



Toward INMS
Lisbon, 27 February 2015

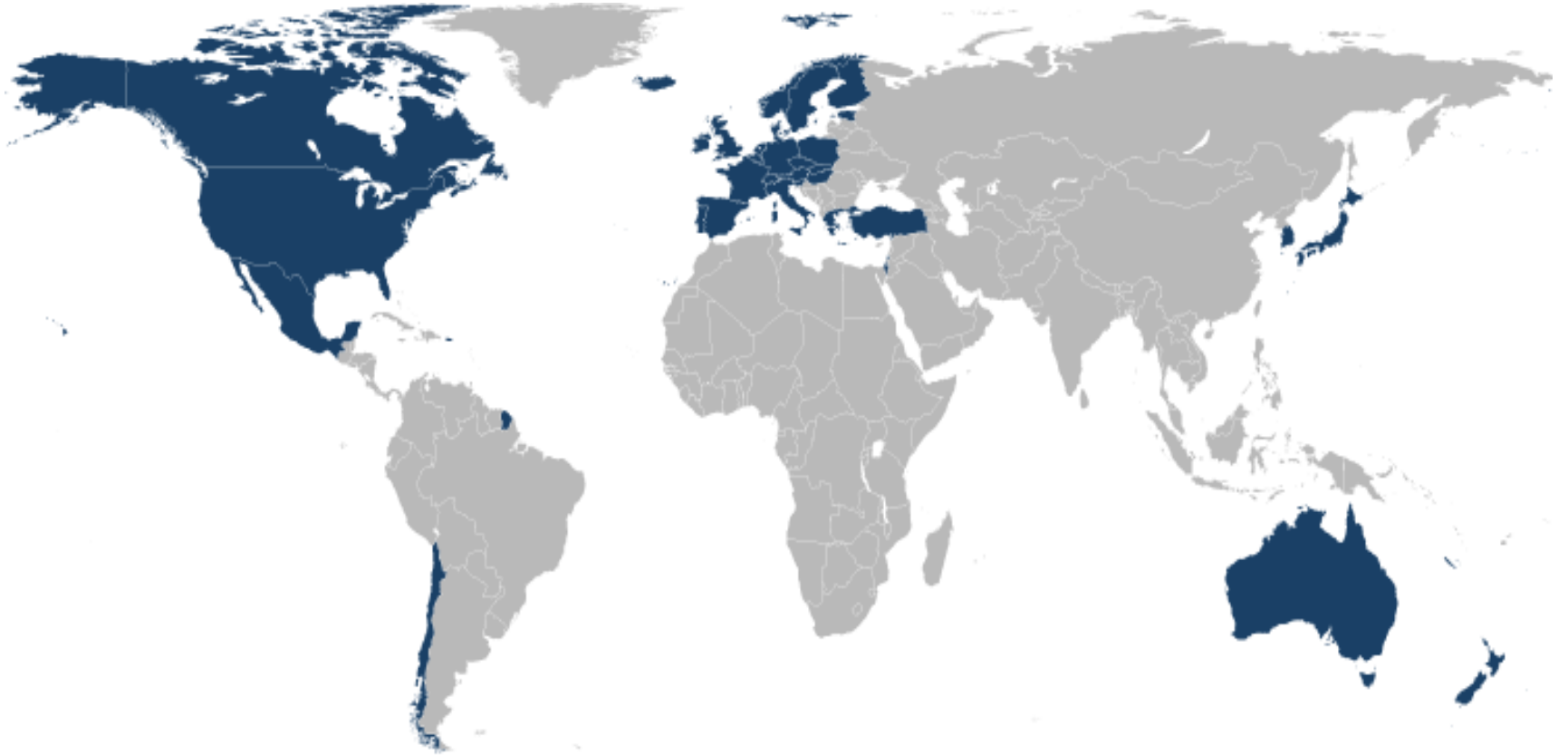
HUMAN IMPACTS ON THE NITROGEN CYCLE

A risk approach

Gérard Bonnis
Environment Directorate
Climate, Biodiversity and Water Division



