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Progress in the implementation of the 2012–2013 workplan

Report of the Task Force on Reactive Nitrogen

Summary

By its decision 2007/1 the Executive Body for the Convention on Long-range Transboundary Air Pollution established the Task Force on Reactive Nitrogen with the long-term goal of developing technical and scientific information and options for strategy development across the United Nations Economic Commission for Europe region to encourage coordination of air pollution policies on nitrogen. It mandated the Task Force to “carry out the tasks specified for it in the workplan adopted annually by the Executive Body” and to “report thereon to the Working Group [on Strategies and Review]” (see ECE/EB.AIR/91).

The present report was prepared by the co-Chairs of the Task Force on Reactive Nitrogen, in cooperation with the secretariat. It outlines activities undertaken by the Task Force since its last report, prepared for the fiftieth session of the Working Group on Strategies and Review in September 2012 (ECE/EB.AIR/WG.5/2012/3). The report summarizes the outcome of recent activities by the Task Force and outlines options for future activities.

Introduction

1. The present report summarizes the outcomes of the activities undertaken by the Task Force on Reactive Nitrogen and its expert panels since September 2012, as follows:¹

(a) Update of the Framework Code for Good Agricultural Practice for Reducing Ammonia (EB.AIR/WG.5/2001/7);

(b) Joint meeting to discuss *EMEP/EEA² air pollutant emission inventory guidebook* methodologies and mitigation techniques, Berlin, September 2012;

(c) Workshop, “Taking a market lead to tackle the nitrogen problem”, Edinburgh, United Kingdom of Great Britain and Northern Ireland, November 2012;

(d) Update on the activities of the Expert Panel on Nitrogen Budgets;

(e) Update on the activities of the Expert Panel on Nitrogen and Food;

(f) Update on the activities of the Expert Panel on Nitrogen in the countries of Eastern Europe, the Caucasus and Central Asia;

(g) Preparation of the eighth meeting of the Task Force on Reactive Nitrogen in Copenhagen, April 2013;

(h) Coordination and dissemination activities.

2. In its last chapter, the report outlines ideas for future activities by the Task Force to be undertaken in the framework of the 2014–2015 workplan for the implementation of the United Nations Economic Commission for Europe (ECE) Convention on Long-range Transboundary Air Pollution.

I. Update of the Framework Code for Good Agricultural Practice for Reducing Ammonia

3. The Expert Panel on the Mitigation of Agricultural Nitrogen met in Berlin on 27 September 2012 and discussed a strategy to update the Framework Code for Good Agricultural Practice for Reducing Ammonia. The meeting was attended by nine members of the Expert Panel, including the Task Force co-Chair, the co-Chair of the Expert Panel of the Mitigation of Agricultural Nitrogen, the co-Chair of the Expert Panel on Nitrogen in the Countries of Eastern Europe, the Caucasus and Central Asia and the co-Chair of the Agriculture and Nature Panel of the Task Force on Emissions Inventories and Projections.

4. It was agreed at the meeting that the purpose of the Code was to provide a framework for countries to develop their own technology transfer documents, for their internal use, taking into account local knowledge and language. It was agreed that the

¹ Background documents of meetings held and activities carried will be made available on the Task Force website (www.clrtap-tfrn.org).

² EMEP = Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe; EEA = European Environment Agency.

document should include all possible good agricultural practices for preventing and abating ammonia emissions (and not just those covered by the current provisions of annex IX to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), regulating “Measures for the control of emissions of ammonia from agricultural sources”).

5. It was further agreed that the updated Framework Code should follow the structure and style of the present 2007 Framework Code, which was straightforward and without illustrations; however, with the addition of an appendix to the main document. The appendix would be posted on the Task Force website, and would contain more detailed information and elaboration of the techniques described, using pictures and images, as appropriate, since it was agreed that they were a useful communication tool.

6. The Framework Code would also be drafted to be consistent with the content of the Guidance Document on Preventing and Abating Ammonia Emissions from Agricultural Sources, which had been approved by the Executive Body at its thirty-first session (Geneva, 11–13 December 2012) (ECE/EB.AIR/120, forthcoming).³

7. Due to the time needed to ensure a comprehensive and consistent Framework Code document and associated appendix, the nature of potential funding was discussed at the meeting. Since the meeting, the German Environment Ministry and the German Federal Environment Agency announced their intention to provide funding to support that work in coordination with the German Task Force National Focal Point and the German Ministry of Agriculture. The initial work will be undertaken by the Association for Technology and Structures in Agriculture (Kuratorium für Technik und Bauwesen in der Landwirtschaft), and the subsequent documents will be revised and edited by the relevant experts within the panel.

