

# SAB-INC Requests and Questions for EPA's N Research Program

- *Provide US EPA's nitrogen research on ecosystems;*
- *What plans does US EPA have to help INC's workings move forward.*
- *How do reactive nitrogen compounds impact ecosystem goods and services?*
- *Are there certain services for which RN is the sole or major factor (can be positive or negative)?*
- *Are certain of the RN-impacted services more sensitive than others?*
- *Which of the RN-impacted services have been the most affected?*
- *What are the most appropriate metrics for ecosystem goods and services (e.g. dollar value, quantity of goods, flux of materials)?*
- *For such metrics, what are the best reference points or states relative to RN-impacted services?*
- *What are the gaps in knowledge or data for RN-impacted goods and services?*
- *Is there enough information to establish trends in ecosystem goods and services?*
- *Describe how EPA is addressing these gaps.*
- *Are there known, or suspected, tradeoffs among RN-impacted goods and services (i.e. different goods/services coupling)?*
- *Tradeoffs among N-impacted and those impacted primarily by other factors (e.g. biogeochemical coupling)?*
- *What are EPA's strategies for integrating research on RN impacts?*
- *How could this strategy be translated into improved resource management policies?*

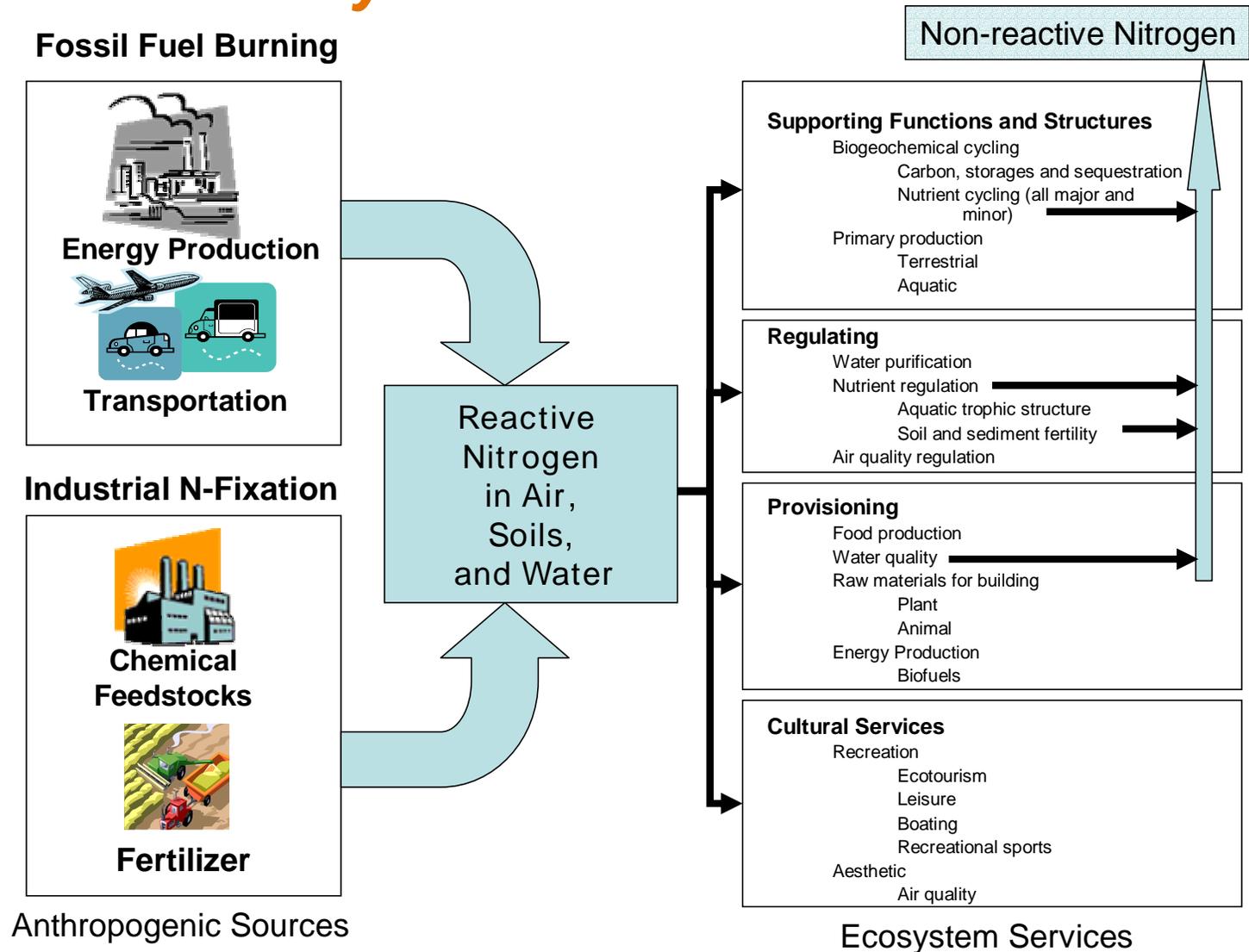
# Categories of Questions

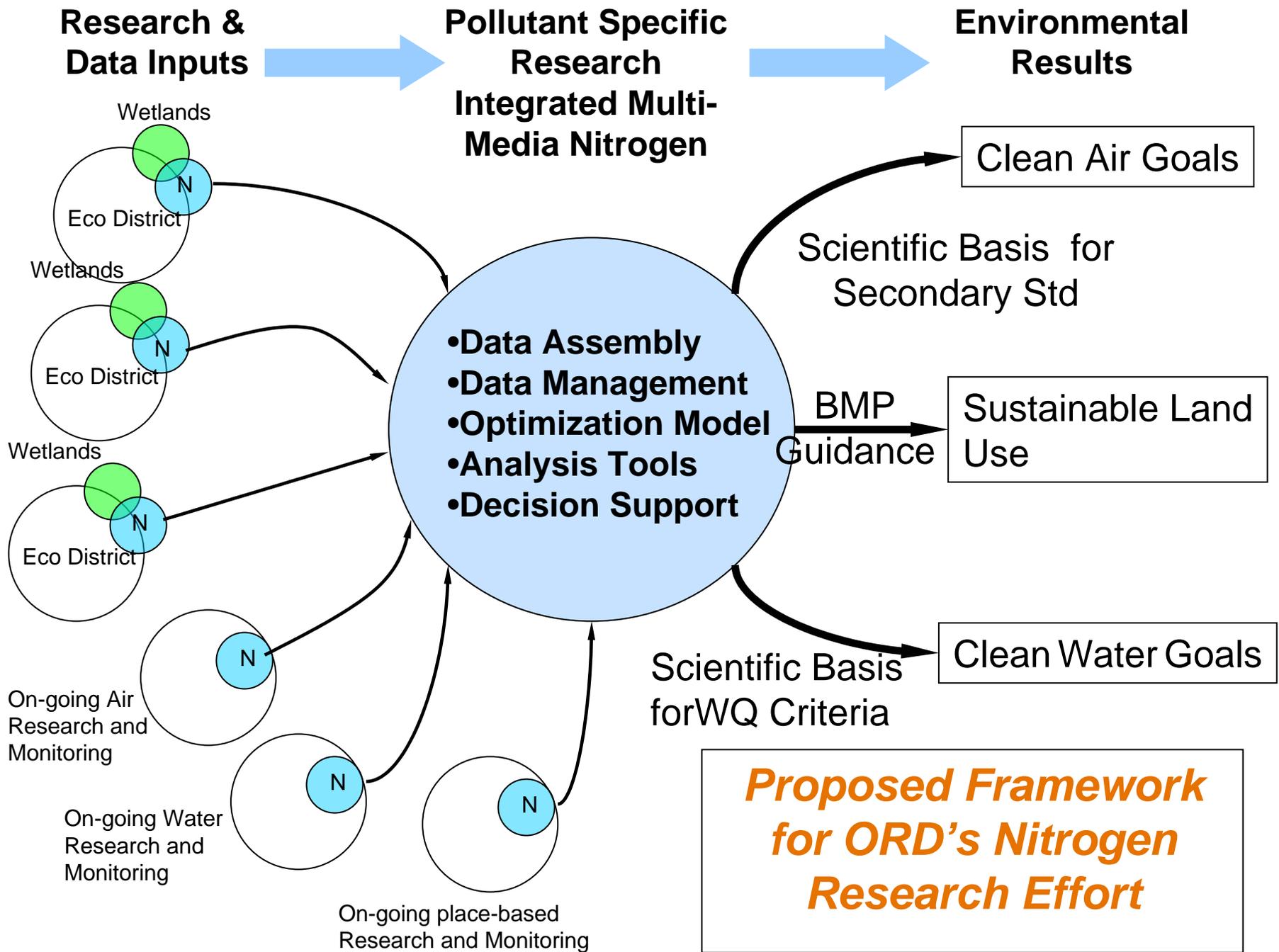
