

Task Force on Emission Inventories and Projections



Agriculture and Nature Expert Panel

Nick Hutchings, University of Aarhus, DK

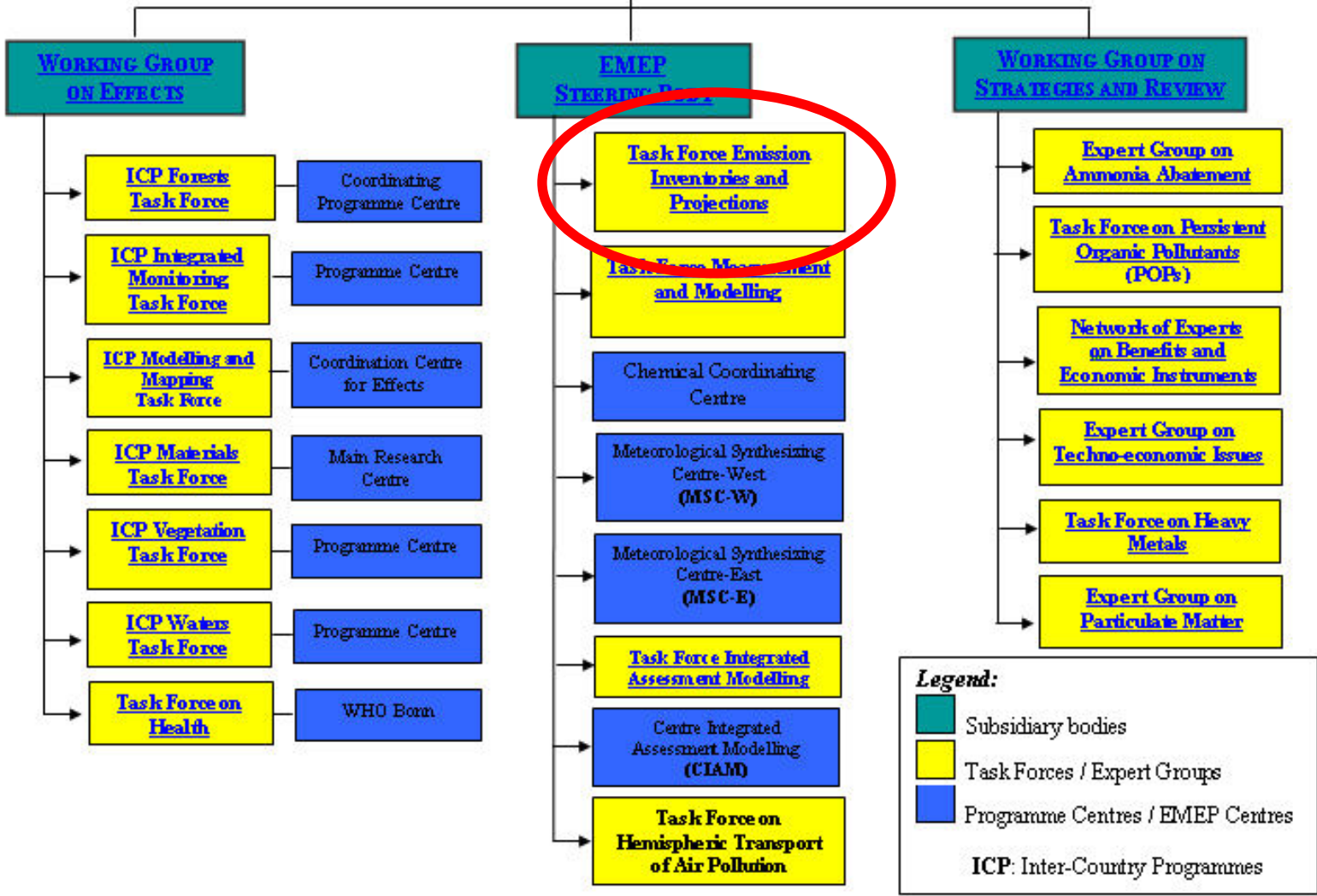
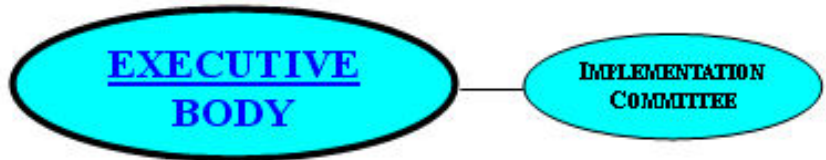
Barbara Amon, University of Natural Resources and Applied Life Sciences, AT

