ESPP draft proposals for nutrients in the EU Circular Economy Act

***Context**: The President of the European Commission, Ursula von der Leyen, has announced an EU Circular Economy Act, to follow the second Circular Economy Action Plan (March 2020). Her mission letter to the new Commissioner for Environment, Water Resilience and a Competitive Circular Economy, Jessika Roswall, specifies that the new Circular Economy Act should include measures to create market demand for secondary materials and a single market for waste, especially for critical raw materials (phosphate rock is on the EU Critical Raw Material List since 2014, confirmed in the EU Critical Raw Materials Act 2024).*

***Comments, input and proposals are welcome** to info@phosphorusplatform.eu*

ESPP draft proposals:

1 Overall policy objectives

1.1 From waste to resources

EU policy should evolve from primarily controlling and reducing wastes to **developing secondary resources and reducing consumption of virgin materials**. These objectives are key to EU resource security and sustainability.

This requires **redefining waste and/or defining secondary raw materials, revising the Waste Hierarchy, reform of waste regulation**, as well as actions on fiscality (including Extended Producer Responsibility funding, import adjustment mechanisms to avoid externalising resource consumption in imported products), standards, Green Public Procurement, the CAP and other incentives and enforcement.

A **revised Waste Hierarchy's overarching principle should be the reduction of natural resource extraction**.

EU targets for waste recycling and for waste separation and sorting should be completed with **EU targets to reduce virgin material consumption** (including indirect consumption in imports), with targets for both overall total EU material footprint and for specific raw materials.

1.2 Creating an open market for secondary raw materials and recycled products

The current EU and national End-of-Waste system is not working: most recycling routes have no hope of ever seeing development of EU End-of-Waste criteria, and national End-of-Waste decisions are often unclear, slow, not coherent, do not bring mutual recognition (so no single market) or non-existent. This is an obstacle to placing recycled products on the European market, and importantly also to roll-out of recycled technologies (a company's technology produces a product in one country, a waste in another).

For organic materials which are recycled locally (composts, digestates, biowastes), the issue may not be End-of-Waste but the current fragmentation of national waste, fertiliser, agricultural and other regulations, the resulting complexity and administrative burden. This means no EU market for technology suppliers and no visibility for downstream international decision makers (agri-food industry, supermarkets).

Acceptance of recycled products should be based on proven health and environmental safety and quality, not on origin, whilst at the same time **retaining the protection and public confidence provided by producer responsibility and traceability**.

1.3 Add a nutrient resource consumption target to the Green Deal

The EU Green Deal (Farm-to-Fork and Biodiversity Strategies) and the UN Biodiversity Convention include the objective to reduce nutrient losses by 50%. This should be completed by a parallel **Farm-to-Fork target to reduce consumption of virgin nutrients**, transposed into CAP funding mechanisms to support farmers' implementation.

1.4 Phase out or control chemicals susceptible to inhibit recycling

Chemical contaminants are a major obstacle to many recycling routes, in particular for organic secondary materials rich in nutrients, which tend to also contain organic contaminants (microplastics, pharmaceuticals, industrial chemicals). To this end, the EU Chemicals Strategy for Sustainability should be implemented and accelerated, in particular for PFAS and remanent industrial chemicals. Action on pharmaceuticals is difficult but should not be abandoned. The same obligations must apply to imported products and articles, in order to not destroy industry in Europe and to ensure that imported contaminants do not inhibit the EU Circular Economy. **Robust enforcement procedures and verification for import**s is essential.

2 Market uptake of recycled nutrients

2.1 See ESPP proposals here www.phosphorusplatform.eu/regulatory

Note that this document on market uptake policies includes proposals on, inter alia:

- **study of possible progressive quotas for recycled nutrients** (recycled nutrient content requirements), covering all EU fertiliser sales (including of organic fertilisers, including imports), and of an accompanying recycled nutrient credit trading scheme
- **Green Public Purchasing**

