EPNB-2 Draft Minutes
27th April 2009, Garmisch-Partenkirchen, Germany

Draft minutes:
Start of the meeting at 9.45

Wilfried welcomes everybody to the meeting and presents the agenda. Furthermore, he gives a short presentation on the current status of the EPNB work:

- November 2008: establishment of the EP at first meeting in Dourdan
- Existing approaches to provide N balance information:
    - National
    - Sectoral
    - Medium-oriented
- Website established: http://www.cltap-tfrn.org/ tab EPNB
- Current activity: contributing to ENA
- Future activity: guidance to parties

Round of presenting:
Wilfried Winiwarter, Albert Bleeker, Till Spranger, Rüdiger Hofmann, Wim de Vries, Clare Britton, Keith Bull, Rotislav Neveceral, Markus Geupel, Tom Claire, Adrian Leip, Jeroen Casaer, Nick Hutchings, Heleen de Wit, Anne Christine Le Gall, Stefan Reis, Klaas v.d. Hoek, Penny Johnes

Block 1: ENA Chapters

This block deals with European Nitrogen Assessment work related to EPNB

- *Chapter 11: Integration (Wim)*

Title of the chapter: Nitrogen budgets in agricultural and other terrestrial ecosystems over Europe – so not really integration (that's more for Adrian's chapter – see later)

Aim of the chapter: give an overall picture of present knowledge on major nitrogen flows in Europe in terrestrial (agricultural and non-agricultural) ecosystems.

Geographical scope and resolution for this chapter is Europe as a whole with a focus on EU27 at different resolutions.
The temporal scope and resolution is the 'recent' past (in general 2000) and changes from 1970.

Limitation of the chapter

- Originally planned but not included:
    - No linkage to other nutrient cycles
    - Uncertainties are not included
- Still to be included/updated in final version

- Results for non agricultural systems
- Validation on available water quality data
- Relevance of budgets

With respect to the models, the focus is on Integrator (including Miterra) and Capri-DNDC.
Capri: calculates nitrogen flows through the agricultural system in Europe
DNDC: detailed ecosystem model that provide process-level descriptions to derive GHG emissions for Europe

Data sets to estimate N input
- Nitrogen fertilizer application (Faostat, etc)
- Animal livestock numbers (FAO, Eurostat, etc)
- Nitrogen excretion factors (IPCC, Rains/Gains, etc)

Nice example of a farm gate balance. For Europe v. Egmond et al (2001) did this already. Report now shows a good graphical example produced by Adrian.

Comparison of N input and N uptake results
Sometimes large differences between the different models. Question Till: what is N uptake – it is in principle what is leaving the field in the form of e.g. crop.
Comparison of N emission on a country level for NH_3 and N_2O

New check included on the level of emissions, compared with the N availability (e.g. Sweden case). Uncorrected v.s. corrected version showed a 10x difference between them.

Model evaluation. This includes:
- Summary of the comparability of model results
- Comparison of results with inverse modeling

Nitrogen budgets and effects on ecosystems. The various options for performance indicators will be discussed, including different exceedances (e.g. max N manure inputs and NH_3 emissions, critical N load, critical N concentrations in groundwater, surface waters)
- Why not putting this bits into others chapters, mainly related to the threats part
- However, this is more of an editorial problem not to be discussed here in the EPNB

The work on this chapter definitely helps the EPNB in understanding the availability / quality of data & models in the field of our work.

Question:
Is there any possible contribution from the EPNB audience to the ENA chapter.
Answer:
Yes, comments / data for validation / etc are very helpful for the further development of the chapter.

- *Chapter 14: Integrating nitrogen fluxes at the European scale (Adrian)*

This is now extended to 'outside' / beyond agriculture, as already decided in Dourdan.

