

The Global TraPs Project Transdisciplinary Processes for Sustainable Phosphorus Management (2010–2015)

Phosphorus (P) is a key human, animal and plant nutrient with enormous significance for global food security and an important ingredient in many non-agricultural products. While knowledge on the production and utilization of phosphorus is scattered among very diverse stakeholders – from fertilizer and food industries to farmers, academics in various disciplines, and regulatory bodies, to name just a few – two broad issues surrounding phosphorus are increasingly being discussed and debated: the finite nature of phosphate rock resources vis-à-vis their importance in future food security, and the negative environmental impacts of excess phosphorus, particularly in freshwater and coastal marine ecosystems.

Concerns and opinions have been voiced in both scientific and popular media by individuals or groups often representing only a single stakeholder group. What has been lacking is a multi-stakeholder forum involving key actors with differing viewpoints, knowledge and concerns to guide and optimize future P use through an assessment of the current knowledge and knowledge gaps, and the development of options for the way forward. The Global TraPs Project (Global Transdisciplinary Processes for Sustainable Phosphorus Management; 2010–2015) is addressing this broad need. Focusing on the sustainability of future phosphorus use, Global TraPs will bring together “practice” (producers and users of phosphorus, along with those facilitating their efforts, such as extension and development organizations) and “science” (researchers from various disciplines with an interest in phosphorus) to work towards a common aim,

expressed in the guiding question of the project:

What new knowledge, technologies and policy options are needed to ensure that future phosphorus use is sustainable, improves food security and environmental quality, and provides benefits for the poor?

This high-visibility international project with broad participation is led by the Swiss Federal Institute of Technology (ETH) and the International Fertilizer Development Center (IFDC), each assuming responsibility for leadership of complementary facets – science (ETH) and practice (IFDC). It is expected that a large number of stakeholders will be involved: as many as 300 will likely participate during the project.

The project uses the transdisciplinary methodology which, through mutual learning involving ‘science and society,’ integration of diverse knowledge, and consensus building, enables groups to develop socially robust options for the future. While focusing on the global situation, Global TraPs incorporates knowledge and perspectives from location-specific, transdisciplinary case studies designed to address specific issues of interest within the human-environment system. Study and discussions will take place in ‘nodes’ organized around the global phosphorus supply chain, i.e., from exploration of phosphorus resources to its utilization and recycling. These nodes are led by three leaders, one from practice, another from science, and a third with in-depth experience in transdisciplinary methodology; participants in each node also come from practice and science in equal proportions.

The transdisciplinary methodology acknowledges and respects the differing interests and backgrounds of the stakeholders. Exchanges on views and values are integral to the process which operates in a precompetitive and non-politicized arena.

¹ Science and theory are usually used synonymously. Representatives from the scientific community are members of scientific/academic institutions whose primary goal is the production of knowledge, embedded in scientific publications, theories, methods etc. From a “normal science perspective,” this means that the goal of the work of scientists is to approach reality and truth by models and theories

Two rules of conduct will ensure constructive dialogue leading to results with benefits for all stakeholders: (1) a code of confidentiality of information, when requested by any participant; and (2) a commitment to not engage in discussions, nor make recommendations on, specific, day-to-day political or geopolitical issues. Instead, the Global TraPs project deals with policy options supporting sustainable P access and management.

Thus, Global TraPs will contribute, at the global level, to a constructive P dialogue and sustainable P use in the future by defining, in a multi-stakeholder forum, the following:

- The current stage of knowledge on phosphorus and its use, and new knowledge which is necessary to ensure sustainability of its use,
- New technologies which are needed to better process, use and re-use phosphorus, and
- Most valuable areas for policy intervention to ensure sustainable P use in the future.

The outputs of Global TraPs will be made available globally for high-level decision-makers in policy and politics, industry, science and development. Specific case studies and their outputs will benefit particular locations.

Why get engaged?

The scientific community is a key stakeholder in the global P arena, including in food security and environmental issues, and an important contributor to the transdisciplinary process, both in substance and in methodology.

As `science` node leaders, academic partners can strongly influence the direction of the TraPs efforts. As members of the nodes, partners from science – in cooperation with partners from practice – guide the development of critical topics, questions, scope, methodology and case studies to gain insight into critical aspects of sustainable P use along the supply

chain (from exploration, mining, processing, use, recycling and dissipation to cross-cutting issues). The science partners will also be a highly visible contributor in the TraPs global communications, both scientific and popular. Specifically, participation in the TraPs process will allow the scientific community to:

- Become part of the world's first global transdisciplinary process which organizes mutual learning between theory and practice.
- Be a full-fledged contributor and member of this transdisciplinary project, including in-depth learning about the transdisciplinary methodology and processes. (Note: The work of each node and case study will be supported by a transdisciplinarity coordinator - a scientist with strong theoretical and practical experience in designing and implementing transdisciplinary projects).
- Go beyond traditional basic and applied research: Using knowledge integration to reach across disciplines and theory-practice boundaries.
- Be linked to a top international community of research and practice on innovation in sustainable P management and transdisciplinary studies, ensuring that research results are directly received by key members of the academic and practice communities, and applicable to a topic of urgent relevance.
- Facilitate obtaining funding for efforts linked with Global TraPs, due to the project's international stature.
- Be involved in case studies focusing on issues of key importance to current discussions and debates surrounding P, from production to use to recycling. Work in synergy with those involved in other case studies for maximum synergy, learning, and impact.
- Participate in developing orientations and messages directed to science foundations and policy makers on stewardship issues related to P.

For more information or to inquire about involvement, please contact:

Science leader:	Roland Scholz	+41 44 632 58 91	roland.scholz@env.ethz.ch
Practice leader:	Amit Roy	+1 256 381 6600	aroy@ifdc.org
Science manager:	Andrea Ulrich	+41 44 632 93 18	andrea.ulrich@env.ethz.ch
Practice manager:	Debbie Hellums	+1 256 381 6600	dhellums@ifdc.org

For updates about the Global TraPs effort, visit <http://www.uns.ethz.ch/gt>