



Elisabeth Haub School of Law  
**Environmental  
Law & Policy  
Hack**

**The Issue:** How humanity manages its complicated relationship with nitrogen (N) and phosphorus (P) over the coming decades will determine whether we can sustainably feed 10 billion people by 2050. While N and P are essential nutrients and therefore crucial to global food production, their oversupply to agricultural land via manure and synthetic fertilizer has created one of the most significant environmental threats of our time. Over the entire agri-food chain – from fertilizer production to waste management – only 8% of newly mobilized N and 15% of P is consumed by people. The remainder is lost to the environment, exacerbating a cascade of environmental and human-health impacts from air and water pollution to biodiversity loss, stratospheric ozone depletion and climate change. These losses have a substantial economic impact on society: totaling \$500-\$2500 billion USD per year, approximately 1%-4% of global GDP. Moreover, recent findings revealing a strong link between air pollution exposure and increased mortality risk from COVID-19 make efforts to reduce nutrient pollution especially urgent, given the central role that N pollution in particular plays in worsening air quality. Reducing this pollution burden could therefore make an enormous contribution to human and ecosystem wellbeing. The U.S. agricultural sector is one of the world's largest sources of nutrient pollution, but another significant source is the lawn and garden industry.

Federal environmental law, including the Clean Water Act and the Safe Drinking Water Act, addresses this issue in ways that are piecemeal at best. The Clean Water Act does not impose permitting requirements on most agricultural sources. Instead, it offers a series of weak incentives for state planning. The Clean Water Act imposes clean up mandates on drinking water utilities but does nothing to protect those who drink well water and does almost nothing to prevent water contamination in the first instance. Meanwhile, U.S. agricultural law on this topic is directly aimed at farmers and strives to change their behavior. This is highly problematic because focusing on farmer behavior in isolation ignores the larger structural and cultural factors that shape it and because farmers are spread across millions of farms and hundreds of millions of acres, making monitoring and enforcement extremely challenging. Voluntary programs administered through the U.S. Department of Agriculture (USDA) have not met the scale of the challenge, with the adoption of nutrient best management practices still sparse and pollution still increasing despite notable increases in government funding for conservation practices. Programs addressing nutrient runoff from residential lawns and commercial spaces such as golf courses are also highly variable in scope and effectiveness.

**The Problem:** We invite you to consider the problem of nutrient pollution on a sub-national scale. How can and should local, regional, and state governments use their legal authority (including financial resources) to address nutrient pollution? What sub-national laws frustrate the objective and how should they be reformed? A successful response will select a specific water body (or watershed), identify potential sources of nutrient contamination, and identify the actors who might be able to reduce that contamination. Be sure to consider not just those who are actually applying fertilizers but also those in influential relationships with those applying fertilizers (i.e. those in contractual relationships such as buyers and sellers). Remember that there is no silver bullet. Think about a bundled approach and take a deeper dive into one piece of the bundle without getting caught up in the fact that it won't solve the entire problem.

Submission guidelines:

- Participating teams should select a specific water body (or watershed), identify potential sources of nutrient contamination, and identify the actors who might be able to reduce that contamination – either directly by their own actions or indirectly by influencing the actions of others.
- Teams should recommend (a) strateg(ies) for reducing nutrient contamination in the identified water body and also identify plans, policies, laws, or financial initiatives to carry out the recommended strateg(ies).
- Submissions should include an analysis of relevant legal authority, including any barriers in current law, and prescriptions for removing any barriers.