

Informal document the Working Group on Strategies and Review
WGSR-47, August 2010

From the **Task Force on Reactive Nitrogen**

Proposed aims, structure and limitation of work of the TFRN Expert Panel on Nitrogen and Food (EPNF).

Setting

1. The Expert panel on Nitrogen and Food is operating within the framework of the Task Force on Reactive Nitrogen (TFRN). The TFRN is placed under the Working Group on Strategies and Review of the UNECE Convention on Long-range Transboundary Air Pollution.

Aim and dissemination

2. The general aim of the EPNF is to create a better understanding of the relationship between human diets and the impact of the N-cycle on the environment. The work of the EPNF will result in a Guidance Document to the Parties to the Convention. This document can provide guidance to the Parties to the Convention in identifying technical and broader options for reducing emissions from agricultural activities in the implementation of their obligations under the Protocol.

Timing

3. The draft document of the Expert panel will be ready by the summer of 2011. The final document will be ready in December 2011.

Key Challenges

4. There are a few key challenges for this Expert Panel:
 - There is not much literature available on the central research question, therefore some new research will be necessary; Especially the questions on “potential for improvement” require new research;
 - The questions to be answer do cover a broad range of expertise, this requires the involvement of expertise’s which are new to the TFRN, like nutrition and expertise on life cycle analyses;

Proposed limitations:

5. **Geographical limitation:** The TFRN-members propose to limit the geographical boundary of this first report on the European part of the UNECE-region, with a focus on

the EU-27. This is motivated by to resource limitations data availability, large differences in production structures, available expertise in the Expert panel and time limitations.

6. Depending on the outcomes, the methodology could be used in a second phase for a UNECE wide analysis, on WGSR request.
7. The Task Force asks the WGSR if it agrees with the proposed limitation.

Limitation on potential effects

8. The TFRN-members propose to focus the study on the potential environmental effects of possible dietary changes. Completing this objective requires technical expertise in food production, environmental protection and human diet, and is achievable within the time frame. The question on how to induce/achieve the dietary changes would require expertise in human behaviour and societal changes, which is much more complex to address. How to achieve such changes is therefore considered as going beyond the scope of this study by the TFRN-members, and will be only marginally explored.
9. The Task Force asks the WGSR if it agrees with the proposed limitation.

Proposed structure of the planned report on nitrogen and food

10. The following structure is proposed. Text in italics represents clarification.

Outline of the planned report on nitrogen and food.

- 1. Problem definition: losses of N_r**
- 2. Differentiation per product category:**
 - 2.1 Define product categories
This will be broad categories, like Beef, Pork, Milk (dairy), Cereals, Beans, Fruits, probably also fish (from aquaculture)
We are aware that the production methods differ per country / region and per farming system (conventional / integrated / organic etc.)
 - 2.2 Allocation of losses of N_r to product categories (total, per product unit)
 - 2.3 Determine environmental effects per product category (per (group of) country of production) in a LCA type approach (per functional unit)
- 3. Analyses of human diet**
 - 3.1 Determine present diets: intake of calories, protein and saturated fat, vegetables and fruits
 - 3.2 Compare actual intake per country to WHO recommendations
 - 3.3 Analysis of potential gaps/ imbalances
- 4. Potential for improvement**
 - 4.1 Definition of directions of improvement:
 - 4.1.1. Exchange within product categories
 - 4.1.2. Changes between product categories
 - 4.1.3. Limit to consumption (because consumption not in line with WHO recommendations)
 - 4.2 Definition of scenarios for future evolution
 - 4.3 Determination of effects (volume and emissions)
Not only the effect on the nitrogen cycle and nitrogen emissions will be evaluated, synergies and trade-offs in relation to ammonia emissions, greenhouse gas balance, land use and water use will be addressed as well
 - 4.3.1 Product based LCA
 - 4.3.2 Input-output analyses on continental scale (dynamic approach; not full scale)
It is clear that the effects of large shift in consumption and production patterns can not be properly evaluated with more or less static LCA-approaches. A more dynamic approach is therefore needed.
- 5. Changes in consumption and production patterns**
 - 5.1 Opportunities to introduce changes in production systems within product categories
 - 5.2 Considerations/possible directions to change human behaviour (limited approach)
- 6. Conclusions and recommendations**