- **define standards for "recycled" and "bio-based" nutrients**

3 Financial mechanisms:

3.1 Fiscal actions and border adjustment

- **nutrient BAM** (border adjustment mechanisms), taxing non-renewable nutrient imports, covering both imports of phosphorus chemicals, fertilisers and also nutrient content in imported animal feeds and food products,
- **Agriculture-ETS:** extend to cover include virgin nutrient use, with compensation for nutrient recycling
- **raw materials tax,** equivalent to landfill tax for waste, covering raw materials consumption, with a BAM to ensure a level playing field for EU industry
- **Extended Producer Responsibility:** tax pollutants and contaminants susceptible to interfere with reuse and recycling and use the revenue to support pollutant removal and recycling
- **shift fiscal burden** from jobs (employer's and employee's contributions) to resource and energy consumption, climate emissions (see EU project POLFREE and DYNAMIX recommendations in ESPP's SCOPE Newsletter n°120)

3.2 Energy policies

- **avoid renewable energy subsidies which push biomass or organic secondary materials to energy production, rather than materials recovery**
- include requirements on nutrient reuse or recycling into the Renewable Energy Directive (RED II, 2018/2001) for digestates and ashes with significant nutrient content

4 Agriculture

4.1 Common Agricultural Policy

The ESPP proposals on market uptake cited above mention the CAP, see SCOPE Newsletter n°154

4.2 Organic Farming

Circularity is a core objective of Organic Farming.

- Accelerate inclusion of recycled nutrient materials into the list of fertilisers accepted as inputs in Certified Organic Farming (EU 2021/1165).
- Develop overall criteria for acceptance or not of recycled nutrient materials (based on e.g. quality, solubility, nutrients, input materials …) rather than assessing and regulating one-by-one (case by case).

5 Strategic coordination of Circular Economy

At present, Circular Economy is a shared responsibility of DG GROW (including Critical Raw Materials, sustainable chemicals CSS / contaminants), DG ENVI (sustainability and safety), DG SANTE (circularity of animal by-products) and DG AGRI (nutrient circularity, in particular via the CAP) and also involves DG REGIO (e.g. Circular Cities and Regions Initiative), JRC and DG RTD. We propose the following to improve coordination and political impetus:

5.1 EU Commissioner for Circular Economy

sponsible for leading the development of the Circular Economy, for EU resource security and for policies on waste and virgin resource consumption reduction, and for coordinating Circular Economy actions of different DGs.

5.2 EU Circular Economy Board

Jessika Roswall, is European Commissioner for Environment, Water Resilience and a Competitive Circular Economy, whereas 'Circular Economy' was not in previous Commissioners' titles. To support this, and to coordinate EU resource security policies on waste and virgin resource consumption reduction, establish an EU Circular Economy expert group or committee, bringing together concerned Commission services, Member States, local authorities/public utilities, industry, stakeholders (environment and consumer NGOs, farmers' organisations) and scientific experts. In coordination with the European Circular Economy

Stakeholder Platform, Critical Raw Materials Board, Future for Agriculture, Food Waste Forum, European Environment Agency …

5.3 EU Commission single information point for Circular Economy

Establish an inter-DG European Commission information point, for Circular Economy, for questions regarding regulation and proposals for policy, covering Waste regulation, Animal By-Product, Standards, site permitting (IED), … Develop a Circular Economy "FAQ" (European Commission Frequently Asked Questions document).

6 Waste regulations and recycling

6.1 Producer responsibility and traceability

ESPP fully supports the **principle of cradle-to-grave producer responsibility**, from end-of-life and for as long as a waste is not eliminated, and so the need for traceability, and so for an 'End-of-Waste' (EoW) procedure to exit these requirements.

Traceability can be, in many cases, not a barrier with today's smart phone technologies. Traceability of ingredients is widely in place today across the food industry.

6.2 Create a legal status for 'Secondary Materials'

Secondary materials which are intended for recycling currently are currently treated as "waste", despite they are not intended to be "discarded" (e.g. sewage sludge incineration ash transported from an incinerator to a processing plant to recover phosphorus).

A 'Secondary Materials' status (parallel to the 'Intermediate' status of REACH) should retain producer responsibility and traceability, but facilitate processing site intake (permitting), transport documentation.

