

# Nitrogen emissions in Latin America: impacts, drivers, and policy responses

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# The Nitrogen Human Environment Network (Nnet Project)



A scientific cooperation network across Latin American countries to investigate the processes that modify different aspects of the nitrogen cycle.



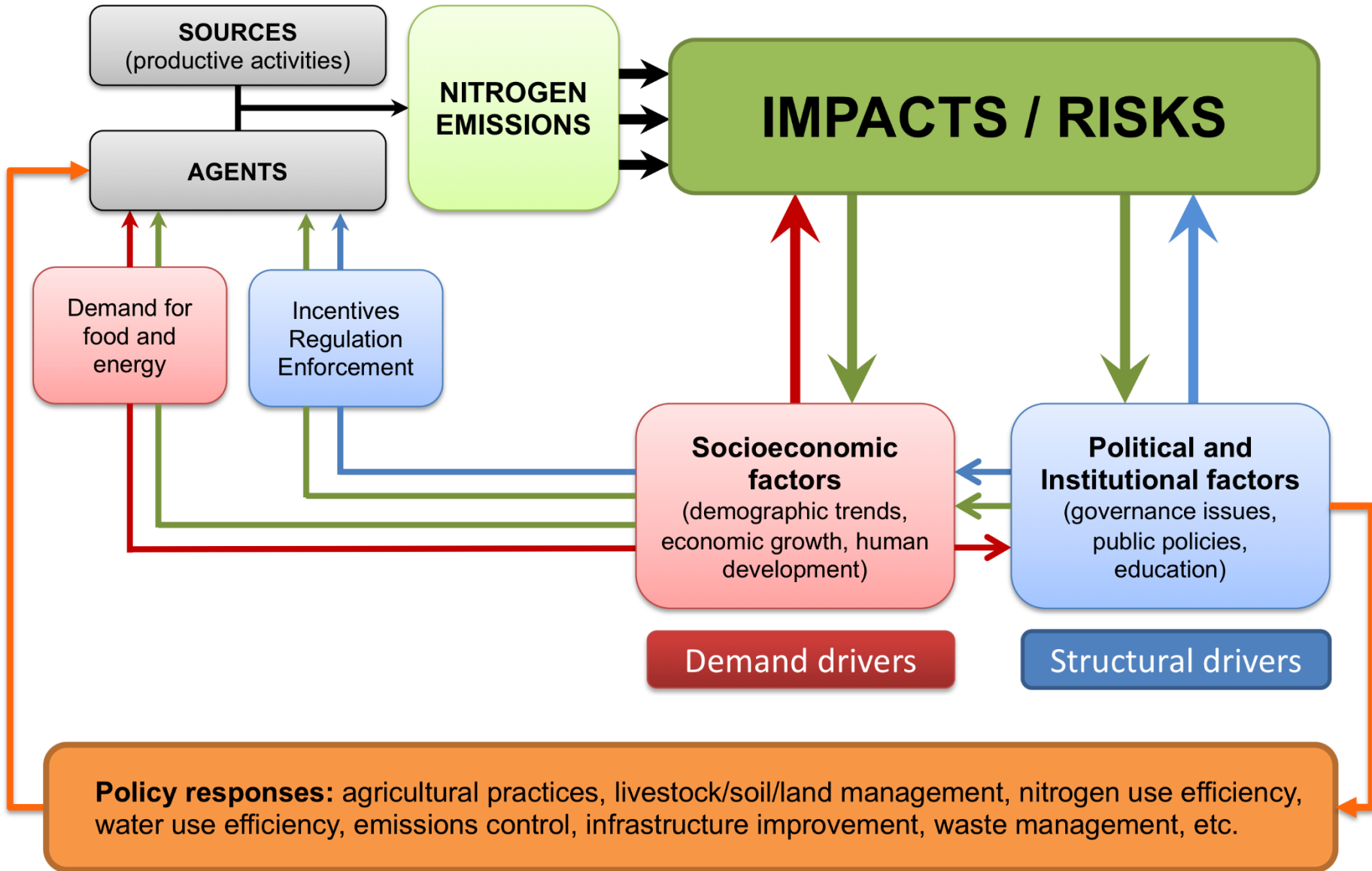
*The lack of information on the N cycle in Latin America is a serious impediment to provide a proper evaluation and projection on how human activity is altering N pools at regional scale.*

# Conceptual framework of nitrogen emissions in Latin America



Main objective is to support an integrated discussion on:

- the nitrogen dynamics in the region
- benefits *versus* costs situation
- impacts, drivers, and vulnerabilities
- policy responses



**SOURCES**

(productive activities)

**AGENTS**

**NITROGEN EMISSIONS**

**IMPACTS / RISKS**

Demand for food and energy

Incentives  
Regulation  
Enforcement

**Socioeconomic factors**

(demographic trends, economic growth, human development)

**Political and Institutional factors**

(governance issues, public policies, education)

**Demand drivers**

**Structural drivers**

**Policy responses:** agricultural practices, livestock/soil/land management, nitrogen use efficiency, water use efficiency, emissions control, infrastructure improvement, waste management, etc.

# OPEN QUESTIONS



- What factors are responsible for the increasing of emissions from nitrogen use? *production of food and energy*
- Are there other factors along with population growth influencing expansion of N emissions in the LA region?  
*economic growth, dietary habits*
- What is the role of government institutions in provoking this situation and finally in controlling and reversing this trend?  
*misguided policies, improving governmental and institutional capabilities*

# POLICY RESPONSES



A survey was performed to search for nitrogen in current LA policies:

- All countries reported general measures and mechanisms in the UNFCCC National Communications, but only as a GHG (N<sub>2</sub>O).
- There are no specific and/or unified policies dealing directly with N emissions.
- Isolated measures have been considered in the legislation of some countries.

COUNTRY	TYPE / YEAR	COMPOUNDS	OBJECTIVE
Chile	Supreme decree (1994)	NO <sub>x</sub>	Air quality (vehicles)
Chile	Supreme decree (1997)	NO <sub>3</sub> , NH <sub>3</sub>	Water quality (consumption)
Brazil	Law (1993)	NO <sub>x</sub>	Air quality (vehicles)
Brazil	Ministerial order (2004)	NO <sub>3</sub> , NH <sub>3</sub> , NO <sub>2</sub>	Water quality (consumption)
Brazil	Normative instruction (2007)	NO <sub>3</sub> , NH <sub>4</sub>	Soil quality (fertilizers)
Brazil	Decree (2010)	N <sub>2</sub> O	Low Carbon Agriculture (ABC Plan)
Venezuela	Decree (1998)	NO <sub>3</sub> , NO <sub>2</sub>	Water quality (consumption)
Venezuela	Law (2015)	NO <sub>x</sub> , NO <sub>3</sub> , NH <sub>3</sub> , NO <sub>2</sub>	Air and water quality (pollution)



# Thank you!

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