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Item 6 of the provisional agenda

Policy options to address the conclusions of the review of sufficiency and effectiveness of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012**Options to address the conclusions of the review of the
Gothenburg Protocol, as amended in 2012****Submitted by the expert group on policy option development***Summary*

At its forty-second session (Geneva, 12–16 December 2022), the Executive Body adopted the final report on the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), as amended in 2012 (ECE/EB.AIR/150/Add.2). The Executive Body recognized the need to address the conclusions of the review and requested the Working Group on Strategies and Review to develop options for next steps and to make recommendations on appropriate policy responses. It decided that a dedicated ad hoc group of experts should be convened by the Chair of the Working Group. The Executive Body requested the Chair of the Working Group, together with the ad hoc group, to report to the Executive Body at its forty-third session.

The present document, prepared by the ad hoc group, provides a list of policy options accompanied by their comprehensive analysis. The present document is accompanied by an informal document containing summary tables. The Working Group discussed the present document at its sixty-first session (Geneva, 4–6 September 2023) and requested the ad hoc group to update it in line with the Working Group's comments. The Executive Body is invited to consider the options outlined by the ad hoc group in the present document, together with the recommendations made by the Working Group, to enable its decision on appropriate action to address the conclusions of the review.^a

^a Decision 2022/4, paras. 8–9 and 11



I. Introduction

1. The review of the amended Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) was initiated by the Executive Body at its thirty-ninth session (Geneva, 9–13 December 2019) through paragraph 1 of its decision 2019/4.¹ At its forty-second session (Geneva, 12–16 December 2022), the Executive Body decided through paragraph 6 of its decision 2022/4 that the review had been completed and adopted the final report on the review (ECE/EB.AIR/150/Add.2).
2. The present document responds to paragraph 8 of decision 2022/4, in which the Executive Body requests the development of policy options to address the conclusions of the Gothenburg Protocol review. In accordance with paragraph 9 of said decision, an ad hoc group of experts was established for this purpose.
3. The purpose of this document is to provide information that can help the Executive Body to take a decision on possible next steps to respond to the conclusions of the Gothenburg Protocol review and in doing so contribute to the achievement of the Convention's long-term objectives. The approaches presented in this document are not necessarily stand-alone in nature, but rather could be combined in several possible pathways for action. To enable a transparent and inclusive process, a draft of the ad hoc group's report was shared with national focal points for the Convention for input on 24 March 2023. The draft was discussed during an informal intersessional webinar (17–18 April 2023).
4. The key conclusions on the adequacy of the obligations and the progress made towards the achievement of the objectives of the amended Gothenburg Protocol can be found in paragraph 90 of the report on the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012. Paragraph 91 of the report includes suggestions for next steps and further work.
5. Section II of the present document provides a description of the available policy options, which were identified based primarily on their ability to respond to the conclusions of the Gothenburg Protocol review, taking into consideration the long-term objectives of the Convention. Section III provides an analysis of the advantages and disadvantages of the policy options described in section II. Based on the information and analysis presented in sections II–III and the two summary tables made available in an accompanying informal document for the session, recommendations for next steps are proposed in section IV.

II. Description of policy options

6. A number of policy options are available to address the adopted conclusions of the review of the amended Gothenburg Protocol. These options are grouped into four main approaches, as summarized in the table below. Each of the approaches, as well as the options described within them, can be stand-alone or used in combination with any number of the other options. For example, one pathway could be to combine approach 1 (no revision) with approach 3 (develop a new instrument); another could be to combine approach 2 (revise amended Gothenburg Protocol) with approach 4 (cross-cutting). As the Gothenburg Protocol review's conclusions demonstrate, additional action is required; doing nothing/taking no additional action is not considered as an option in this document. Cross-cutting approach 4 could be combined with any of the other three approaches to enhance effectiveness and/or ambition, or could be stand-alone.

¹ All Executive Body decisions referred to in the present document are available at <https://unece.org/decisions>.

Overview of the main approaches to policy options

<i>Approach No.</i>	<i>Outline</i>
1	Continue with ratifying and implementing the amended Gothenburg Protocol (no revision)
2	Revise the amended Gothenburg Protocol (a) Targeted revision of technical annexes IV–XI to the Protocol (b) Comprehensive revision of the Protocol text and annexes
3	Develop new instrument(s) or measure(s) (a) Non-binding instrument(s)/measure(s) (b) Binding instrument(s)/measure(s)
4	Cross-cutting: Enhance capacity-building, awareness-raising, cooperation and other support (a) Capacity-building (b) Awareness-raising (c) Cooperation outside the Convention (d) Other support

7. For convenience, a summary table of how each of the approaches listed in the table above corresponds to the issues/themes raised in the review conclusions that need to be addressed is included in the accompanying informal document. Said summary table outlines the extent to which these themes can be addressed by each of the approaches. Any further reorganization of articles of the amended Gothenburg Protocol is not retained as a theme in the table, as this would only be possible and/or relevant in the case of the revision of the text of the amended Gothenburg Protocol.

8. The four above-mentioned approaches are described in detail below; these approaches are not prioritized and the options within each approach are non-exhaustive.

A. Approach 1: Continue with ratifying and implementing the amended Gothenburg Protocol (no revision)

9. This approach would involve continuing to work with the ratification and implementation of the amended Gothenburg Protocol in its current form, including continued scientific work as envisaged by the Protocol, but would not involve new commitments or increased ambition to reduce air pollutant emissions. This approach would focus on reporting of emissions and implementation of emission abatement measures, compliance review, exchange of information and technology, research, development and monitoring. This is the least ambitious approach as the number of possible initiatives without amending the Gothenburg Protocol is limited. Approach 1 would logically be accompanied by a continued focus on capacity-building, awareness-raising and/or other cooperation or support (cross-cutting approach 4). Further initiatives could include:

(a) Continuing work to improve Convention Parties' emission inventories, harmonizing emission inventories for air pollutants with those for greenhouse gases;

(b) Making operational improvements to flexibility provisions to further facilitate implementation/compliance, such as:

(i) Guidance on the application and reporting of different emission reduction strategies in accordance with articles 3 (2)–(3) and 7 (1) (a), and guidance on what the term “technically and economically feasible” means throughout the Protocol;

(ii) Amending existing guidance (e.g., for the adjustment procedure);

(c) Updating existing and developing new guidance documents on abatement techniques;

(d) Addressing methane (CH₄) through scientific work to quantify the benefits of current global efforts to reduce the impact of CH₄ emissions on ozone concentrations. Further efforts could be made to improve understanding of the air quality, human health and ecosystems benefits of reducing CH₄ as an ozone precursor beyond what has already been included in the Global Methane Assessment or other studies.²

B. Approach 2: Revise the amended Gothenburg Protocol

10. Two pathways for revisions have been identified: the first is through revision of annexes IV–XI to the Protocol only, as amendments thereto may become effective within one year of adoption for those Parties that have accepted the expedited amendment procedure pursuant to article 13 bis (6)–(7) of the Protocol regarding amendments to annexes IV–XI, which shall be adopted by consensus of the Parties present at a session of the Executive Body; and the second is a comprehensive revision of the Protocol text and all its annexes.

