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Progress in the implementation of the 2022–2023 workplan

Report of the Task Force on Reactive Nitrogen*

Summary

At its twenty-fifth session (Geneva, 10–13 December 2007), the Executive Body for the Convention on Long-range Transboundary Air Pollution established the Task Force on Reactive Nitrogen. In accordance with its revised mandate set out in the annex to decision 2018/6, the Task Force is required to report on progress in its work to the Working Group on Strategies and Review.

The present report of the Task Force presents an overview of activities of the Task Force covered by its mandate and summarizes the progress in the implementation of the 2022–2023 workplan for the implementation of the Convention (ECE/EB.AIR/148/Add.1, forthcoming).

* The present document is being issued without formal editing.



I. Introduction

1. The present report summarizes the progress of the Task Force on Reactive Nitrogen in implementing the 2022–2023 workplan for the implementation of the Convention (ECE/EB.AIR.148/Add.1, forthcoming) and provides an overview of activities covered by the mandate of the Task Force (decision 2018/6, annex). During the COVID-19 pandemic, including the year 2021, no plenary annual meetings of the Task Force have been organized; however, the expert panels of the Task Force continued to report on their work during the period March 2021- January 2022 by means of virtual conferences.

II. Overview of activities of the Task Force covered by its mandate

2. The work of the Task Force is implemented by the following expert panels:

- (a) Expert Panel on Mitigation of Agricultural Nitrogen;
- (b) Expert Panel on Nitrogen Budgets;
- (c) Expert Panel on Nitrogen and Food;
- (d) Expert Panel on Nitrogen in countries of Eastern Europe, the Caucasus and Central Asia.

3. The Co-Chairs of the Expert Panel on Nitrogen and Food provided an update on the second special report of the European Nitrogen Assessment on nitrogen and food entitled “Appetite for Change: food options for nitrogen, environment and health”. A summary of the key emerging messages is included in the annex to the report of the Task Force (ECE/EB.AIR/WG.5/2021/2) to the Working Group at its fifty-ninth session (Geneva, 18–21 May 2021). The experts noted that this report was assessing the combination of improved farm level technical measures and shifts in consumption in greater depth. This is considered along with the relative potential of dietary changes and food waste reduction, the health effects of a range of dietary patterns that generate less nitrogen pollution and the role of science in strengthening the case for controlling nitrogen pollution and optimising diets to meet human health goals.

4. The analysis made by the Task Force showed that halving meat and dairy intake in the European part of the region (demitarian scenario) would reduce ammonia emissions by around 40 per cent, with co-benefits for health and climate¹. Consequently, dietary change has a significant potential to influence nitrogen losses to the environment, including ammonia, nitrous oxide, nitrogen oxides, nitrate and di-nitrogen. In the European part of the ECE region, meat and dairy consumption in excess of dietary needs is contributing substantially to pollution and waste of nitrogen resources.

5. The Expert Panel on Nitrogen Budgets continued to support widening of the application of nitrogen budgets among Parties in cooperation with non-parties with support from the project “Towards the International Nitrogen Management System (INMS)”². This also results in the development of principles for a platform that could in future be used to support international reporting and communication of national nitrogen budgets.

6. Activities on the mitigation of agricultural nitrogen have focused on comparing mitigation opportunities within the United Nations Economic Commission for Europe (ECE) region with those outside the region and developing a database on mitigation measures

¹ Westhoek, H. et al. (2015) Nitrogen on the Table: The influence of food choices on nitrogen emissions and the European environment. (European Nitrogen Assessment Special Report on Nitrogen and Food.). Edinburgh, UK: Centre for Ecology & Hydrology. Available at: http://www.clrtap-tfrn.org/sites/clrtap-tfrn.org/files/documents/EPNF_Documents/Nitrogen_on_the_Table_Report_WEB.pdf.

² The project “Towards INMS” is implemented by the United Nations Environment Programme with funding through the Global Environment Facility.

according to regional relevance. The development of this database is ongoing with support from “Towards INMS” project. Further information on that will be reported in 2023.

7. Activities on identification of barriers to the adoption of better nitrogen management practices in agriculture within and outside the ECE region are ongoing with support from “Towards INMS” project and will also be reported on in 2023.

8. The Eighth Global Nitrogen Conference (Berlin, 30 May - 3 June 2021) included information presented by expert panels under the Task Force, which was included in the background material for further work. The Expert Panel on nitrogen in Eastern Europe, the Caucasus and Central Asia participated in the international scientific seminar "Challenges and opportunities for nitrogen management in agriculture" (St. Petersburg, the Russian Federation, 23 March 2021).

9. International cooperation activities mobilized through the Task Force included provision of inputs to the task team developing terms of reference for an Inter-convention Nitrogen Coordination Mechanism (INCOM) in partnership with “Towards INMS” and representatives of the secretariats of other multilateral environmental agreements and programmes, including the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the United Nations Environment Programme Ozone secretariat, and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. The work has focused on options and is continuing as a contribution to the implementation of the United Nations Environment Assembly resolution on sustainable nitrogen management (UNEP/EA.4/Res.14).