Coherence should be ensured with definitions of secondary materials in different legislations. For example, Delegated Regulation 2023/2486 (Taxonomy criteria for inter alia circular economy) states "*For the purposes of the Delegated Act, 'secondary raw materials' means materials that have been prepared for re-use or recycled in accordance with Article 3 of the Waste Framework Directive and have ceased to be waste under Article 6 of that Directive*" (under 3.1 Construction of new buildings, footnote 82). This definition excludes by-products whereas secondary materials may often have this status.

6.3 Facilitate EU End-of-Waste criteria supported by the value chain

Introduce a fast-track procedure for EU End-of-Waste criteria which are validated by the value chain (sectoral organisations including producers, recyclers, traders and users), subject to consultation of civil society.

6.4 National / regional / "tacit" EoW: coherence, communication, 'mutual recognition'

Procedures, criteria and conclusions for EoW are widely disparate within and between Member States (MS), ranging from formal published national End-of-Waste Criteria to "tacit" EoW where responsibility is assumed by economic operators with some level of authority oversight.

National/regional EoW for recycled materials is often not recognised in other MS (no 'mutual recognition'). A process-product which is given EoW status in one MS or one region, may not be in another MS or even in another region of the same MS This is resolved for agricultural applications of recycled nutrients by the EU Fertilising Products Regulation, which authorises either National status or CE certification which gives EU EoW. The problems are however unresolved for other uses of recycled nutrients (animal feed, industrial chemicals) and for other materials recovered from wastewaters (industrial fibres or polymers …). The difficulty is that recycling is case-by-case, inputs are variable, processes are adapted to inputs and so locally specific, so that one case will not be identical to another. Even for recycled materials which may be mostly used locally, **incoherences in national EoW are an obstacle to EU roll-out of new recycling processes and to know-how**.

ESPP proposes:

- **Obligation for MS to instruct case-by-case EoW submissions in a given time frame,** e.g. 6 months by national/regional decision or by 'tacit' acceptance
- **Harmonisation of format and information** requested between national / regional EoW procedures

- **'Tacit' EoW (self-assessment) should be generalised for recycling of non-hazardous wastes to products** (respecting legal or industry product standards) not intended to be in contact with the environment
- **'Tacit' EoW could be subject to the operator having a recognised Quality Management System**
- National / regional and 'tacit' EoW decisions should be publicly notified at the EU level (in English), and, for non-hazardous wastes, **mutual recognition should be automatic in the absence of a (documented) objection by at least one MS** or by a stakeholder organisation (within a specified time, list of recognised organisations to prevent abuse)
- National fertiliser regulations, authorising use of secondary materials, should be publicly notified at the EU level (in English), with information as to whether the material retains "waste" status or has EoW (traceability, spreading plans)
- An 'emergency' procedure should allow instant suspension of the EoW status in case of concerns
- Establish an **EU expert group on recycled materials** (MS, COM, representatives of industry, consumer and environmental NGOs, scientific experts) to which disagreements between MS would be referred (objections to notifications, if not resolved between concerned MS), with possibility for all stakeholders to submit national EoW decisions (even where no MS objection). The aims would be to facilitate and accelerate 'Mutual Recognition' and provide reference recommendations for stakeholders, investors and Member States.
- The expert group could also develop **EU 'Guidance' on criteria for 'tacit' EoW** for certain sectors
- The above, all subject to **minimum requirements for the EoW dossier**: safety, product quality, recycling potential, dossier summary in English (for notification).

6.5 EU Guidance on interpretation of 4th End-of-Waste criterion

The Waste Framework Directive EoW and by-product criteria (art. 5 and 6) specify that "*use … will not lead to overall adverse environmental or human health impacts*". No recycled or reused material will contain zero contaminants, and this is also true of 'virgin materials'. This criterion should not therefore be interpreted to mean zero risk, as is sometimes the case.

EU guidance on interpretation of this criterion should be developed, including EU guidance on acceptable levels of specific contaminants (e.g. PFAS, dioxins, …) in different recycling routes and applications. This guidance should take into account secondary materials where processing can reduce contaminant levels.