Approach 2(a): Targeted revision of technical annexes IV–XI to the Protocol

11. This approach includes amendments to one or more of annexes IV–XI, for which acceptance using the expedited amendment procedure is optional. New amendments to these annexes may include minor changes or an overall revision that could include the introduction of specific provisions for countries of Eastern Europe, the Caucasus and Central Asia and other non-Parties, with the aim of further facilitating ratification and implementation. Targeted revisions to technical annexes could include the following:

(a) Improvements to current flexibility provisions (e.g., timescales in annex VII) and/or the introduction of additional/different flexibility provisions to overcome barriers to ratification and implementation;

(b) Specific amendments to annexes IV–XI to the Protocol (e.g., specific simplification of requirements, removing certain emission limit values, adding derogations, etc.);

(c) Restructuring annexes IV–XI (e.g., by source category and/or by including separate sections for countries of Eastern Europe, the Caucasus and Central Asia,³ Western Balkan countries⁴ and Türkiye);

(d) Focusing/concentrating first on emission limit values for new installations in the technical annexes (to avoid expensive retrofitting of existing installations in poorer economies) and/or focusing on key categories or most cost-effective solutions in the technical annexes. In this context, removing (parts of the) mandatory technical annexes on emission limit values and moving to non-mandatory guidance.

12. It should be noted that some amendments to the technical annexes also require amendments to the text of the Protocol (e.g., changes to technical annexes that would also require changes either to existing definitions contained in article 1, or to the text of article 3 on basic obligations). For such amendments, the regular ratification procedure must be followed pursuant to article 13 bis (2) of the amended Gothenburg Protocol.

² See *Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions* (Nairobi, United Nations Environment Programme (UNEP), 2021); and *Global Methane Assessment: 2030 Baseline Report – Why Act Now: A New Era for Accelerated Implementation* (Nairobi, UNEP, 2022).

³ Countries of Eastern Europe, the Caucasus and Central Asia include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Tajikistan, Turkmenistan and Uzbekistan are not Parties to the Convention.

⁴ Western Balkan countries include Albania, Bosnia and Herzegovina, North Macedonia, Montenegro and Serbia.

Approach 2(b): Comprehensive revision of the Protocol text and annexes

13. This approach includes a comprehensive revision of the amended Protocol, including its text and all annexes.⁵ A comprehensive revision addressing (all/part of the) conclusions of the review of the amended Gothenburg Protocol could include:

(a) New emission reduction commitments – specified for each Party and each pollutant currently covered by the amended Protocol, to be attained by a specified target year, and possibly specifying interim targets. Negotiation on new emission reduction commitments could be based on modelled scenarios (multi-pollutant, multi-effect) showing how agreed targets aimed at protecting human health and the environment could be met in a cost-effective way;

(b) Specific amendments/focus on annex IX and/or complementary action – recognition that measures are needed to achieve ammonia (NH₃) emissions reduction commitments; strengthen existing measures on, for example, manure application/storage and animal housing in annex IX and extend its scope (e.g., by lowering current thresholds and/or including cattle), while taking due account of current barriers and other concerns; focus on the most cost-effective and reliable measures for NH₃ emission abatement; further define how to reduce losses from the whole nitrogen cycle such as the consideration of including NO_x from soil, incorporate new and state-of-the-art best available techniques (BAT) for NH₃ reductions, potential policies on food choice as part of an NH₃ reduction plan;

(c) Expanding the scope of the Protocol to include requirements for other ozone precursors, in particular CH₄ – a number of options are available to address CH₄ in a revision of the amended Gothenburg Protocol, including:

(i) Adoption of national emission reduction targets and/or optimized national/regional CH₄ reduction commitments, which could be binding or non-binding, collective or individual. A binding emission reduction commitment on CH₄ could set an example for other regions and might include a smaller number of countries; and may possibly complement (or contribute to achieving) other targets such as the Global Methane Pledge, complement work under the Arctic Council to develop a potential collective CH₄ reduction goal, and/or sector-specific CH₄ targets such as under the North American Leaders' Summit. A potential target on CH₄ could be framed as “building on the efforts” of other forums – for example, the Global Methane Pledge – such as to commit to reduce CH₄ emissions by a higher percentage by a future date⁶ (e.g., 2040);

(ii) A new technical annex on CH₄ (and/or an integrated annex for agricultural emissions, potentially with a synergetic approach to CH₄ and NH₃) could be developed and adopted by a separate Executive Body decision, in accordance with article 13 bis of the amended Gothenburg Protocol and, thus, ratified separately. Different requirements could be considered, such as sector-specific emission limits and/or other emission requirements, and the further elaboration of guidance documents on best available techniques and practices for major activities in certain sectors such as landfills, coal mining, oil and gas, as well as agriculture. Recognizing existing work on best practices and technical guidance for these sectors from other international forums is key to avoiding duplication. Key sources of CH₄ differ between parts of the ECE region. Therefore, uniform requirements on all CH₄-producing activities may be less cost-effective in achieving certain emission reductions. There is also a risk that technology will evolve so rapidly that CH₄ limit values quickly become out-of-date;

(iii) Compiling, reviewing and improving CH₄ emissions information – the United Nations Framework Convention on Climate Change (UNFCCC) requires reporting of

⁵ Note: (i) for amendments to the text and annex II, the regular ratification procedure applies; (ii) for amendments to annexes I and III, an expedited amendment procedure applies; and (iii) for amendments to annexes IV–XI, an expedited amendment applies for those Parties that accepted this procedure upon ratification.

⁶ Global Methane Pledge, p. 2, first operative para. Available at www.ccacoalition.org/en/resources/global-methane-pledge.

emissions annually by annex 1 Parties. Parties provide both tabular emissions data and a National Inventory Report describing data sources and methods. All this information is publicly available on the UNFCCC website.⁷ There are also international UNFCCC working groups, which strive for the continual improvement of CH₄ emissions information. The Arctic Council Expert Group on Black Carbon and Methane Summary of Progress and Recommendations includes historical and projected CH₄ emissions for parties that provide this information, which are aligned with UNFCCC reporting. This option duplicates existing UNFCCC emissions data collection, review and improvement. The Parties to the Convention could consider potentially encouraging/requiring countries not currently submitting CH₄ data to the UNFCCC inventory to do so under the Gothenburg Protocol. However, although this option was assessed for completeness, work to compile, review, and improve CH₄ emissions information should not be considered as a viable revision to the Gothenburg Protocol because this work is being undertaken by UNFCCC;⁸

