Law

Feedback from: European Sustainable Phosphorus Platform

Feedback reference	F3568378
Submitted on	21 June 2025
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User type	Other
Organisation	European Sustainable Phosphorus Platform
Organisation size	Micro (1 to 9 employees)
Transparency register number	260483415852-40 *(http://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist id=260483415852-40&locale=en)*
Country of origin	Belgium
Initiative	Towards a circular, regenerative and competitive bioeconomy *(/info/law/better-regulation/have-your-say/initiatives/14555-Towards-a-circular-regenerative-and-competitive-bioeconomy_en)*

'Phosphorus is essential to the bioeconomy, as an input for biomass production, as it is for crops, livestock and aquaculture. It is listed on the EU Critical Raw Materials and Europe is around 90% dependent on imports. Given this strategic dependency, the Bioeconomy Strategy should integrate Circular Economy policy, particularly for nutrients, and align with the EUs Critical Raw Materials agenda. Five countries (Morocco, Russia, USA, Saudi Arabia, China) account for over 80% of global phosphate exports. Following Russias invasion of Ukraine, the EU has seen an increase in fertiliser imports from Russia, creating

concerns about strategic dependency and vulnerability. In this context, the European Commissions Clean Industrial Deal positions fertilisers as a flagship sector for reducing import reliance, emissions, and costs through circular and low-carbon innovation, illustrating how the bioeconomy can enhance resilience, competitiveness, and decarbonisation. The Global Biodiversity Framework and the EU Green Deals Biodiversity and Farm-to-Fork Strategies target a 50% reduction in nutrient losses by 2030. ESPP welcomes the EUs continued support for nutrient recycling in the bioeconomy, particularly through funding of bio-based industries consortia and research projects. Outcomes from these projects highlight the need to understand phosphorus and nitrogen flows at both EU and regional levels; define local nutrient thresholds and actions, in particular to achieve Water Framework Directive quality status objectives; consider regional nutrient balances, to develop nutrient management and recycling solutions adapted to local contexts such as livestock density, agro-industrial activity, and waste infrastructure; address enablers of innovation such as regulation, investment, training and competence. ESPP considers that the Strategy should: Recognise nutrient recycling as a strategic priority. Support targeted R&D for reactive nitrogen recovery in forms of products that are industrially and economically viable. Develop harmonised CEN standards for defining and assessing bio-based nutrient content. Encourage traceability and producer responsibility schemes for bio-based materials and nutrients. Support research into prion safety for phosphorus recovery from Category 1 ABP incineration ash. Support research and pilot testing of innovative bio-based products and recycling processes to prepare their future inclusion into IED BAT BREFs. Support scale-up to full-scale for first innovator industrial plants and regional flagship demonstration sites. Update the Animal By-Products Regulation to provide clarity for industry and stakeholders, facilitate and accelerate authorisation. Strengthen data and knowledge tools on nutrient flows and recycling potential across regions and sectors. Undertake a strategic assessment of nutrient supply risks for EU food sovereignty, in line with the approach for strategic industrial sectors under the Critical Raw Materials Act. Develop data for phosphorus required by the CRM Act Annex II, §2 (calculation method for evaluation of economic importance and supply risk of Critical Raw Materials). Ensure long-term support for bioeconomy coordination platforms, to strengthen governance, value chain cooperation and stakeholder engagement. Promote training and capacity-building to

enable bioeconomy platforms to support stakeholder and value-chain engagement combined with expertise on specific material value chains. Support markets by public procurement policies for bio-based products, including targeted information and training for procurement personnel. Improve market conditions for recycled product. Recognise and value their environmental and social benefits through labelling, footprinting. Support a risk-based approach for contaminants in nutrient-rich materials. Promote regulatory coherence across EU frameworks to facilitate the bioeconomy and identify inconsistencies and barriers hindering circularity.'

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(252.7 KB - PDF - 1 page)
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ESPP Input to the European Commission Call for Evidence: Towards a Circular, Regenerative and Competitive Bioeconomy

23rd June 2025

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14555-Towards-a-circular-regenerative-and-competitive-bioeconomy_en

Phosphorus is essential to the bioeconomy, as an essential input for biomass production, just as it is for crops, livestock and aquaculture. It is listed on the EU Critical Raw Materials and Europe is around 90% dependent on imports. Given this strategic dependency, the Bioeconomy Strategy should integrate Circular Economy policy, particularly for nutrients, and align with the EU's Critical Raw Materials agenda.

Nutrient stewardship and recycling are vital not only to sustain bio-based production systems, for farmer incomes and rural economies, but also to reduce nutrient losses to the environment (eutrophication, atmospheric nitrogen emissions). A sustainable, circular and regenerative bioeconomy must treat nutrient stewardship as a foundational element, through use efficiency and recycling.

Strategic Vulnerability of EU Nutrient Supply

Five countries (Morocco, Russia, USA, Saudi Arabia, China) account for over 80% of global phosphate exports (see Alberto Persona's market analysis, S&P-Fertecon, ESPP eNews 96). Following Russia's invasion of Ukraine, the EU has seen an increase in fertiliser imports from Russia (Russia today supplies 25% of EU imports), creating concerns about strategic dependency and vulnerability. In this context, the European Commission's Clean Industrial Deal (CID) positions fertilisers as a flagship sector for reducing import reliance, emissions, and costs through circular and low-carbon innovation, illustrating how the bioeconomy can enhance resilience, competitiveness, and decarbonisation (see ESPP eNews 96)

International and EU Policy Alignment

The Global Biodiversity Framework (Kunming-Montreal COP15) and the EU Green Deal's Biodiversity and Farm-to-Fork Strategies target a 50% reduction in nutrient losses by 2030.

