



Economic Commission for Europe**Executive Body for the Convention on Long-range
Transboundary Air Pollution****Forty-second session**

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Items 3 and 5 of the provisional agenda

**Thematic session on barriers towards ratification and implementation of the Protocol
to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012****Review of sufficiency and effectiveness of the Protocol to Abate Acidification,
Eutrophication and Ground-level Ozone****Review of the flexibility provisions to facilitate ratification
and implementation****Submitted by the Gothenburg Protocol review group***Summary*

The present document was prepared by the Gothenburg Protocol review group following the request by the Working Group on Strategies and Review made at its fifty-ninth session (Geneva, 18–21 May 2021).^a The document is presented for consideration by the Executive Body as an input to the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012, and is expected to support discussions at the thematic session on barriers towards ratification and implementation of the Protocol. The document has been updated based on the comments made by the Working Group at its sixtieth session (Geneva (hybrid), 11–14 April 2022) and those submitted by delegations after the session.

^a ECE/EB.AIR/WG.5/126, para. 23.



Summary for policymakers

1. The Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), as amended in 2012, contains a wide range of flexibility provisions, some of which are addressed to all its Parties in order to facilitate full implementation of all requirements, and some of which are specifically intended to facilitate ratification by countries of Eastern Europe, the Caucasus and Central Asia and other countries. The flexibility provisions vary in type, scope and impact.
2. Some flexibility provisions were already available in the 1999 Gothenburg Protocol. Several new flexibility provisions were added by the 2012 amendment to the Protocol, including flexibility provisions to specifically accelerate/encourage ratification by non-Parties.
3. There is an overall lack of reporting on the use of some of the flexibility provisions, impeding proper monitoring and enforcement (verification of compliance).
4. To date, the current flexibility provisions have not proven adequate and/or effective in facilitating further ratifications. In particular, the additional flexibility mechanisms introduced in the amended Protocol to increase the number of ratifications have not met expectations. None of these provisions have been used so far, nor have they led to further ratifications. For the time being, however, a cautious approach should be taken to drawing firm conclusions on the usefulness and effectiveness of the current flexibility provisions, as the amended Protocol only entered into force in October 2019, most of the time since then has been under a global coronavirus disease (COVID-19) pandemic, and insufficient information on their use is available. A primary reason for the persistent non-ratification of the amended Protocol by some of the current non-Parties is that the Protocol and its technical annexes are too complicated and demanding for them.
5. The following is a list of possible options for consideration:
 - (a) Increase the Protocol's effectiveness and facilitate ratification and implementation by considering and implementing improvements to the current flexibility provisions under the Protocol, as amended in 2012;
 - (b) Consider and discuss new options and/or additional/different flexibilities for a potential revision of the Protocol, as amended, that could help non-Parties to overcome barriers and move towards ratification and implementation. Use the outcome of the thematic session on barriers to ratification and implementation of the Protocol and solutions to overcome them, scheduled for the forty-second session of the Executive Body, to reflect on the next steps to be taken;
 - (c) Consider the informal document prepared in support of the discussions at the thematic session and of possible next steps after completion of the review of the amended Protocol, which contains a clear categorization of the barriers identified so far, together with possible solutions (such as new approaches/options, additional/different flexibilities, capacity-building and additional financial support) to overcome each type of barrier.

I. Introduction

6. The long-term strategy for the Convention for 2020–2030 and beyond, in its paragraph 50,¹ specifically calls for the review of the amended Protocol to include a reflection on the flexibility provisions included in the amended Protocol and their effectiveness. Consequently, Executive Body decision 2019/4 and document ECE/EB.AIR/2020/3–ECE/EB.AIR/WG.5/2020/3 entitled “Preparations for the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone as amended in 2012” (the preparatory document) included a reflection on the flexibilities as an important element to inform the review of the amended Gothenburg Protocol.

¹ Executive Body decision 2018/5, annex. All Executive Body decisions referred to in the present document are available at <https://unece.org/decisions>.

7. Section II of this document provides a general overview and assessment of the flexibility provisions in the amended Protocol; section III provides an overview and review of the responses to a questionnaire sent to the national focal points for the Convention in 2021 to support the review of the flexibilities in the amended Protocol. It further complements the assessment provided in section II; section IV contains views expressed recently and in previous years by non-Parties to the present Protocol on the current barriers to ratification and implementation, despite the new flexibilities introduced by the 2012 amendment. It contains in particular the views expressed by the Coordinating Group on the promotion of actions towards implementation of the Convention in Eastern Europe, the Caucasus and Central Asia (the Coordinating Group) at the forty-first session of the Executive Body (Geneva, 6–8 December 2021) with regard to the possible forthcoming revision of the amended Gothenburg Protocol. Further useful background information is provided in section VIII; section V provides answers to the three questions on flexibility provisions listed in annex I to the preparatory document, based on the findings and collected information in the preceding sections II–IV of the present document; sections VI–VII contain the key conclusions and possible options for next steps respectively.

II. Main flexibility provisions

A. Overview of main flexibility provisions

8. The Gothenburg Protocol, as amended in 2012, contains a wide range of flexibility provisions, some of which are addressed to all Parties in order to facilitate full implementation of all requirements and some of which are specifically intended to facilitate ratification by countries of Eastern Europe, the Caucasus and Central Asia and other countries. The flexibility provisions vary in type, scope and impact.

9. Some flexibility provisions, such as the use of equivalent emission reduction strategies and the possibility to derogate from limit values, were already available in the original 1999 version of the Protocol. Several new flexibility provisions were added to the amended version of the Protocol, together with an extension of existing flexibility provisions to the new requirements added to the amended Protocol, for instance regarding particulate matter.

10. In addition, the amended Protocol, like the Protocol in its original version, contains separate provisions for Canada and the United States of America to address the different air quality management systems in North America. These provisions include obligations that are equivalent in terms of stringency and level of ambition resulting in comparable air quality improvements. The use of a designated pollutant emission management area (PEMA) is also available and is intended for larger countries in terms of total land area (Canada, the Russian Federation and the United States of America).

11. The 2012 amendment introduced several flexibility provisions to specifically accelerate/encourage ratification by non-Parties (for example, countries of Eastern Europe, the Caucasus and Central Asia). In particular, this concerns the following provisions:

- (a) Article 3 bis – flexible transitional arrangements;
- (b) Article 7 (6) – reporting of limited emission inventories;
- (c) Annex VII (4) – longer timescales for application of limit values.

12. The flexibility provisions in articles 3 bis and 7 (6) have expired in the meantime. The expiry date in annex VII (4) (for a Party to the Convention becoming a Party to the amended Protocol to declare if it will extend any or all of the timescales for the application of limit values in this annex) was extended by Executive Body decision 2019/23 from 31 December 2019 to 31 December 2024.

13. Another important provision for non-Parties to the present Protocol is contained in article 13 (1)–(2), which allow any Party to the Convention to add its name and emission reduction commitments to annex II to the Protocol at a later stage, when a Party is ready to

ratify the Protocol (and it is able to propose meaningful emission reduction commitments on the basis of further developed emission inventories of sufficient quality).

14. The inventory adjustment procedure is also a new flexibility mechanism that was introduced into the amended Protocol (see art. 3 (11 quinquies)) and, since 2014, provisionally applied for compliance with the 2010 ceilings of the original Protocol. Although now used by current Parties to the Protocol for implementation and compliance purposes, it may also be an important flexibility mechanism to facilitate ratification and implementation for current non-Parties.