(d) Expanding requirements on black carbon (BC) by including, for example, specific emission reduction commitments and emission reporting requirements on BC, by including new emission requirements on particulate matter (PM) that also reduce BC (as a component of PM) in annex X (with a focus on sectors with high shares of BC in PM), and/or by including specific emission requirements on BC from certain activities such as agricultural residue burning, flaring, shipping and domestic heating and/or a separate annex on BC. Technical information on options and measures is available in several documents, for example, the report on “Prioritizing reductions of particulate matter from sources that are also significant sources of black carbon – analysis and guidance” (ECE/EB.AIR/2021/6) identifies main measures and sectors to reduce PM emissions that also significantly reduce BC (including non-technical measures). Also, the informal technical document entitled “Review on black carbon (BC) and polycyclic aromatic hydrocarbons (PAHs) emission reductions induced by PM emission abatement techniques”,⁹ prepared by the Task Force on Techno-economic Issues, is a very useful reference to consider in this context;

(e) Expanding the application of article 3 (8) and (10) on NH₃ control measures as specified in annex IX beyond the geographical scope of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe, in combination with the options considered as part of updating annex IX as per paragraph 13 (b) above;

(f) Focusing on overcoming barriers to ratification and implementation, such as by adding new flexibilities like timescales that could extend time for retrofitting or gradual decommissioning of old installations, allowing alternative base years for the emission reduction commitments, and/or indicating in the revised text that new measures/requirements would not be mandatory for new Parties (idea proposed by the Coordinating Group on the promotion of actions towards implementation of the Convention in Eastern Europe, the Caucasus and Central Asia (Coordinating Group)). Additional ratifications of the amended Gothenburg Protocol and their value and merit as legally binding long-term commitments by Parties should not be underestimated;

(g) Introducing a staged approach to ratification where (revised) technical annexes are accepted and ratified gradually (ratification of one annex at a time, or as appropriate). This requires an amendment to the Protocol text to include this gradual approach to ratification;

(h) Introducing a phased approach to the basic obligations (emission reduction commitments, technical emission reduction requirements such as emission limit values), where the Protocol is ratified in a single step, with the basic obligations (and increasing ambition levels) phased in over time and explicitly described in the Protocol itself. This option requires amendments to the Protocol text to introduce this gradual approach to the basic obligations (for further information, see section III below);

⁷ See <https://unfccc.int/ghg-inventories-annex-i-parties/2021>.

⁸ *ibid.*

⁹ Available at <https://unece.org/info/Environmental-Policy/Air-Pollution/events/349997>.

(i) Allowing automatic incorporation of relevant emission limit values in the technical annexes upon ratification for specific groups of countries (similar to the approach for Canada under article 3 (11 bis) of the amended Gothenburg Protocol);

(j) Replacing some or all technical annexes by referring to new and (to-be-updated) existing guidance documents, to allow Parties to implement the emission reduction measures they consider most effective;

(k) Addressing all articles of the Protocol and assessing them for continued relevance. If some articles are limited in their use or contain timescales that have expired, these could be amended. In addition, updates to articles could be considered to reduce the administrative burden of older protocols. Other proposals could include inserting additional preambular and operative text on short-lived climate pollutants, including CH₄ as an ozone precursor.

C. Approach 3: Develop new instrument(s) or measure(s)

14. This approach could include one or more new binding and/or non-binding instrument(s) or measure(s), or a combination thereof. A new instrument could be considered to replace or complement the amended Gothenburg Protocol (i.e. a new kind of multi-pollutant protocol and/or a complementary instrument for a specific pollutant (i.e. CH₄). Under this approach, there are binding and non-binding options, some of which have overlaps with approaches 1–2 and 4.

Approach 3(a): Non-binding instrument(s)/measure(s)

15. A non-binding instrument could include:

(a) Developing voluntary programmes such as the Batumi Action for Cleaner Air (2016–2021) initiative (ECE/BATUMI.CONF/2016/7), under which Governments were invited to voluntarily commit to implementing specific individual actions to combat air pollution and share their successes and further challenges with others. Further to this, Convention Parties are encouraged to implement commitments that would implement and potentially lead to ratification of the protocols to the Convention. The final Report on the Implementation of the Batumi Action for Cleaner Air (2016–2021) (ECE/NICOSIA.CONF/2022/7) shows that 87 commitments were completed or in progress. One option would be to utilize and revive this non-binding initiative in conjunction with a new treaty or protocol but this option would be equally useful in the case of “no revision” of the Gothenburg Protocol (approach 1);

(b) Developing also links to and drawing inspiration from existing commitments of other international agreements and initiatives, which may help to further achieve the long-term objectives of the Convention or a new protocol. This could include:

(i) Developing a framework of voluntary targets for additional action on air pollution, such as done by the Kunming-Montreal Global Biodiversity Framework. Through such an instrument, Parties to the Convention could agree on common aspirational targets, actions and implementing and reporting measures;

(ii) In addition to the action noted above under approach 2b on a comprehensive revision of the Gothenburg Protocol, additional voluntary actions to fulfil the global ambition of the Global Methane Pledge could also be considered;

(c) Undertaking greater action to build momentum towards implementing measures – this option could be informed by other conventions and consider involving multiple levels of Government and communities. This could include:

(i) Moving from a focus on compliance to a more facilitating role for the Convention and promoting technical areas for improvements (such as inventories, policy measures, technical guidance for abatement) to help non-Parties to the Gothenburg Protocol to take further steps to implement measures to reduce air pollution;

(ii) Building in cooperation with existing programmes from the World Bank, the Climate and Clean Air Coalition, or the C40 Cities Climate Leadership Group to encourage more action at the national or subnational level;

(d) To some extent, the creation of the forum for international cooperation on air pollution could allow any of the above measures to be undertaken as part of the forum, as well as building more links to other regions and organizations tackling air pollution; for example, the Batumi Action for Cleaner Air initiative could be revived as an international version within the forum.

Approach 3(b): Binding instrument(s)/measure(s)

16. A binding option could be a new binding instrument, replacing the existing Gothenburg Protocol, or a new protocol with different or additional obligations to the existing Gothenburg Protocol. As a new treaty is a clean slate, the obligations could be very different from the existing provisions of the Gothenburg Protocol:

(a) A new treaty to cover multiple pollutants – a new treaty could be initiated to deal with existing and new pollutants together in a new or different “framework/structure” than the Gothenburg Protocol. The choice for a new treaty may depend on the scope and number of amendments to be made;

(b) A sector-based treaty – a new protocol or treaty could instead seek to harmonize production, trade, or reduce proliferation of emissions of certain sectors, such as the International Maritime Organization does for shipping emissions, or the Montreal Protocol on Substances that Deplete the Ozone Layer does for hydrofluorocarbons;

(c) A single pollutant treaty – a new treaty could instead look again at targeting single air pollutants for action by Parties, which was the practice of the Convention prior to the 1999 Gothenburg Protocol. This could be aimed at swift action against certain pollutants/ozone pre-cursors (i.e. CH₄) and include a specific emission reduction target for each Party;

(d) A phased approach treaty – a new treaty could take account of different levels of development of air quality management by allowing Parties to make “phased” commitments to a protocol towards an overall objective. This would build up ratification of provisions as countries are able to implement measures to address air pollution. This could be modelled on existing frameworks employed by European Union Framework Directives as an example.