8. It is intended that the update will be undertaken in two phases — the first will bring the Framework Code in line with the Guidance Document on Preventing and Abating Ammonia Emissions from Agricultural Sources; the second will develop the more detailed appendix. It is foreseen that the Framework Code will be available for comment by the Expert Panel by March 2013 to allow for a revised draft to be available for discussion at the next meeting of the Expert Panel, prior to the eighth meeting of the Task Force on Reactive Nitrogen, at which the current status of the Framework Code will be reported to the Task Force.

II. Joint meeting to discuss guidebook methodologies and mitigation techniques, Berlin, September 2012

8. Two panels from the Task Force on Reactive Nitrogen — the Expert Panel on the Mitigation of Agricultural Nitrogen and the Expert Panel on Nitrogen Budgets — and the Agriculture and Nature Panel of the Task Force on Emissions Inventories and Projections met in Berlin in September 2012. Their main objective was to discuss the relationship between the *EMEP/EEA air pollutant emission inventory guidebook* methodologies for reporting ammonia emissions in emission inventories and the guidance provided by the

³ Pending release of document ECE/EB.AIR/120, the text of the Guidance is available in the draft decision presented to the Executive Body (ECE/EB.AIR/2012/L.9, annex), which was adopted without amendment.

Task Force on Reactive Nitrogen concerning mitigation measures. Of particular interest was the potential for guidance on how to account for the use of mitigation measures in the inventory.

9. Thirty-three participants from 12 European countries, as well as the Russian Federation and Canada, were present. The work of each of the Expert Panels was introduced and there was an overview of the current status of the revision of the Guidebook. There followed a discussion on future collaboration between the Panels, at which point several topics for collaboration were agreed as follows:

- (a) Revision/updating of emission factors;
- (b) Developments in inventory methodologies;
- (c) Quality control criteria for review of emission inventories.

10. The collaboration would be fostered through further joint meetings and by holding a session of the Agriculture and Nature Panel as part of future meetings of the Expert Panel on the Mitigation of Agricultural Nitrogen.

11. It was also agreed that there was a need to coordinate the work of the Task Force on Emissions Inventories and Projections and the Task Force on Reactive Nitrogen with that on the European Union's Industrial Emissions Directive.⁴ Under that Directive, best available techniques (BAT) for intensive pig and poultry husbandry were proposed. The current status of the update of the best available techniques reference document (BREF) was presented at the meeting and the overlap between the economic calculations needed for the BREF and those needed for the guidance provided by the Expert Panel on Mitigating Agricultural Nitrogen was pointed out. At the next meeting of the Expert Panel for the Mitigation of Agricultural Nitrogen, a discussion would be held on the draft BREF document and on how to strengthen interactions between the BREF process and the work of the Expert Panel.

III. Workshop report: taking a market lead to tackle the nitrogen problem, Edinburgh, United Kingdom, November 2012

12. The workshop, "Taking a market lead to tackle the nitrogen problem", was held in Edinburgh, United Kingdom, in November 2012 to address how concerns related to nitrogen pollution could be mainstreamed at key stages of the agri-food chain, including the retail sector. It brought together scientists (including members of the Task Force on Reactive Nitrogen), industry and policy representatives to exchange knowledge on the nitrogen issue from a variety of perspectives. The workshop consisted of presentations from different stakeholders, followed by focused discussions with feedback and review in plenary.

13. A discussion was held regarding best practice, including an exchange of views on what that involved and how it could best be implemented. The conclusions highlighted the need for clear and non-conflicting evidence from scientists, in an advisory or representative capacity (i.e., a coordinated approach from the community). It was also indicated that highly prescriptive best practice should be avoided and that, where possible, best practice

⁴ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).

should include resilience to extreme events (especially given global climate change impacts). Specific suggestions included the need to lead by example and that good nitrogen management was very much linked to good management techniques in general. Greater precision in the application of fertilizers and a good maintenance of spreading equipment was also underscored.

14. It was also highlighted that greater awareness of current tools and advisory bodies was required and that further use of existing communication routes would be preferable to setting up new ones. Demonstration farms were mentioned as being an excellent way of helping to remove barriers to implementation.

15. Workshop participants identified mechanisms for improving support tools for uptake of best practice. Again, it was agreed that communication from trusted sources was vital to ensuring uptake, while demonstrating cost savings and synergies was a motivating factor. The need to monitor current nitrogen management and other sustainable management techniques was identified as being important to the process so as to provide a baseline against which to measure improvement.

16. Several knowledge gaps were also identified, including the impacts of climate change on nitrogen releases into the environment; links with carbon sequestration; the use of biosolids; and the impacts of processing composted materials.

