

2026 CALL FOR APPLICATIONS

GPI Fellowship

Methods and Approaches for Evaluating Phosphorus-Use Efficiency Across Agricultural Systems

The Global Phosphorus Institute (GPI) is an international scientific organization dedicated to advancing sustainable phosphorus management through science, innovation, and strategic partnerships. Guided by its Strategic Directions 2030 (SD2030), GPI generates and consolidates scientific evidence, supports innovation in phosphorus management, and produces knowledge products that inform policy and practice worldwide. Through its Fellowship Programme, GPI supports outstanding scientists to deliver knowledge products of global relevance.

DURATION

12 months

HOST LOCATION

Vienna, Austria

SCIENTIFIC OVERSIGHT

GPI + IAEA

BACKGROUND

Phosphorus-use efficiency (PUE) is an important component of sustainable crop production and effective nutrient management. A substantial body of scientific research has generated valuable evidence on phosphorus uptake, recovery, utilization, fertilizer management and crop responses across a wide range of agricultural systems.

At the same time, this evidence remains diverse in its definitions, indicators, calculation methods, spatial and temporal scales, experimental conditions and analytical approaches. Recent studies illustrate both the potential to establish large-scale PUE baselines and the strong influence of soil properties, climate, cropping systems and management practices on PUE outcomes. Global assessments have begun to quantify spatial patterns and improvement potential, while meta-analyses and long-term experiments continue to demonstrate substantial context-dependency in PUE responses.

Recognizing this gap, the GPI is launching this Fellowship to undertake a comprehensive methodological review, compare existing approaches, and develop a practical, harmonized framework for evaluating phosphorus-use efficiency across diverse agricultural systems. Particular attention will be given to the development of a structured baseline framework that can support future monitoring of PUE and facilitate comparison across global, regional, national and, where appropriate, sub-national contexts.

FELLOWSHIP OBJECTIVE

The overall objective of the Fellowship is to develop a comprehensive methodological synthesis and practical framework for evaluating phosphorus and nutrient-use efficiency across agricultural systems and scales (global, regional and national). The framework will state clearly which method serves which purpose, will include baselines against which progress can be tracked over time, and will deliver visual, decision-oriented outputs indicating where intervention is likely to yield the greatest gains.

The Fellowship will generate scientifically robust and decision-oriented knowledge products that will support GPI's technical publications, policy engagement and international scientific dialogue.

SCOPE OF THE FELLOWSHIP

Working under the joint scientific supervision of GPI and IAEA, the Fellow will undertake an in-depth assessment of existing methodologies used to evaluate phosphorus-use efficiency across agricultural systems.

The Fellowship will include, among other responsibilities:

- Reviewing existing concepts, definitions, indicators and methodologies related to phosphorus-use efficiency;
- Mapping related concepts including nutrient-use efficiency, phosphorus balances, phosphorus budgets, fertilizer recovery and crop uptake;
- Comparing methodologies across soils, crops, production systems, agroecological regions and scales of analysis;
- Identifying methodological assumptions, strengths, limitations and data requirements;
- Assessing the contribution of isotope and nuclear techniques to the evaluation of fertilizer-use efficiency and nutrient dynamics in soil-plant systems, alongside conventional agronomic approaches;
- Proposing a harmonized framework for evaluating phosphorus-use efficiency;
- Translating scientific findings into practical guidance for researchers, technical institutions and policymakers;
- Contributing to scientific meetings, training activities and expert consultations, including presentations and technical discussions;
- Contributing to scientific publications and communication products arising from the Fellowship.

HOW THE WORK CONNECTS

01

Evidence base

Review concepts, definitions, indicators and related PUE approaches.

02

Method comparison

Compare methodologies, assumptions, contexts and data requirements.

03

Harmonized framework

Propose a practical framework and structured PUE baseline approach.

04

Decision support

Translate findings into guidance, publications and scientific dialogue.

From methodological review to practical guidance for science, policy and implementation

EXPECTED DELIVERABLES

Over twelve months, the Fellow will produce:

01

Methodological inventory and gap analysis
a methodological inventory and gap analysis;

02

Comparability assessment
a comparability assessment relating the widely used indicators to one another and to reference measurements, with stated domains of validity and confidence;

03

Baseline assessment across scales
a baseline assessment of phosphorus-use efficiency across scales, presented visually, with a proposed approach for monitoring progress over time;

04

Harmonized evaluation framework
a harmonized evaluation framework with decision-support guidance;

05

Landmark report and publication
a landmark report together with methodological notes and at least one peer-reviewed publication.

Detailed outputs, phasing and milestones will be agreed with the Fellow in an inception work plan.

DURATION, HOSTING AND SUPERVISION

12 months in Vienna

The Fellowship is expected to run for twelve (12) months. The successful Fellow will be hosted at the Joint FAO/IAEA Centre in Vienna, Austria, providing the fellow with an international scientific environment and opportunities to engage with specialised expertise in soil-plant nutrient management, nutrient-use efficiency, advanced analytical methodologies, data analysis and scientific knowledge development.

Joint scientific oversight

A Joint Scientific Oversight Committee composed of one representative from each of the two organizations will provide strategic guidance, technical review and quality assurance throughout the Fellowship. Regular progress reviews will be conducted to monitor implementation and ensure delivery of agreed milestones.

WHO SHOULD APPLY?

Essential Qualifications

- PhD in Soil Science, Agronomy, Plant Nutrition, Crop Science, Environmental Science, Agricultural Systems or a closely related discipline;
- Demonstrated expertise in soil-plant nutrient management and phosphorus-use efficiency;
- A minimum of three years of relevant professional experience in soil-plant nutrient management, nutrient-use efficiency or a related field;
- Experience in literature review, evidence synthesis and methodological comparison;
- Strong data-analysis and data-visualisation skills;
- Excellent analytical and scientific writing skills, with a record of peer-reviewed publication and technical reporting;
- Ability to work independently and collaborating within multidisciplinary teams;
- Excellent written and spoken English.

Desirable Qualifications

- Isotope techniques applied to soil and nutrient studies;
- Phosphorus modelling, nutrient budgets and balance analysis;
- National- or global-scale data handling and systems analysis;
- Policy-oriented research and collaboration with international organizations or research networks;
- Experience in international scientific collaboration, capacity building, training, mentoring and knowledge transfer related to sustainable agriculture;

APPLICATION PACKAGE

Applicants should submit a complete application consisting of:

- 1 Curriculum Vitae.
- 2 Letter of Motivation (maximum two pages) outlining the applicant's proposed approach to implementing the Fellowship.
- 3 Names and contact details of three professional referees.

Only shortlisted candidates will be invited to interview.

Further Information

GlobalPhosphorusInstitute (GPI)
Email: gpicommunication@tgpi.org

GPI is committed to promoting excellence, diversity and equal opportunity in scientific research. Applications from qualified candidates of all nationalities are encouraged.