D. Approach 4: Enhance capacity-building, awareness-raising, cooperation and other support

17. Regardless of which approach or options are chosen, capacity-building, awareness-raising, cooperation and other support are cross-cutting efforts that could be continued and/or expanded to help to further address the Gothenburg Protocol review’s conclusions and long-term Convention objectives. This is a flexible approach that includes actions that could be initiated in the short-term, sustained in the long-term, and adjusted to best serve the Convention’s objectives. These activities could be tailored to and combined with any other approach (and/or options within the other approaches) presented in this document.

18. The level of complexity, effort, timeline and resources required for this approach would depend largely on the number of activities selected and the extent to which the Executive Body would like to increase capacity-building, outreach and cooperation under the Convention. Selection of this approach would also require further discussion on the resources required and on who would be responsible for each action (e.g., the secretariat, the Chair of the Executive Body, task forces, Convention Parties, etc.). Political will would be important for the success of actions in cross-cutting approach 4. A visible political Executive Body decision could help to generate political will in support of expanded capacity-building and cooperation.

Approach 4(a): Capacity-building

19. This approach identifies several actions that Convention Parties could take, subject to availability of resources, to advance capacity-building efforts within the ECE region that provide long-term and targeted support in countries and on topics where further action on air quality management could have the greatest impact in line with approaches 1–3. Specific activities could include:

(a) Needs assessment (update of 2012 needs assessment included in document ECE/EB.AIR/2012/15, annex II) – review the current work on capacity-building, awareness-raising, communication and cooperation to evaluate the effectiveness of current approaches and identify possible gaps in the Convention’s current workplan, including work items not currently funded;

(b) Identify and match available resources/assistance with capacity needs/gaps;

(c) Workplan – identify opportunities in future workplan activities for “science”, “policy” and “compliance” to strengthen information exchange, capacity-building and links between the Convention’s task forces and non-Parties;

(d) Review the task forces’ mandates (among other things, potentially on the basis of the needs assessment) and include separate sections for non-Parties;

(e) Identify specific follow-up activities or coordination actions targeting countries of Eastern Europe, the Caucasus and Central Asia, Western Balkan countries and Türkiye, taking into account the request of the Executive Body made at its forty-second session to review the Coordinating Group’s mandate;¹⁰

(f) Continue to translate relevant documentation and communication materials into Russian and, upon request, provide support for their translation into other national languages;

(g) Strengthen the Convention’s technical assistance to non-Parties to the Protocol with the aim of providing targeted, long-term support that responds to country-specific challenges and contexts. Technical assistance could include additional action such as support for monitoring networks (including low-cost sensors and passive samplers), further support for emissions inventories and emissions projections, and/or support to develop country-specific implementation action plans.

Approach 4(b): Awareness-raising

20. Actions to further raise awareness could include, subject to availability of resources, the following:

(a) Review of the effectiveness of the Convention’s communication and public outreach plans, including the Convention and task force websites, and development/implementation of a plan to make enhancements to improve effectiveness (possible role for the secretariat);

(b) Implement public awareness-raising campaigns on the human health impacts of air pollution (possible role for the secretariat);

(c) Host additional national clean air dialogues (possible role for the secretariat and/or task forces);

(d) Extend air pollution monitoring in countries of Eastern Europe, the Caucasus, and Central Asia and of the Western Balkans to build awareness among the general public and decision-makers. This could also include the creation of additional real-time data portals with publicly available information (possible role for the Task Force on Integrated Assessment Modelling and/or Convention Parties);

(e) Organize high-level events to raise political awareness among decision-makers, not only those responsible for the environment, but also among those responsible for other policy areas that are higher on the political agenda (e.g., energy, climate, finance,

¹⁰ ECE/EB.AIR/150 (advance version), para. 24 (f).

agriculture) (possible role for the secretariat, Convention Parties and/or the Task Force on International Cooperation on Air Pollution (TFICAP));

(f) Host relevant Convention meetings, such as task force meetings, periodically in countries of Eastern Europe, the Caucasus and Central Asia, Western Balkan countries and Türkiye (possible role for task forces);

(g) Increase international pressure for further action on air pollution, including implementation and ratification, such as by discussing the Convention in ministerial meetings, including air pollution in bilateral agreements, etc. (possible role for Parties and/or TFICAP);

(h) Host additional outreach events at key international meetings (e.g., side events at meetings organized by UNFCCC, the Climate and Clean Air Coalition, the United Nations Environment Assembly of UNEP, the Intergovernmental Panel on Climate Change (IPCC)) (possible role for the secretariat, Parties and/or TFICAP);

(i) Use of the forum for international cooperation on air pollution and TFICAP to raise awareness and build political will.

Approach 4(c): Cooperation outside the Convention

21. Such actions could include, subject to availability of resources, further cooperation with entities including, but not limited to:

(a) The World Health Organization (WHO): Cooperation with WHO could build upon existing cooperation through the Task Force on Health and focus on raising awareness of the public health impacts of air pollution and the importance of taking action at all levels to address air pollution. Technical cooperation could also present opportunities to provide input to and utilize WHO databases, tools and initiatives, as well as to access technical and scientific advisory groups. Such cooperation could benefit the Convention's scientific work and also raise awareness at the public health and political levels. This could be a role for the secretariat or the task forces;

(b) The World Meteorological Organization (WMO): Cooperation with WMO could present opportunities for the Convention to share its scientific work and cooperate on globally relevant data and modelling. The WMO annual Air Quality and Climate Bulletin provides updates on global distribution of air pollutants – potentially a useful tool for awareness-raising. Such engagement could be a role for the task forces;

(c) UNFCCC: Cooperation with UNFCCC could present opportunities for high-level events at the annual sessions of the Conference of the Parties to UNFCCC, to raise awareness of the links between air pollution and climate change and identify areas for joint cooperation. Such engagement could be a role for the secretariat, Executive Body Chair, and/or Convention Parties;

(d) IPCC: Cooperation with IPCC could present opportunities for joint workshops or targeted assessments (e.g., quantifying the benefits of global efforts on CH₄) to highlight the complementarities between and need for action on air pollution and climate change. Such engagement could be a role for the task forces;

(e) The Climate and Clean Air Coalition (CCAC): Cooperation with the proposed CCAC Air Quality Flagship and existing Methane Flagship presents opportunities for the Convention to amplify action on air pollution. The Flagships provide scientific assessments and tools that support decision-making, political engagement, awareness-raising and national action. Such engagement could be a role for the Convention as a whole. Many Convention Parties are already CCAC members. Other forums, such as the Global Methane Initiative, which has deep technical knowledge and significant training materials related to CH₄ mitigation, could also be considered;