Aim of the chapter:
- Give an overview of the most important N-fluxes in Europe
- Show aggregated fluxes of nitrogen across media and sectors for countries or Europe

Structure of the chapter:
- Introduction
- Key maps of reactive nitrogen fluxes
- National N-budgets

10 key maps
- Driver for and pressure of nitrogen in terrestrial ecosystems, agriculture and non-agriculture
- Emission of nitrogen to the atmosphere
- Secondary nitrogen indicators

Available information so far:
- German N-budget (UBA, Markus and Till)
- Dutch N-budget (Hans, Jan Willem, Albert)
- French N-budget (INERIS, Anne Christine, …)
- Swiss N-budget (Beat Achermann)

In construction: Turkey

Adrian showing different budgets for Germany, Netherlands, France, Switzerland.
How about pool changes: they are not dealt with yet. Problem, also in terms of definitions for the different parts of the budgets.

Inconsistencies between maps and budgets might exist, because of differences in 'official' numbers

Problem with units/components we are looking at. At the end it should be total nitrogen flux, with distinction between components (where possible). The latter might be a bit tricky to come to, because of data availability issues, etc.

Final goal: European Nitrogen Budget (ENB)

Discussion points
- General structure/layout
- Selection of key maps
- Additional national n-budgets
- Selection of data sources for ENB
- Missing elements in the ENB

How do we take the information/activities from ENA to the EPNB procedure? In general: focus for the morning session is on the ENA activities, but afternoon will give us more insight in the EPNB work. While ENA is scientifically correct, EPNB is then slowly going towards the political correct version (e.g. emission data used for EMEP, compared to EDGAR emissions)

Present format for presenting the information is an excellent way of doing this.

Contribution from this group to the ENA process: additional national N-budgets and ideas for the structure/etc. + test reading.

Collecting the data/national budgets would be something for the EPNB and/or TFRN Focal Centres. This is something that definitely fits within the activities of the EPNB and TFRN work

- *Future scenarios of nitrogen in Europe (Wilfried)*

ENA chapter 22. Based on work done during a small workshop at IIASA (Laxenburg). Wilfried shows the outline of the chapter:

Existing scenarios: baseline approach vs. multiple storylines
Beyond 2050
- Diet change
- Robots for field operation
- N-fixing cereal
- Separate and collect human excreta
- Biofuels

Costing
Environmental targets as
Other issues, conclusions

Much is still open, and any ideas (how science fiction ever) are welcomed, since the overall draft is definitely not final yet. The aim is to come up with information that is already available in current European studies. Detailed information about the underlying models, etc. are to be found somewhere else.

Klaas v.d. Hoek volunteers to help Wilfried with writing the conclusions.

Nick: looking forward in time – to what extend are changes in farm structure taken into account. Most likely not, since data are lacking to do this in a proper way.

Block 2: National developments (DE, CA, CZ, UK, …)

What has been done in the field of EPNB and in the different countries?
Going into Block 2 – national experiences; international coordination

N-Budget for Germany (Presentation by Markus Geupel)
- Presentation of the N-budget at EPNB-1
- International status seminar in Berlin end Nov. 2008
- Scientific recommendations for further amendments
- Revision
- EPNB-2

Some remarks about missing parts in the overall balance. Food / feed / fertilizer import/export

Results of the status seminar:
- Turnover of Nr in terrestrial and aquatic pools
- Method and message approved, main fluxes correct
- Recommendations:
    - Estimation N-fixation by flashs / lightning
    - Estimation N-deposition over coastal waters
    - N2-removal / N-fixation in agriculture
    - Estimates of N-fixation and background emission in nat. ter. Ecosystems
    - Better structuring of N-emissions to water bodies

Future objectives
- N-fluxes of human nutrition
- N-sink waste deposits
- N-import via natural resources for industrial processes
- Update of emission to water bodies (2005 data now available)

Long-term objectives
- Dynamical system
- Coupling with other biogeochemical cycles

Question from Wim: Biological N-Fixation is very high. How is that possible?
No clear answer yet, have to look into that

Canadian Reactive Nitrogen Emissions and deposition (Presentation by Tom Clair)
More on emissions and deposition budgeting than on the overall balance for Canada

Next to the atmospheric budgeting, the ecosystems related material will be dealt with in the TFRN session of Tuesday.

Nitrogen Budgets in France (Presentation by Anne-Christine le Gall)

General presentation about Nitrogen in France
Discussing the TF mirror group

- Two meetings and many email exchanges
- About 10 scientists
- Agriculture and environment ministries

Aims

- Exchange of information
- Constructing the N-budget for France

Constructing an N budget for the UK (Presentation by Penny Johnes)

Coming from different databases, different people (Penny, David Fernall, Ulli, Stefan) will come up with a UK budget for nitrogen at the end of June. Still a lot to do!

