

Informal document to the 53rd session of the Working Group on Strategies and Review, UNECE Convention on Long-range Transboundary Air Pollution (Geneva, 15-17 December 2015)

Task Force on Reactive Nitrogen: Proposed aims, structure and scope for the second phase of the Expert Panel on Nitrogen and Food (EPNF)

Background

1. The Expert Panel on Nitrogen and Food (EPNF) operates within the framework of the Task Force on Reactive Nitrogen (TFRN). The TFRN is placed under the Working Group on Strategies and Review (WGSR) of the UNECE Convention on Long-range Transboundary Air Pollution.
2. The first phase of the EPNF has now been completed with the publication and dissemination of its report “Nitrogen on the Table” together with accompanying peer review papers (see Inf. Docs to WGSR-52, 30 June - 3 July 2014).
3. The TFRN co-chairs would like to thank Mr Henk Westhoek (The Netherlands) and Mr. Christian Palliere (Fertilizers Europe) for their leadership of the first phase of EPNF.
4. With the work of the former EPNF co-chairs now complete, and as the EPNF starts a second phase, the TFRN co-chairs are now in the process of commissioning new co-chairs and updated Terms of Reference for the Expert Panel. They are pleased to announce that Mr. Adrian Leip (European Commission, Joint Research Centre, Ispra) has accepted to become a new co-chair for the Expert Panel. Mr Leip is an expert in agriculture and food chain modelling having published many papers in this field. He led the work to establish the European Nitrogen Budget for the European Nitrogen Assessment, and has been at the forefront in developing the concept of Nitrogen Neutrality.
5. This note describes the proposed Terms of Reference for the second phase of the EPNF. The TFRN co-chairs here invite feedback from WGSR members and other stakeholders on the scope of the work and invite Parties to identify experts to contribute to the work of the Expert Panel.
6. As the Terms of Reference for this second phase are refined, the TFRN co-chairs anticipate to appoint a second co-chair to EPNF to complement the skills and experience of Mr Leip.

Aims and partnership

7. The core aim of the EPNF remains as before “to create a better understanding of the relationship between human diets and the impact of the N-cycle on the environment” (WGSR 47th Session. Inf. Document No. 18.). Emphasis is placed on integrating the impacts of transboundary nitrogen air pollution with the impacts of nitrogen pollution on water, climate, soils and biodiversity from a whole food chain perspective (cradle-to-grave, including also the fate of N after consumption).
8. Recognizing the close interplay between environment and health, the EPNF will in its second phase focus on demonstrating the co-benefits of altered dietary options, considering the interactions with dietary determinants of human health and with food. To achieve this will require that environmental experts work together with health experts and economists.
9. The second phase of EPNF will result in a document to the Parties of the Convention that identifies technical and other options for reducing emissions from the agro-food chain in the implementation of their obligations under the Gothenburg Protocol, while relating these to the wider co-benefits for society. Specifically, the document will address the questions:
 - i) How far could a combination of improved farm level technical measures and shifts in consumption go to improving the Nitrogen Use Efficiency of the overall food system of Europe? And what need the incentives be in order to realize this NUE improvement?
 - ii) What is the relative potential of dietary changes and food waste reduction to reduce nitrogen air pollution and other environmental threats?

- iii) What are the health effects of a range of dietary patterns that generate less nitrogen pollution (ie. positive and negative)? Potential health effects include those from air pollution and those that are nutrition related. Is it possible to identify particular dietary patterns that achieve health-environmental synergies?
- iv) To what extent can a stronger link between the scientific evidence on environment and health strengthen the case for controlling nitrogen pollution and optimizing diets to meet human health goals?

Timing

10. The draft document of the Expert Panel will be ready by the summer of 2017. The final document will be ready in December 2017.

Key Challenges

11. There are a few key challenges for this Expert Panel:

- The analysis will require the Expert Panel to link existing model tools and disciplines. Further basic research may be needed on the question of “how much” could be reasonably achieved by a combination of technical and behavioural options.
- The questions to be answered will require involvement of additional expertise, including nutritional expertise and environmental/health economics.
- Engagement with colleagues in the World Health Organization and the UN Food and Agriculture Organisation will be important and can also be facilitated by mutual engagement in the GEF/UNEP project towards the International Nitrogen Management System (‘Towards INMS’).

Proposed limitations:

12. **Geographical limitation:** TFRN-members propose to focus the report on European part of the UNECE-region, and especially the EU-28. This is motivated by resource limitations, data availability, large differences in production structures, available expertise in the Expert panel and time limitations.

13. Resources through ‘Towards INMS’ are expected to allow engagement with Eastern Europe (in partnership with the TFRN Expert Panel on Nitrogen in East Europe, Caucasus and Central Asia (EPN-EECCA), and to set the work in wider global context. Additional resources would be needed to extend the work to the full UNECE region including North America.

14. **Limitation on potential effects** The TFRN-members propose to focus the study on the potential environmental and health effects of possible dietary changes and the potential of such changes to improve environmental quality, well-being and resource efficiency (as outlined in para 9).

15. The proposed connection of environment and health will be relevant to the question of how to achieve dietary changes. However, a full analysis of how to achieve such changes would be more complex to address, and is therefore considered to be beyond the scope of this study.

Proposed structure of the planned report on nitrogen and food

16. The following structure is proposed. (to be developed)

Circular Nitrogen Food Chain: from nitrogen cascade to a circular nitrogen cycle in the European food system

- Food Chain Nitrogen Use Efficiency
 - The limits of Farm-scale NUE
 - Un-avoidable Nr losses versus un-payable Nr-loss reductions
 - Nitrogen in closed biomass streams
 - Avoidable versus un-avoidable food waste
 - From food waste to a (nitrogen) resource
- The relevance of Nitrogen for the consumer
 - Health effect of Nr losses in the food chain
 - Nutritional aspects of nitrogen
 - Nitrogen-smart diet choices: Alternative protein sources
 - Nitrogen and Dietary recommendations
 - Getting the consumer involved
 - How to engage the consumer?
 - What aspirational changes are possible/plausible (e.g. by 2050)?
- Making the case: nitrogen and food
 - Healthy and nitrogen-smart: trade-off or win-win?
 - Nitrogen Neutrality: Concept and applications
 - Reduction of N pollution: improved supply versus changed demand