10. The Task Force has also contributed to the objectives of the Convention, to the follow up of the resolution 4/14 and the Colombo Declaration³ including by:

(a) Developing a perspective on measures to “halve nitrogen waste” defined as the sum of all reactive nitrogen losses, plus denitrification to dinitrogen, which is equally a waste of resources,⁴ as part of mobilizing action in the “Nitrogen Decade” up to 2030, including exploring technical options for calculating and expressing total nitrogen waste;

(b) Contributing to discussions in advance of the fifth session of the United Nations Environment Assembly (Nairobi, 28 February - 2 March 2022) on sustainable nitrogen management, including technical support on options and flexibilities to halve nitrogen waste linked to a draft resolution proposed by the Government of Sri Lanka;

(c) Contributing to a global analysis of the health costs of nitrogen pollution, which showed that, overall, measures to mitigate fine particulate matter pollution from ammonia emissions control are estimated as 10 times more cost-effective than further control of nitrogen oxides emissions.⁵

III. Progress in the implementation of the 2022–2023 workplan for the Convention

11. The present section contains a summary of the results of the review of progress in activities outlined in the 2022–2023 workplan⁶ by workplan item.

³ Colombo Declaration on Sustainable Nitrogen management, available at

https://apps1.unep.org/resolution/uploads/colombo_declaration_final_24_oct_2019.pdf.

⁴ The Nitrogen Decade: mobilizing global action on nitrogen to 2030 and beyond”, *One Earth* 4, 10-14, available at: <https://doi.org/10.1016/j.oneear.2020.12.016>.

⁵ Gu et al. Abating ammonia is more cost-effective than nitrogen oxides for mitigating PM2.5 air pollution. *Science* 374 (6568), 758-762. <https://www.science.org/doi/10.1126/science.abf8623>.

⁶ This section contains information on the Task Force activities carried out in 2021 with respect to the review of the Gothenburg Protocol and promotion of the Guidance document on integrated sustainable nitrogen management (correspond to items 2.1.2 and 2.2.2 in the 2022-2023 workplan and items 2.1.9 and 2.2.3 in the 2020-2021 workplan for the implementation of the Convention, respectively).

Item 2.1.2: Review of the sufficiency and effectiveness of the Gothenburg Protocol as amended

12. The Working Group on Strategies and Review at its fifty-ninth session took note of the proposal of the Task Force to prepare a questionnaire to collect information on the implementation of national ammonia codes and other aspects of annex IX to the Gothenburg Protocol (ECE/EB.AIR/WG.5/126, para 37). A questionnaire was circulated to Convention Parties in December 2021, and responses will be examined by the Task Force in spring 2022.

13. The Task Force contributed to the work of the Gothenburg Protocol Review Group over the year 2021. This included distilling major messages building on the more detailed comments previously reported to Working Group on Strategies and Review at its fifty-eighth session (Geneva, 14, 15 and 17 December 2020).⁷

Item 2.2.1: Analysis of the interactions between emissions of methane and ammonia, and other nitrogen compounds, and the potential for their co-mitigation from agricultural sources

14. Elaboration of report on the topic is pending and subject to funding.

Item 2.2.2: Promotion of the Guidance document on integrated sustainable nitrogen management

15. The Guidance document on integrated sustainable nitrogen management (ECE/EB.AIR/149) was adopted by the Executive Body at its fortieth session (decision 2020/1). The document was promoted in a wide range of contexts, including globally through the project “Towards INMS”, and a wide range of e-meetings continuing under present COVID-19 restrictions. The publication was prepared to include colour images illustrating mitigation practices and to recognize the contributions from experts internationally.

Item 2.2.3: Development of a Guidance document on non-technical and structural measures

16. The Task Force has contributed to the document prepared under the lead of the Task Force on Integrated Assessment Modelling.⁸

Item 2.2.4: Promotion of guidance documents, including those recently adopted

17. The Task Force on Reactive Nitrogen identified “Top Five” priority areas for ammonia emission abatement (ECE/EB.AIR/WG.5/2011/16), including: i) Low-emission application of manures and fertilizers to land, ii) Animal feeding strategies to reduce nitrogen excretion, iii) Low emission techniques for all new stores for cattle and pig slurries and poultry manure, iv) Strategies to improve nitrogen use efficiencies and reduce nitrogen surpluses, and v) Low emission techniques in new and largely rebuilt pig and poultry housing. The Task Force identified “Top ten” priority areas and will be using them for further promotion of existing guidance documents.

⁷ See the informal document for the session entitled “Considerations for ammonia relevant to future review of the Gothenburg Protocol”, available at https://unece.org/fileadmin/DAM/env/documents/2020/AIR/WGSR/Ammonia_inf_doc_for_WGSR5_8_note_from_TFRN_TFIAM_.pdf.

⁸ See the informal document on non-technical and structural measures prepared for the forty-first session of the Executive Body (Geneva, 6-8 December 2021), available at <https://unece.org/sites/default/files/2021-11/Informal%20doc%20on%20non-technical%20measures.pdf>.