Integrated Nitrogen Committee

Planning Meeting

Jan 30-31, 2007

EPA Science Advisory Board
1025 F Street Northwest, Washington DC

Agenda

Tuesday January 30, 2007

9:00	Convene Meeting Welcome	Ms. Kathleen White, DFO Dr. Vanessa Vu, Director
9:15	Remarks and Introductions	Dr. James Galloway and Committee
9:30	Discussion of the Overall Charge	Dr. James Galloway
10:00	Identification and Discussion of Critical Science Issues	Committee
12:00	LUNCH	
1:00	Overview of EPA's Programs on Nitrogen, Session 1 Dr. Richard Haeuber, Office of Air and Radiation Mr. Gilbert Castellanos, Office of International Affairs Mr. Lawrence Martin, Office of Research and Development Mr. Jim Pendergast, Office of Water	
3:00	Review of Proposed Study	Committee

The History

- March, 2003:
  - Science Advisory Board called for suggestions for self-initiated projects from the committees.
- May, 2003
  - After discussion on a number of possible projects, the Environmental Engineering Committee of the SAB voted to recommend a study on “An Integrated Approach for Nitrogen”
- July, 2003
  - SAB selected the N project as its top priority of all the proposed self-initiated projects

The History

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- May, 2003
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- July, 2003
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  .

  .
- June, 2004
  - SAB approved project

  .

  .
- March, 2005
  - Public call for nominations

  .

  .

  .
- January, 2007
  - Here we are

Integrated Nitrogen Committee

Overall Goal

- The committee will learn about EPA's various programs for reactive nitrogen, so as to
- Develop scientific and technical recommendations regarding the enhancement of integrated research and management strategies for reactive nitrogen, which will
- Provide EPA the information to better integrate reactive nitrogen research and risk management strategies across environmental media and programs.

Integrated Nitrogen Committee

Objectives

- Identify and analyze, from a scientific perspective, the problems nitrogen presents in the environment and the links among them;
- Evaluate the contribution an integrated nitrogen management strategy could make to environmental protection;
- Identify additional risk management options for EPA's consideration; and
- Recommend to EPA concerning improvements in nitrogen research to support risk reduction.

Integrated Nitrogen Committee

Preliminary Plan

- Organize and plan its work, develop a preliminary topical report outline, propose initial assignments and a schedule as needed;
- Conduct fact-finding with EPA and Other Federal Agencies;
  - Provide opportunities for public comment;
- Invite presentations from the larger scientific community if needed; and
- Deliberate on the following questions to reach preliminary consensus.
  - What are the priorities for data collection and research necessary to provide effective nitrogen control?
  - Do any nitrogen control activities exacerbate other nitrogen impacts?
  - How well can the influences of nitrogen control activities on secondary nitrogen impacts be quantified?
  - What are the research needs for integrated nitrogen management?
- Capture that consensus in a draft report,
  - Seek written comments from three to five external peer reviewers,
  - Address the comments of the peer reviewers, revise, reach consensus on language and approve the Committee's draft report,
  - Forward the draft report to the chartered Science Advisory Board for its quality review, and
  - Make itself available for any further work or revisions resulting from the chartered Board's quality review.

Integrated Nitrogen Committee

Meeting Goal

To develop a work plan for the committee's evaluative study on the need for integrated research and nitrogen management studies.