15. In addition to the flexibility provisions contained in the Protocol, a number of related guidelines and decisions implementing the Protocol also include several flexibility provisions; for instance, the option to use national emission totals calculated on the basis of fuels used (instead of fuels sold as default) as a basis for compliance with their respective emission ceilings and the option to use larger grids for emission reporting.²

16. The table in annex I below gives a full overview of the original flexibility provisions already included in the 1999 version of the Gothenburg Protocol and the new flexibility provisions added to the 2012 amended version, mainly with the aim of facilitating ratification by countries in Eastern Europe, the Caucasus and Central Asia and other countries. In order to provide a broad information base to inspire further discussions on this subject, the table contains an overview of available flexibility provisions in a broad sense. Next to flexibility provisions specifically designed for further ratification (for example, arts. 3 bis, 7 (6) and 13 (1), and annex VII (4)), the table also lists flexibility provisions used primarily for compliance and implementation purposes, including the option to apply exemptions and derogations (e.g., art. 3 (2)–(8) and (11 quinquies), as well as certain provisions in the technical annexes), as well as provisions that should rather be considered as flexibility provisions from a process perspective or to accommodate practical considerations (e.g., some specific provisions for the United States of America and Canada and PEMA for large countries) or more precisely as alternative equivalent provisions.

B. Review of main flexibility provisions

17. The table in annex II below contains a brief assessment for each flexibility provision (presented per article/annex). It is used as an input for responding to questions 6.1 (a)–(c) contained in the table in annex I to the preparatory document (see section V below).

18. Some of the key findings from the review of the main flexibility provisions in the amended Gothenburg Protocol are:

(a) Although the amendments were adopted by the Executive Body in 2012, the amended Protocol only entered into force on 7 October 2019. Consequently, there is limited insight into the extent to which the new flexibility provisions are considered useful, used and potentially effective, making their review difficult. Experience gained and knowledge about the use of the flexibility provisions of the original Gothenburg Protocol is helpful in this context. Parties' replies to the questionnaire on the review of current flexibilities provide further insight into the use and usefulness of current flexibility provisions (see section III below);

(b) None of the flexibility provisions introduced by the 2012 amendment to specifically accelerate/encourage ratification by non-Parties (arts. 3 bis and 7 (6) and annex VII (4)) have been used so far, nor have they led to further ratifications. The flexibility provisions in articles 3 bis and 7 (6) have already expired in the meantime. The expiry date contained in annex VII (4) was extended by decision 2019/23 to 31 December 2024;

(c) Article 7 (1) (a) requires reporting to the Executive Body on the use of equivalent emission reduction strategies and derogations from limit values, together with the necessary documentation and justification. No such reporting has ever taken place. This means that the flexibility provisions allowed under article 3 (2)–(3) and (7) are either not

² Guidelines for Reporting Emissions and Projections Data under the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/125), paras. 23 and 28.

applied or not reported. Parties' replies to the questionnaire provide little additional insight into this issue. Of the 10 Parties that replied to the questionnaire, only 1 indicated that it has made use of the flexibilities allowed in article 3 (2)–(3). The lack of reporting on the use of these flexibility provisions impedes proper monitoring and enforcement;

(d) The inventory adjustment procedure is a widely used and resource intensive mechanism and seems to have been indispensable for certain Parties. The transition from absolute to relative targets may change (reduce) the need and use of the inventory adjustment procedure from 2022 onwards;

(e) Some of the new flexibility provisions have not yet been applied (e.g., 3-year average) because the amended Protocol only entered into force a few years ago and demonstration of compliance with the 2020 emission reduction commitments will take place for the first time only in 2022. Additional/new guidance may need to be developed for the proper application of some of the new flexibility provisions.

III. Responses to the questionnaire to support the review of flexibilities

A. Background

19. At its fifty-ninth session (Geneva (hybrid), 18–21 May 2021), the Working Group on Strategies and Review requested the Gothenburg Protocol review group to develop and circulate through the secretariat among Parties and non-Parties to the Gothenburg Protocol a questionnaire on flexibility provisions of the Protocol.³ The questionnaire was circulated to the focal points for the Convention on 8 July 2021, with responses due by 30 September 2021. Nine countries (only one of which is a non-Party to the Protocol) provided responses. Therefore, for question 8, which is specifically addressed to non-Parties ("other barriers to ratifying the amended Gothenburg Protocol"), only one response was received.

20. In order to increase the number of responses from non-Parties, a shortened version of the questionnaire was sent to non-Parties on 15 November 2021, with a request to reply by 10 January 2022. The shortened questionnaire was sent to countries of Eastern Europe, the Caucasus and Central Asia and the Western Balkans, as well as Türkiye. This resulted in one additional response from a non-Party, however, that was to the original questionnaire circulated on 8 July 2021, which as such also resulted in an additional answer to question 8 on barriers.

21. A compilation of the responses to the questionnaire can be found in the informal document for the sixtieth session of the Working Group on Strategies and Review entitled "Compilation of responses to the questionnaire to support the review of the flexibilities in the amended Gothenburg Protocol".⁴ The responses in the compilation have been anonymized. The key findings are summarized in subsection B below.

B. Review of received responses

22. The responses received from the ten countries point in different directions. It appears that different perspectives were used in the responses. Some countries answered from their own perspective, while others answered from the perspective of obtaining wider ratification, making it less obvious to draw firm conclusions.

23. Some key findings from reviewing the responses received are listed below:

(a) While some countries indicated that the current flexibility provisions for ratification and implementation were generally considered adequate from their own

³ ECE/EB.AIR/WG.5/126, para. 24.

⁴ Available at <https://unece.org/sites/default/files/2022-03/Compilation%20of%20responses%20to%20the%20questionnaire.pdf>.

perspective, others indicated that these provisions were insufficient from the perspective of wider ratification;

(b) Half of the respondents indicated that different flexibilities were needed; the staged ratification approach and the simplification of the technical annexes were mentioned as examples of possible new flexibilities;

(c) The specific flexibility provisions that apply to the current non-Parties and are designed to increase ratification are not considered useful by the two non-Parties that responded to this questionnaire, except for the flexibility on reporting (article 7 (6)), which is considered “very useful” by one of the two non-Parties;

(d) Only two countries consider some of the current flexibility provisions as key for ratification;

(e) Eight countries, including one non-Party, consider the main flexibility provisions to be generally useful; one country indicated that it had not used any of these provisions; one of the two non-Parties to the Protocol who responded considered the main flexibility provisions to be largely not (very) useful;

(f) The two non-Parties to the Protocol identified several key barriers to ratification that were currently not sufficiently addressed. Both non-Parties identified lack of funding, high abatement and investment costs, and the technical complexity of the Protocol as major obstacles. One of them also identified a lack of political awareness and gaps or lack of knowledge and technical support as major obstacles. It identified gaps in statistical data as a barrier to using higher tier methods to estimate emissions over the full time series, thereby preventing it from proposing meaningful emission reduction commitments, based on 2005 as the reference year, upon accession to the Protocol. The other non-Party acknowledged that its emission inventories were currently of insufficient quality.