Penny will send the spreadsheet (for calculating the Nani stuff) to Wilfried, for putting on the website

Cross-country budgets (OECD: presentation provided by Kevin Parris)

Kevin Parris couldn't make it to Garmisch, but has sent a presentation. Wilfried has put it on the EPNB website for those interested. Now not much more attention on this, due to time constraints.

Common grounds on nitrogen budgets

- Demo data collections spreadsheet (Adrian)

Presentation by Adrian about the excel spreadsheet. Showing the possibilities.
With question to everybody about filling in the table, in order to complete the different fields (grey fields are needed)
Question to Adrian: could this be used to develop some guidance document on how to fill in the table?

Point from Till: try to establish, within a country, a semi-formal group on this in order to get it filled. This is better than to establish a 'semi-automatic' system (which can be subject to problems/errors)

However, general feeling is that the Adrian spreadsheet is a good basis for further work on this and to guide countries in constructing a budget themselves.

Adrian can provide a basic (cleaned up) version of the spreadsheet for further processing by the individual countries.

Problem consists with different missing data, like e.g. soil accumulation. Not much data available there and also very uncertain.

Workplan for 2009 (all)

What should EPNB wish for, beyond collecting information?
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What can we come up with for the next year?
- Participation?
- 'push' actions:
    - ENA chapters
    - Data collection sheet
    - Reviewing N-balancing activities in Europe
- 'pull' actions:
    - Interest of participants / potential users

Workplan EPNB 2009/2010
1) Finalizing ENA chapters
2) Bibliography on relevant scientific articles on TFRN web (ongoing)
3) Data collection sheet (Adrian)
4) Collect & evaluate national data (ongoing)
5) Liaise with PEP / TFEIP
6) Investigate potential to create guidelines

Plan long-term
- ΔPools – N_2-emissions (better understanding the residue)
- Time lags
- Dynamic systems
- QA/QC on input
- Validation

- Subnational / regional budgets are also needed. Also because the measures are mostly taken in smaller regions (than national).

Guidelines for national budgets. That's more or less also what the co-chairs of the TFRN seem to be heading.

How about a following meeting of the EPNB?? Might be a problem, time wise. Much too many meetings anyway.

The TFNB-2 meeting ends at 17:00 hours

Joint Expert Panel session together with EPMAN (5 pm – 6.30 pm)

Introductory presentations by Nick and Shabtai. The combination of the two groups (EPMAN / EPNB) mainly focuses on part B4 of the revised Annex IX Option A.

(Each party shall develop indicators with threshold values for the nitrogen use efficiency, and these should be implemented and verified in practice. These indicators and thresholds values must consider local soil and environmental conditions, and should be farm-type, crop-type, and animal-type specific (as listed in the guidance document referred to in Paragraph 6))

Remark from Jeroen Casaer: looks to a very high level of detail in this paragraph, which might be non-acceptable for the different parties. Problem is about coming to binding values for each individual indicator, to be included in the national legislation. This resulted in a short discussion about the level of 'binding' of Annexes, compared to the Protocol itself.

Feedback from the EPNB – at the moment we only worked on national level work during todays session. However, the EPNB might be able to come up with data going into more detail for e.g. some individual countries.

Obviously, there are different aims when looking at the different budgets. National vs. Farm balance. The rationale is about thinking a bit further than only going into the farm level. According to Jeroen Casaer, this Annex is really only about developing goals, tools on a farm level, in order facilitate e.g. individual farmers to find out about their emission levels, etc.

What about coming to a regionalized version of a nitrogen budget, based on regionalized information.

Remark from Mark: it seems clear that guidance is needed for the farm scale balances, but at the moment this is falling between two different EP's. Looks like the EPNB is capable of doing that. Statement from Wilfried: so far it has not been asked. If it would have been so, it could have been considered. Nick Hutchings, Klaas van der Hoek and Harold Menzi express interest to form an ad-hoc group on this matter.