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ENHANCING PHOSPHORUS GOVERNANCE IN AUSTRIA: POTENTIAL, PRIORITIES AND LIMITATIONS

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Abstract

The need for enhancing P (phosphorus) governance in Austria, as in most other countries, is driven by two major objectives: protecting surface waters from eutrophication and ensuring future food and energy security under scenarios of uncertain supply. Furthermore, the management of P rich flows constitutes a key element to achieve the ambitious goal of the European Commission to move towards a circular economy that enables economic growth by minimizing waste, use of raw materials and environmental damage (EC 2014).

The first step necessary towards these objectives is the analysis and understanding of the system representing the current situation, in order to identify losses, inefficiencies and processes which require action. This was initiated in Austria by Egle et al (2014a), who performed a detailed MFA study for an average year within 2004-2008. Zoboli et al (in press) carried it forward, by performing a historical analysis between 1990 and 2011 and examining more in depth the data quality and its implications in view of decision making and future monitoring.

Once the system has been thoroughly analyzed and understood, it is necessary to move forward and to assess how it can be optimized. A number of studies have investigated in detail specific issues in Austria, namely the potential for P recycling from wastewater and sewage sludge (Egle et al, 2014b), the potential impact exerted by a shift of dietary habits on nutrients flows (Thaler et al, 2015), and the performance of the national agri-environmental ÖPUL programme in reducing diffuse emissions of nutrients to water bodies (Gabriel et al, 2014). However, the holistic assessment of the improvement possibilities, which shall provide decision makers with a comprehensive perspective and with the capability of setting priorities, is still missing.

The objective of this analysis is to select fields of action aimed at optimizing national P management and to discuss their applicability to the Austrian system, their effectiveness, time frame and costs. Furthermore, the relative impact of each field of action on the overall national P management is quantified through two proposed indicators, in order to allow for an easier comparison and prioritization.

For this analysis the timespan covered by the MFA has been extended to 2012 and 2013, so to assess the optimization potential of a more updated system.

The selected fields of action are grouped in 3 categories: 1. Reduction of P demand and consumption; 2. Increase of P recovery and recycling; 3. Reduction of emissions to water bodies.

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For each selected field of action, the potential improvement with respect to the reference year 2013 is quantified and barriers and opportunities are analyzed. Furthermore, the uncertainty affecting the assessment of the status quo and the estimation of the potential is discussed and priorities for improving data collection schemes are identified.

The results are displayed in an optimized but hypothetical system that shall serve as a target state.

This study case on P governance and monitoring in Austria is an example of the maturity of the MFA approach as basis to design national materials accounting schemes and to support environmental decision-making.

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