IV. Views of non-Parties on the present Gothenburg Protocol

24. The Chair of the Coordinating Group reported on the activities of the Group in 2021 at the forty-first session of the Executive Body. The Chair’s report⁵ focused, among other things, on the exchange of views by the members of the Coordinating Group on the possible upcoming revision of the amended Gothenburg Protocol, as part of which:

(a) Overall, it was reiterated that the upcoming revision of the Protocol would likely further complicate its implementation. Coordinating Group countries remained at different levels of understanding of the complexity and implementation issues with regard to the Protocol, as amended in 2012. The Coordinating Group could propose the following:

(i) Indication in the revised text of the Protocol that new measures and reporting provisions were not mandatory for new Parties;

(ii) Removal of the time limitations for flexible mechanisms’ application from the text;

(iii) Introduction of a new approach to ratification; for example, staged ratification (annex by annex);

(iv) Inclusion in the text of the Protocol separate/specific conditions for the Eastern Europe, the Caucasus and Central Asia region (e.g., a special annex listing countries and respective obligations), as established for Canada and the United States of America;

(b) Cooperation Group countries reiterated their willingness to actively participate in the upcoming discussions of another Protocol revision, and underlined that the development of the Protocol should not further jeopardize ratifications by the countries of Eastern Europe, the Caucasus and Central Asia due to overcomplications and unreachable level of ambition. It was further highlighted that related discussions and

⁵ Available under “Informal documents” tab, agenda item 4 (d), at <https://unece.org/environmental-policy/events/executive-body-forty-first-session>.

negotiations should be held in-person in order to ensure full participation and exchange by all stakeholders.

25. These views of the Coordinating Group on possible new approaches to increasing ratification are also shared by the Task Force on Techno-Economic Issues, which has been working with the countries of the Eastern Europe, the Caucasus and Central Asia subregion for quite some time. According to the Task Force's experience, a step wise mechanism and the use of separate sections for the countries of this subregion are approaches worth exploring further. This could involve gradual ratification by technical annex (pollutant), with each technical annex having a section specifically dedicated to the countries of Eastern Europe, the Caucasus and Central Asia, while avoiding lowering standards for these new acceding Parties.

26. Barriers to ratification, possible solutions and the need for additional flexibilities for countries of Eastern Europe, the Caucasus and Central Asia and other non-Parties to the amended Gothenburg Protocol have been discussed on several occasions since the adoption of the 2012 amendment. Examples of recurring barriers during such discussions are the lack of political will, institutional stability, capacity, knowledge and expertise, monitoring, regulatory frameworks and funding. A comprehensive list of useful background documentation on the subject can be found in section VIII of the present document: the findings and recommendations of the Saltsjöbaden VI Workshop (Gothenburg, Sweden, 18–21 March 2018) and the Workshop to promote the ratification of Protocols of the Air Convention with focus on the Eastern Europe, the Caucasus and Central Asia region (Berlin, 14–16 May 2019),⁶ for example, are, together with this document, a good basis for continuing the discussion on solutions to overcome the barriers to ratification and implementation.

27. In preparation for the thematic session on flexibilities and barriers to ratification and implementation, an informal document with a clear categorization of the barriers identified so far and possible solutions to overcome each of these barriers (see further recommendation in para. 38 below) has been drafted by the Gothenburg Protocol review group.

V. Responses to the questions in annex I to the preparatory document

28. The table contained in annex I to the preparatory document contains three questions (6.1 (a)–(c)) relating to the adequacy and effectiveness of current flexibility provisions for ratification and implementation, and to possible new flexibilities and new approaches. Preliminary answers to these three questions are given below, for the purpose of further discussion. These answers are based, *inter alia*, on the findings and collected information in sections II–IV above, and on ideas expressed in recent years by experts of the Parties and technical bodies to the Convention.

A. Response to question 6.1 (a)

29. Question 6.1 (a) was “Are current flexibility provisions adequate and/or effective for ratification and implementation (focus on Eastern and South-Eastern Europe and Türkiye, the Caucasus and Central Asia)?”

30. Answer to question 6.1 (a): Based on collected and reviewed information, this does not appear to be the case for the current non-Parties to the Gothenburg Protocol (e.g., countries of Eastern Europe, the Caucasus and Central Asia), although, at the same time, it is important to bear in mind that:

⁶ See, respectively, <https://saltsjobaden6.ivl.se/topics/cleanairfortheecccregion.4.1369484715f59ce4bab19c5.html> and <https://unece.org/info/Environmental-Policy/Air-Pollution/events/17984>.

(a) The information currently available is insufficient to draw very firm conclusions on the usefulness of the new flexibility provisions in the amended Gothenburg Protocol for current non-Parties;

(b) Concluding that the current flexibility provisions do not appear to be adequate and/or effective for increased ratifications should not be interpreted as a preferential recommendation at this stage for a revision of the amended Gothenburg Protocol (see section VII below on possible options for next steps).

B. Response to question 6.1 (b)

31. Question 6.1 (b) was “What new flexibilities and/or approaches would potentially help non-Parties to move towards ratification and implementation?”

32. Answer to question 6.1 (b): There is a range of options that can be considered. The following list of new mechanisms and approaches is non-exhaustive. The order is arbitrary and does not favour any particular option:

(a) Apply a bottom-up approach for the current non-Parties, building inter alia on the voluntary commitments submitted under the Batumi Action for Cleaner Air initiative, rather than imposing top-down technical annexes with many detailed requirements on Parties for whom these technical annexes would be too challenging to implement in full;

(b) Automatic incorporation of relevant 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 present Protocol into the technical annexes (similar to the approach for North America);

(c) Apply a tiered approach over time, prioritizing key categories and having a set of minimum requirements (harmonized for all Parties);

(d) Introduce a new approach to ratification, for example, a step-by-step (staged) ratification where the technical annexes (by pollutant) are accepted and ratified gradually over time; or apply the step-by-step ratification approach by sector rather than by pollutant;

(e) Develop a new instrument that includes sector-based approaches and commitments that address multiple pollutants (perhaps using the Batumi Action for Cleaner Air initiative and the Paris Agreement for inspiration);

(f) Include separate sections in the technical annexes with specific technical requirements for countries of Eastern Europe, the Caucasus and Central Asia and other current non-Parties to the Protocol (similar to the approach for Canada and the United States of America). Focus on new installations rather than on expensive retrofitting of existing installations. Take into account the share that the total cost of additional policy measures represents in gross domestic product (GDP) when setting the ambition levels for these countries;

(g) Revise the amended Gothenburg Protocol in a way that allows piecemeal (incremental) ratifications of separate groups of new (bundled) amendments (similar to the approach used when amending the Protocol on Persistent Organic Pollutants);

(h) Remove the time limits for the application of the flexible provisions and/or extend the timescales for the application of limit values. Customize the timescales according to the specific circumstances of a country (so different for each country, to be declared upon ratification);

(i) Make the technical annexes non-mandatory for new Parties (current non-Parties). Use them as advisory guidelines instead of obligations. Shift the focus from obligations (emission limit values, emission reduction commitments) to benefits/policy targets (from stick to carrot). Use an entry point that could generate more political will and commitment from current non-Parties (e.g., air quality in major cities and its impact on health);

(j) Develop a new and novel instrument that focuses on achieving targets for specific endpoints (health, ecosystems) and is designed in such a way that technical flexibility provisions are no longer needed. This could include, for example, an agreement setting (intermediate) targets, with signatories reporting on policies and measures that contribute to the achievement of these (intermediate targets), including a process for evaluation and iteration;

(k) Seek inspiration from flexibility options already applied in other multilateral agreements and international or national legislation. Review the flexibilities of the Gothenburg Protocol in comparison to what is available in other relevant agreements and legislation. For example, allow alternative base years for emission reduction commitments, similar to what is allowed under the Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants (to accommodate uncertainties in historic emission data);

(l) Apply combinations of the above options.