Meeting Plan

Introduce

State key nitrogen issues, pre-assessment

Overview of EPA programs, initial

Identify future information needs

Plan the schedule

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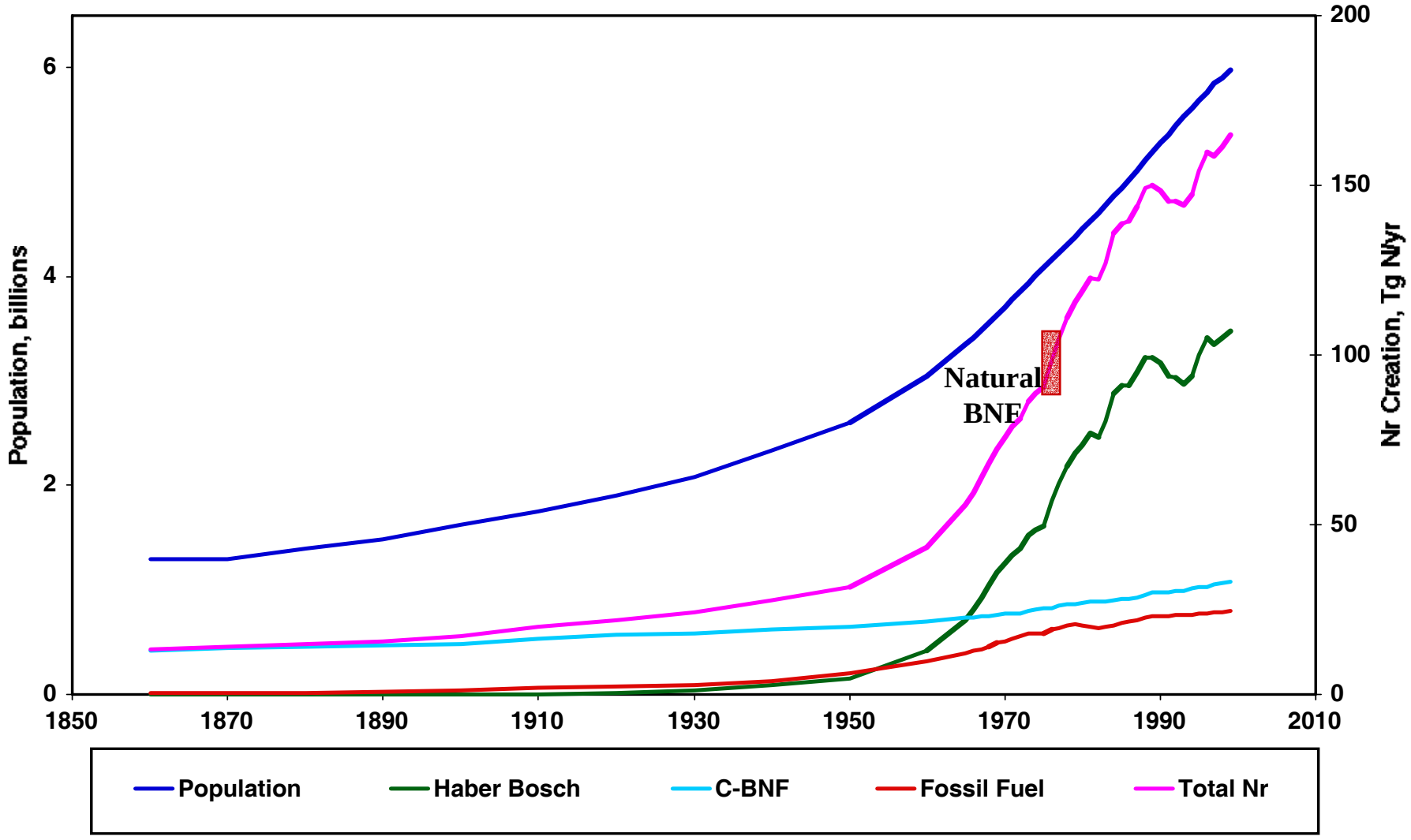
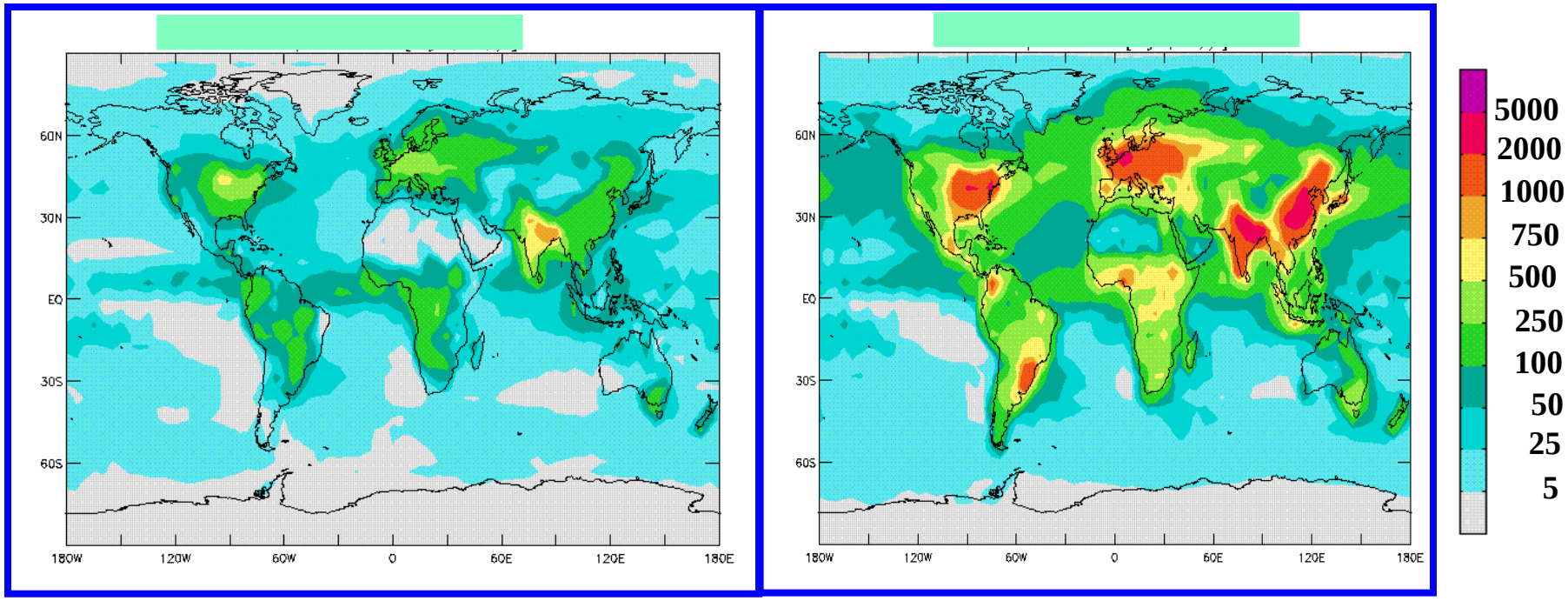
- Identification and Discussion of Critical Science Issues (in Support of Risk Reduction).
  - Each person state for their area:
    - a significant N-related risk.
    - whether the scientific foundation supporting that risk is good enough to recommend action to manage the risk.
    - whether we know how to manage the risk.
    - whether there are policy instruments in place to manage the risk.
    - what risk-specific complexities exist to confound management (e.g., multi-agency jurisdiction or no jurisdiction).
  - The results of this exercise will be used to determine the information needed at future meetings.