(f) The United Nations Environment Programme (UNEP): Convention Parties' cooperation with UNEP could help to shape UNEP focus areas, both in terms of priority topics and regions. UNEP could also be a useful partner in developing and amplifying platforms, tools and resources on air quality management, which could include elements developed by and useful for Parties. Such engagement could be a role for the task forces, the

secretariat and/or the Executive Body Chair. Convention Parties could also engage with UNEP through funded programmes, the UNEP Committee of Permanent Representatives and the United Nations Environment Assembly of UNEP;

(g) The science-policy panel on pollution: In its resolution 5/8,¹¹ the United Nations Environment Assembly of UNEP decided that a science-policy panel should be established to contribute to the sound management of chemicals and waste and to prevent pollution. The scope of the panel is being negotiated in a series of open-ended working groups through 2024. The panel, once set up, could also present opportunities to elevate the science and work of the Convention, produce global or regional assessments beneficial for the work of the Convention, and could raise global awareness of the latest science on air pollution. The Convention could consider greater outreach and cooperation with the science-policy panel during the process of defining the scope of its mandate and once the panel is active. Such engagement could be a role for the secretariat, the Chair of the Executive Body, the scientific bodies, task forces and Parties.

Approach 4(d): Other support

22. Additional action and other kinds of support may be needed to address barriers to ratification and implementation that current non-Parties face (for more details on these barriers, see informal document No. 2 for the forty-second session of the Executive Body).¹² Potential options to expand other support could include:

(a) Increased voluntary contributions. Continue fundraising and calls to Convention Parties to provide financial support to support ratification and implementation of the Gothenburg Protocol. One possibility is that, if a needs assessment is completed, countries could identify in-kind and financial support in service of the gaps identified in the needs assessment. This could be the role of the secretariat and specific centres/task forces;

(b) New funding mechanism. Develop a new funding mechanism linked to the amended Gothenburg Protocol (or to a new instrument, if appropriate) to support implementation. It should be noted that, depending on how such a mechanism is developed, this may require a revision to the Protocol. Setting up this funding mechanism would require a thorough analysis – coordination could be carried out by the secretariat;

(c) Coordinated outreach to financial institutions. Initiate a dialogue with financial institutions such as the World Bank, the Asian Development Bank or the European Investment Bank¹³ to explore funding opportunities for non-Parties (e.g., to finance/reduce the costs of mitigation measures). This could be the role of the secretariat and/or TFICAP;

(d) Develop a mid-term strategy and/or country-specific implementation action plans for current non-Parties. Develop a specific mid-term strategy for non-Parties, drawing an appropriate distinction between the three following groups of current non-Parties: (a) the countries of Eastern Europe, the Caucasus and Central Asia; (b) the Western Balkan countries; and (c) Türkiye. Such a strategy should identify what is technically and politically feasible for these countries by certain target years. This strategy could also be paired with country-specific implementation action plans that provide more detail on the steps countries would need to follow to improve implementation of the amended Gothenburg Protocol and make progress towards ratification. Said strategy could be coordinated by the secretariat as part of the Convention's capacity-building work.

III. Analysis of policy options

23. Section III provides an analysis of the risks, advantages and disadvantages of the policy options described in section II above and combinations thereof. This includes specific considerations for countries of Eastern Europe, the Caucasus and Central Asia, Western

¹¹ UNEP/EA.5/Res.8.

¹² Available at https://unece.org/sites/default/files/2022-11/Item%203_Barriers%20to%20ratification%20and%20implementation%20and%20solutions.pdf.

¹³ Executive body decision 2018/5, annex, para. 73.

Balkan countries, as well as Türkiye. Regarding the analysis of the CH₄ options, reference is made here to paragraph 13 (c) above, where the information and analysis on the CH₄ options was largely included.

A. Approach 1: Continue with ratifying and implementing the amended Gothenburg Protocol (no revision)

24. The Convention has 51 Parties, 31 of which are Parties to the original Gothenburg Protocol and 28 of which have accepted the 2012 amendments thereto.¹⁴ Among Parties to the Protocol as amended are the European Union and most of its member States, Canada, Norway, Switzerland, the United Kingdom of Great Britain and Northern Ireland and the United States of America. Countries of Eastern Europe, the Caucasus and Central Asia, Western Balkan countries, as well as Türkiye have not yet ratified the amended Protocol. The review of the amended Gothenburg Protocol concluded that the emission reduction potential for current non-Parties is still particularly large. More ratifications and improved implementation could increase the effectiveness of the amended Gothenburg Protocol.¹⁵ Among possible initiatives to remove barriers towards ratification, helping countries to improve their emission inventories seems to be the most helpful one.

25. A possible advantage of relevance for approach 1 seems to be that, in the absence of any other policy developing activity, current and possible new Parties would have the opportunity to fully focus on the implementation of the Gothenburg Protocol as amended. However, developments since 2012 indicate that it is unlikely that a large number of additional Convention Parties will ratify the amended Protocol due, among other things, to its complexity. The long-term objectives of the Gothenburg Protocol are unlikely to be achieved with approach 1.

26. A clear disadvantage to this approach is that no significant further emission reductions would be expected. Combined with enhanced capacity-building, awareness-raising and/or other voluntary actions, some further progress in achieving reductions and objectives can, of course, be expected, but this is unlikely to be sufficient.

B. Approach 2: Revise the amended Gothenburg Protocol

27. The Gothenburg Protocol has a long history and is a well-known instrument within the community of stakeholders dealing with air pollution and beyond. Its added value is widely recognized, as demonstrated by the Convention's long-term strategy.

28. As a binding instrument, and through the shared ambition of its Parties, continuing with the Gothenburg Protocol would further help and motivate countries to adopt national measures and to further contribute to the highly valued science developed under the umbrella of the Convention (tools, methodologies, etc.).

Approach 2(a): Targeted revision of technical annexes IV–XI to the Protocol

29. Minor/specific amendments to the technical annexes:

(a) An important advantage of minor/specific amendments to annexes IV–XI (such as adding certain derogations from applying emission limit values or amendments to the timescales in annex VII) is their rapid entry into force (within one year) for those Parties that have accepted the expedited amendment, as opposed to the entry into force of amendments to the Protocol under the regular ratification procedure;

(b) Such amendments to annexes IV–XI, however, will likely not be sufficient to fully address the conclusions of the review of the amended Gothenburg Protocol and to make the necessary progress towards achieving the Protocol's long-term objectives.

¹⁴ As at 28 July 2023.

¹⁵ ECE/EB.AIR/2022/3, para. 89 (e)–(f).

