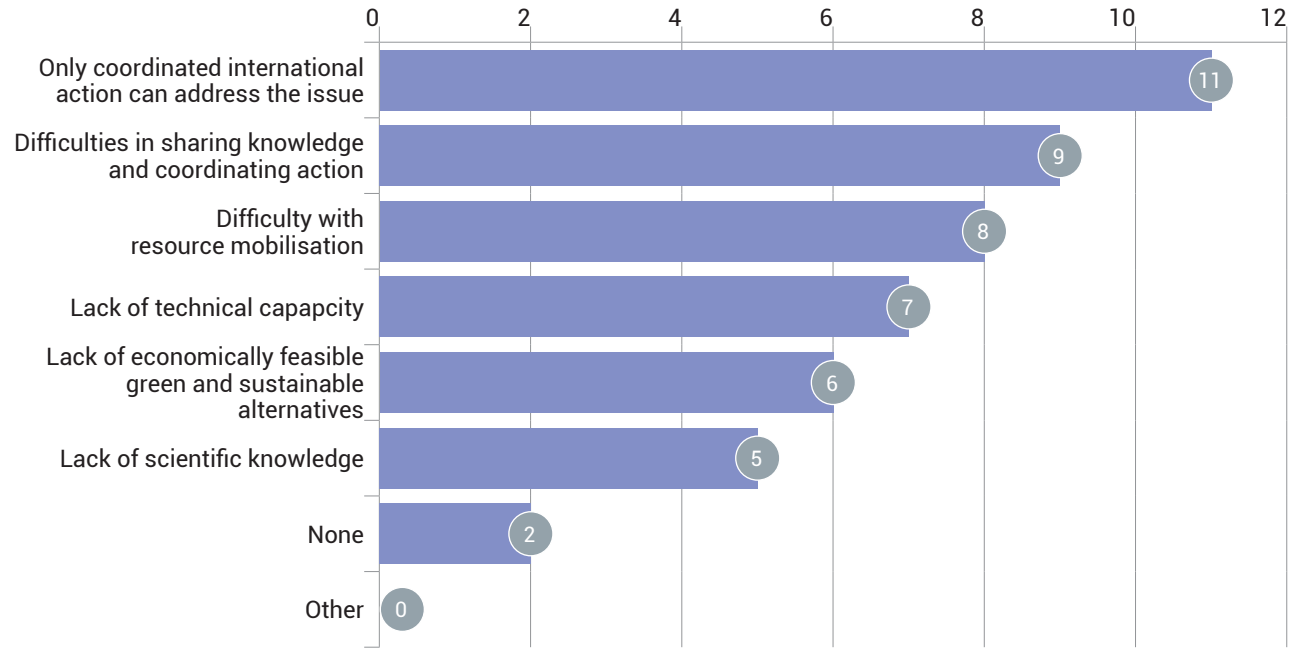
A respondent from academia noted that PAHs are products of tobacco consumption and the extensive waste from tobacco products should be addressed as part of a larger set of actions against tobacco use globally.

Another respondent from academia called for several measures including: funding and implementing harmonized programmes to measure PAH exposures in humans and the environment; conducting comprehensive, independent and transparent reviews and analyses of PAH hazards and exposures based on the best available data from around the world; imposing targeted limits on PAH emissions found to pose the greatest risks, prioritizing sectors with the cleanest and most viable alternatives; providing support for deployment of cleaner energy sources and technologies that minimize PAH emissions; and creating mechanisms for countries, organizations, and industries to share research findings, challenges and case studies of cleaner alternatives.

Factors that prevent domestic action

As indicated by Figure A87, respondents identified many challenges to domestic action on PAHs,

Figure A87. Stakeholders' views on the factors preventing action or progress on addressing PAHs in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 18.

with many saying that only international coordinated action can address this issue. Respondents also cited difficulties in sharing knowledge and coordinating across sectors, difficulties with resource mobilization, and lack of technical capacity.

In written comments, a respondent from academia noted that "in general, economic reliance, costs of alternatives, lobbying, bureaucracy and a lack of definitive evidence appear to be inhibiting progress on managing PAHs both nationally and internationally".

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up to address PAHs internationally, a respondent from academia stated that existing emission limits, monitoring programmes, research initiatives, clean energy targets, climate actions and awareness campaigns could be scaled up, harmonized and implemented through international agreements and collaboration to effectively address PAH pollution risks on a global scale.