IV. Update on the activities of the Expert Panel on Nitrogen Budgets

17. With regard to the activities of the Expert Panel on Nitrogen Budgets, the Guidance Document on National Nitrogen Budgets, which had originally been presented to the thirtieth session of the Executive Body in April 2012, was formally adopted by the Executive Body at its thirty-first session (ECE/EB.AIR/119, forthcoming).⁵

18. The status and work programme of the Expert Panel on Nitrogen Budgets was presented at the joint meeting of the Expert Panel on Mitigation of Agricultural Nitrogen, the Agriculture and Nature Panel and the Expert Panel on Nitrogen Budgets in September 2012 in Berlin.

19. The Expert Panel on Nitrogen Budgets continues to collaborate with the Organization for Economic Cooperation and Development (OECD) Working Party on Environmental Information on nitrogen indicators. Currently, a tiered approach is planned, ranging from a very simple “Tier 1” indicator (identical to the one adopted by Convention on Biological Diversity)⁶ through to a detailed “Tier 3” indicator, which corresponds to the nitrogen budgets under development by the Expert Panel.⁷ The Panel also contributed to a “Workshop on global nitrogen scenarios in the twenty-first century”, in Laxenburg, Austria, in October 2012.

⁵ Pending release of document ECE/EB.AIR/119, the text of the Guidance is available in the draft decision presented to the Executive Body (ECE/EB.AIR/2012/L.8, annex), which was adopted without amendment.

⁶ See <http://www.bipindicators.net/nitrogenloss>.

⁷ Further details can be obtained from the Task Force website: www.clrtap-tfrn.org/epnb.

V. Update on the activities of the Expert Panel on Nitrogen and Food

20. The Expert Panel on Nitrogen and Food is currently focusing on finalizing its report, “Nitrogen on the table”, and a scientific paper containing the results. The paper is tentatively scheduled for publication in late spring/early summer 2013, with the formal launch of the report to the press and relevant policy bodies to follow.⁸

VI. Update on the activities of the Expert Panel on Nitrogen in the Countries of East Europe, Caucasus and Central Asia

21. During the seventh meeting of the Task Force on Reactive Nitrogen (Saint Petersburg, Russian Federation, 28 February–2 March 2012) it was agreed to establish the Expert Panel on Nitrogen in the Countries of Eastern Europe, the Caucasus and Central Asia under the Task Force with the aim of promoting cooperation among countries of Eastern Europe, the Caucasus and Central Asia and across the ECE region.

22. The specific objectives of this Expert Panel are:

(a) To increase awareness and knowledge on reactive nitrogen emissions and on integrated nitrogen management options to abate such emissions;

(b) To update and substantiate emission values from agricultural sources in countries in Eastern Europe, the Caucasus and Central Asia and to compare them with the *EMEP/EEA air pollutant emission inventory guidebook*.

23. It was agreed that the co-Chairs of the newly established Expert Panel would be the Director of the All-Russian Research Institute for Organic Fertilizers and Peat of the Russian Academy of Agricultural Sciences, and a senior researcher from the North-West Research Institute of Agricultural Engineering and Electrification of the Russian Academy of Agricultural Sciences. It was also agreed that there would be two advisers each from within the Task Force on Reactive Nitrogen, from the German Environment Agency and from the National Institute for Public Health and the Environment in the Netherlands.

24. The early work of the panel has concentrated on improving the access to and communication of information and documents between Russian and non-Russian speakers. As such, the latest version of the Guidance Document on Preventing and Abating Ammonia Emissions from Agricultural Sources had been translated into Russian.⁹ A bilingual set of proceedings for the seventh meeting of the Task Force Reactive Nitrogen and the workshop, “Abating ammonia emissions in the ECE and Eastern Europe, the Caucasus and Central Asia region in the context of the nitrogen cycle” is under preparation and is expected to become available in time for the eighth meeting of the Task Force in April 2013. Information regarding the Task Force (including an introductory booklet) has been translated into Russian and is available on the website of the North-West Research Institute of Agricultural Engineering and Electrification (www.spb.sznii.ru).

⁸ The latest public summary of the report can be accessed from the Task Force website at <http://www.clrtap-tfrn.org/epnf>.

⁹ See informal document No. 6 to the fiftieth session of the Working Group on Strategies and Review, available from <http://www.unece.org/index.php?id=29873>.

25. To encourage membership on the new Panel, an official invitation from the Dutch co-Chair of the Task Force Reactive Nitrogen has been sent to the Russian Academy of Agricultural Sciences and to the Russian Ministry of Natural Resources and Environment. A draft list of joint international projects on environmental challenges in farming in Eastern Europe, the Caucasus and Central Asia has also been prepared by the North-West Research Institute of Agricultural Engineering and Electrification, the Scientific Research Institute for atmospheric air protection in Saint Petersburg (SRI Atmosphere) and the All-Russian Research Institute for Organic Fertilizers and Peat. The list was sent out to relevant experts to search for partners.