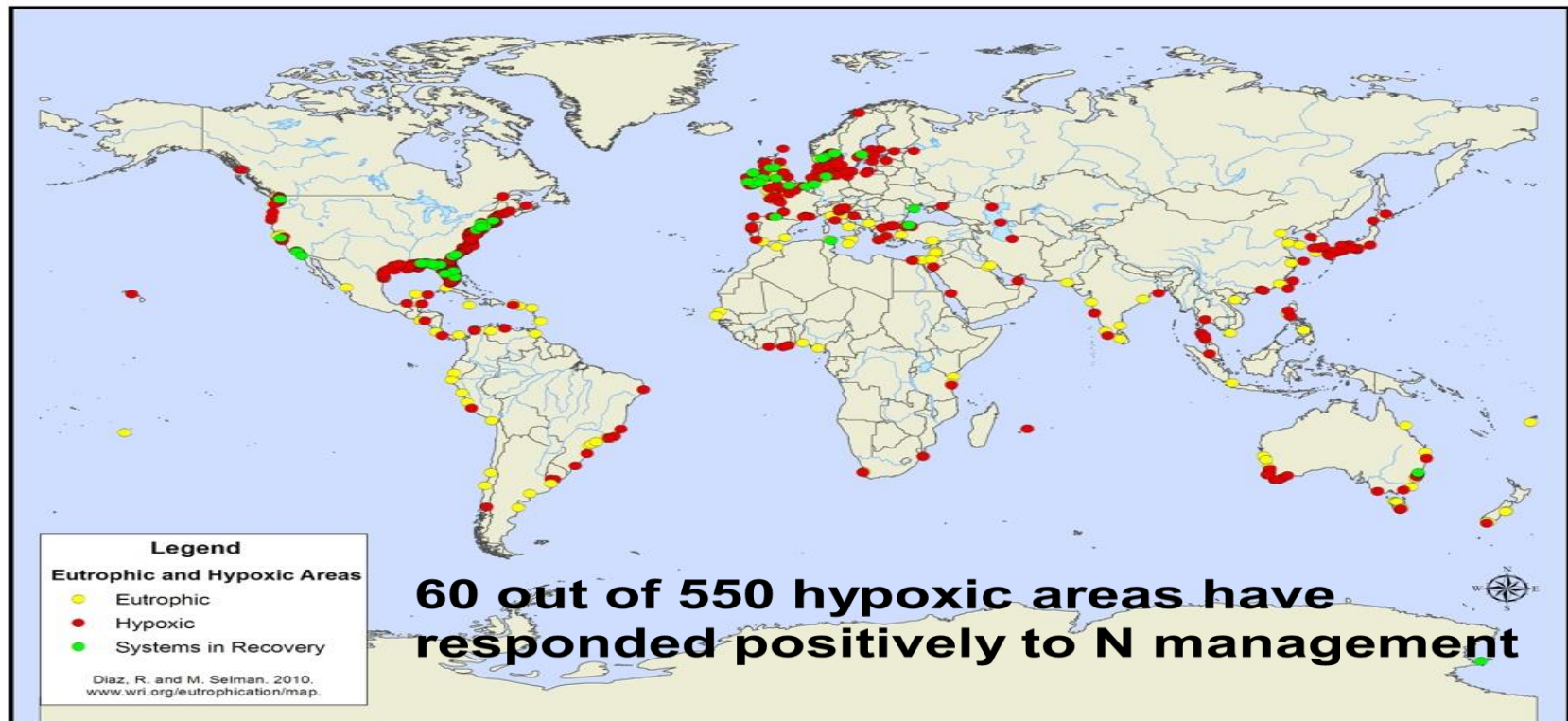
OECD membership





Water Nitrogen

World Hypoxic and Eutrophic Coastal Areas



Galloway et al. 2008



Air Nitrogen

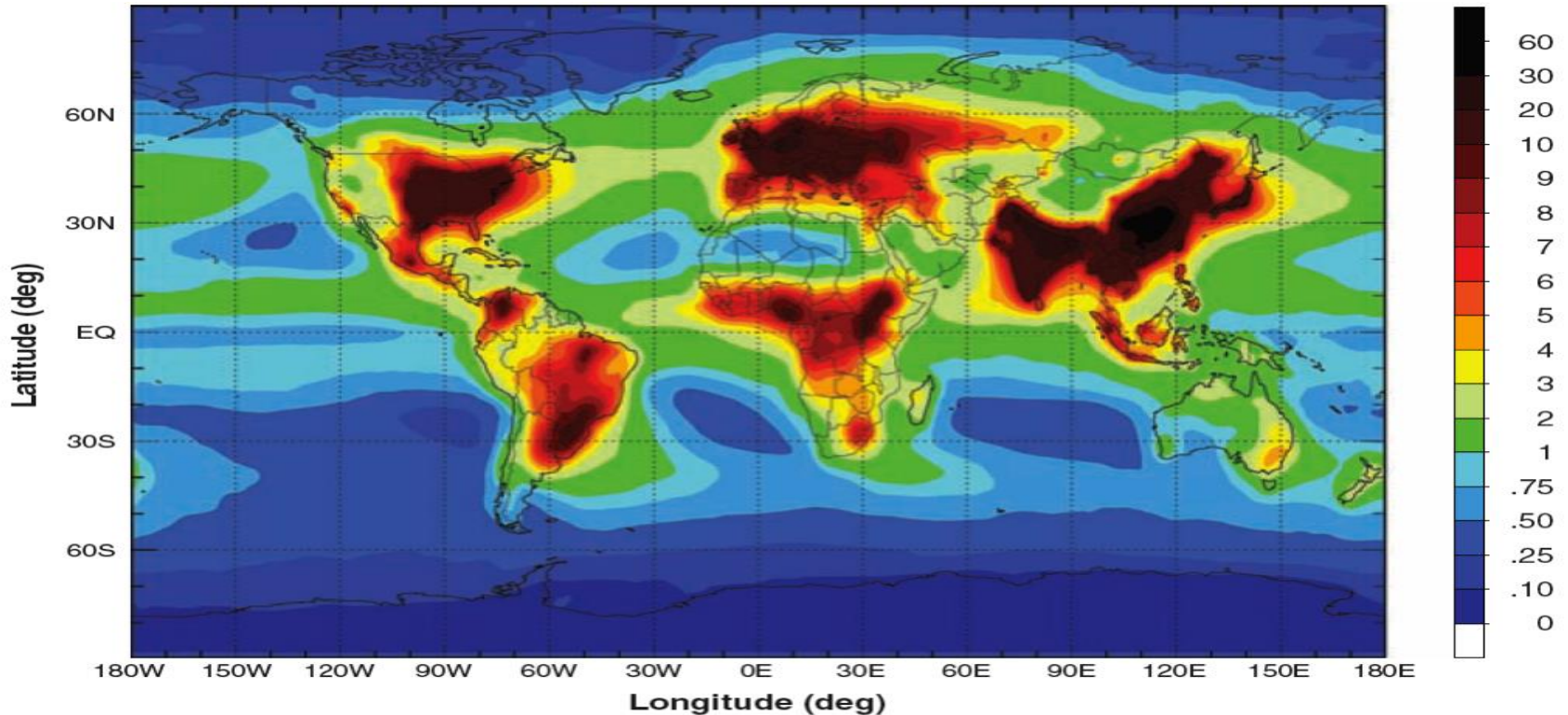


Fig. 2. Estimated N deposition from global total N (NO_y and NH_x) emissions, totaling 105 Tg N y⁻¹. The unit scale is kg N ha⁻¹ y⁻¹, modified from the original units (mg m⁻² y⁻¹) (16).

