

**Protection spheres/goods and setting there aims/nutrient standards for C, N, P, S  
with special reference to  
the anthroposphere within the nutrition system and human health**

K. Isermann, Bureau for Sustainable Nutrition, Land Use and Culture (BSNLC)  
H.v. Kleist-Strasse 4, D 67374 Hanhofen,  
Phone: 0049-6344-29 83; Fax: 0049 6344-93 72 64; e-mail: isermann.bnla@t-online.de

**Abstract**

Anthropogenic sources account for about 60 to 80% of the C- (only ca. 3% for CO<sub>2</sub>-C), N-, P- and S-fluxes involved (in-)directly both in **global eutrophication, acidification as well as climate change**, each enhancing mostly the other, and damaging actually more than 60% of the **protection spheres like pedosphere, hydrosphere, atmosphere, lithosphere and biosphere and the anthroposphere within the nutrition system and human health especially in respect to food and water supply** (4<sup>th</sup> UNEP-Report: Global Environment Outlook (GEO) Environment for Development / 25<sup>th</sup> October 2007).

Resulting from life cycle analysis (LCA's) about 50 (20-80) % of these anthropogenic C-, N-, P-, S-fluxes and emissions are caused by the **system nutrition of agriculture with plant and animal nutrition (production), human nutrition (consumption) and waste as well as waste water management (destruction, disposal)**, similar shares by use of (fossil) energy and industrial / trade activities mainly in the so called developed countries. Therefore there is a need to optimise sustainable use and management of the nutrients C, N, P and S in respect to environment (→ Consistency), corresponding consumption (→ Sufficiency) and production (→ Efficiency), especially within the above mentioned nutrition system.

**With a holistic approach protection aims / nutrient standards are set here as critical C, N, P, S levels and loads as well as for healthy human nutrition for all the above mentioned environmental spheres and anthroposphere, respectively, because they are a necessary prerequisite for cause oriented and sufficiently mitigation and adaptation options and measures done simultaneously with special reference to the nutrition system and land use.** Corresponding actually integrated but future needed integrated (inter-)national legislation especially in respect to sustainable nutrition is shown.

Sufficiency in (especially animal) food and feed as well as in bioenergy consumption and only corresponding production leads especially in the developed and industrialized countries with their tremendous over-nutrition to ca. 70 (60-80) % of the needed emission reductions of reactive C, N, P, S, flanked by “only” ca. 30 (20-40%) reductions with technical measures.

**A proposal was made for common activities in mitigation and adaption as well as for research: “Land use, water management and environmental esp. climate change (in the EU-27): Assessment – Mitigation – Adaptation”.**