

Conclusions of the workshop



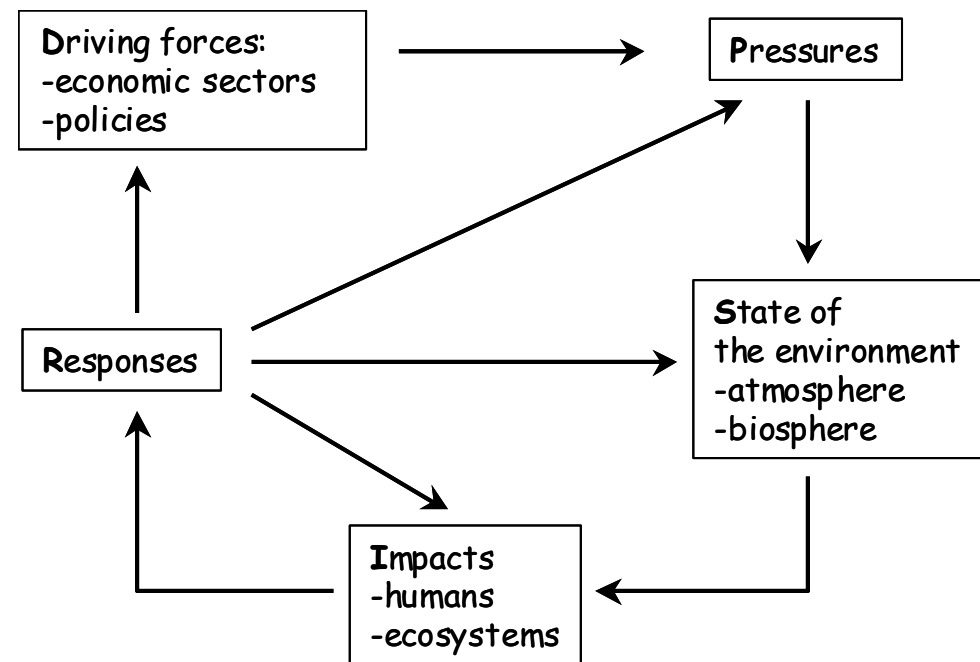
Workshop
The Causal Relations of Nitrogen in the Cascade
21 - 23 November 2005, Braunschweig - Germany

Aim and questions

The objective of this workshop is to assess the state of knowledge of the different causal relationships of nitrogen within the cascade, which form the basis of the different policies to decrease nitrogen pollution. Better understanding and decreasing the uncertainty in causal relationships will form the basis of improved and more integrated policies.

Questions that will be addressed include:

- What is the state of knowledge on cause-effect (DPSIR) relationships?
- How well do we understand the different parts of the causal chain?
- How good can we model them/on what scale, and are these suitable for IAM?
- What is needed in terms of research, experiments, models, etc.?



Conclusions

1. Nitrogen plays an important role in many environmental issues
2. Excellent overviews of state of knowledge on different parts of the cascade
3. Level of understanding the impacts differs and is highest for terrestrial ecosystems (NW EU)
4. Knowledge is progressing in other areas, but its connections are limited
5. Question is if we understand the drivers in the different systems, the different roles of NH_4 and NO_3 , feedback mechanisms and the link to other bio-chemical cycles
6. Emissions of the main single sources can be modelled
7. Generalisation (time and space) is an issue (scale)
8. We need to quantify the reactive nitrogen stores, delay times and losses in the cascade
9. Transport and the atmosphere – biosphere exchange of nitrogen modelling faces this issue, together with, temporal and spatial scales and interactions (emission-concentration-deposition, chemistry)
10. Need for targeted measurements and studies for verification
11. “Industrial/new thinking”, taking optimising the Life cycle into account, is necessary for effective abatement measures as part of more integrated policies

Next steps

1. Finalise conclusions and recommendations, key research areas: UNECE, COST
2. Proceedings, including presentations
3. Special issue in Environmental Pollution (end December; titles)
4. More meetings:
 1. 23-24 January 2006: high level policy workshop
 2. 13-18 October 2006: reduced nitrogen in ecology and the environment
 3. November 2006: UNECE workshop on Ammonia
 4. 1-5 October 2007: Fourth international N conference
 5. COST, ESF, NitroEurope