6.6 Clarify art. 2-7(d) of REACH "recovered" substances

Art. 2-7(d) of REACH (EU Regulation on the registration, evaluation, authorisation and restriction of chemicals) 1907/2006 states that, under certain conditions, operators recovering a substance are exempt from registration obligations. This has been clarified in a Commission letter of 7/12/2015 (see here). This exemption is important as many recycling operators are SMEs not equipped to deal with REACH registration. It should be confirmed and clarified by modification of the REACH Regulation text.

6.7 Implement and improve separate biowaste collection

Enforce implementation in all Member States of the obligation for separate collection of household organic waste (biowaste), obligatory from 1st January 2024 under the Waste Framework Directive.

7 Flexibility for waste transport / intake for pilot plants

The recently increased 250 kg limit for waste transport for R&D is insufficient for pilot plant testing, so posing an obstacle to scale-up from research to implementation. Under conditions (to be defined), for both transport and recycling plant intake, **a further 1000 t/year x 2 years should be facilitated for industrial pilot testing and pre-market trials**.

8 Site permitting (IED)

8.1 IED site authorisation of waste materials for recycling

Modification of existing site operating permits (under EU Industrial Emissions Directive) to enable intake not only of virgin raw materials but also of 'wastes' is an obstacle to roll-out of recycling, because of delays, administrative complexity, costs.

- **Specify maximum permitting delay for modification of existing site permits to allow input of secondary raw materials**. Could be based on text of the EU Critical Raw Materials Act 2024/1252 art. 11 which specifies, for 'Strategic Projects' only, "the permit-granting process shall not exceed: … 15 months for (projects) … involving only processing or recycling." By default, secondary materials should be authorised unless specific risk concerns are raised justifying additional assessment.
- **Exclude or limit administration fees** for permit modifications to allow intake of secondary raw materials and exclude increases in annual permit administrative fees (for at least five years)
- **Facilitate permitting of intake of wastes with "Secondary Raw Material" status** (see proposal above)

The above should in any case be facilitated, for sites recycling phosphorus (an EU Critical Raw Material) by the instigation of the "single points of contact … responsible for facilitating and coordinating the permit-granting process for critical raw material projects …" under articles 8-9 of the EU Critical Raw Materials Act 2024/1252.

8.2 IED permit tonnages waste vs. product

Upgrading of waste or by-products produced at an IED siteto secondary raw material or product status, should not result in increasing the permitting tonnage. Such increases can result in additional prescriptions such as increased monitoring, or require a permit modification. This can be an obstacle to upgrading wastes by recycling.

8.3 Circularity in IED BAT KEIs

The Industrial Emissions Directive should evolve into an Industrial Emissions and Circularity Directive.

IED BAT BREF KEIs (Key Environmental Indicators) and KPIs (Key Performance Indicators) should more explicitly specify circularity (use of secondary raw materials where possible, recycling of waste and by-product streams), resource efficiency, reduction of resource consumption, in particular for Critical Raw Materials. See Denmark Environment Agency report on resource efficiency in KPIs 2016

9 Animal By-Products (ABP) and Animal Feed Regulations

The ABP and Feed Regulations need updating to facilitate circularity, whilst continuing to ensure food-chain safety and consumer / supermarket confidence in this safety.

See here joint letters to DG SANTE "The EU needs an approach to materials from animal origin in the food chain that is fit for the Circular Economy" (2 April 2024, 16 organisations including ESPP) and regarding measures to improve animal feed circularity (18 September 2024, 7 organisations including ESPP).

9.1 Review of the Animal By-Product (ABP) Regulations to facilitate circularity

An overall review of the ABP Regulation and its daughter regulations should identify how recycling of ABPs can be facilitated whilst ensuring safety, in particular:

- The "End-Point" process. This does not currently function except for certain specific ABP materials/applications as specified in 1069/2009 and 142/2011 (including via the EU Fertilising Products Regulation
- Facilitate EU and mutual recognition of "National End-Points" and national use authorisations
- Rationalise the EFSA process:
  - analysis of families of materials/processes/uses rather than one-by-one case decisions
  - development by EFSA of risk criteria and risk assessment guidance for different types of secondary material or recycling processes, to guide operators preparing dossiers and national regulator assessments
- Improve coherence between ABP End-Points and End-of-Waste
- Simply, clarify and streamline the Regulations which are currently incomprehensible to anyone other than ABP regulatory experts, address legal ambiguities and harmonise definitions, wordings and terminology

9.2 Review the Animal Feed Regulation exclusions

The Animal Feed Regulation 767/2009 Annex III currently excludes use in animal feed of human excreta, sewage, sewage sludge or animal manure, irrespective of how they are processed. This should not apply where the process results in a purified chemical with pathogen and contaminants removed (to safe levels).