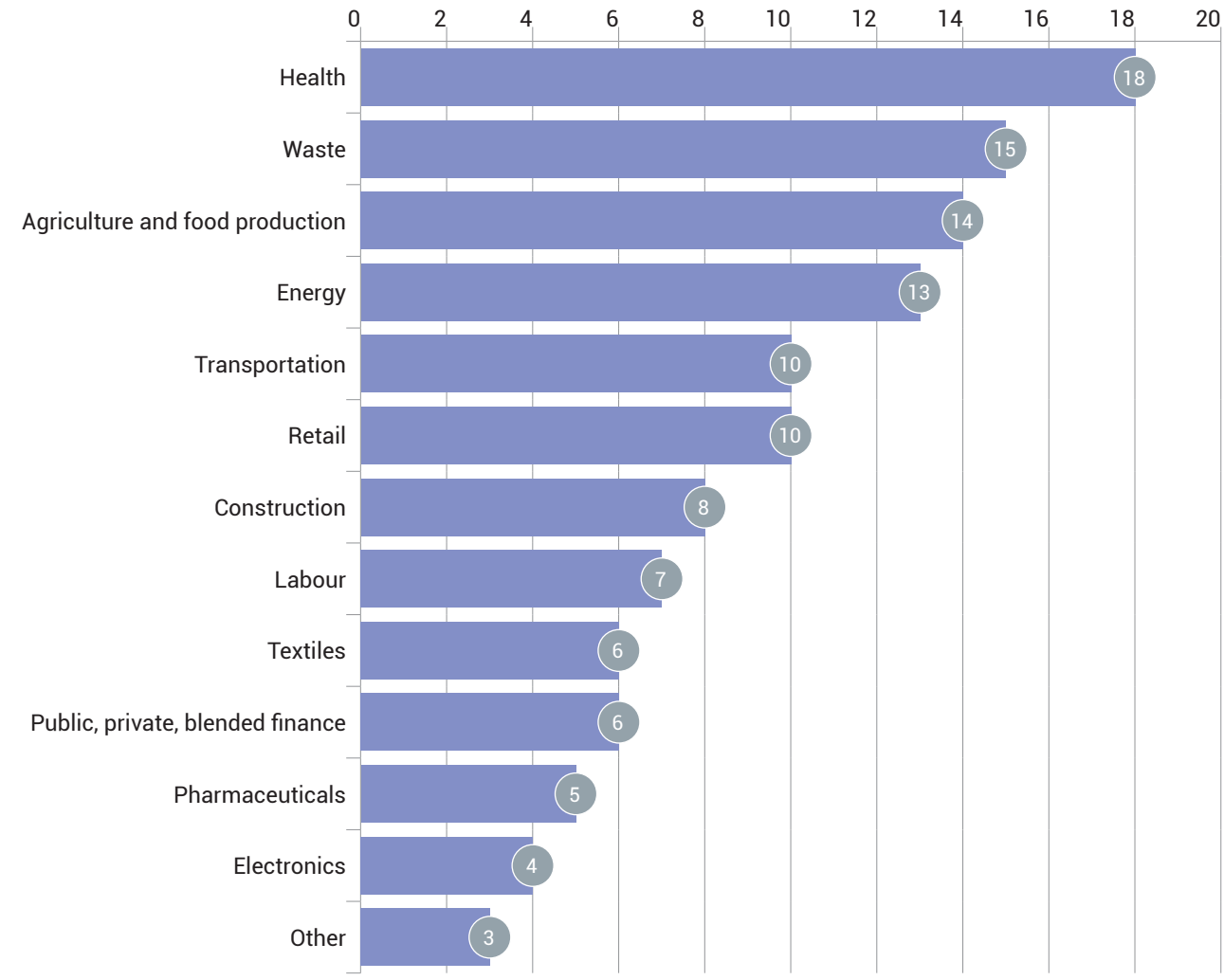
A government noted that the EU has adopted a number of regulatory measures which could be used as a basis for development of regulatory measures by others. An international organization cited the Swiss Chemical Risk Reduction Ordinance, ORRChem Annex 1.15.

An NGO cited the World Bank's safeguard policy on pest management, describing it as "a good example of a safeguard that can be used for this issue". Another NGO pointed to the DECON campaign by the UK Fire Brigades Union (Fire Brigades Union 2023).

Important sectors and value chains

As indicated by Figure A88, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing health and waste, followed by energy as well as agriculture and food production. Respondents who selected "other" cited

Figure A88. Stakeholders' views on sectors or value chains relevant to PAHs



Note: Stakeholders could select more than one option. Number of respondents = 21.