- **Inventories of EPA N Research**
  - Air Monitoring and Modeling
  - Water Quality - Nutrient Criteria Development
  - Ecosystem Monitoring and Assessments (Including NEPs)
- **Impacts on Ecosystem Goods & Services**
  - Identification
  - Metrics
  - Data availability
  - Reference points
  - Sensitivity
  - Tradeoffs
  - Gaps
- **Mechanics of future research planning and information flow**
  - How will EPA address gaps?
  - How will efforts be integrated?
  - How will SAB – INC be kept informed?
- **Outcomes**
  - How will research results inform policy and practices?

# *Proposed Nitrogen Research Within ORD's Revised Ecological Research MultiYear Plan*

- The pollutant-specific component of ORD's revised MultiYear Plan for Ecological Research will be focused on reactive nitrogen ( $N_r$ )
  - Identifying and quantifying ecological services affected by nitrogen pollution and  $N_r$  controls
  - Across spatial scale and media
  - In combination with place-based and ecosystem-specific (wetlands) research foci
  - Long-Term Goal (still in discussion)
    - *“By 2013 half of EPA Regional Offices and all coastal states, including those on the Great Lakes, will be using guidance and decision-support tools developed by ORD and its partners to meet Clean Water and Clean Air for reactive nitrogen ( $N_r$ )”*

# Proposed ORD N Research Focus on Ecosystems Services





# Critical Path Concept For ORD's Reactive N Research