33. The following are some points of concern regarding introducing new approaches or additional/different flexibilities:

(a) It will remain a difficult balance to maintain a meaningful (increased) level of ambition and to strive for more ratification and implementation. It will be a challenge to facilitate more ratifications through new approaches while maintaining a similar level of stringency and ambition;

(b) Some new approaches and flexibility options could lead to (more) diverging obligations for different Parties, which may not be desirable for several reasons and could increase complexity;

(c) Legal and procedural aspects of some new approaches may become more complex and/or further increase the workload and administrative burden; assessment of progress may become less straightforward.

C. Response to question 6.1 (c)

34. Question 6.1 (c) was “What are other options for achieving emission reductions (in lieu of technical annexes)?”

35. The following are answers to question 6.1 (c):

(a) A framework protocol with enabling clauses, followed at later stages by implementing decisions that gradually impose soft or binding technical requirements on Parties that have ratified the framework protocol;

(b) See several options in the answer to question 6.1 (b) (see para. 32 above).

VI. Conclusions

36. The key conclusions include the following:

(a) To date, the current flexibility provisions have not proven adequate and/or effective in facilitating further ratifications. In particular, the additional flexibility mechanisms introduced in the amended Protocol to increase the number of ratifications (arts. 3 bis and 7 (6) and annex VII (4)) have not met expectations and the reason for that is unclear. In comparison, the amended Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants contain some flexibility mechanisms similar to those added to the amended Gothenburg Protocol. These new flexibility provisions have not contributed to increased ratifications of these Protocols by countries of Eastern Europe, the Caucasus and Central Asia either;

(b) For the time being, however, a cautious approach should be taken to drawing firm conclusions on the usefulness and effectiveness of the current flexibility provisions, as the amended Protocol only entered into force in October 2019, most of the time since then has been spent under the global COVID-19 pandemic and there is little information available

on the extent to which Parties make or will make use of some of the flexibilities allowed under the Protocol;

(c) A primary reason for the persistent non-ratification of the amended Protocol by countries of Eastern Europe, the Caucasus and Central Asia and other countries is that the Protocol and its eleven technical annexes are too complicated and demanding for them. The two non-Parties that responded to the questionnaire circulated in 2021 in support of the review of the flexibilities indicated the technical complexity of the Protocol as a major barrier. A review of previous workshops and exchanges on this topic confirms that the complexity of the Protocol, combined with a lack of financial resources, is a major barrier to ratification;

(d) Options for discussion for addressing flexibility in the future are needed as part of and after the review process. The thematic session on barriers to ratifying and implementing the Protocol, scheduled for the forty-second session of the Executive Body in December 2022, will include a broad discussion on potential options to further improve ratification.

VII. Possible options for next steps

37. The following options are made for consideration :

(a) Increase the effectiveness of the Protocol and facilitate ratification and implementation by considering and implementing improvements to the current (flexibility) provisions under the 2012 amended Protocol.

(b) Simple/single amendments to technical annexes IV–XI of the Protocol, for which the use of the expedited amendment route is now optional, with the aim of further facilitating ratification (in line with what was done with Executive Body decision 2019/23). This could include, inter alia:

(i) Removal of the time limit for the application of the flexible provisions and/or the extension of the timescales for the application of limit values (annex VII);

(ii) Specific technical amendments to technical annexes IV–VI and VIII–XI, including, for example, the introduction of specific technical provisions or the simplification of the technical annexes for countries of Eastern Europe, the Caucasus and Central Asia and other current non-Parties to the Protocol;

(c) Operational improvements to flexibility provisions to facilitate implementation/compliance. This could include, inter alia:

(i) Improved reporting and monitoring of the use of current flexibility provisions (in accordance with article 7 (1) (a));

(ii) Amendments of existing guidance or Executive Body decisions (for example, with respect to the adjustment procedure);

(iii) Development of new implementing guidance or Executive Body decisions (for example, detailed rules for the use of the 3-year average);

(iv) Reduction of the workload and administrative burden associated with the use of the adjustment procedure and/or other flexibility provisions, where appropriate;

(d) Consider and discuss new options for a potential revision of the 2012 amended Protocol that could help non-Parties to overcome barriers and move towards ratification and implementation (see, inter alia, the reply to question 6.1 (b) in para. 32 above);

(e) Continue and enhance, as necessary, targeted efforts on capacity-building and training activities (e.g., workshops on emission inventories, workshops on specific sectors or activities);

(f) Continue to raise awareness on air pollution;

(g) Continue to develop/update action plans to reduce air pollution and road maps towards ratification.

38. The informal document prepared in support of the discussions at the thematic session on barriers to ratification and implementation scheduled for the forty-second session of the Executive Body in December 2022 and of possible next steps after the review of the amended Gothenburg Protocol should also be considered. This informal document contains a clear categorization of the barriers identified so far, together with possible solutions (such as new approaches/options for a possible revision, additional/different flexibilities, capacity-building and additional financial support) to overcome each type of barrier. Different barriers (such as design- and ambition-related barriers) may require different solutions. The risks, benefits and drawbacks of proposed solutions are also examined in this new informal document. It is intended to be used as a basis/starting point for non-Parties to identify and communicate their specific Protocol-related barriers and specific suggestions for solutions during the discussions in the thematic session.

VIII. Background information and references

39. Three key Executive Body decisions regarding the review of the Gothenburg Protocol are listed in table 1 below. Useful documentation containing information on barriers to ratification and implementation by current non-Parties to the Protocol and views on the need for additional flexibility to overcome those barriers is included in table 2 below.

Table 1

Key decisions regarding review of Gothenburg Protocol

<i>Year</i>	<i>Executive Body decisions</i>	<i>Link</i>
2018	Long-term strategy for the Convention on Long-range Transboundary Air Pollution for 2020–2030 and beyond (decision 2018/5)	https://unece.org/DAM/env/documents/2018/Air/EB/correct_numbering_Decision_2018_5.pdf
2019	The review of the Gothenburg Protocol, as amended in 2012 (decision 2019/4)	https://unece.org/DAM/env/documents/2019/AIR/EB/Decisions/Decision_2019_4.pdf
2020	Plan for undertaking the review of the Protocol to the Convention on Long-range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012, pursuant to its article 10 (decision 2020/2)	https://unece.org/sites/default/files/2021-10/Decision%202020_2%28EN%29.pdf

Table 2

Useful documentation regarding barriers to ratification and implementation of Gothenburg Protocol

<i>Year</i>	<i>Documents and events</i>	<i>Link</i>
2011	The Task Force on Emission Inventories and Projections comments concerning possible impacts on future emissions reporting associated with implementation of potential flexibility mechanisms under a revised Gothenburg Protocol (informal document No. 22 for the forty-eighth session of the Working Group on Strategies and Review (Geneva, 11–15 April 2011))	https://unece.org/fileadmin/DAM/env/documents/2011/eb/wg5/WGSR48/Informal%20docs/Info.doc.22_TFEIP_Gothenburg_Flexibility_Mechanisms_v10.pdf
2011	A technical assessment of incorporating correction and flexibility mechanisms into the Gothenburg Protocol revision process (informal document No. 3 by the Task Force on Emission Inventories and Projections for the forty-ninth session of the Working Group on Strategies and Review (Geneva, 12–16 September 2011))	https://unece.org/fileadmin/DAM/env/documents/2011/eb/wg5/WGSR49/Informal%20docs/2_TFEIP_Gothenburg_Flexibility_Mechanisms_FINAL1.pdf
2012	Report of the ad hoc group of experts on the action plan for the implementation of the long-term strategy for the	https://unece.org/fileadmin/DAM/env/documents/2012/EB/ECE_EB_AIR_2012_15_E.pdf