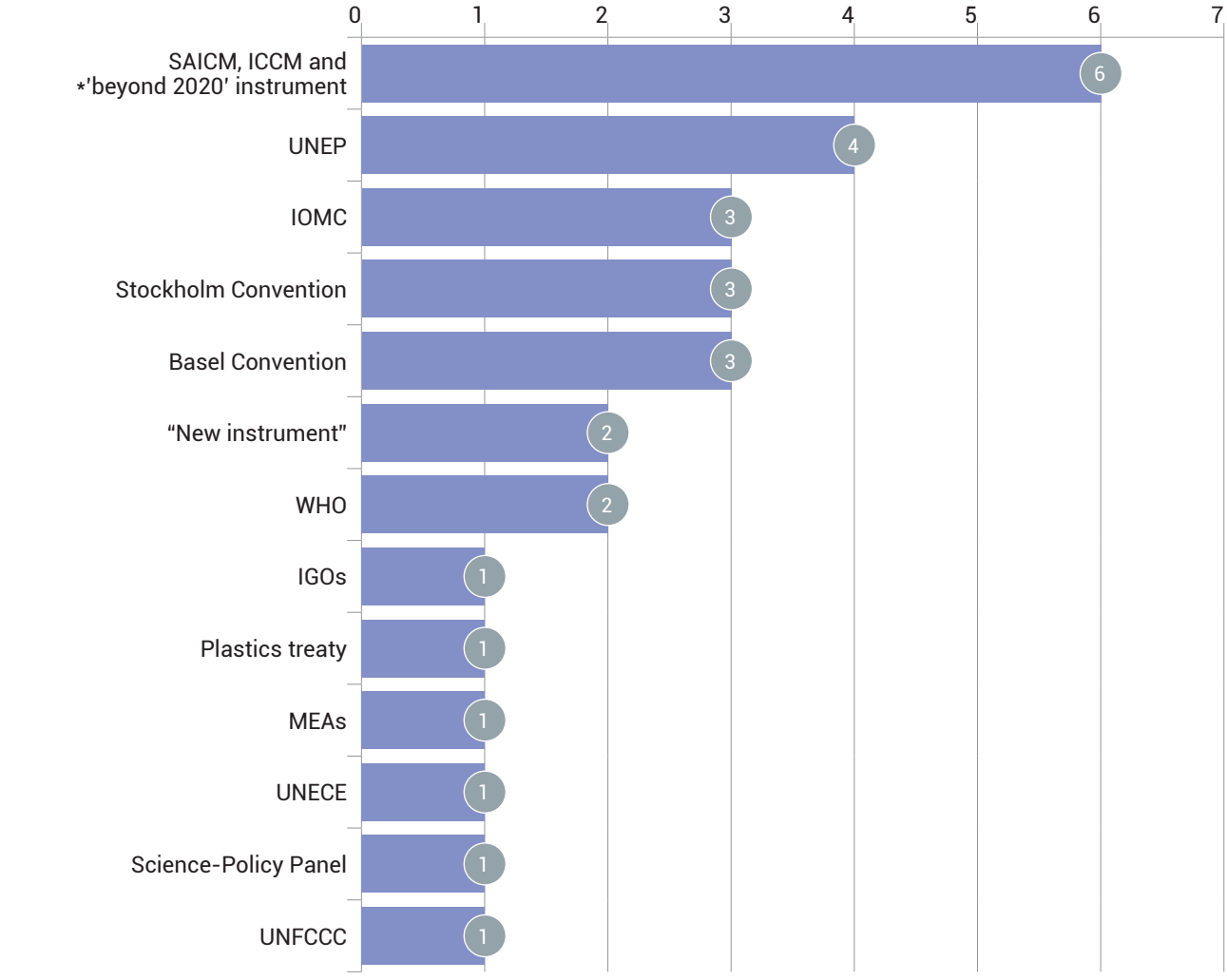
mining, metals, and industries that produce or use coal tar, coke, or bitumen (asphalt).

International forums and instruments best placed to lead international action on PAHs

Respondents identified several international organizations and instruments as best placed to lead, with SAICM and the 'beyond 2020' instrument receiving the most support, followed closely by UNEP, IOMC, the Stockholm Convention, and the Basel Convention.

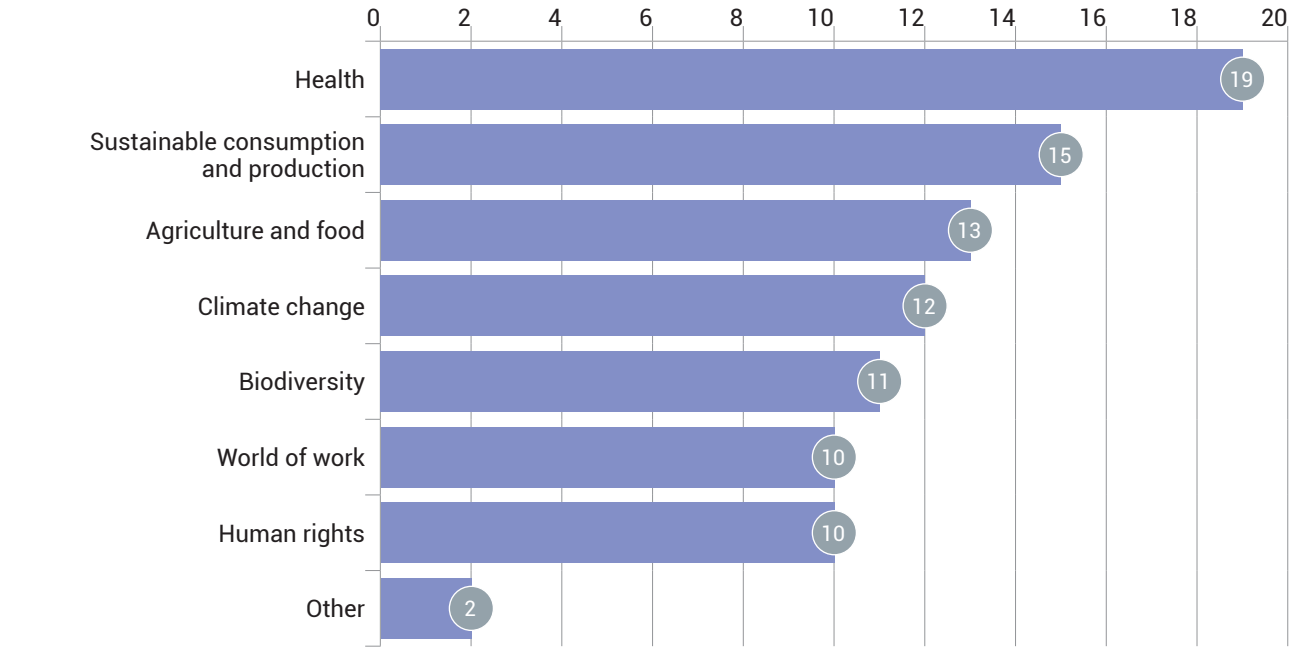
In written comments, two governments suggested the Stockholm Convention, if PAHs meet the criteria for listing. One said, if the criteria are not met, action could be taken by "the future Science Policy Panel or a future legally-binding instrument for [persistent, bioaccumulative and toxic] substances". Another country noted that the Basel Convention addresses PAHs at the end of products' life cycles but does not directly address consumer products that contain PAHs during their production and use, and next steps internationally could be housed under the SAICM 'beyond 2020' instrument.