30. Additional separate sections in the technical annexes:

(a) Currently, the technical annexes are divided into three sections: a section for the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe region, a section for Canada and a section for the United States of America. The separate sections respect the difference in governance between the countries of these areas. One option is to provide separate section(s), with their own requirements, for the countries of Eastern Europe, the Caucasus and Central Asia, the Western Balkan countries and Türkiye;

(b) The countries of Eastern Europe, the Caucasus and Central Asia and Western Balkan countries are moving at different speeds, have different needs and face different barriers to ratification. A “one-size-fits-all” solution to overcoming all barriers is difficult to find or may not even exist. A major barrier to ratification is the complex and demanding nature of the technical annexes. Possibly, a new revision of the amended Gothenburg Protocol will further increase the complexity of the technical annexes (i.e. by introducing new stricter uniform limit values for all). The introduction of separate sections in the technical annexes for these current non-Parties would allow for a tailor-made approach; combined with a staged ratification approach or a phased commitments approach, this would allow for more ratifications over time (see analysis in paras. 33–40 below);

(c) One risk or disadvantage of this option is the possibility of compromising ambition and accountability to make meaningful reductions as the requirements may be reduced to the minimum ambition level of the slowest-moving country. There may also be challenges with implementation for some non-Parties. Emission inventories continue to need improvement, as some countries are still using the tier 1 approach. Relying solely on emission inventories to assess the level of implementation of the Protocol may not lead to adequate information. Making the technical annexes less complicated may assist with this assessment.

31. Focus on new installations:

(a) The focus of the annexes could also be shifted from retrofitting of existing installations – which is more expensive, complex and demanding and is not always feasible due to installation-specific or local circumstances, and is therefore a potential barrier to ratification – to new installations. Consideration could be given to the share that the total cost of additional policy measures represents in gross domestic product (GDP) when setting the ambition levels for the countries of Eastern Europe, the Caucasus and Central Asia, the Western Balkan countries and Türkiye;

(b) The absence of emission requirements on existing plants may, however, make existing plants less likely to be replaced. Smart flanking policies and appropriate financial support for (cleaner and more efficient) new plants can mitigate such risks.

32. Removing mandatory annexes IV–XI:

(a) The practical usefulness of the technical annexes needs to be taken into consideration. That is to say whether they are best implemented through: mandatory technical annexes; non-mandatory guidance documents; or a combination of both (with, e.g., only mandatory requirements for key categories and/or new installations). This issue is relevant to both Parties and current non-Parties. For current non-Parties in particular, this is likely to depend on whether the technical annexes could be simplified or restructured (with, e.g., specific sections for Eastern Europe, the Caucasus and Central Asia) and/or whether a phased approach would be applied to commitments/annexes). In addition, the current technical annexes continue to act for some as a barrier to ratification, being considered overly prescriptive and complicated. In particular, extending annexes IX–X with respective additional requirements on NH₃ and BC and/or adding a new technical annex on CH₄ may result in additional ratification barriers;

(b) Enforcement/compliance verification (by the Implementation Committee) of the obligations arising from annexes IV–XI is very difficult and time-consuming and is currently rarely carried out; however, if said obligations are mandatory, the countries that have them are still legally required under the Protocol to fulfil them. In other words, they could be held accountable by another someone besides the Implementation Committee;

(c) At the current rate of ratification and entry into force of the Convention's protocols, technical annexes are out-of-date before they become legally applicable (annexes to the amended Gothenburg Protocol were established and negotiated years before their adoption in 2012). Technical annexes are rigid, unlike guidance documents, which can be updated more easily (without requiring a ratification process) and regularly (e.g., every five years). Guidance documents are better suited to keeping pace with advances in mitigation technologies;

(d) On the other hand, the (mandatory) emission limit values in the technical annexes serve to: achieve the emission reduction commitments of annex II; achieve directly and indirectly the objectives of the Protocol; and, ensure a basic level playing field for countries and sectors. Their mandatory nature may provide higher confidence/certainty in achieving set targets (emission reduction commitments);

(e) Imposing emission reduction commitments (annex II) without imposing emission limit values (annexes IV–XI) allows for more flexibility in achieving the emission reduction commitments (e.g., by also allowing non-technical measures to be valued, such as encouraging the replacement/phasing out of old plants), but the lack of underlying mandatory requirements can, in turn, make it more difficult to achieve the emission reduction commitments;

(f) If it were decided to delete annexes IV–XI and rely solely on the BAT guidance documents, those documents would have to be thoroughly revised to clearly define the (most up-to-date) BATs and the emission levels that can be achieved with them, as well as their applicability. The degree/nature of revisions of the guidance document is dependent on the decision taken on what to do about the technical annexes;

(g) Replacing annexes IV–XI with non-mandatory guidance documents would shift the focus of the Gothenburg Protocol solely to the emission reduction commitments, as the remaining basic obligation (besides reporting). For countries of Eastern Europe, the Caucasus and Central Asia and Western Balkan countries such commitments have not yet been calculated/set. Although some improvements have been made, the quality of the emission inventories for many is still insufficient. A transition to a Protocol retaining only annex II would require additional efforts to improve these countries' emissions inventories, as they are a prerequisite for setting meaningful emission reduction commitments.

Approach 2(b): Comprehensive revision of the Protocol text and annexes

33. A comprehensive revision would allow for the option of committing to more ambitious emission reductions for those Parties that can do so (including updated emission reduction commitments on current pollutants, as well as new commitments for new pollutants), while also allowing for the consideration of further flexibilities to be included in the Protocol, such as an indication in the revised text of the Protocol that new measures and/or reporting provisions might not be mandatory for new Parties. This would allow for increased ambition and would provide a mechanism for new Parties to ratify the Protocol without leaving any country further behind. Alternatively, a new Party at the time of ratification could “express its intention” to be a Party to the unamended version of the Protocol (compare with Vienna Convention on the Law of Treaties, art. 40 (5)).

34. Following this approach would, for example, allow for the technical annexes to be made non-mandatory for new Parties (current non-Parties). They could be used as advisory guidelines instead of obligations. This would allow the focus to be shifted slightly from obligations (emission limit values, emission reduction commitments) to benefits/policy targets (from “stick” to “carrot”). This could be used as an entry point that could generate greater political will and commitment from current non-Parties (e.g., air quality in major cities and its impact on health).

35. Furthermore, a comprehensive revision would allow for: (a) the removal from the text of the time limits for the application of flexible mechanisms; and (b) the addition of new general flexibility provisions. Parties might wish to consider where this option would need to be accompanied by the “implementation action plans” for each country to ensure eventual implementation of all delayed measures. Allowing more flexibility may, however, give rise

to several risks (creating undesired loopholes, leading to more diverging obligations, making the playing field unlevel and reducing coherence, etc.).

36. As previously mentioned (see paras. 11 and 13 above) under this approach, if the technical annexes are retained, separate/specific conditions for countries of Eastern Europe, the Caucasus and Central Asia (e.g., a special annex listing countries and respective obligations) could also be added, as has been established for Canada and the United States of America. Automatic incorporation of relevant emission limit values in the technical annexes upon ratification by countries of Eastern Europe, the Caucasus and Central Asia and other countries not yet Parties to the current Protocol into the technical annexes (similar to the approach for North America) could also be considered to facilitate ratification.