Year	Documents and events	Link
	Convention (ECE/EB.AIR/2012/15): needs assessment of the ECE member States that have not ratified the Convention:	
2016	Rob Maas and Peringe Grennfelt, eds., <i>Towards Cleaner Air: Scientific Assessment Report 2016</i> (Oslo, 2016); and United States Environmental Protection Agency and Environment and Climate Change Canada, <i>Towards Cleaner Air: Scientific Assessment Report 2016 – North America</i> (2016)	https://unece.org/environment-policy/publications/towards-cleaner-air-scientific-assessment-report-2016 https://unece.org/info/publications/pub/21556
2017	Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3)	https://unece.org/fileadmin/DAM/env/documents/2015/AIR/WGSR/_E__ece_eb_air_wg_5_2017_3.pdf
2017	Table of recommendations by the Policy Review Group (informal document No. 2 for the fifty-fifth session of the Working Group on Strategies and Review (Geneva, 31 May–2 June 2017))	https://unece.org/fileadmin/DAM/env/documents/2017/AIR/WGSR/17052017Table_of_PRG_recommendations.pdf
2017	Supplementary information to the official document “Policy response to the 2016 scientific assessment of the Convention” (ECE/EB.AIR/2017/3) (informal document No. 6 for the fifty-fifth session of the Working Group on Strategies and Review)	https://unece.org/fileadmin/DAM/env/documents/2017/AIR/WGSR/INFORMAL_DOCUMENT_6_PRG_integrated_final.pdf
2018	Saltsjöbaden VI workshop (Gothenburg, Sweden, 18-21 March 2018), session “Clean Air in the EECCA region”: report and presentations	https://saltsjobaden6.ivl.se/topics/cleanairfortheeeccaregion.4.1369484715f59ce4bab19c5.html
2018	Implementation of the Batumi Action for Cleaner Air: fostering progress towards improved air quality (ECE/CEP/2019/6)	https://unece.org/fileadmin/DAM/env/documents/2019/AIR/WGSR/E_-_ECE_CEP_2019_6.pdf
2018	Proposals for further action in response to the draft Long-Term Strategy and the Saltsjöbaden VI recommendations -- Policy Review Group Considerations (informal document No. 4 for the thirty-eighth session of the Executive Body (Geneva, 10–14 December 2018))	https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/Informal_doc_JK_2018-12-03_ks.pdf
2019	Report and presentations of the Workshop to Promote the Ratification of Protocols of the UNECE Air Convention with Focus on Countries in the EECCA Region (Berlin, 14-16 May 2019)	https://unece.org/info/Environmental-Policy/Air-Pollution/events/17984
2019	Submission of views on issues for policy discussions pursuant to item 2.1.3 of the 2018–2019 workplan for the Convention (informal document No. 1 for the fifty-seventh session of the Working Group on Strategies and Review (Geneva, 21–24 May 2019))	https://unece.org/fileadmin/DAM/env/documents/2019/AIR/WGSR/Updated_2_May_-_submissions_compiled.pdf
2020	Compilation of submissions of views on additional elements to be considered in the review of the Gothenburg Protocol as amended (informal document for the fifty-eighth session of the Working Group on Strategies and Review (Geneva, 14–15 and 17 December 2020))	https://unece.org/fileadmin/DAM/env/documents/2020/AIR/WGSR/Compilation_further_elements_GP_review__8June2020.pdf
2020	Background documentation on past reviews and barriers to implementation and ratification to the Convention’s Protocols (informal document for the fifty-eighth session of the Working Group on Strategies and Review)	https://unece.org/fileadmin/DAM/env/documents/2020/AIR/WGSR/Informal_Doc_EB_40_EECCA_and_reference_documentsrev.pdf

<i>Year</i>	<i>Documents and events</i>	<i>Link</i>
2021	Chair's report on the activities of the EECCA Coordinating Group in 2021 (informal document No. 4 for the forty-first session of the Executive Body)	https://unece.org/sites/default/files/2021-12/Informal%20document%20no%204_EECA%20CG%20report%202021.pdf

Annex I

Overview of main flexibility provisions

<i>Article/annex to Protocol</i>	<i>Description of flexibility provision</i>
Flexibility provisions already available in the original Protocol (extended to new requirements added to the amended Protocol, for instance with respect to particulate matter)	
Art. 3 (2)–(3)	<p>The use of equivalent emission reduction strategies for new and existing stationary sources as an alternative to apply the emission limit values specified in annexes IV–VI and X</p> <p>The option to derogate from emission limit values for existing stationary sources specified in annexes IV–VI and X insofar these are not technically or economically feasible</p> <p>For Parties outside the geographical scope of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), the use of different reduction strategies that are necessary to achieve national/regional goals for acidification abatement and air quality standards as an alternative to apply the emission limit values for existing stationary sources specified in annexes IV–VI and X</p>
Art. 3 (6) and (8) (b)	The non-mandatory application of best available techniques (BAT) for sources covered by annexes IV–VI, VIII and X (“should”) and for preventing and reducing ammonia emissions (“where it considers it appropriate”)
Art. 3 (9)–(10) and annex III	<p>The potential use of a designated pollutant emissions management area (PEMA) for countries with large areas such as Canada, the Russian Federation and the United States of America. The protocol obligations of article 3 and annex II are applicable only within the geographical scope of the relevant PEMA, for each pollutant for which a PEMA is designated. For Parties outside the geographical scope of EMEP, in addition, ammonia requirements (art. 3 (8)) are not applicable to PEMAs</p> <p>Annex III lists a PEMA for the Russian Federation</p> <p>A potential sulfur dioxide (SO₂) PEMA for Canada is specified in a footnote to table 1 in annex II</p> <p>The United States of America declared upon ratification to act in accordance with article 3 (9) (PEMA for nitrogen oxides (NO_x) and volatile organic compounds (VOCs) differ from PEMA for SO₂)</p>
Art. 3 (11)	Automatic incorporation of submitted emission reduction commitments for SO ₂ , NO _x and VOC upon ratification by the United States of America and Canada into annex II. No commitment for ammonia (NH ₃)
Art. 13 (1)	Adding new names (of Parties to the Convention) and emission ceilings/emission reduction commitments to annex II at any time (can be used by, for example, countries of Eastern Europe, the Caucasus and Central Asia when ratifying the Protocol)
Annex II, tables 1–4	<p>Indicative ceilings for the United States of America for SO₂, NO_x and VOC. These targets should result in comparable contributions to the objectives set out in the Protocol and, as such, should not be considered as less stringent or ambitious</p> <p>As NH₃ is not considered a transboundary issue in North America, Canada and the United States of America do not have ceilings for NH₃</p>
Annexes IV–VI, VIII and IX	<p>For a variety of reasons, the technical annexes sometimes contain special provisions to derogate from or offer an alternative to the standard technical requirements</p> <p>Separate provisions for Canada and the United States of America in the technical annexes to address the different air quality management systems in North America: see subsections B and C of technical annexes IV–VI and VIII. These separate provisions can be considered equivalent in terms of stringency and level of ambition</p>