Figure A89. Forums and instruments that could lead international action on PAHs



Note: Stakeholders could select more than one option. Number of respondents = 11.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

Figure A90. Stakeholders' views on the international agendas which have important linkages with PAHs



Note: Stakeholders could select more than one option. Number of respondents = 20.

International agendas with linkages to PAHs

As indicated by Figure A90 above, respondents drew links between PAHs and a wide range of international agendas, with most respondents highlighting the connections to health and sustainable consumption and production. A respondent who selected "other" cited pollution-related community harm, including heart, cancer, and neurological effects. Another cited the "future international framework on chemicals and waste management".

In written comments, a government cited the Common Fund for Commodities, Global Environment Facility, Green Climate Fund, Sustainable Energy for All, International Energy Agency, UNDP, UNEP, UNIDO, and the World Bank.

A respondent from academia cited links to SDG 3 (Good Health and Well-Being), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). This respondent also highlighted links to: efforts to transition to a circular economy; air pollution; and climate change, noting that "efforts to decarbonize energy systems, electrify transportation and mitigate climate change would inevitably result in lower PAH emissions as a co-benefit".

Priority work at the national and regional levels

On priorities for work at the national level, a government called for studies to assess the link between disease and exposure to PAHs. Another called for inventories. A third called for adoption of regulatory measures to reduce or eliminate exposure to PAHs.

An NGO called for incorporating PAHs into emissions standards for waste incineration pollutants. Another NGO stated that food processing standards may be designed to minimize PAH contamination.

A respondent from academia called for several actions, including: national risk assessments; restriction of highest-emitting activities; investment in clean technologies; strengthening emission standards; improving transparency; educating industries; and developing national clean energy plans.

At the regional level, an NGO called for more research and discussion on toxic-free circular economy. One government said "it is necessary to raise global awareness towards the establishment and implementation of legally-binding tools to deal with PAHs in consumer products across countries". Another government called for increasing regional capacities to analyse PAHs and their risks to human health and the environment. A third called for establishing a regional knowledge-sharing network. A fourth called for monitoring, guidelines, and safe limits.

A respondent from academia stated that priorities could include: joint risk assessments; harmonizing monitoring programmes and emissions limits; funding collaborative research on alternatives; developing best practice guidelines; providing technical support; and fostering information exchange.

5.10 TRICLOSAN

Triclosan is an antibacterial chemical used in thousands of consumer and medical products. It is commonly added to cosmetics and personal care products (e.g. deodorants), as well as disinfectants, medical applications, paints, plastic materials, toys, and appliances. Triclosan is highly toxic to aquatic organisms, might promote antimicrobial resistance, and has potential to adversely affect endocrine systems (UNEP 2020).

Twenty-three stakeholders answered at least one substantive question on triclosan. Eighty-two per cent indicated that they believe further international action is necessary. Nine per cent said international action is not necessary, and 9 per cent said they did not know. An IGO secretariat stated "don't know" but clarified that, in the absence of a mandate from their governing body, they were not in a position to take a view on this question.

A government stated that because triclosan is widely used in different industries, including in the manufacturing and use of hygiene and cosmetic products, there is a high possibility of exposure. Another government stated that the "international community could share the results of the evaluation and the lessons learned in order to avoid repeated efforts to evaluate triclosan, especially for developing and transitional countries".

An international organization stated that triclosan is very toxic to aquatic life and is under assessment for categorization as a persistent, bioaccumulative, and toxic (PBT) and endocrine disrupting substance.

A respondent from academia stated that while data are still limited, international action is "likely needed" due to: the impacts of triclosan on human health; uncertain toxicity; complex supply chains; slow adoption of alternatives; and the inadequacy of isolated actions.

Out of 18 respondents, 67 per cent said triclosan is a "high" or "very high" priority for action, 22 per cent said it is a "medium" priority, and 11 per cent said it is a "very low" priority.

International actions

Respondents called for a range of international actions on triclosan: 38 per cent supported voluntary initiatives including information sharing and awareness-raising; 34 per cent supported the establishment of a legally-binding instrument; and 28 per cent supported using soft law.