37. There is a risk that ratification by current non-Parties would become even more difficult if the level of ambition for all were set too high in a revised version of the Protocol. A comprehensive revision needs to also consider solutions to the main barriers, especially regarding the implementation of the emission limit requirements of the technical annexes. Further raising the level of ambition should be considered, along with new approaches for the technical annexes (e.g., phased approach, separate sections instead of new uniform stricter limit values applicable to all Parties).

38. Alternatively, the amended Gothenburg Protocol could be revised in a way that would allow for incremental ratifications of separate groups of new (bundled) amendments (similar to the approach used when amending the Protocol on Persistent Organic Pollutants).

39. As previously mentioned (see para. 35 above) regarding the time limits for the application of flexible provisions, removing the time limits and/or extending the timescales for the application of limit values could be useful. A customized approach could be used for the timescales according to the specific circumstances of a given country (different for each country, to be declared upon ratification).

40. A staged approach to ratification (gradual ratification of one annex at a time) or a phased approach to the basic obligations (phased in over time into the Protocol) could also be considered:

(a) The staged ratification approach is an option supported by (several) countries of Eastern Europe, the Caucasus and Central Asia. Preference for such an approach has been expressed in the past. Although the phased commitments approach is a newer idea that requires further discussion on how it could be implemented in practice, early information also indicates support by these countries;

(b) The staged ratification approach would allow for a focus first on those annexes (if they remain mandatory) regarding which countries have made the most progress and/or on what they want to prioritize and thereby make progress in gradual implementation that can be demonstrated to the outside world. This approach could also allow for the application of a tiered approach over time, prioritizing key categories and having a set of minimum requirements (harmonized for all Parties). Prioritization of commitments (in the technical annexes) can also be achieved through the phased commitment approach;

(c) If either the phased commitments or staged ratification approaches were to be used for annex II, Parties would be able to apply progressively increased emission reduction commitments, with possibly different timing per pollutant. Keeping the requirements of the technical annexes aligned with such progression could be a challenge;

(d) The staged ratification approach might lead to legal and procedural complexity and possibly to additional administrative burden, as each country (the countries of Eastern Europe, the Caucasus and Central Asia, the Western Balkan countries or Türkiye) could take its own path to ratification. While the use of the phased commitment approach would likely lead to less additional legal complexity, as the Protocol would be ratified in a single step;

(e) For annexes IV–XI (grouped by pollutant, as is currently the case, or by sector), the staged ratification and/or phased commitment approaches could also have an undesirable impact on the intended integrated (multi-pollutant/multi-effect) and/or synergistic approach (should each Party choose its own path), time horizon (given the significant period of time needed for a new protocol to enter into force and the even greater period of time required for

the phased commitments to become effective) and might compromise the overall ambition level. Due consideration of the integrated multi-pollutant, multi-pollutant approach within a staged approach would be a challenge. The horizontal annex VII on the timescales for the application of the limit values also needs to be taken into consideration. A possible risk with a phased commitment approach is that it may not speed up ratifications, but rather delay them, in the event that a Party does not want to ratify until it is also certain that it can meet its requirements set for the second or third phase. In addition, the more stringent requirements envisaged in the Protocol for subsequent commitment phases could become outdated before they became applicable;

(f) A process for monitoring the implementation of the obligations of the Protocol using either of these approaches would need to be created and might increase the workload of the group tasked with tracking said process (e.g., the Implementation Committee).

C. Approach 3: Develop new instrument(s) or measure(s)

41. There are advantages, disadvantages and risks involved in taking the “new treaty” approach, both for binding and non-binding frameworks. Overall, it should be noted that often the advantages and disadvantages of a new treaty are similar in some respects to a full revision of the Gothenburg Protocol. Particularly in the case of a broader or different scope/approach (e.g., framework approach: see para. 43 below) and/or numerous amendments, a new Protocol could be deemed to be most appropriate (form following function).

42. Previous analysis by the ad-hoc group of legal experts¹⁶ shows that there are only minor legal differences when considering a new treaty or full revision of the Gothenburg Protocol in terms of ratification by Parties and non-Parties to the existing Protocol. Therefore, primarily any advantages and disadvantages are political rather than legal in this respect. There are, however, various factors to take into consideration when deciding between a revision of the current Protocol or a new instrument:

(a) A new protocol could potentially touch on a broader set of issues than would be the case with an amended version and could avoid the potential complexity of numerous (separate) amendments to the existing Protocol. On the other hand, a new protocol could lead to lengthy and unpredictable negotiations;

(b) In the case of a new protocol, consideration should be given to the issue of how to deal with existing protocol obligations dealing with the same subject matter (including the older protocols on sulfur, VOCs and nitrogen oxides). Moreover, a new protocol would further complicate: the exceedingly complex situation regarding the Convention, which already has a number of protocols; and the international environmental law landscape;

(c) Some Convention Parties may find it more difficult to conclude ratification of a new instrument as opposed to amendments to an existing instrument to which they have already shown a political commitment, either by virtue of signature or of ratification.

43. Many of the advantages and disadvantages of new binding and non-binding agreements are similar to the issues discussed in the sections on approaches 1–2 and 4. The following will only focus on the options not dealt with in those sections:

(a) The “framework” approach using aspirational targets would have advantages in being able to show long-term aspiration and potentially tangible goals towards a long-term objective, which the current Gothenburg Protocol with its current targets would take longer

¹⁶ See informal document No. 14, submitted to the twenty-sixth session of the Executive Body. Available at

<https://unece.org/fileadmin/DAM/env/documents/2008/EB/EB/Informal%20Documents/14%20amendment%20v%20%20new%20protocol%20and%20successive%20treaties%20version%202.pdf>; and informal document No. 3, submitted to the forty-fifth session of the Working Group on Strategies and Review. Available at <https://unece.org/fileadmin/DAM/env/documents/2009/EB/wg5/wgsr45/Informal%20docs/No%203%20Amended%20versus%20new%20Protocols%20CLRTAP%2C%20FINAL.pdf>.

to achieve. It could also ensure more ratifications from the outset and faster entry into force, thus increasing the commitment of all Convention Parties. However, the disadvantages of aspirational targets lie in how they are reported, enforced and achieved. Also, the objective of a new treaty would have to be demonstrably different from that of the existing Gothenburg Protocol, which would be challenging to determine and negotiate;

(b) A sector-based treaty would allow for an entirely different approach to air quality management across the ECE region. The advantages of this would be to integrate sectors and products fully into the regulation of air pollutants and harmonize standards across the region (although this may not be possible in all regions). Further advantages would be to control emissions from various products and industries (i.e. transport) in a harmonized way across the ECE region. However, the disadvantages are the administrative burdens involved in enforcing a protocol of this kind and the ambition required of Convention Parties to negotiate such a protocol. Further analysis could be done to understand the benefits and drawbacks of protocols such as the Montreal Protocol in managing the production and sale of hydrofluorocarbons;

(c) A single pollutant treaty has one significant advantage in that it could be negotiated faster than a framework (depending on its ambition). Therefore, it could be employed to provide a quicker solution to individual problems or pollutants (i.e. CH₄). However, the main drawback would be the relationship between a single pollutant and existing framework protocols. This could add to the administrative burden on Parties in terms of reporting and of whether any provisions have cross-overs to other Protocols (i.e. the Gothenburg Protocol). Also, the single pollutant approach (as well as the sector-based approach) is likely less cost-effective in achieving targets than the integrated multi-pollutant, multi-effect approach used by the Gothenburg Protocol.

