

NITROGREEN –

brings together short (industrial) and long (natural) cycles of Circular Carbon and Nitrogen for chemical/ materials as well as food & feed products, driven by renewable energy from wind, solar and biomass.

Project Team



NL:

Profs John Posada, Lotte Asveld, Patricia Osseweijer (TUD, LCA, biotechnology & society), Luuk van der Wielen (TUD, bioprocess engineering), nn* (environment research institute, microbial ecology).

BR:

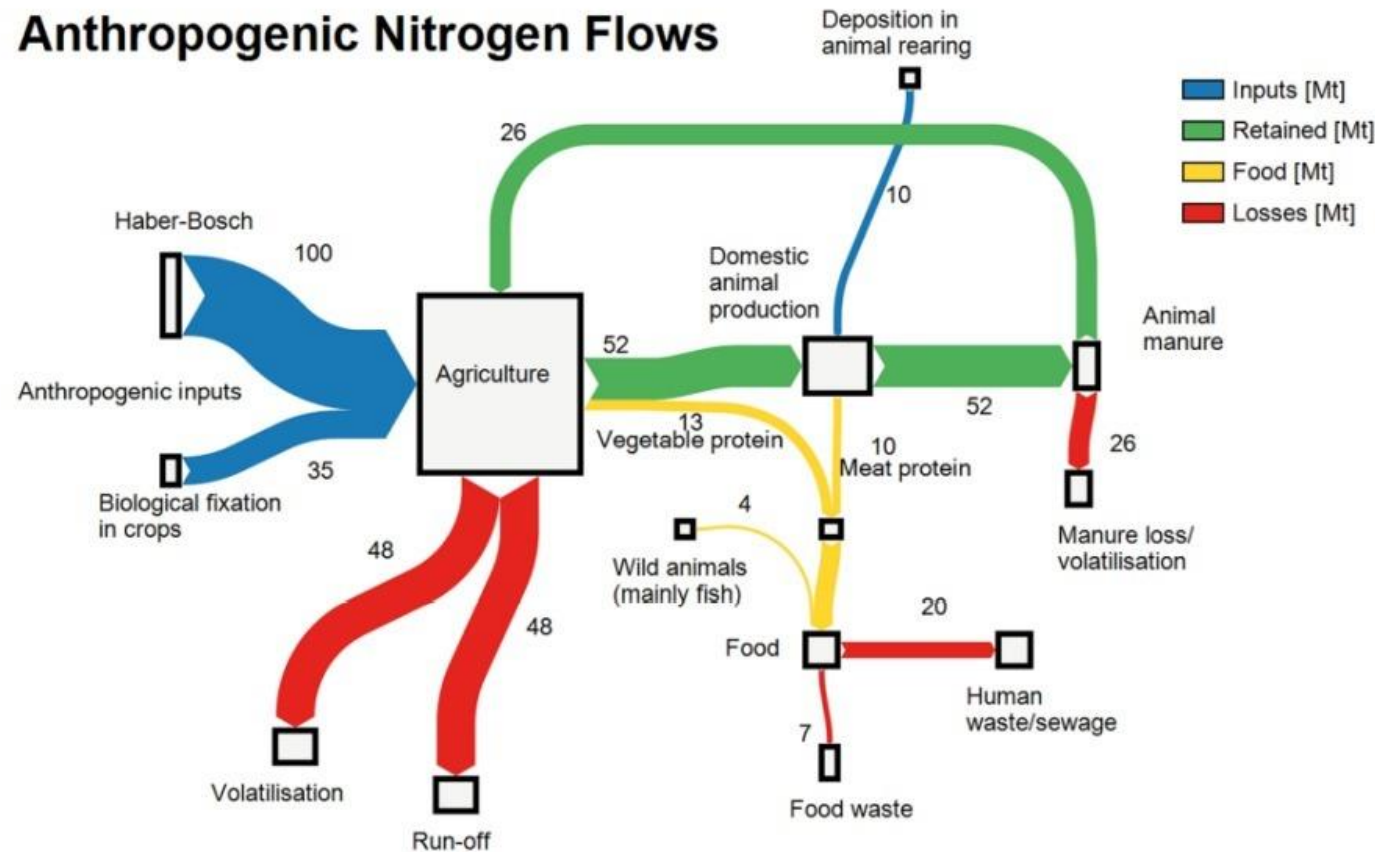
Profs. Telma T.Franco, Gustavo Valença, Antonio Bliska (UNICAMP, chem.&agro eng); Jose Baldin Pinheiro (USP, plant genetics), Rafaella Rossetto (IAC, agro-soil sciences)

Group secured support of forestry, agro, chemical/materials and food/feed industries. Other companies are welcome.

We are looking for NGO partners in environment/biodiversity as well as human/workers rights.

Contact emails: tfranco@unicamp.br (BR) and/or J.A.PosadaDuque@tudelft.nl (NL)

Inefficient and non-circular N: feeds extr 2 bn p @ ~2% global energy leading to major biodiversity/eutrophication and GHG emissions. Biobased manufacturing will worsen w/o interventions >> **NITROGREEN**



From Verstraete et al. *Environ. Sci. Technol.* 2015, 49, 9, 5247–5254 . <https://doi.org/10.1021/es505432w>

Ensuring a sustainable, equitable and resilient production of food & feed, chemicals is of a major global concern for land use for biomass production for the biobased economy, which should be reconciled with other interests.

At stake are SDGs in:



1.Improvement selected crops 2.Fermentation chemical & proteins 3. Integration agro/forestry 4. **Chemical/ Biological cycles**

Link short (industry) and long (agro/forestry) cycles of C & N