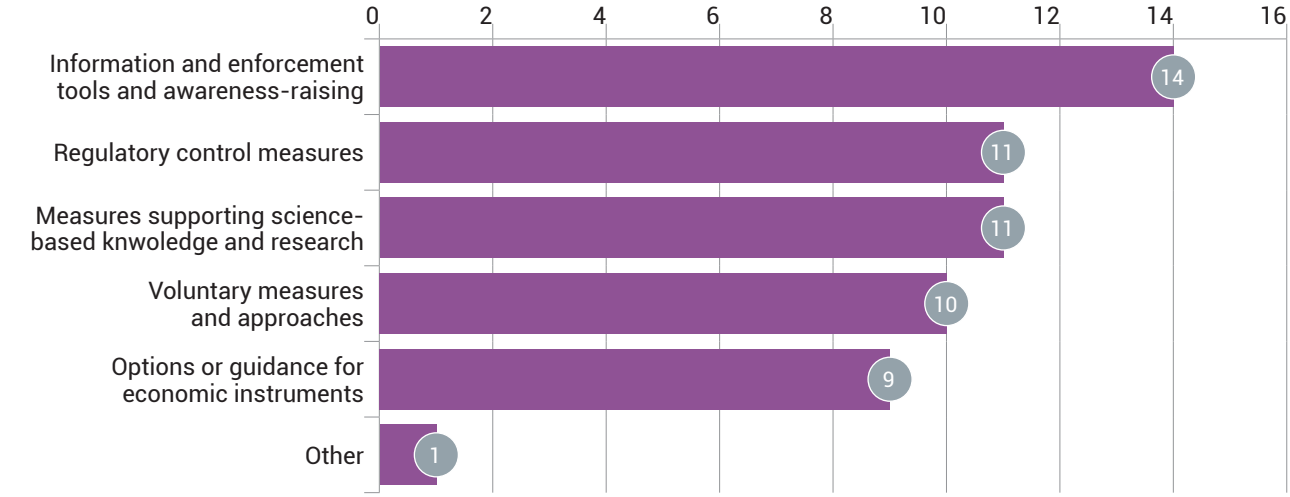
In written comments, one government said that due to triclosan's use in plastics, its handling must be regulated. Two other respondents said a combination of actions would be needed.

A government said that ideally, a legally-binding treaty should be adopted to address (eliminate) those (groups of) substances that, due to their intrinsic properties, pose a risk to human health and the environment, but in the absence of broad support for such measures, stakeholders should focus on addressing this issue via soft law, voluntary initiatives, and information sharing. Another government stated that sharing information on assessment, risk management results and lessons learned with other countries will benefit the international community, especially developing countries and those with economies in transition.

An NGO said triclosan is widely used around the world, and international legally-binding action will help countries with weak environmental and health-related regulations to develop and strengthen their national laws.

As indicated by Figure A91 below, respondents expressed support for a range of approaches to and measures for addressing triclosan, with particularly strong support for information-based

Figure A91. Stakeholders' views on the approaches or measures to address triclosan at the international level



Note: Stakeholders could select more than one option. Number of respondents = 18.

and enforcement tools. A respondent who selected "other" called for "marketing regulation for consumer products with inaccurate claims of the need for, and safety with, Triclosan. Mothers are targeted and convinced that soap contaminated with triclosan is important for family health".

A government said that, ideally, regulatory control measures should be adopted to eliminate exposure to triclosan, but in the absence of broad agreement for such measures, a range of non-binding measures should be undertaken to assist countries in their national efforts. Another government said there is a need for shared information, knowledge, and experience from assessment and risk management for triclosan, as well as research on toxic effects of triclosan alternatives, and methodologies for testing cumulative effects from all potential sources of triclosan.

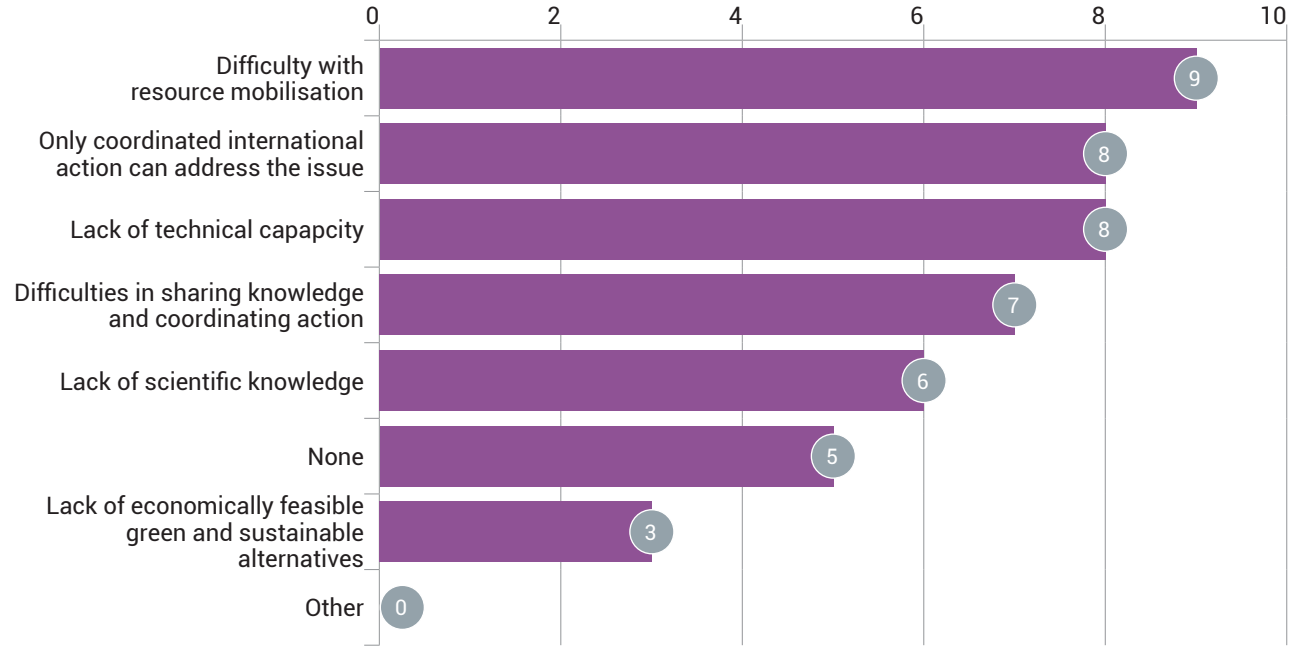
An NGO said global regulatory control measures would help countries with weak environmental and health-related regulations to better control triclosan.