<i>Article/annex to Protocol</i>	<i>Description of flexibility provision</i>
Annex VII (timescales under art. 3)	<p>Timescales for the application of the limit values referred to in article 3 (2), (3) and (5) and annex IV, table 2</p> <p>Longer timescales for the application of limit values for existing stationary sources and for fuels and new mobile sources are granted to countries with economies in transition (5–8 year)</p>
New flexibility provisions added to the amended Protocol	
Art. 3 (1) and annex II (tables 2–6)	<p>Introduction of relative emission reduction commitments in the amended Protocol compared to the absolute ceilings of the original Protocol</p> <p>Note that relative ceilings (percentage reduction targets compared to a base year) are not in themselves a flexibility mechanism, but can be considered as a good alternative to address issues where flexibility is required</p> <p><u>Canada and the United States of America</u></p> <p>Indicative reduction values expressed as percentages compared to a base year for SO₂, NO_x, VOC and suspended particles of less than 2.5 microns in diameter (PM_{2.5}), but not to be considered less stringent or ambitious, as these targets should result in comparable contributions to the objectives of the Protocol</p> <p>No emission reduction commitments for NH₃, as NH₃ is not considered a transboundary issue in North America (between Canada and United States of America)</p> <p><u>Countries of Eastern Europe, the Caucasus and Central Asia and other non-Parties</u></p> <p>No targets set yet (see further article 13 (1)), except for Belarus.</p>
Art. 3 (2 bis) and (2 ter) (and art. 1 (16))	<p>Flexible application of emission limit values for Parties that were already Party to the original Protocol prior to the entry into force of the amended version (and adjustment of the definition of “new stationary source”)</p> <p>In the event of the introduction of a “new source category”</p> <p>In the event of the introduction of new emission limit values applicable to a “new stationary source”</p>
Art. 3 (6)	The non-mandatory application of measures (“as it considers appropriate”) to control black carbon as a component of particulate matter
Art. 3 (7)	The option to derogate from limit values for VOC contents of products as identified in annex XI insofar as these are not technically or economically feasible
Art. 3 (9)–(10) and annex III	<p>PEMAs for Canada and the United States of America were added to annex III</p> <p>PEMA for the Russian Federation in annex III is extended to the European territory of the Russian Federation</p>
Art. 3 (11)	Automatic incorporation of submitted emission reduction commitments for SO ₂ , NO _x , VOC and PM _{2.5} upon ratification by Canada and the United States of America into annex II (preserved provision from the original Protocol and extended to PM _{2.5}). No commitment for NH ₃
Art. 3 (11 bis)	Automatic incorporation of relevant limit values upon ratification by Canada into annexes IV–VI, VIII and X–XI
Art. 3 (11 quinquies)	Enabling clause for the adjustment procedure: flexibility on compliance with reduction commitments of art. 3 (1)/annex II by adjusting national emission totals
Art. 3 bis	Flexible transitional arrangements (flexibility on compliance with emission limit values until at the latest 31 December 2030 for annexes VI (VOC) and VIII (mobile sources)): only applicable when the amended Protocol is ratified by a Party before 31 December 2019: these flexibility provisions have expired in the meantime

<i>Article/annex to Protocol</i>	<i>Description of flexibility provision</i>
Art. 7 (6)	Flexibility on reporting (reporting of a limited emission inventory for a particular pollutant or pollutants, but at minimum covering large point sources): allowed until 2021 for reporting of emissions of the year 2019, so this provision has now expired
Art. 13 (2)	Enabling clause for the adjustment procedure: flexibility on compliance with reduction commitments of art. 3 (1)/annex II by adjusting emission reduction commitments.
Annex II, para. 5	Three-year averaging of national annual emission totals to comply with applicable emission reduction commitments (to account for a particularly cold winter, a particularly dry summer or unforeseen variations in economic activities). Averaging national emissions for the year in question, for the preceding year and for the following year
Annex II, tables 2–6	<p>Indicative emission reduction commitments for Canada and the United States of America for SO₂, NO_x, VOC and PM_{2.5}, yet not to be considered as less stringent or ambitious than the targets set for other Parties</p> <p>Emission reduction commitment of Canada for 2020 for PM_{2.5} excludes open-source emissions from road dust (NFR 6A), construction operations (NFR 2A5b) and crop production (NFR 3Db-e)</p> <p>No emission reduction commitments for Canada and the United States of America for NH₃, as NH₃ is not considered a transboundary issue in North America (between Canada and the United States of America)</p> <p>NO_x emissions from agricultural soils (NFR 3D) are not included in the 2005 emissions for the European Union member States and the United Kingdom of Great Britain and Northern Ireland and therefore not subject to their emission reduction commitments</p> <p>The 2005 emission estimates listed in the tables of annex II to the Protocol are given for information purposes only. These 2005 estimates correspond to the values as reported by Parties in 2012, except for Canada and the United States of America; their estimates date from a later year (at the time of their ratification)</p>
Annexes IV–VI, VIII and IX–XI	<p>For various reasons, the technical annexes sometimes contain special provisions to derogate from or offer an alternative to the standard technical requirements. New derogations were added compared to the annexes to the original Protocol: as an example: see para. 5 of annex IV on special provisions for large combustion plants</p> <p>Separate provisions for Canada and the United States of America in the technical annexes to address the different air quality management systems in North America: see subsections B and C of technical annexes IV–VI, VIII and X–XI. These separate provisions can be considered equivalent in terms of stringency and level of ambition</p>
Annex VII (timescales under art. 3)	<p>Timescales for the application of the limit values referred to in articles 3 (2)–(3), (5) and (7)</p> <p>Compared to the original Protocol, even longer timescales for the application of limit values are granted to countries not Party to the present Protocol yet (previously called “countries with economies in transition”): paragraph 4 of annex VII stipulates that, if a Party ratifies the amended Protocol between 1 January 2013 and 31 December 2019, a delay of compliance with emission limit values for existing installations can be granted up to 15 years after entry into force of the Protocol for the Party in question; for fuels, mobile sources and VOCs in products up to 5 years after entry into force of the Protocol for the Party in question. Decision 2019/23 postponed the expiry date to 31 December 2024</p>

1. Also worth noting are the changes introduced to the original article 13 on amendments. New article 13 bis of the amended Protocol now includes the following three different amendment routes:

- (a) The classic ratification route for amendments to the text of the Protocol and annex II (art. 13 bis (3)) (cumbersome and time-consuming procedure);
- (b) The expedited amendment route (opt-out option) for annexes I and III (art. 13 bis (4)–(5));

(c) The option to apply the expedited amendment route (opt-out option) for annexes IV–XI (art. 13 bis (6)–(7)).

2. Below also some examples of flexibilities allowed in guidelines and decisions implementing the protocol obligations:

(a) Guidelines for Reporting Emissions and Projections Data under the Air Convention (ECE/EB.AIR/125):

(i) Several Parties may choose to use their national emission total calculated on the basis of fuels used (instead of fuels sold as default) as a basis for compliance with their respective emission ceilings (i.e., Austria, Belgium, Ireland, Lithuania, Luxembourg, Netherlands, Switzerland and United Kingdom of Great Britain and Northern Ireland);

(ii) By default, gridded emissions shall be reported in a grid of 0.1 x 0.1 degrees. As an alternative, a Party may calculate gridded emissions in a grid of approximately 50 x 50 km² until it is technically and economically feasible to switch to a grid of 0.1 x 0.1 degrees;

(b) Decisions 2012/3, 2012/4, 2012/12 and 2014/1 specify the guidance for adjusting emission inventories or emission reduction commitments.