44. The overall advantage of the “new treaty” approach is that it would involve considering managing air quality within the ECE region in an entirely different way, employing new and novel approaches. Under this approach, it would be possible to consider issues identified during the Gothenburg Protocol review (and other sources) and come up with new solutions to meet new objectives. It would also be an opportunity to consider the collective objectives of the Convention and respond to a changing environment and atmosphere in a holistic way.

45. However, to achieve this goal, sustained ambition and effort is required by all Convention Parties to define a higher or different ambition for a new kind of protocol to achieve the outcomes of the Gothenburg Protocol review (and any other problems being considered). Any new treaty would likely require other changes across the Convention and potentially increase the administrative burden on Parties and the secretariat to report, enforce and make further changes to the protocols.

D. Approach 4: Enhance capacity-building, awareness-raising, cooperation and other support

46. Cross-cutting approach 4 is a flexible approach with the primary advantages of being implementable in the short term and flexible in that it could be tailored to any action or priority the Convention might pursue. The approach could be combined with any of the other approaches presented in this document.

47. Action on approach 4 could begin quickly, as many possible actions are a continuation or expansion of existing Convention efforts. Moreover, there is no need to wait for other approaches – and potentially lengthy and complex negotiations – to be implemented before taking action. Additionally, this approach could be both a short-term action, as well as a sustained, long-term investment in the Convention’s priorities. The approach’s flexibility would be an advantage, as prioritization of and adjustments to capacity-building, outreach and other cooperation could occur often, such as each time the Executive Body reviews and adopts a two-year workplan or when new priorities emerge. While additional capacity-building, outreach and cooperation with other entities and forums would require significant effort on the part of the secretariat, task forces, the Chair of the Executive Body and Convention Parties, the overall level of effort would be low compared to that required for

approaches 2 and 3, as approach 4 would not require negotiations. For the same reasons, approach 4 has the advantage of being less complex than other actions.

48. The approach also has significant potential to encourage implementation and to build political will, which might be beneficial to encourage ratification. Capacity-building efforts directly linked to the Convention priorities and future actions, responsive to non-Party needs, and implemented with a long-term strategic approach could lessen barriers to implementation and ratification. Another benefit of this approach is it would be unlikely to make the playing field less level than it currently is for Parties and non-Parties to the Protocol, and in fact has significant potential to build capacity and raise the level of technical expertise of non-Parties. This approach could be one way for the Convention to invest in overcoming differences between Parties and non-Parties.

49. Awareness-raising, including with the general public and with key political officials, in a strategic fashion could also help to galvanize the necessary political will for non-Parties to sustain actions to improve air quality management and move towards ratification. Cooperation with other international forums could also be valuable in furthering build political will among non-Parties, and importantly, encouraging global action on air pollution outside of the ECE region that could benefit air quality in the region. Cooperation outside of the ECE region could raise the ambition of this approach significantly.

50. The disadvantages of this approach include the fact that the approach by itself would not be sufficient to respond to the conclusions of the Gothenburg Protocol review, and other action would be needed to address challenges such as global reductions in CH₄ to reduce ground-level ozone in the ECE region, or the need to update technical annexes.

51. Capacity-building and increased cooperation are very resource intensive, and progress is slow. The effectiveness of these actions remains difficult to assess. Much depends on stable and adequate employment of air quality experts within the Party concerned and on the availability of technical and financial resources to continue the process in a sustainable manner.

52. Another key disadvantage of this approach is that Convention resources are limited; thus, effective implementation of expanded capacity-building, outreach and cooperation efforts would require discussion on how to most effectively use limited resources and might likely require additional financial and/or human resources from current Parties to the Protocol, the secretariat and other partners. If no, or only limited, additional resources were available, capacity-building, outreach and other cooperation might only be increased at the expense of other tasks carried out within the framework of the Convention.

53. As the effectiveness of capacity-building, outreach and cooperation would drive this approach's contribution to the achievement of the Convention objectives, it would be important for actions pursued to have a clear scope and intended impact and for the effectiveness of actions to be regularly reviewed and incorporated into further efforts. Visibility of the Convention's commitment to actions in cross-cutting approach 4, such as through an Executive Body decision or another means, could help to drive political will and improve the effectiveness of actions.

54. Additionally, at the country level, it might not be possible to overcome through Parties' efforts some barriers to further progress such as lack of political will, personnel turnover, or insufficient human resources. Country buy-in and commitment to making steady progress and the necessary institutional investments would be crucial to the long-term success of any capacity-building or outreach undertaken.

IV. Recommendations

55. The following recommendations are expert opinions based on the analysis of section III above and do not preclude other actions that Convention Parties may wish to discuss to address the conclusions of the Gothenburg Protocol review. A comparison between the approaches on the basis of a set of assessment criteria is provided in the accompanying informal document for the session. This comparative summary has been prepared to support the formulation of these recommendations.

56. Some action is possible without opening formal negotiations (see approaches 1 and 4). Such action could be taken to make further progress in addressing transboundary air pollution within the ECE region but would not be sufficient to achieve the Protocol's long-term objectives over time, nor would it fully address the conclusions of the review of the amended Gothenburg Protocol.

57. To address and respond to the conclusions of the Gothenburg Protocol review, Convention Parties should consider a comprehensive revision of the text and annexes of the amended Gothenburg Protocol (approach 2b), with due regard to removing barriers to ratification and implementation, while also working to achieve further emission reductions and to begin this work in 2024.

58. In undertaking a comprehensive revision of the Gothenburg Protocol, Parties could include in the revision process consideration of the following key priority areas:

- (a) Updating emission reduction commitments for existing pollutants;
- (b) Considering new specific emission requirements for BC as a component of PM;
- (c) Addressing NH₃ emissions by tightening existing annex IX measures and expanding the scope of annex IX;
- (d) Addressing CH₄ as an ozone precursor;
- (e) Updating the technical annexes of the Protocol, including through simplification, restructuring and/or removal of the annexes, as appropriate;
- (f) Considering further and/or different flexibilities and approaches to address barriers to ratification and implementation, including a phased approach (to ratification or commitments);
- (g) Further considering the synergies with other policy areas, such as climate and energy, and working closely with other forums addressing these issues.

59. In parallel, regardless of the approach chosen, any additional activities on capacity-building, communication and cooperation should be given appropriate consideration by the Executive Body and, subject to availability of resources, be added to future workplans of the Convention. Prioritization of these activities can be determined on the basis of an updated needs assessment (see para. 19 (a) above).