26. Future meetings include a session on “Mitigation of adverse environmental effects of reactive nitrogen in farming”, to be held during the International Agro-Environmental Forum (Saint Petersburg, 21–23 May 2013). A workplan for the Expert Panel has been discussed and will be presented at the eighth Task Force meeting.

VII. Preparation of the eighth meeting of the Task Force on Reactive Nitrogen in Copenhagen, April 2013

27. The eighth meeting of the Task Force on Reactive Nitrogen will be held in Copenhagen in late April 2013. The Task Force on Integrated Assessment Modelling will also meet in Copenhagen during the same week, to facilitate closer collaboration between the Task Forces and their panels. A joint meeting of the two Task Forces, on “Green Growth and Nitrogen”, will also be held that week.

VIII. Coordination and dissemination activities

28. Following the Task Force workshop on Ammonia Abatement Costs, held in October 2011 in Paris, a volume is now being prepared for publication with Springer Verlag detailing the basis for the updated cost estimates.

29. The co-Chairs and other members of the Task Force have been collaborating with the Global Partnership on Nutrient Management, which has been established as a contribution to the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), for which the United Nations Environment Programme (UNEP) hosts the secretariat. This collaboration has led to the preparation of the new publication, *Our Nutrient World: The challenge to produce more food & energy with less pollution*,¹⁰ which was launched during the UNEP Governing Council session in February 2013. As the preparation of this publication had been led by Task Force members, it highlights the dissemination of experience from the Convention centrally within the Global Partnership.

IX. Future activities

30. The planned future work of the Task Force for 2013 is set out in the 2012–2013 workplan for the implementation of the Convention (ECE/EB.AIR/109/Add.2).

¹⁰ M. A. Sutton et al. (Centre for Ecology & Hydrology, June 2012). Available from <http://www.whrc.org/global/nitrogen/pdf/OurNutrientWorld-KeyMessagesforRio+20.pdf>.

31. As regards the workplan for the period 2014–2015, the following work items are under consideration:

(a) Continue the work on nitrogen emission abatement from agricultural sources, develop technical and scientific information on an integrated approach to mitigation of agricultural nitrogen emissions with particular reference to the recent revision of the Gothenburg Protocol and, in particular:

- (i) Disseminate the recently revised Guidance Document on Preventing and Abating Ammonia Emissions from Agricultural Sources;
- (ii) Continue to liaise with the Centre for Integrated Assessment Modelling to examine the costs and benefits of ammonia emissions abatement measures;
- (iii) Work on updating the ECE Framework Code for Good Agricultural Practice for Reducing Ammonia, including taking account of the relevant BREF;
- (iv) Develop multi-pollutant approaches.

(b) Continue providing technical information on making and using nitrogen budgets and estimating nitrogen emissions:

- (i) At the national scale and for various system boundaries;
- (ii) Looking specifically at the farm scale;

(c) Continue developing and providing technical and scientific information to the Executive Body and to the Working Group on Strategies and Review in the light of the implementation of the provisions of the recently revised Gothenburg Protocol in relation to the whole nitrogen cycle;

(d) Continue collecting and assessing information from the national focal points regarding their experiences, including any difficulties that they have in developing and implementing an integrated approach;

(e) Provide technical information on the effects of human diets on nitrogen use and emissions;

(f) Liaise with countries in Eastern Europe, the Caucasus and Central Asia in the development of approaches for managing reactive nitrogen in industry and agriculture in order to:

- (i) Investigate the barriers to implementation of the Gothenburg Protocol;
- (ii) Improve collaboration with the Coordinating Group on the promotion of actions towards implementation of the Convention for Eastern Europe, the Caucasus and Central Asia, through the new Expert Panel of the Task Force;

(g) Continue improving coordination of activities across and outside the Convention, and collaborate with subsidiary bodies under the Convention to complement the work of the subsidiary bodies of the Convention, in particular:

- (i) Working with the International Cooperative Programme on Modelling and Mapping of Critical Loads and Levels and Air Pollution Effects, Risks and Trends, focusing on critical loads and dynamic modelling of nitrogen effects, including the development of indicators through the use of nitrogen budget approaches and links between nitrogen and climate, in cooperation with other bodies such as the OECD, Eurostat and UNEP;

- (ii) With the Task Force on Emission Inventories and Projections, continue to ensure consistency between development of emission estimates and the estimation of efficiencies of agricultural emissions.
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