Annex II

Review of main flexibility provisions

Article/annex to Protocol

Review of flexibility provisions available in amended Protocol

Art. 3 (1) and annex II
(tables 2–6)

Relative emission reduction commitments

Relative targets are able to absorb many, but not all, of the effects of future inventory developments and improvements and are easy to implement. The transition from absolute to relative targets will likely reduce the need and use of the adjustment procedure from 2022 onwards. This means a reduction of the workload for the Centre on Emission Inventories and Projections and the emission inventory review teams

A comparison of the 2005 base-year figures, which are included for information in tables 2–6 in annex II, with the most recent reported updates of the national emission totals for this year (reporting year 2021) will show to what extent the basis for setting the 2020 emission reduction commitments has changed in the meantime. It can give a first indication on the possible need to use the adjustment procedure with respect to compliance checking with the 2020 emission reduction commitments

With regard to the European Union member States, NO_x emissions from agricultural soils (NFR 3D) are not included in the 2005 emissions for the European Union member States and are therefore not subject to their 2020 emission reduction commitments

The reason why emissions from this source were not covered by the emission reduction commitments was that reporting of these emissions at the time was very incomplete and information on available reduction measures was scarce. It is unclear to what extent the 2005 baseline figures in annex II of the amended Protocol (included for information only) cover the NO_x emissions from agriculture. This is likely to vary from one Party to another, including also for Parties that are not member States of the European Union

Reported NO_x emissions from agriculture for the base year 2005 have increased considerably between the 2012 reporting year (at the time when the 2020 emission reduction commitments for the Protocol were set) and the 2021 reporting year

The exclusion of NO_x emissions from soils from the emission reduction commitments represents a barrier to progress in further reducing NO_x emissions from this source

The inclusion of the condensable particles in the reporting of PM_{2.5} for residential wood combustion will also change the impact of current 2020 emission reduction commitments for PM_{2.5}

Arts. 3 (2)–(3), (5) and
(7) and technical
annexes IV–VI, VIII and
IX–XI

Use of equivalent emission reduction strategies to comply with limit values and options to derogate from limit values (preserved from the original Protocol and extended to PM_{2.5} and VOC contents) (art. 3 (2)–(3) and (7)).

For the previous review, it was possible to draw on the results of the 2007 in-depth review of the original Protocol, carried out by the Implementation Committee on the basis of the responses to the biennial questionnaires, to assess the extent to which the obligations of the technical annexes had been implemented/applied and, by extension, the extent to which certain flexibility provisions in article 3 (2)–(3) or included in the technical annexes had been applied (see part III of tenth report of Implementation Committee (ECE/EB.AIR/2007/3)¹ for more information). Introductory paragraphs 64–70 of the report explain the great difficulties the Committee faced when conducting the in-depth review. This 2007 in-depth review of the Protocol relied on the responses of Parties to the 2006 questionnaire. Since then, in-depth (compliance) reviews by the Implementation Committee

¹ Available at www.unece.org/fileadmin/DAM/env/documents/2007/eb/EB/ece.eb.air.2007.3.e.pdf.

or any other body of the Convention on the technical provisions in the technical annexes to the Protocol have not been repeated

From the 2007 in-depth review it could be concluded that three Parties had applied different emission reduction strategies but that the submitted information was insufficient to determine whether these strategies achieved overall emission levels equivalent with those achieved by application of limit values

Meanwhile, the biennial questionnaires have been replaced by reporting on strategies and policies during sessions of the Working Group on Strategies and Review. Systematic and complete information on the application of the emission limit values and other provisions of the technical annexes is no longer available

This means that little or no information is available on the extent to which Parties to the Protocol (original or amended) (still) (will) make use of certain flexibilities allowed by article 3 (2)–(3) and (7) or included in the technical annexes.

Points of attention and criticism:

- As far as is known, there has been no reporting for a long time on the application of different emission reduction strategies and derogations from limit values, mandatory, if applied, under article 7 (1) (a). Does this necessarily mean that this flexibility is not being used?;

- If it is used, there is a lack of reporting on and subsequent verification of the correct application of this flexibility. Although the Implementation Committee is the competent body to review compliance with any of the protocols' obligations, it does not generally verify compliance with limit values and other technical requirements

Art. 3 (2 bis) and (2 ter)
(and art. 1 (16))

Flexible application of emission limit values for Parties already Party to the original Protocol prior to the entry into force of the amended version (and adjustment of the definition “new stationary source”)

The introduction of intermediate sets of limit values between limit values applicable to existing and new sources (by partially allowing the continuation of previously applicable limit values) and the linking of the distinction between these three categories of limit values to the time of entry into force of the amended Protocol for the Party concerned (rolling definition of “new stationary source”), results in a non-transparent variety of applicable emission limit values for the different Parties to the amended Protocol;

In the event of a new revision of the Protocol and a new shift of the timeline between what should be considered an existing and a new installation, this mechanism is no longer tenable. The distinction between new and existing may become problematic with new updates of BAT and a new revision cycle

Art. 3 (6) and (8) (b)

The non-mandatory application of BAT / measures (“should”, “where it considers it appropriate” or “as it considers appropriate”) for sources covered by annexes IV–VI, VIII and IX–X

BAT for stationary and mobile sources have been established in several guidance documents (see <https://unece.org/gothenburg-protocol>). They form non-binding, guiding documents that can also be used to update the requirements in the technical annexes

The BAT approach applied in the Gothenburg Protocol seems to be in line with current practice in most Parties, focusing on the environmental performance that can be achieved with a BAT rather than on the BAT itself

Therefore, instead of imposing BAT (techniques), it is recommended to keep the focus on the associated emission levels that can be achieved by applying BAT (so as not to inhibit innovation). The limit values in the technical annexes are therefore best established on the basis of the emission levels that can be achieved with BAT. Any updates of BAT guidance should therefore ultimately result in updates of the limit values in the technical annexes (if the use of these annexes is maintained in a future revision). The review of the technical

Article/annex to Protocol	Review of flexibility provisions available in amended Protocol
Art. 3 (9)–(10) and annex III	<p>annexes should include an assessment of the limit values in relation to the updated BAT since 2012</p> <p>The use of a PEMA</p> <p>A PEMA is applied by the United States of America upon ratification²</p> <p>A PEMA for sulfur for Canada is listed in annex III to the amended Protocol. This PEMA for sulfur is an area of 1 million km² that contains the Atlantic provinces, and specified areas of Ontario and Quebec</p> <p>Potentially still useful for the Russian Federation as it only reports emissions for the European territory of the Russian Federation, which coincides with its PEMA as defined in annex III of the amended Protocol</p>
Article 3 (11)	<p>Automatic incorporation of emission reduction commitments upon ratification by Canada and the United States of America into annex II</p> <p>This provision applies to both the United States of America³ and Canada.⁴ Their emission reduction commitments were incorporated into annex II in 2017 and 2018, respectively</p> <p>The automatic incorporation of the emission reduction commitments for Canada and the United States of America is a flexibility from a process perspective. These commitments remain equivalent in ambition and stringency to the emission reduction commitments set for other Parties</p>
Art. 3 (11 bis)	<p>Automatic incorporation of relevant limit values upon ratification by Canada into annexes IV–VI, VIII and X–XI</p> <p>A list of Canadian emission limit control measures for inclusion in the amended Gothenburg Protocol was provided in 2018⁵</p>
Art. 3 (11 quinquies)	<p>Enabling clause for the adjustment procedure: flexibility on compliance with reduction commitments of article 3 (1)/annex II by adjusting national emission totals</p> <p>This flexibility mechanism to adjust national emission inventories in case of further developments on the emission inventories can be used in three circumstances: (a) new emission source categories; (b) significantly different emission factors; and (c) significantly different methodologies</p> <p>The adjustment procedure is one of the few flexibility provisions that has been widely used so far (mainly by the European Union member States). For the time being, however, its experience is limited to assessing compliance with the 2010 fixed ceilings (provisional application since 2014). The adjustment procedure has not yet been applied to the 2020 relative emission reduction commitments of the amended Protocol. This may happen for the first time in 2022 (based on emission data reported in 2022 for the year 2020)</p> <p>As explained above, it is expected that the transition from absolute to relative targets will likely reduce the need and use of the adjustment procedure from 2022 onwards</p> <p>Guidance on how to apply, report and review adjustments to emission inventories has been established in a series of Executive Body decisions (2012/3, 2012/4, 2012/12, 2013/3,</p>

² See footnotes to tables of annex II, available at https://unece.org/sites/default/files/2021-10/Annex_II_and_III_updated_clean.pdf.