9.3 Identify processes which ensure a 'universal' End-Point

Certain processes should be considered to achieve a 'universal' ABP End-Point, End-of-Waste, and exit from any regulation limiting use of certain materials irrespective of their processing (e.g. Nitrates Directive):

- Incineration (IED conditions) and recovery from ash
- Recovery from offgases, subject to demonstrating that pathogens are not present in gas or water droplets

Criteria for such 'universal' end points could be defined similarly to FPR CMCs (input materials, processing conditions, contaminants and safety of output materials) and then be considered applicable to all relevant regulations (ABP, EoW, FPR …)

10 Coherence and clarity of regulations

Complexity of regulatory requirements (such as contaminants limits, testing requirements, authorisation and registration dossiers) can be an obstacle to recycling because of the variability and relatively small production volumes of secondary materials.

10.1 Coherence review

A review of all relevant EU regulations (in particular EU chemicals regulation REACH, Animal By-Products, Waste, Fertilisers, Animal Feed) should be engaged to identify incoherences and obstacles to circular economy.

10.2 Coherent authorisation for recycling to different value chains

As far as possible, dossier requirements for authorisation for different applications (cosmetics, food contact, food, feed, crop protection, fertilisers …) should use the same core dossier, with additional requirements only where necessary to ensure safety in certain uses. As a general principle, authorisation for applications with higher risk (e.g. food, cosmetics) should give automatic authorisation for lower risk uses (e.g. fertilisers, food contact).

10.3 Definitions

Clarify definitions of 'biowaste' and food, beverage, pet food, animal feed residues. These are important secondary nutrient streams, but highly variable, with very many different food products, different processes …Issues may be pathogens, chemicals used in processing, concentration of agrochemicals from initial input crops. Define "comparable" for "biowaste" in the Waste Framework Directive and clarify the conditions for similar recycling and valorisation, and for mixing of such waste streams, for agri-food industry wastes and by-products, in respect of the waste hierarchy.

Clarify definitions for sewage sludge, food industry sludge, etc. Does sewage sludge include septic tank sludge ? similar industry sludge ?

Coherent definitions should be used across different regulations, and should be coherent with waste codes.

11 Taxonomy, CSRD, Public Procurement

The EU Taxonomy criteria (EU) 2023/2486 (EU criteria for green investment funding) currently include recovery of phosphorus from wastewater, recovery of bio-waste by anaerobic digestion or composting, depollution and dismantling of end-of-life products, sorting and material recovery of non-hazardous waste, repair, refurbishment and remanufacturing, preparation for re-use of end-of-life products and product components, sale of second-hand goods, product-as-a-service and other circular use- and result-oriented service models, marketplace for the trade of second-hand goods for reuse. The **Taxonomy should be extended to cover phosphorus recovery from other streams, and to cover recovery of nitrogen and other nutrients**, and other forms of chemical and bio-based recycling.

Circularity and nutrient management should be explicitly included into the EU Corporate Sustainability Reporting Directive (CSRD) 2022/2464.

The three EU public procurement directives (Public Procurement 2014/24/EU, Procurement by utilities 2014/25/EU, Concessions 2014/23/EU should be modified to specify that circularity should always be taken into account if documented.