Rainer Steinbrecher, Institute of Meteorology and Climate Research, DE



UNIVERSITY OF AARHUS

Faculty of Agricultural Sciences



The expert panels

- **Cross-cutting**

- Review
- Projections



- **Sectoral**

- Combustion and Industry
- Transport
- Agriculture and Nature



- **Ad hoc groups**

- Established/abolished by TFEIP alone

EMEP/CORINAIR Atmospheric Emission Inventory Guidebook

- **Guidance on:**
 - General inventory construction
 - QA/QC
 - Spatial disaggregation
 - Projections forward in time
- **Sectoral chapters**
 - Methodologies for estimating emissions
 - Emission factors
 - Activity data
- **Only on www - hosted by EEA**
- **Mandatory for EU Member States**



Role of the sectoral panels

- **Maintain/develop Guidebook**

- **Collate and review**

- Emitting activities
- Emission factors
- Inventory methodologies



- **Division/amalgamation of categories**



- **Need for new research**

Expert panels & Guidebook

- **New sources and technologies**
- **Revise methodologies**
- **Update emission factors**
- **Gather feedback**
 - Inventory compilers
 - Expert Panel on Review
- **Answer queries by users**



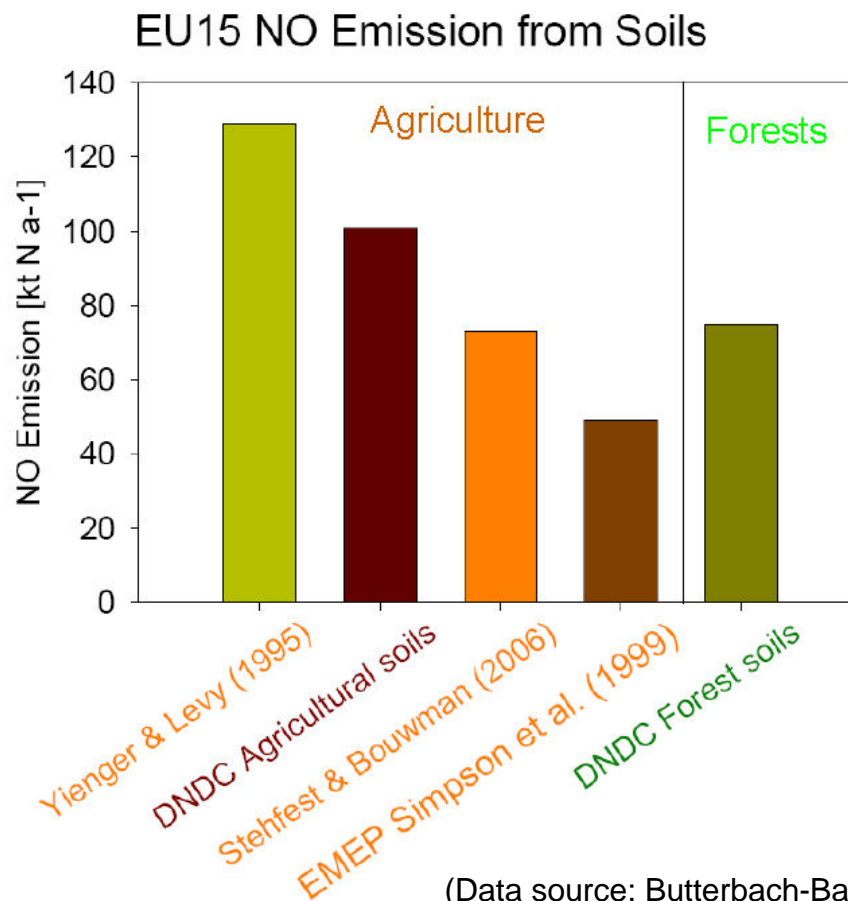
Nature

- Includes all rural, non-agricultural sources
- Progress occurs mainly via EU projects
- No regular meetings due to funding restrictions



Sources	Pollutants
Vegetation, esp. Forests	NMVOC
Biomass burning and forest fires	NO _x , PM, CO, CO ₂ , CH ₄ , OC, EC, VOC
NO from soils	NO
Pollen	PM
Wild animals	CH ₄ , NH ₃
Anoxic soil processes (wetlands)	CH ₄
Natural seepage of gas storage	CH ₄ , NMVOC
Wind blown dust (incl. Saharan)	PM
Volcanoes	SO _x , NO _x , PM, HF, HCl, HNO ₃
Lightning	NO _x
Sea, Coastal zones	PM, DMS