Galloway et al. 2008



Contributing to and engaging with INMS

UCL Institute for Sustainable Resources

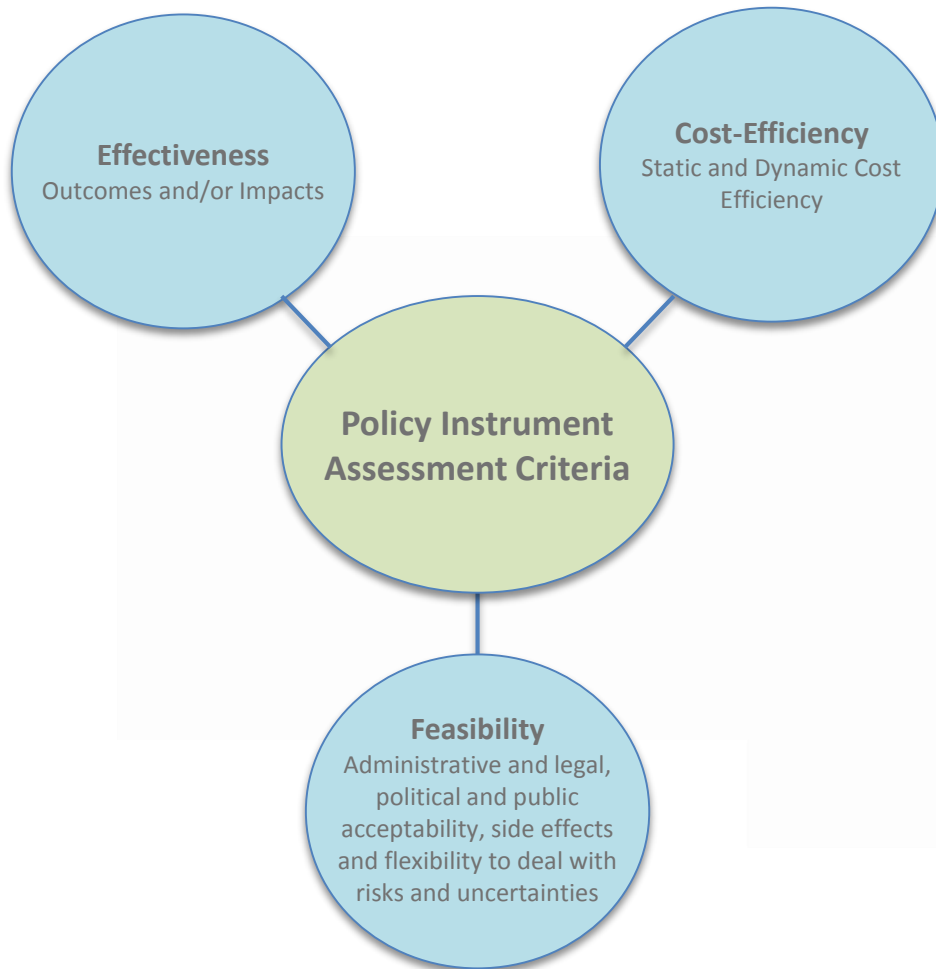


Policy Instruments for the Prevention of Nitrogen Pollution Effectiveness, Efficiency and Feasibility





Policy Instrument Assessment Criteria



- **Effectiveness**

- measured in terms of policy **'outcome'** (e.g. number of units installed) or policy **'impact'** (e.g. reduced emissions).

- **Cost-Efficiency**

- **'Static' cost-efficiency** (abatement achieved at the least cost to society at a given point in time), and **'dynamic' cost-efficiency** (abatement achieved at the least cost to society over time)

- **Feasibility**

- Administrative feasibility, ability to address side effects, legal compatibility, flexibility and ability to deal with risks and uncertainties, political and public acceptability



Instrument Typology

1. Environmental Taxes & Charges
2. Tradable Permit Systems
3. Direct Regulatory Instruments
4. Public Financial Support
5. Payments for Environmental (Ecosystem) Services
6. Information Measures
7. Voluntary Schemes



Instrument Mix

Optimality	Policy Instrument (a)	Policy Instrument (b)	Policy Instrument (c)	Policy Instrument (d)	Policy Instrument (e)
Policy Instrument (a)					
Policy Instrument (b)					
Policy Instrument (c)					

The risk approach

