LH, Jan 21st, 2022.

Master's thesis offered in the group of Cathrin Zengerling:
Understanding global phosphorus dynamics and governance mechanisms

Link to "Our Nutrient World" on Researchgate

Background:

- Nutrients are of essential importance to human food security. Largely managed along the conventional linear economic model in modern days food systems, neglecting their interlinkage with environmental and biological processes, they are subject to widespread mismanagement with dangerous consequences.
- Within the group of nutrients, the finite resource phosphorus is of particular relevance due to its non-substitutability and criticality while it is being dispersed through global trade networks.

Potential Topic Elements (combinable):

- tracing the main virtual (food-related) or physical (fertilizer-related) phosphorus flows globally based on existing literature and databases.
- researching major top-down and horizontal governance influences on different scales from global to urban
- analyzing pressures within the flow system or by governance measures and their consequences
- discussing promising informal governance mechanisms along the phosphorus distribution chain
- exploration of synergies between nutrients and renewable energy
- depending on interest, focus can be oriented towards agricultural/soil-science, (recovery) technologically, or any other phosphorus and nutrient related topic

Suitable Methods (combinable):

- qualitative methods such as scenario, policy or legal analysis
- quantitative methods such as material, substance flow analysis, MRIO modelling or lifecycle assessment
- interviews of experts and/or actors

Requirements:

- German or English
- joint master thesis of two students possible
- self-motivated to develop own research approach creatively and to familiarize with key literature of the field
- element of novelty in research idea and/or applied methods
- governance plays a role in your research interest

Recommended first readings:

- German Advisory Council on Global Change – Humanity on the move – Unlocking the transformative power of cities, pg. 74 & 179 & 397 & 424 & 428: https://www.wbgu.de/fileadmin/user_upload/wbgu/publikationen/hauptgutachten/hg2016/pdf/hg2016_en.pdf

- M.A. Sutton, A. Bleeker, C.M. Howard, M. Bekunda, B. Grizzetti, W. de Vries, H.J.M. van Grinsven, Y.P. Abrol, T.K. Adhya, G. Billen, E.A. Davidson, A. Datta, R. Diaz, J.W. Erisman, X.J. Liu, O. Oenema, C. Palm, N. Raghuram, S. Reis, R.W. Scholz, T. Sims}, H. Westhoek; Zhang, F. S. (2013): Our Nutrient World The challenge to produce more food and energy with less pollution, Prepared by the Global Partnership on Nutrient Management in collaboration with the International Nitrogen Initiative Global Overview on Nutrient

…if you got interested, please, contact lisa.harseim@enrlaw.uni-freiburg.de or Cathrin.zengerling@enrlaw.uni-freiburg.de!