2. NO Emissions from Soils



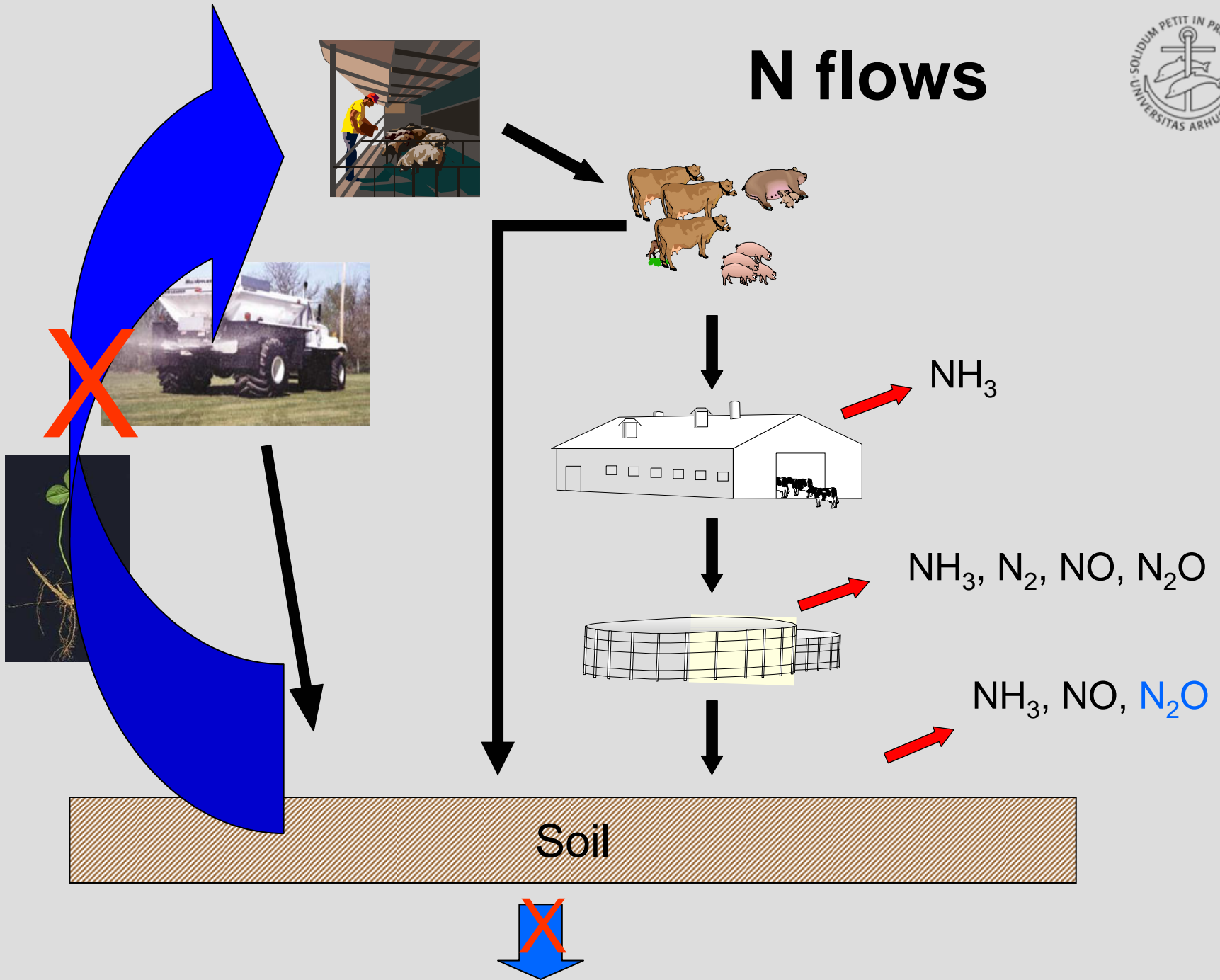
(Data source: Butterbach-Bahl et al. 2008, Atmos. Environ)
 All calculations were done with the activity and meteorological data for the year 2000

Agriculture

- **All on-farm sources**
 - Not machinery
 - Not small-scale waste-burning
- **Progress via:**
 - EU projects
 - Volunteers
- **IPCC 2006 for GHGs**

Sources	Pollutants
Soil	NH ₃ , NO _x , NMVOC, PM
Livestock (mainly manure)	NH ₃ , NO _x , NMVOC, PM
Biomass burning (stubble)	NH ₃ , NO _x , NMVOC, PM, CO, SO ₂

N flows



Meetings - Agriculture

- **Two meetings per year**
- **Technical meeting (April)**
 - Held jointly with Expert Group on Ammonia Abatement
 - Focussed on N species (mainly NH_3)
 - Scientists, engineers, economists
- **Main meeting (Oct/Nov)**
 - TFEIP annual meeting
 - Emission inventory compilers

Current activities

- Major revision of Guidebook
- Completed by September 2008
- Harmonise with IPCC 2006
- Limited updating of methodologies and emission factors

Likely future topics

- **Improved activity data**
 - Particularly manure management
- **Disaggregation of emissions**
 - Spatial – minimum 50 x 50 km grid
 - Temporal – seasonal distribution
- **Technical trends over time**
 - Changes in manure management
 - Changes in fertiliser management

TFEIP & TFRN

- **Continuous updating**
- **Limited resources – need to prioritise**
- **Assemble emission experts**
 - Expert Group on Ammonia Abatement
 - NO, N₂O, N₂
- **Quality-control – closing N budgets**
- **Expert Panel on Projections**