12 Standards

Need for **EU standards (CEN) for the definitions of "bio-based nutrient" and of "recycled nutrient"** and for how to measure "bio-based" and "recycled" content for nutrient products, both fertilisers and functional industrial applications of nutrient elements. The CEN definition of "bio-based" CEN/TR 16721, developed for plastics, is not applicable to nutrients, because it uses carbon dating. See ESPP "Proposal on the definitions of "Bio-Based Fertiliser" or "Bio-Based Nutrient"" at www.phosphorusplatform.eu/regulatory

13 Strategic and Critical Raw Materials

13.1 Strategic inputs for food security

The EU Critical Raw Materials (CRM) Act 2024/1252 defines materials and projects which are 'Strategic' for the specified priority technologies: batteries, renewable energy, electronics-data, aerospace. Food supply and production security should also be recognised as "Strategic" for Europe. To parallel, the CRM Act 2024/1252 for technological materials, we propose that an Act should specify raw materials and other inputs (e.g. equipment) **'Strategic' and 'Critical' for food production** that supply and recycling targets and resilience actions should be defined in the same way as for technological materials.

13.2 Critical Raw Materials Act implementing regulation

Include phosphorus from sewage, manures, digestates, food waste, food processing and abattoir wastes in the list of "waste streams that shall at least be considered as having a relevant critical raw materials recovery potential" in the CRM Act implementing act (art. 26(7), deadline May 2025

13.3 Member States Critical Raw Material (CRM) Act implementation programmes

Ensure appropriate inclusion of circularity and reduction of consumption of **phosphorus in Member States programmes under CRM Act art. 26** (deadline 2 years from implementing act cited above), in particular: incentives to moderate P consumption, collection, sorting and processing of waste with P-recovery potential, increase use of secondary P (e.g. public procurement, financial incentives), technology R&D, workforce skills, possible financial contributions under extended producer responsibility obligations, support the use of Union quality standards for recycling processes of waste streams containing critical raw materials.

13.4 Battery Recycling

Modify Annex XII-C of the EU Battery Recycling Regulation 2023/1542 to add phosphorus to the list of five elements with specific recycling targets. This is coherent with the obligation in Annex VI that labelling must indicate all EU Critical Raw Materials (CRMs) present at > 0.1% by weight. Phosphorus is an EU Critical Raw Material and Lithium Iron Phosphate is today the dominant battery technology. Data on nutrient flows and nutrient use efficiency

13.5 Phosphorus and nutrient flow data

Reliable data and monitoring of nutrient flows is needed to support private and policy actions and investments.

- Update a comprehensive EU P-flow study, and plan annual updates
- Similarly for N, K
- From these, evaluate P-recycling potential from different waste streams, considering quantities, quality of secondary resource (concentration, contaminants) and logistics
- Publish these data via the European Environment Agency
- Modify customs and activity codes to better collect relevant data on secondary nutrient flows

13.6 Collect nutrient use data via the CAP

CAP funding should require farms to calculate their nutrient balance (inputs, offtakes) and to collect data on use of different nutrients (N, P, K), specifying virgin versus recycled nutrients. In parallel, further revise the

SAIO (Statistics on Agricultural Input and Output Regulation, see ESPP eNews n°92) requirements to provide better data on nutrient recycling and virgin nutrient consumption.

13.7 Nutrient use efficiency for manure, sewage sludge

The real potential for P-recycling depends on what proportion of secondary P-flows is today effectively recycled (i.e. is available to crops): quantitatively today, this concerns essentially manure, digestates and sewage sludge going to fields. What proportion of manure is usefully available to crops (including to grass) for different farm systems, depending on time of year of application, localisation of application (grazing animals will not spread manure evenly over the whole field, with concentrations in streams if accessible, around feeding points …). What proportion of sewage sludge nutrients are crop available (depending on their chemical form).

Acronyms:

ABP = Animal By-Product. CBAM = Carbon Border Adjustment Mechanism. CEN = European Committee for Standardisation. CMC = Component Material Category, as defined in Annex II of the EU Fertilising Products Regulation 2019/2009. CRM = Critical Raw Materials (as defined in EU Critical Raw Materials Act 2024/1252). CSS = Chemicals Strategy for Sustainability. DG = Directorate General of the European Commission. EoW = End-of-Waste as defined in the Waste Framework Directive 2008/98. FPR = EU Fertilising Products Regulation 2019/2009. IED = EU Industrial Emissions Directive (Directive 2010/75/EU as amended by Directive 2024/1785). K = potassium. N = nitrogen. P = phosphorus. SAIO Statistics on Agricultural Input and Output Regulation 2022/2379.