



## 55<sup>th</sup> FIRT Annual Meeting

Tampa, Florida, 3-4 November 2005

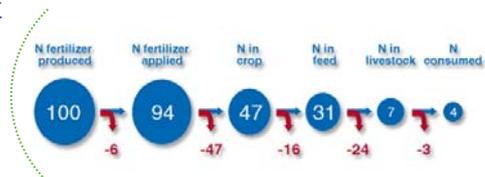
# International Nitrogen Initiative

L.M. Maene, Director General  
International Fertilizer Industry Association



## Why nitrogen?

- ⊕ The natural supply of reactive nitrogen is insufficient to sustain the current population.
- ⊕ Human ingenuity led to the Haber-Bosch process for fixing atmospheric nitrogen and overcoming this barrier to adequate food production.
- ⊕ The inefficient incorporation of nitrogen into food products means that reactive nitrogen is accumulating in the environment.



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## Why now?

- ⊕ The rate at which the problem is evolving is tremendous:  
½ of the total historical synthetic nitrogen fertilizer use has been within the last 20 years.
- ⊕ More than any other element, disruption of the nitrogen cycle appears to be linked to numerous environmental challenges, in part because nitrogen cascades through the environment.



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## The nitrogen challenge



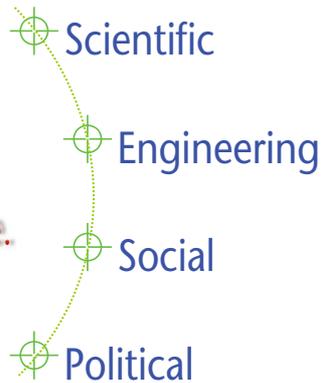
- ⊕ How to optimize the use of nitrogen to sustain human life while minimizing the negative impacts on the environment and human health.



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## What kind of instruments can be used?

They must be integrated if we are to meet the challenge.



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## The process

The International Nitrogen Initiative uses a three-step process to move from science to design to the implementation of the right responses.

### Phase I

Assessment of Knowledge

### Phase II

Identification of Solutions

### Phase III

Implementation of Solutions



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# Major outcomes to date



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## N Fertilizer Rapid Assessment

- ⊕ Efficiency of fertilizer N use
- ⊕ Role of emerging technologies
- ⊕ Pathways of N loss and their impacts
- ⊕ Societal responses

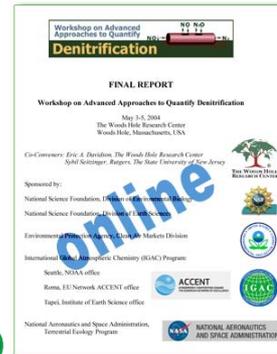
Executive Summary (online)  
and scientific synthesis monograph



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# Workshop on quantifying denitrification

- ⊕ Evaluating the state of knowledge in various ecosystems
- ⊕ Comparing methodologies from different scientific disciplines
- ⊕ Charting current weaknesses and actions needed



Final Report (online)



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# 3<sup>rd</sup> International Nitrogen Conference

- ⊕ Focus on Asia
- ⊕ Nanjing Declaration



*Shu Zhen* *K. Minami* *John W. Meyer*



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# What's new since October 2004?



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## Follow-up to the Nanjing Declaration

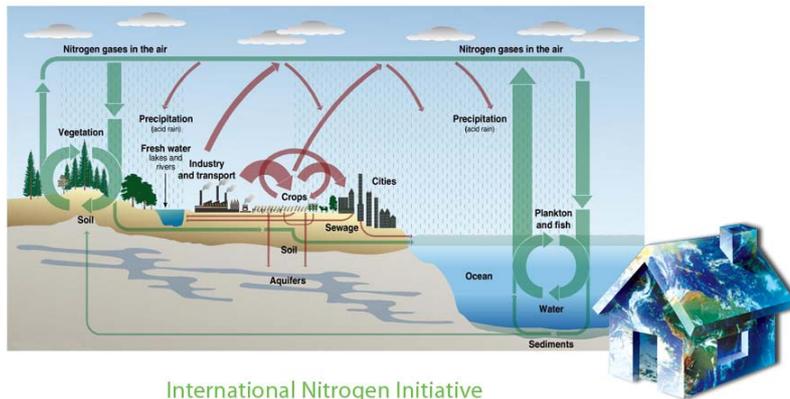
- ⊕ Forwarded to the United Nations Environment Programme (UNEP)
- ⊕ EU resolution to the 2006 UNEP Governing Council



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# Millennium Ecosystem Assessment

- Highlighted nitrogen as one of the major issues that is not getting enough attention.



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# Convention on Biological Diversity



- CBD Ad Hoc Technical Expert Group on Indicators for Assessing Progress towards the 2010 Biodiversity Target
- Nitrogen deposition indicator and related methodology
- Development of an N use efficiency indicator
- P to be included in the analysis?
- To be linked to info on rivers, wetlands and dead zones?



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# Consequences of industrial animal production

- ⊕ Consequences of current food consumption: trade in virtual water, energy and nutrients
- ⊕ Conference on Livestock in a Changing Landscape during the last quarter of 2006
- ⊕ Possibility of a workshop on the contribution of animal production to alterations in the N cycle



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## Regional centres

**North America**  
Consortium of interacting projects

**Latin America**  
Building a solid base

**Europe**  
NitroEurope project with EU funding

**Africa**  
Laying the foundation

**Asia**  
Nanjing conference and a preliminary assessment of reactive nitrogen cycles in Asia. 1<sup>st</sup> Indian workshop on N, new centre likely in South Asia



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## 4<sup>th</sup> International Nitrogen Conference

- ⊕ BRAZIL 2007
- ⊕ First organized totally under auspices of INI
- ⊕ Hosted by the Latin American Nitrogen Centre



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## 3 workshops on the horizon



- ⊕ Nitrogen policy - co-chaired by the UNEP Division for Technology, Industry and Economics
- ⊕ A Review of Anthropogenic Nitrogen Impacts on the Open Ocean
- ⊕ Nitrogen and Human Health



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# Conclusions

- ⊕ Momentum continues to build around the challenge of managing the reactive N accumulating in the environment.
- ⊕ Opportunities to engage at regional and national levels are multiplying.
- ⊕ The fertilizer industry **MUST** be engaged or risks being bypassed.
- ⊕ Because much of the reactive nitrogen has been created by our industrial processes, we have a duty of care to address the issue.



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