Annual Global Human Population and Nr Creation Rates
--anthropogenic vs natural Nr creation--



Nitrogen Deposition
Past and Present

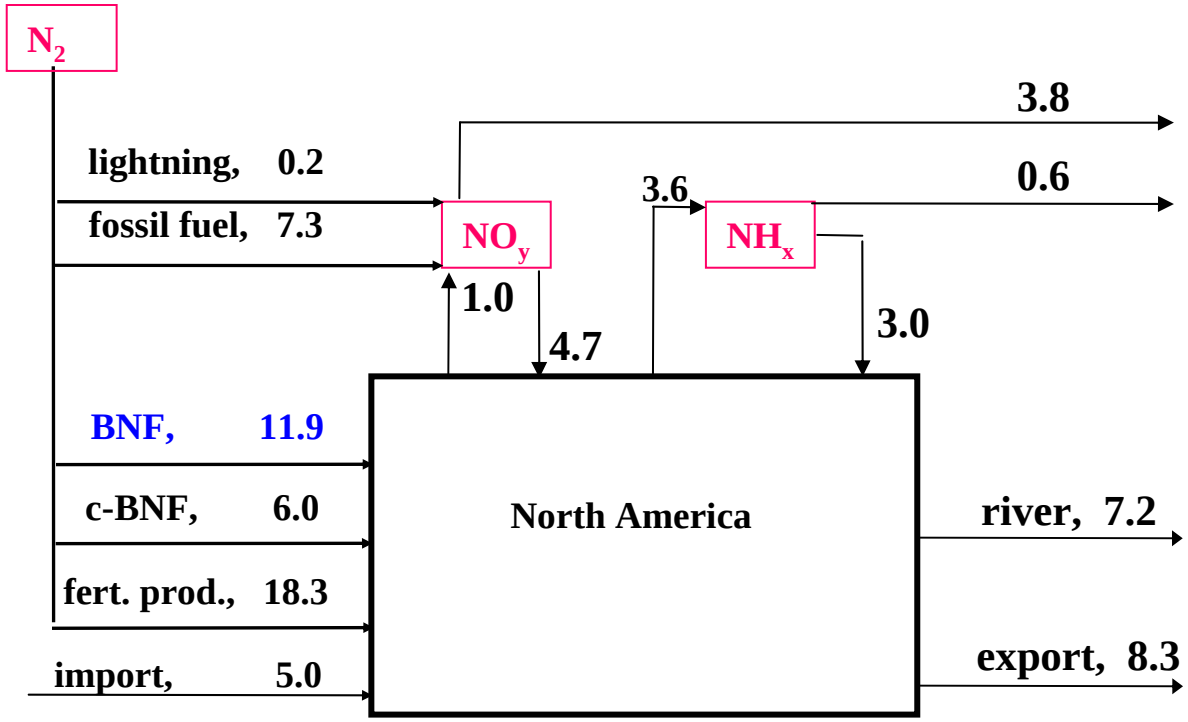
mg N/m²/yr



1860 **1993**

Galloway and Cowling, 2002; Galloway et al., 2002b

North American N Budget, Tg N, 1995



Reactive Nitrogen Creation

Natural, 12 Tg N yr^{-1}

Human, 37 Tg N yr^{-1}

Reactive Nitrogen Losses

Atmosphere, 4 Tg N yr^{-1}

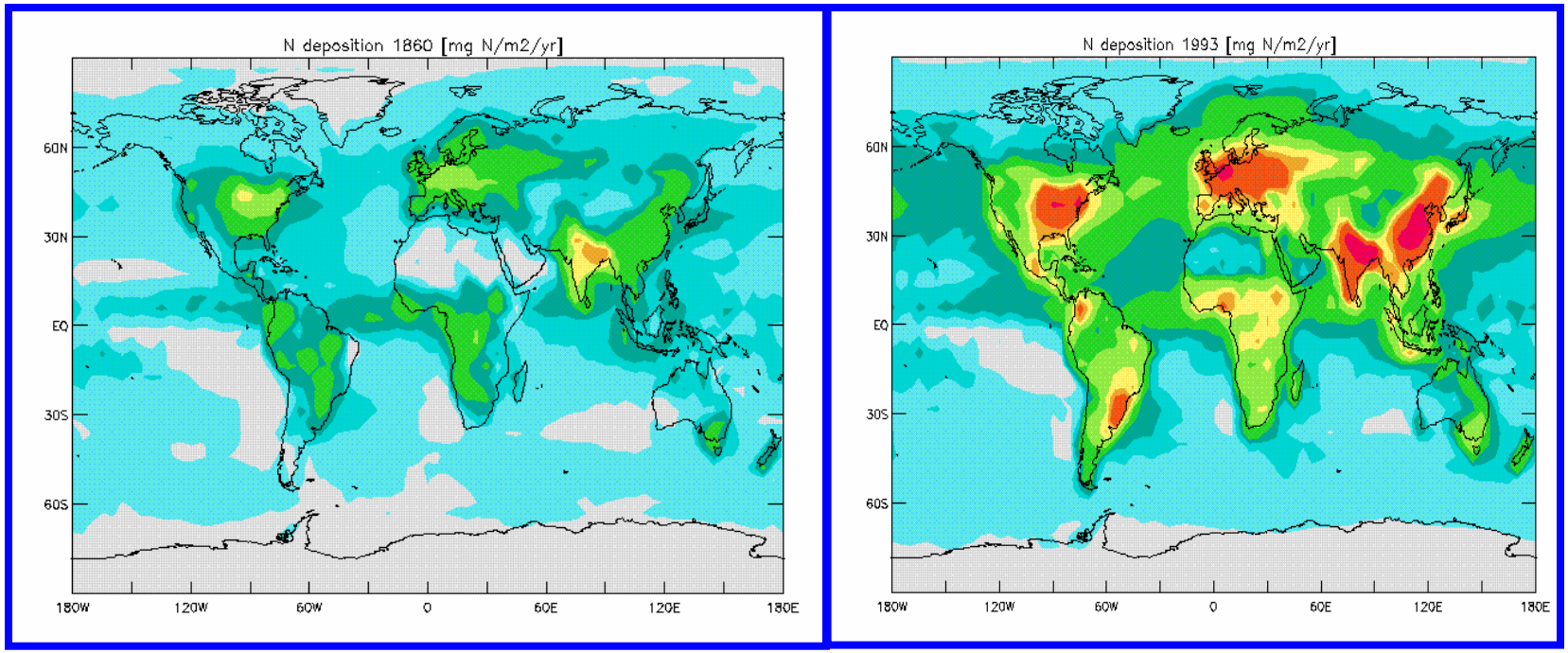
Rivers, 7 Tg N yr^{-1}

Export, 8 Tg N yr^{-1}

Integrated Nitrogen Committee

Planning Meeting

Jan 31, 2007



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Wednesday January 31, 2007

9:00	Reconvene	Ms. Kathleen White, DFO
9:15	Review of Day 1 Discussion and Day 2 Plans	Dr. James Galloway
9:30	Overview of EPA's Programs on Nitrogen, Session 2 Mr. Robert Bastian, Office of Wastewater Management, Office of Water	
10:00	Planning of Future Meetings ω Identification of Information to be Gathered ω Development of Agendas for Future Meetings	Committee
12:30	Action Items	Dr. James Galloway, chair
1:00	Adjourn	