A respondent from academia called for: coordinated monitoring and research to measure triclosan exposures through consumer products, the environment and humans; comprehensive reviews and analyses of triclosan hazards, exposures, and risks; restrictions on highest-risk uses; alternatives funding and incentives; and creation of information-sharing platforms.

Factors that prevent action or progress on triclosan

As indicated by Figure A92, respondents identified many challenges to action on triclosan, with difficulties with resource mobilization topping the list. In written comments, one government stated that although the effects of triclosan are understood, the products in which it is present are not known.

Figure A92. Stakeholders' views on the factors preventing action or progress on addressing triclosan in their country or organization



Note: Stakeholders could select more than one option. Number of respondents = 18.

Existing initiatives that could be replicated or scaled up

On existing initiatives that could be replicated or scaled up to address triclosan, a respondent from academia stated that "existing product restrictions, monitoring programmes, alternatives initiatives, research funding, guidelines and certification schemes, and awareness campaigns demonstrate approaches that could be scaled up, harmonized and implemented through international agreements to responsibly manage triclosan exposure risks on a global scale".

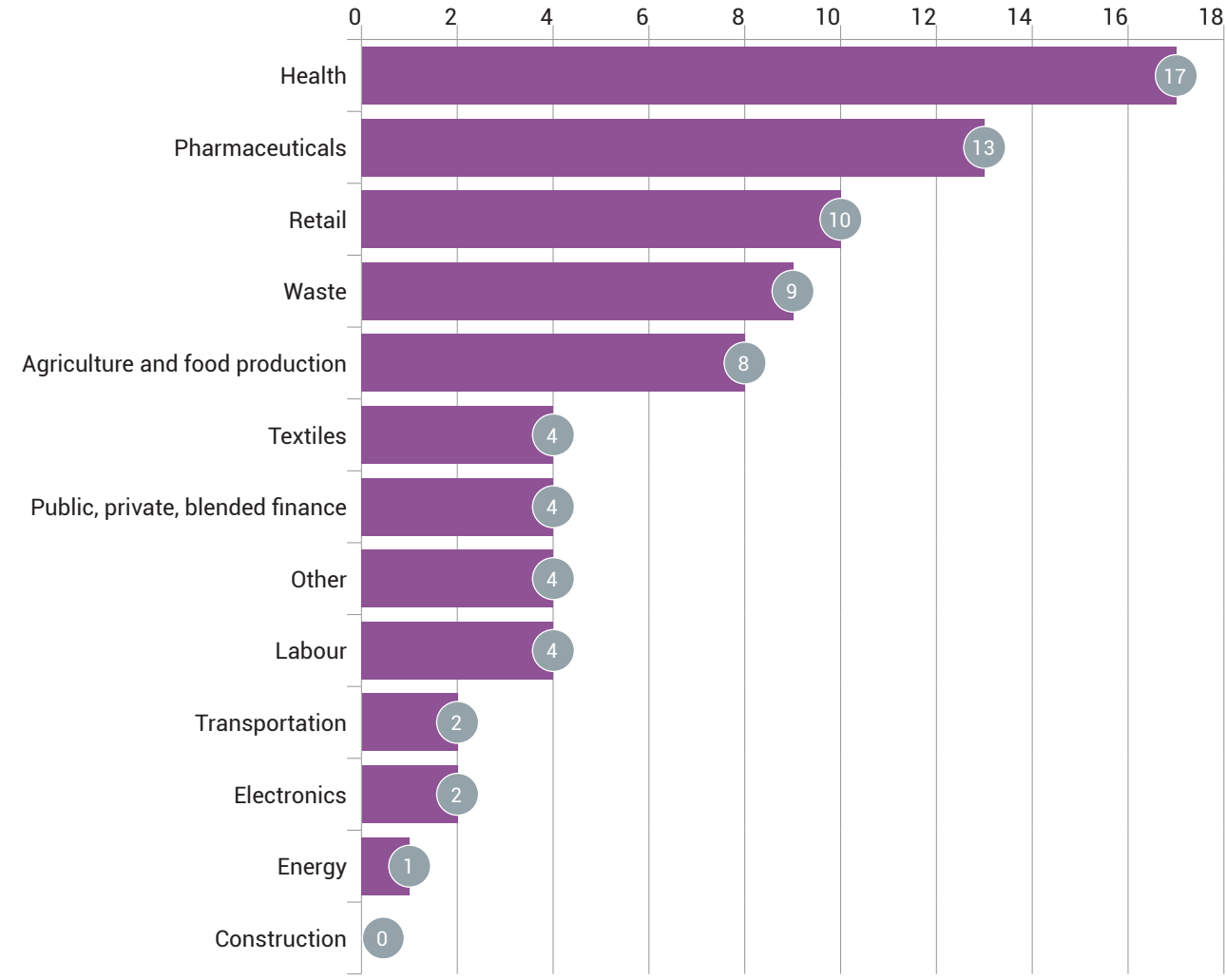
Two respondents cited regulatory initiatives taken by the EU, and a government stated that these measures could be used as a basis for development of regulatory measures by others (European Chemicals Agency 2023b).