³ For the United States of America, see www.unece.org/fileadmin/DAM/env/documents/2017/AIR/Gothenburg_Protocol/Annex_II_and_III_updated_clean.pdf.

⁴ For Canada, see https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/Note_verbale_to_UNECE_for_Canada_s_Gothenburg_Protocol_commitments.July_....pdf.

⁵ See https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/Canadian_emission_limit_control_measures_for_the_Gothenburg_Protocol_ann....pdf.

Article/annex to Protocol	Review of flexibility provisions available in amended Protocol
	<p>2014/1 and 2018/1) accompanied with the Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). In principle, the guidelines are still fit for use for adjustment applications for the post-2020 scheme. However, an update of the technical guidance contained in document ECE/EB.AIR/130 is recommended (e.g., to replace references to the 1999 EMEP/European Environment Agency air pollutant emission inventory guidebook with references to the 2009 guidebook, a new attempt to define what the term “significant” means, updates to account for different mathematical calculations)</p> <p>A few issues to possibly further review and address:</p> <ul style="list-style-type: none"> - Further guidance on how to assess/interpret “significant changes”; - Further clarification on the reference point for adjustment applications: which version of the guidebook to use as a reference;⁶ - Possible gaps, overlaps and inconsistencies between adjustment practices of the European Union and those under the Convention in order to avoid different outcomes (and to reduce review burden) <p>See also informal paper of Task Force on Emission Inventories and Projections on updating guidance for emission inventory guidance⁷</p>
Art. 3 bis	<p>Flexible transitional arrangements</p> <p>The flexibility regarding compliance with the VOC and mobile source limit values granted to non-Parties that ratify the amended Protocol before 31 December 2019 has now expired. This flexibility mechanism – introduced to encourage ratification by countries of Eastern Europe, the Caucasus and Central Asia and other non-Parties – has not been used. As a mechanism it was therefore not sufficient on its own to accelerate ratification by these Parties. The flexible transitional arrangements also partly overlapped with the extended timescales for the application of limit values granted in annex VII to countries not yet parties to the present Protocol</p>
Art. 7 (6)	<p>Flexibility on reporting.</p> <p>The possibility to report limited emission inventories has now expired. It was permitted until 2021 for reporting of emissions for the year 2019. It has not been used, likely because the amended Protocol only entered into force on 7 October 2019. According to article 7 (6) (b) of the amended Protocol, it is at the Executive Body’s discretion to grant a request to report a limited inventory. Such a request has to date not been discussed or approved by the Executive Body. As a new additional flexibility option this was not enough to trigger any new ratifications</p>
Art. 13 (1)	<p>Adding new names (of Parties to the Convention) and emission ceilings/emission reduction commitments to annex II at any time</p> <p>Tables 2–6 of annex II set out 2020 emission reduction commitments for 32 Parties to the Convention at the time of adoption of the amendments to the Gothenburg Protocol (27 European Union member States + Belarus, European Union, Norway, Switzerland and United Kingdom of Great Britain and Northern Ireland). For some of the countries, no targets were set yet in annex II</p> <p>This provision allows non-Parties (e.g., countries of Eastern Europe, the Caucasus and Central Asia) to the present Protocol to delay the setting of emission reduction</p>

⁶ See the case of Spain, informal document for the thirty-ninth session of the Executive Body, available at https://unece.org/fileadmin/DAM/env/documents/2019/AIR/EB/item_5_a__Cover_note_and_Legal_advice_Article_13_GProtocol_October_2019_Final.pdf.

⁷ Informal document for the forty-first session of the Executive Body, available at https://unece.org/sites/default/files/2021-11/DRAFT%20Updating_Emission_Adjustments_Guidance_EB_BNote_issue1.pdf.

Article/annex to Protocol	Review of flexibility provisions available in amended Protocol
	<p>commitments until their emission inventories are further developed and of sufficiently good quality. It allows for the establishment of meaningful reduction commitments at a later stage, when these countries are ready to ratify</p> <p>This is a useful provision for current non-Parties. The alternative would have been to include emission reduction commitments in annex II on the basis of incomplete emission inventories when the amended Protocol was adopted in 2012</p>
Art. 13 (2)	<p>Enabling clause for the adjustment procedure: flexibility on compliance with reduction commitments of article 3 (1)/annex II by adjusting emission reduction commitments</p> <p>While article 3 (11 quinquies) provides for the possibility of adjusting national emission totals for comparing with the emission reduction commitments, to account for developments and improvements in emission inventories, article 13 (2) provides for a similar flexibility, but instead of adjusting national emission totals for compliance purposes, it allows for the adjustment of emission reduction commitments. As this is a more permanent adjustment, the procedure outlined in article 13 (2) is brought to the policy level and has to be approved by the Executive Body, whereas the procedure outlined in article 3 (11 quinquies) remains a technical procedure and does not go beyond the EMEP Steering Body level</p> <p>The technical adjustment procedure was requested by the European Union and has so far been used mainly by European Union member States (in relation to compliance with the 2010 ceilings). The Executive Body procedure – not to be used by the European Union member States – was negotiated at the request of the United States of America. The flexibility clause in article 13 (2) has not been used so far</p>
Annex II, para. 5	<p>Three-year averaging of national annual emission totals to comply with applicable emission reduction commitments (to account for particular/unforeseen circumstances)</p> <p>This is a new flexibility added to the amended Protocol that can be used by any Party. The three-year averaging includes the preceding and the following year of the year in question. Compliance for a specified year can therefore only be determined when data for the following year becomes also available, hence with a delay of one year. It could be applied for the first time in 2023 (averaging over 2019–2021)</p> <p>If used, it is most likely to be in relation with meeting the PM_{2.5} emission reduction target to compensate for increased wood heating during cold winters</p> <p>Uniform guidance on how to apply and report this option is still missing. It may be useful to include in an Executive Body decision some instructions on how to apply and report the three-year averaging option (e.g., instructing to provide the supporting documentation in the Informative Inventory Report) and to further specify what is meant by “particularly cold winter/dry summer” and “unforeseen variation in economic activities”</p>
Annex VII (timescales under art. 3)	<p>Longer timescales for the application of the limit values referred to in article 3 (2)–(3), (5) and (7) for Parties becoming a Party to the amended Protocol before 31 December 2019</p> <p>This flexibility mechanism, which was introduced to encourage ratification by countries in Eastern Europe, the Caucasus and Central Asia and other non-Parties, has not been used to date. The expiry date for using this flexibility mechanism has been postponed to 31 December 2024. So far it has not triggered any new ratifications.</p>