Agenda

Wednesday January 31, 2007

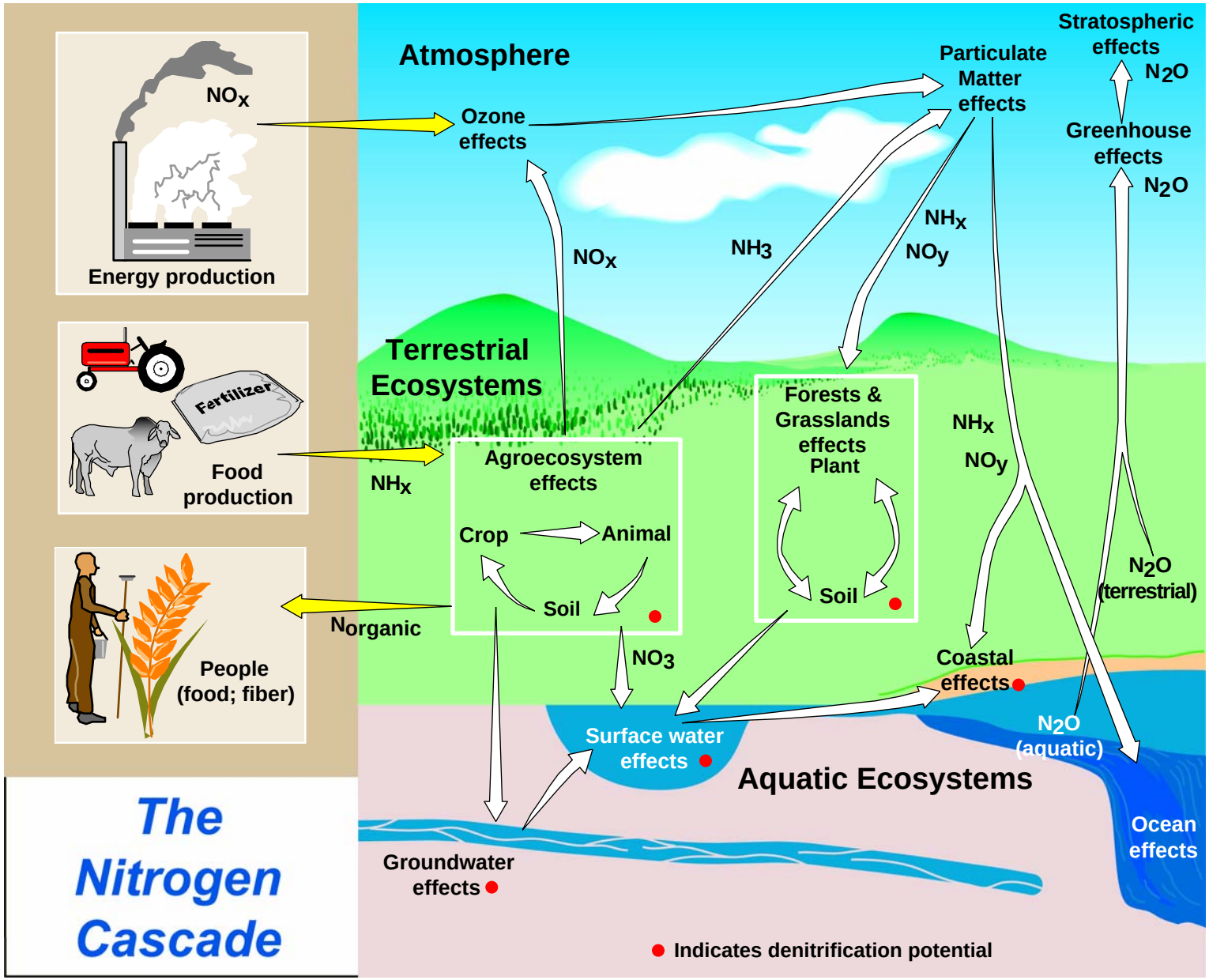
9:00 Reconvene

9:15 Review of Day 1 Discussion and Day 2 Plans

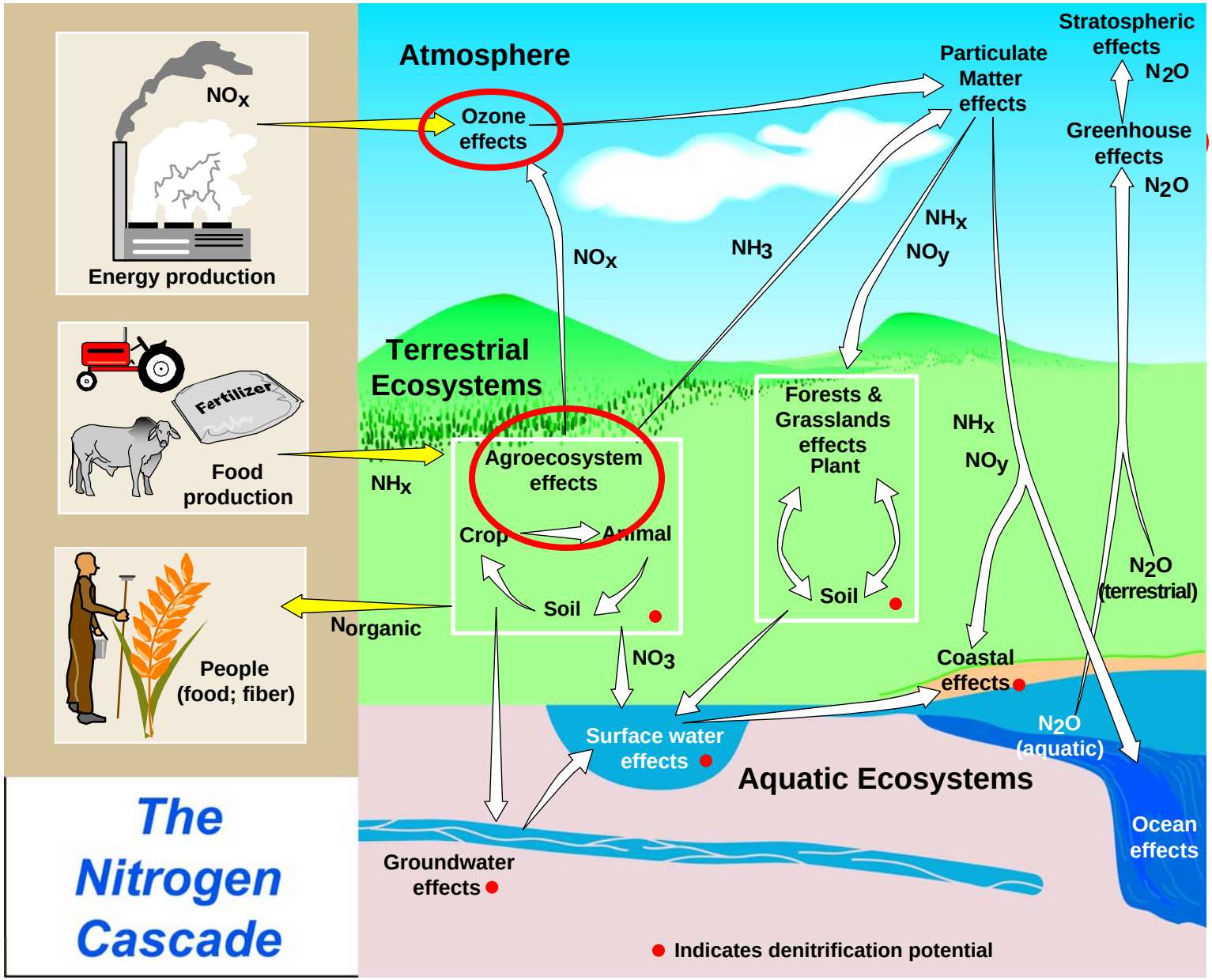
Homework Check in:

1. what do we add to conceptual cascade diagram?
2. what metrics should be used?
3. what group do you want to be in?
4. How would you expand the conceptual model to take into account the important issues in your sub-system?
5. what information to you need for your group? Whom would you like to hear from?
6. Where do you think data existed to give current trends on indicators?