Another government noted that labelling of products containing triclosan as a way of informing consumers about chemicals of concern in products is key for sustainable consumption and production, and banning triclosan and potential alternatives from over-the-counter products could reduce releases into the environment and protect aquatic biodiversity.

Important sectors and value chains

As indicated by Figure A93 below, respondents identified a wide range of sectors and value chains that need to be closely involved in developing solutions, with most respondents citing health, followed by pharmaceuticals. In written comments, several respondents who selected "other" cited the importance of cosmetics and personal care

Figure A93. Stakeholders' views on the sectors or value chains which need to be closely involved in developing solutions for triclosan



Note: Stakeholders could select more than one option. Number of respondents = 18.

products. Others cited "household cleaning products, plastic materials, toys, paints" in the private sector "where triclosan is used" and in wastewater treatment facilities.

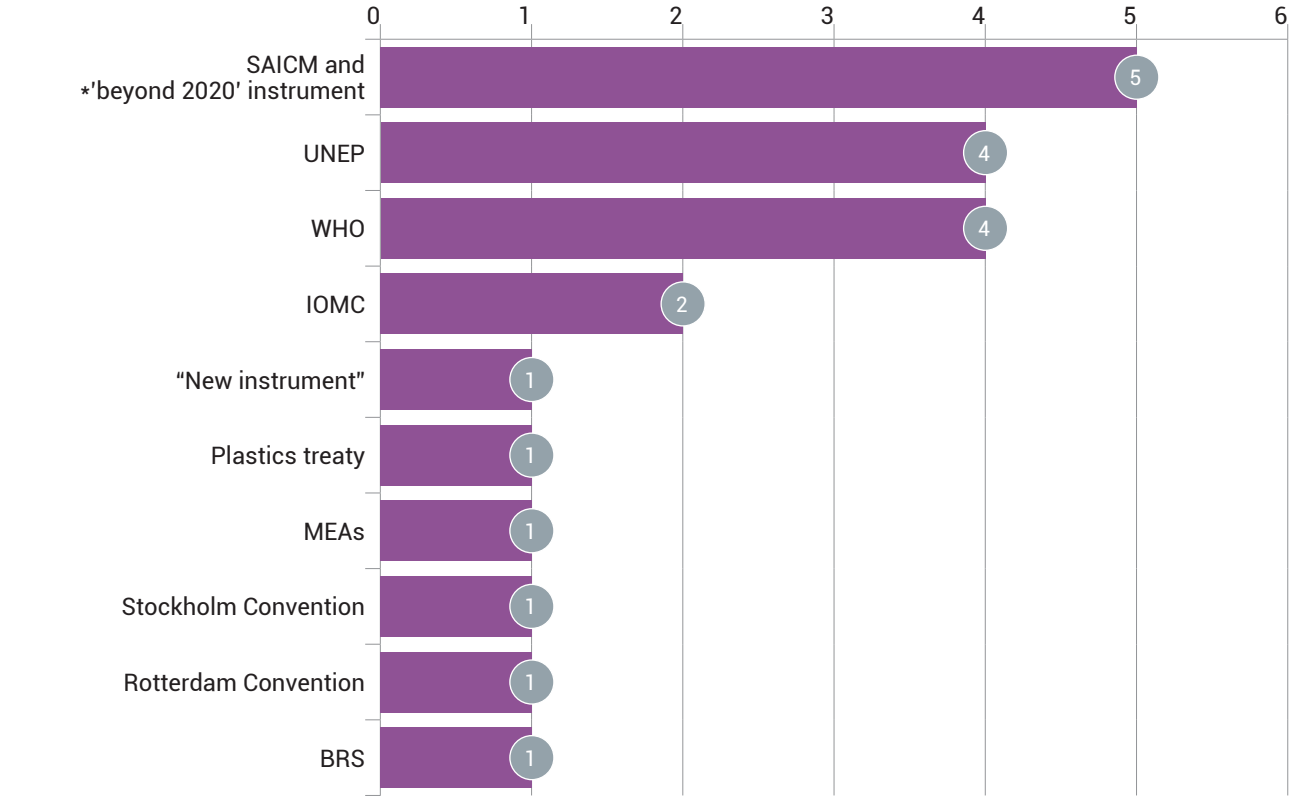
International forums and instruments best placed to lead international action on triclosan

Respondents identified several international organizations and instruments as best placed to lead, including SAICM and the 'beyond 2020' instrument, followed closely by UNEP and WHO.

A government stated that next steps internationally to address triclosan should be housed under the SAICM 'beyond 2020' instrument, as initiatives involving information sharing, awareness-building, and the development of voluntary measures which are well suited to the New Framework's mandate.

