



# NitroPortugal

Strengthening Portuguese research and innovation capacities in the field of excessive reactive nitrogen

H2020-TWINN-2015

Coordination & support action

Project n° 692331



# University of Lisbon



- Interdisciplinary high education and scientific research organization;
- 18 Faculties and Institutes;
- A total of 46 989 students, matriculated in 423 undergraduate, masters, and PhD courses;
- ~ 4000 permanent staff in teaching and research.

# School of Agronomy



- Agriculture, Forestry and Natural Resources Engineering, Food Science and Engineering, Animal Production Engineering, Environmental Engineering, Biology, and Landscape Architecture;
- ~ 1850 undergraduate, master and PhD students;
- 124 professors and 24 researchers

# Objectives of twinning

- **Stimulate scientific excellence and innovation capacity on the multiple threats and benefits of nitrogen in Portugal**
- The twinning exercise in NitroPortugal will provide the basis for a national scale assessment of all the effects of nitrogen, from the analysis and coordination of the scientific expertise and existing data on many different aspects of nitrogen.

# Why Nitrogen?

The production of  $N_r$  for crops fertilization has made population growth possible

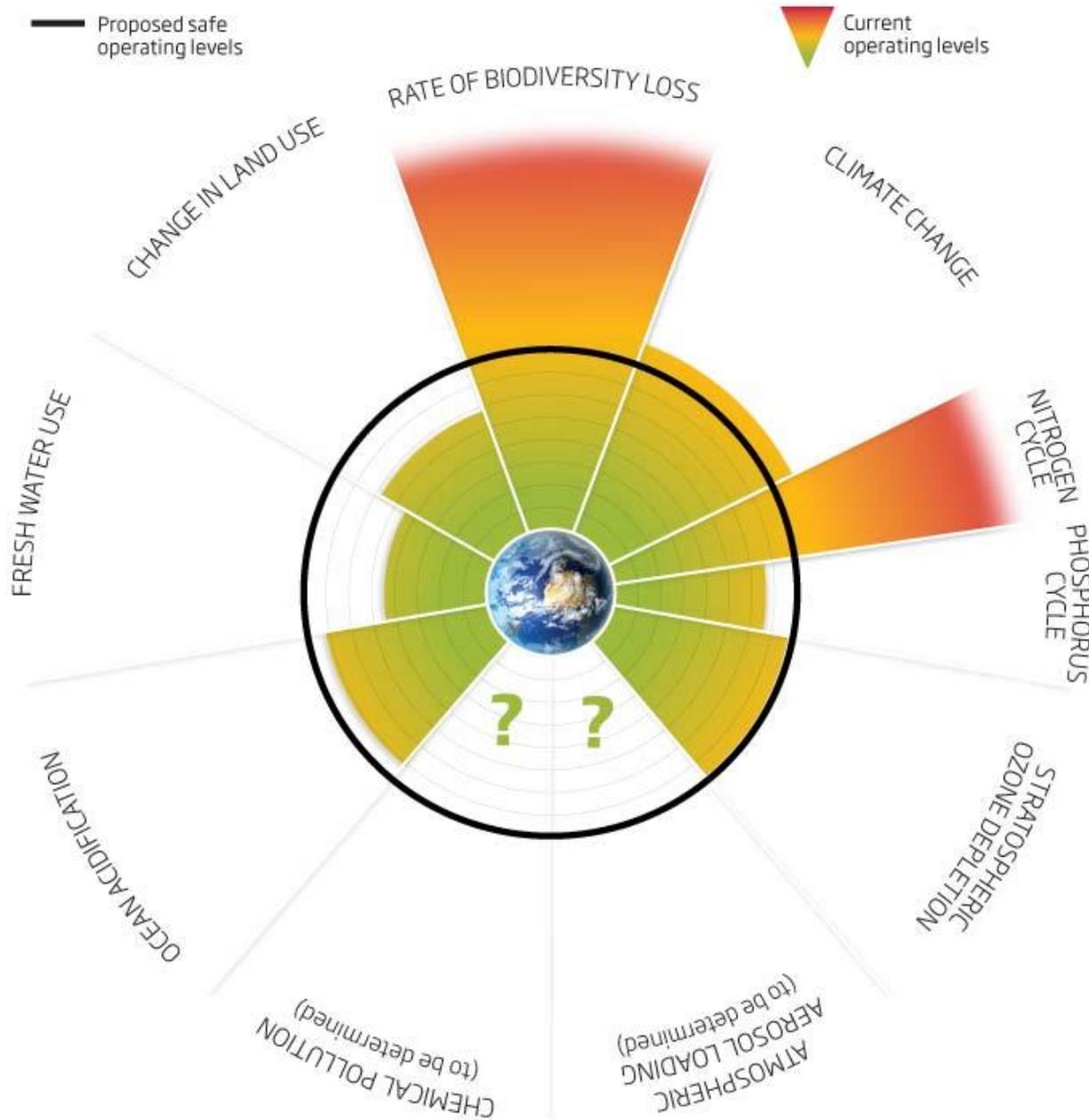
This growth has come with very high environmental and societal costs.

- For nearly a century mankind had caused unprecedented changes to the nitrogen cycle by more than doubling the transformation of non-reactive atmospheric di-nitrogen ( $N_2$ ) into reactive nitrogen ( $N_r$ ) forms, which cascade through the environment.

# Beyond the boundaries

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We have already overstepped three of nine planetary boundaries and are at grave risk of transgressing several others



- Reactive N is one of the three “planetary boundaries” that have been exceeded as a result of human activities

# GREENHOUSE BALANCE

$N_2O$ , GHG,  
Aerosol

# AIR QUALITY

$NO_x$   
 $PM_{2.5}$   
 $O_3$

# ECOSYSTEMS AND BIODIVERSITY

$NH_3$   
Organic N

# SOIL QUALITY

Organic N  
Acidification

$NO_3^-$   
& Dissolved  
Nitrogen

# WATER QUALITY

# Holistic approach



# Key Training Elements of the project

- **Training in key research areas of the nitrogen cycle and corresponding scientific production;**
- **Training on nitrogen integration and synthesis, to build the ground for the elaboration of a *Portuguese Nitrogen Assessment*;**
- **Training on science interface to national and international policy development.**

# Comments

- A stronger focus to young scientists to build the opportunity to renew the teams.
- The involvement of young scientists should be strengthened.
- Hiring young researcher should be permitted

# VISIT US AT:

# <http://www.isa.ulisboa.pt/proj/nitroportugal/>

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**Centre for Ecology & Hydrology**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

**Eusebiu Stamate** visiting CEH  
He is currently working on the project "Increasing the resolution of N emissions, atmospheric concentrations and deposition models in Portugal", from 12-May to 12-August-2016.

Increasing the resolution of N emissions, atmospheric concentrations and deposition models in Portugal

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Thank you