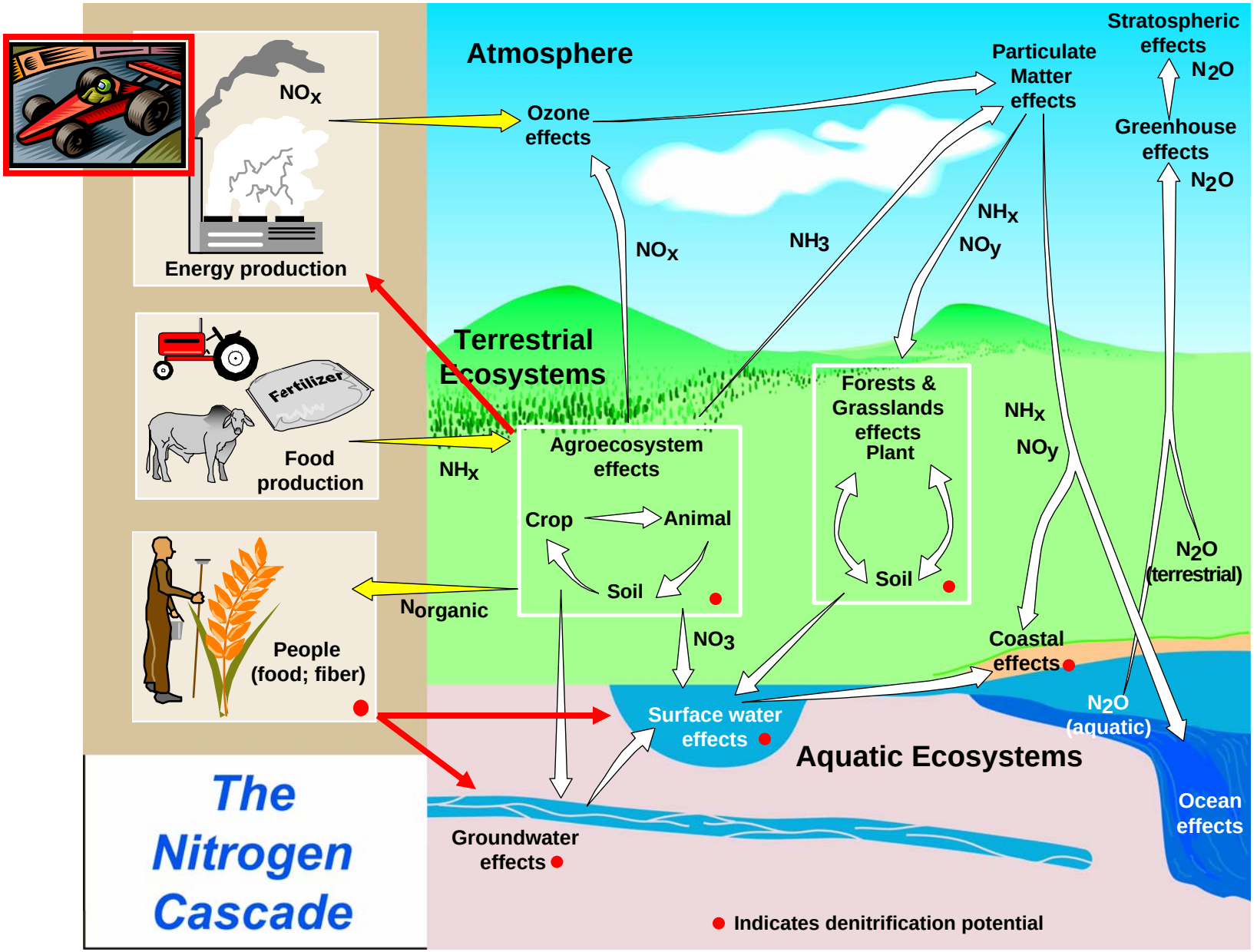
The Starting Point



N-related Issues to Pay Attention to



N-Related Issues to Add



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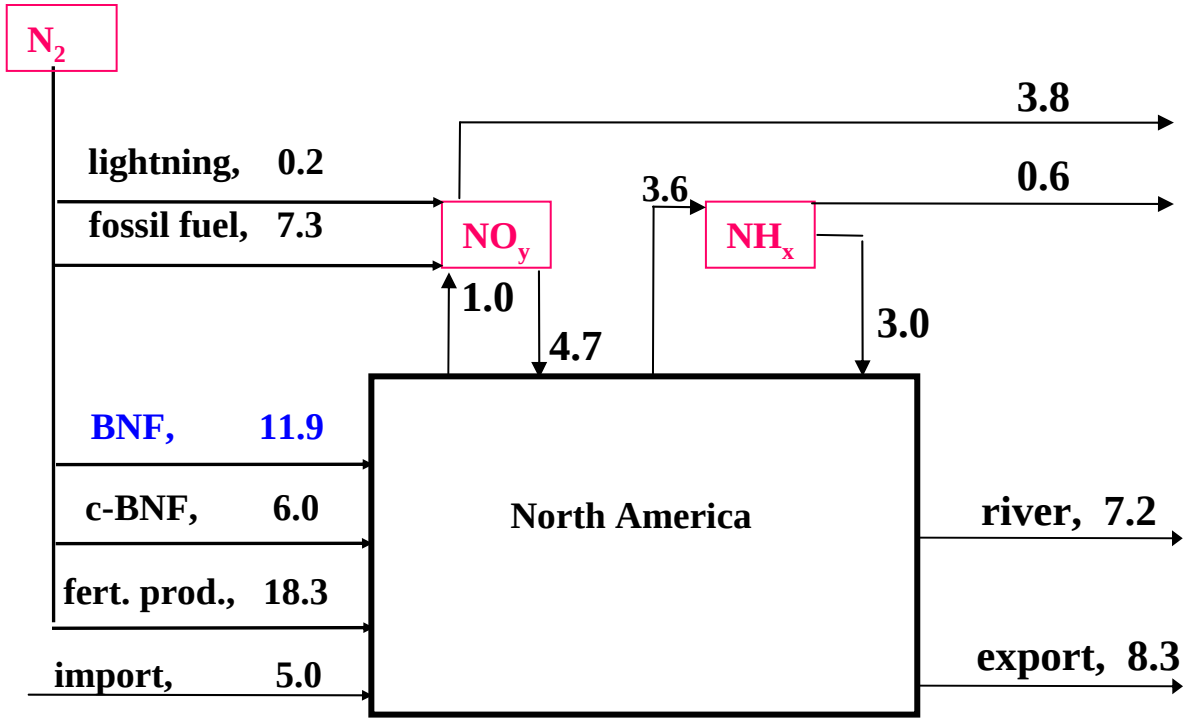

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50 vs. 20?
Where is the rest?