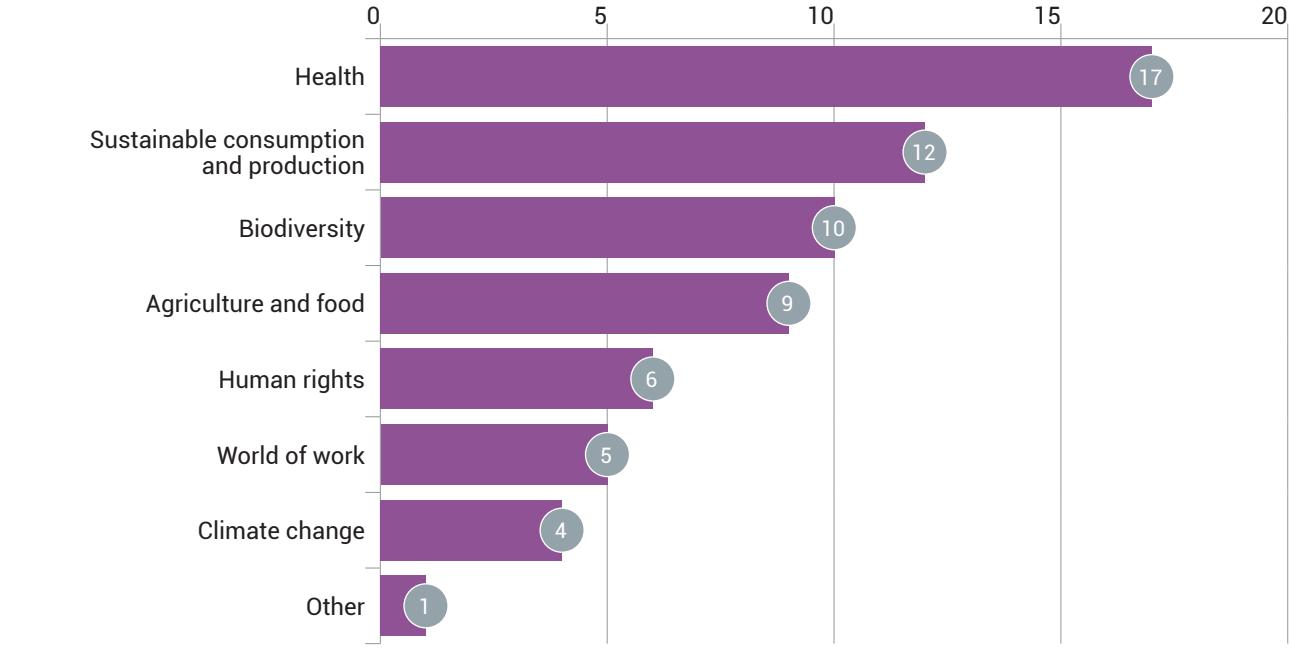
Another government stated that the future international framework on chemicals and waste management would be best placed to lead, and such action should be led by appropriate IOMC organizations and should involve relevant sectors, in particular the private sector, where voluntary measures should be undertaken.

Figure A94. Forums and instruments that could lead international action on triclosan



Note: Stakeholders could select more than one option. Number of respondents = 12.
*The 'beyond 2020 instrument' is now known as the Global Framework on Chemicals, adopted by ICCM5 in September 2023.

Figure A95. Stakeholders' views on the international agendas which have important linkages with triclosan



Note: Stakeholders could select more than one option. Number of respondents = 17.

International agendas with important linkages to triclosan

As indicated by Figure A95, respondents drew links between triclosan and a wide range of international agendas, with most respondents highlighting the connections to health followed by sustainable production and consumption. A respondent who selected "other" cited the "future international framework on chemicals and waste management".

An NGO said management of triclosan is a cross-cutting issue that should be viewed as key to solving several elements of the triple planetary crisis.

A respondent from academia highlighted connections to SDG 3 (Good Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water), as well as public health and agendas on sustainable materials (specifically, efforts to transition to non-toxic products and supply chains).

Priority work at the national and regional levels

On priorities for work at the national level, three respondents – one from government and two from an NGO – called for regulatory controls.

A government called for creating an inventory of products containing triclosan and uses of the substance, including finished products for domestic, commercial and industrial use. A second called for labelling products containing triclosan, as "informing consumers about chemicals of concern in products is key for Sustainable Consumption and Production".

Another called for monitoring and enhanced wastewater treatment.

A third government cited the need to: conduct a national assessment to understand the extent of exposure within the community; establish a sustainable information-sharing mechanism; and improve or develop harmonized system codes for customs.

A respondent from academia called for: conducting national risk assessments; restricting highest risk uses; investing in development of safer alternatives; strengthening product standards; improving transparency by requiring manufacturers to publicly disclose use of triclosan and report emissions, as well as publishing government monitoring data; providing guidelines, best practices, and training to help industries transition to safer substitutes; and develop national action plans.

At the regional level, respondents cited the need for similar actions. One government called for establishing knowledge-sharing networks. Another called for conducting population studies of the health impacts of exposure to triclosan and its products. A third cited the need to ensure proper labelling and detailed listing of chemical constituents with their quantities.

An NGO called for cooperative regional actions considering all types of applications and sources of triclosan pollution.

A respondent from academia called for: adopting harmonized standards; developing best practice guidelines; providing technical support to least-developed countries; and fostering information exchange.

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