ESPP welcomes the EU's continued support for nutrient recycling in the bioeconomy, particularly through funding of bio-based industries consortia and research projects. Significant investment has been made in nutrient-related projects under Horizon 2020, LIFE and InterReg, with further funding ongoing through Horizon Europe and the Circular Bio-based Europe Joint Undertaking (CBE-JU). Outcomes from these projects highlight the need to:

- understand phosphorus and nitrogen flows at both EU and regional levels,
- define local nutrient thresholds and actions, in particular to achieve Water Framework Directive quality status objectives,
- consider regional nutrient balances, to develop nutrient management and recycling solutions adapted to local contexts such as livestock density, agro-industrial activity, and waste infrastructure,
- address enablers of innovation such as regulation, investment, training and competence.

ESPP considers that the EU Circular, Regenerative and Competitive Bioeconomy Strategy should:

1. **Recognise nutrient recycling as a strategic priority**, addressing both phosphorus and nitrogen, and integrate this into EU funding programmes, regulatory frameworks and market-pull instruments to promote circularity, resource efficiency resilience and food-chain sovereignty. Nutrient stewardship is central to ecosystem services and biodiversity strategies, to align with nature-positive economic objectives and co-benefits for water and air quality.
2. **Support targeted R&D for reactive nitrogen recovery** in forms of products that are industrially and economically viable, including investigating production of compressed ammonia gas. This would enable scalable nitrogen-recycling beyond nitrogen-salt solutions, which have low nitrogen content per tonne and so are often not viable for transport or industry use.
3. **Develop harmonised CEN standards** for defining and assessing bio-based nutrient content, because currently specified carbon-dating methods cannot identify bio-based phosphorus or nitrogen. This would contribute to international standard-setting and strengthen the EU's role in global bio-economy diplomacy.
4. **Encourage traceability and producer responsibility schemes** for bio-based materials and nutrients, making use of smart technologies to ensure safety and user confidence while enabling innovation and new business models.
5. **Support research into prion safety** for phosphorus recovery from Category 1 ABP incineration ash, as identified in EFSA Opinion 2025;23, e9435, in order to establish whether or not this significant resource can be safely recycled (c 30 000 t/y of phosphorus, see ESPP eNews n°97).
6. **Support research and pilot testing** of innovative bio-based products and recycling processes to prepare their future inclusion into IED BAT BREFs.
7. **Support scale-up to full-scale** for "first innovator" industrial plants and regional flagship demonstration sites.
8. **Update the Animal By-Products Regulation** to provide clarity for industry and stakeholders, facilitate and accelerate authorisation and End-Point processes, reduce technology-specific constraints that limit innovation, and address regulatory barriers to nutrient circularity within the bioeconomy framework.
9. **Strengthen data and knowledge tools** on nutrient flows and recycling potential across regions and sectors, including manure (the largest secondary stream), food processing waste (including abattoirs), and domestic food waste, as well as industrial streams, covering recycling phosphorus for both fertiliser and other uses (e.g. animal feed, industrial uses). This would guide policy targets under the Critical Raw Materials Act 2024/1252 and inform phosphorus reuse and recycling rates under the recast Urban Waste Water Treatment Directive 2024/3019. Nutrient-specific KPIs (Key Performance Indicators, e.g. use efficiency and recycling rates for phosphorus and nitrogen) should be included in the EU bioeconomy monitoring system.
10. **Undertake a strategic assessment of nutrient supply risks** for EU food sovereignty, in line with the approach for strategic industrial sectors under the Critical Raw Materials Act, to underpin actions securing competitive and sustainable biomass supply. This analysis should be directly linked to the objective of "securing the

competitive and sustainable supply of biomass, both domestically and from outside the EU" as outlined in the Call for Evidence (page 3).

11. **Develop data for phosphorus required by the CRM Act Annex II, §2** (calculation method for evaluation of economic importance and supply risk of Critical Raw Materials)
12. **Ensure long-term support for bioeconomy coordination platforms**, both cross-sectoral and material-specific, to strengthen governance, value chain cooperation and stakeholder engagement. Such platforms could be funded through mixed models (minimum 50% co-funding from industry and non-public stakeholders) with multi-year funding (beyond three year R&D project funding: value-chain confidence building and expertise development take time) subject to 2-yearly assessments.
13. **Promote training and capacity-building** to enable bioeconomy platforms to support stakeholder and value-chain engagement combined with expertise on specific material value chains.
14. **Support markets by public procurement policies** for bio-based products, including targeted information and training for procurement personnel.
15. **Improve market conditions for recycled product.** Recognise and value their environmental and social benefits through labelling, footprinting. Develop targeted demand-side measures to create a level playing field with fossil-based and non-circular alternatives. See joint stakeholder proposals for 'market pull' policies at www.phosphorusplatform.eu/regulatory
16. **Support a risk-based approach** for contaminants in nutrient-rich materials (e.g. microplastics, pharmaceuticals, pathogens) to ensure safe recycling and upcycling, underpinned by improved data for robust risk assessments. Rapidly phase out PFAS production and use for all consumer applications and for all non-essential or dispersive industrial applications, with tolerances for recycling and reuse,
17. **Promote regulatory coherence across EU frameworks** (including REACH, Animal By-Products, Fertilisers, Waste, Animal Feed, and Industrial Emissions BREF's legislation, Water Framework Directive, IED BREFs) to facilitate the bioeconomy and to identify inconsistencies and barriers hindering nutrient circularity.