Reactive Nitrogen Losses

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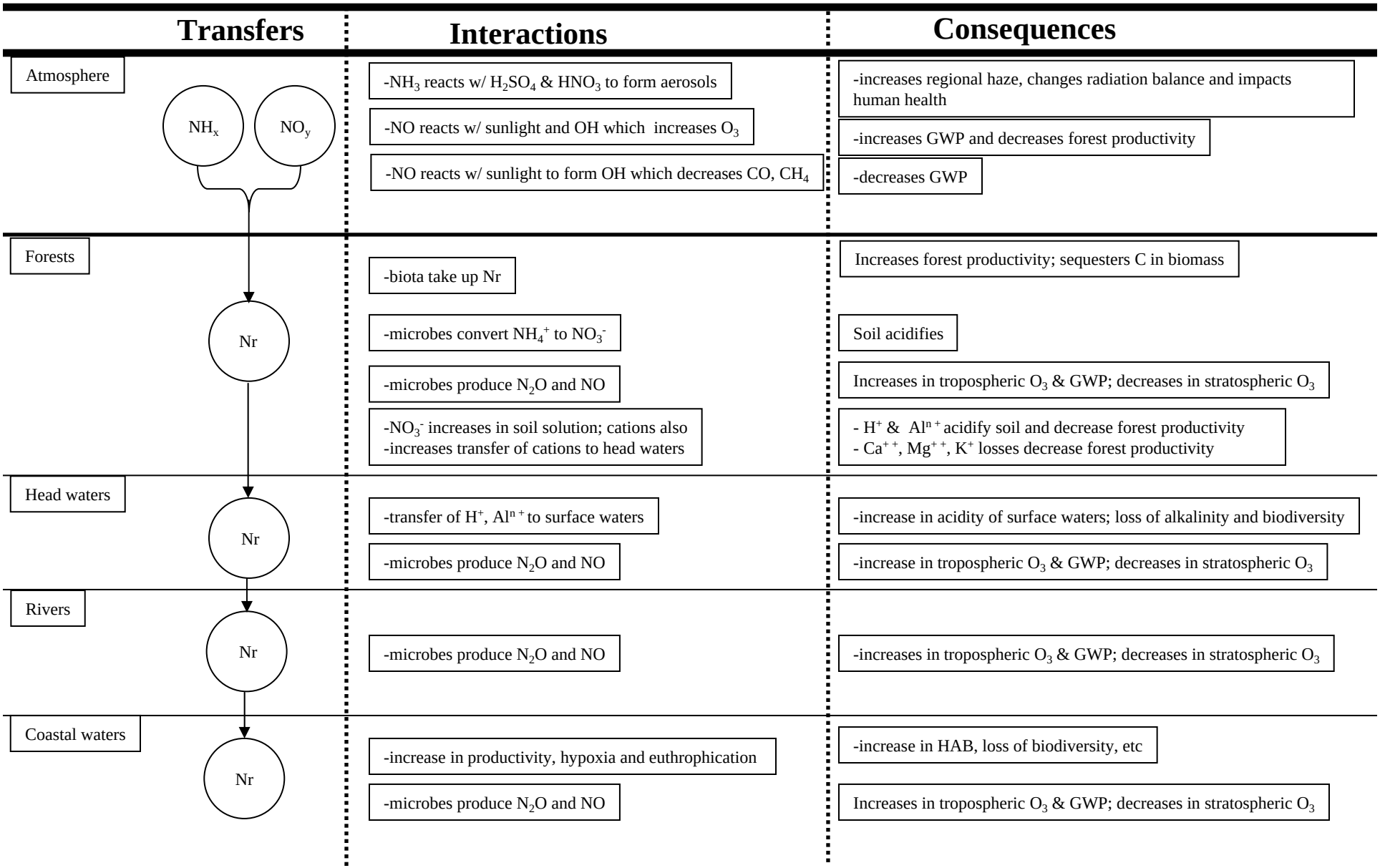
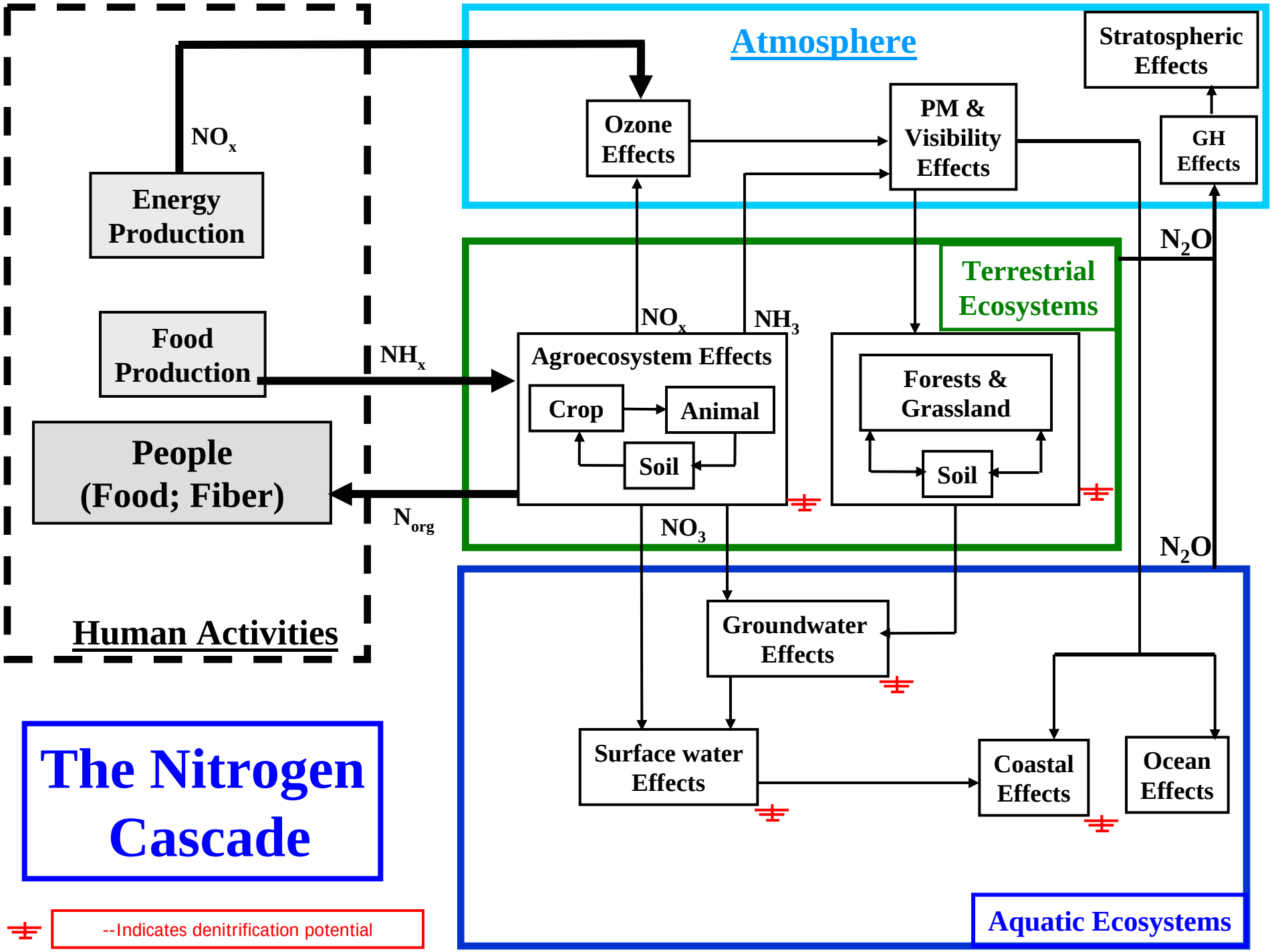
Nitrogen Biogeochemical Interactions

Atmosphere to Forest to Headwaters to Rivers to Coastal Waters




Atmosphere
Stratospheric Effects
Ozone Effects
PM & Visibility Effects
GH Effects
N_2O
Terrestrial Ecosystems
NO_x
NH_3
Agroecosystem Effects
Crop
Animal
Soil
Forests & Grassland
Soil
NO_3
N_2O
Groundwater Effects
Surface water Effects
Coastal Effects
Ocean Effects
Aquatic Ecosystems
NO_x
Energy Production
Food Production
NH_x
People (Food; Fiber)
N_{org}
Human Activities
The Nitrogen Cascade
--Indicates denitrification potential