Sustainable Food Summit (SFS Europe), 1-2 June, Amsterdam

SFS brings together key decision-makers from food manufacturers, ingredient companies, science, NGOs to discuss updates on sustainable ingredients, social & customer impacts, and marketing best-practices. On 1-2 June in Amsterdam, then São Paulo 18-20 September and Singapore 28-29 November. To receive the detailed programme: www.sustainablefoodssummit.com/contactus.htm

ENRD seminar Opportunities and future perspectives for Resource Efficiency in Rural Areas, 13 June 2017, Brussels, Belgium

This one day seminar aims to build on the activities and findings of the Thematic Group on Resource Efficient Rural Economy of the European Commission European Network for Rural Development (ENRD). It will discuss the key factors enabling the effective pursuit of the resource efficient use and management of soils and water through the Rural Development Programmes and the implications for rural development policy design and delivery to 2020 and beyond. The day will include a mixture of presentations, discussions, workshops and practical examples. These are based on the learning and good practices highlighted by the ENRD Thematic Group. Simultaneous interpretation will be provided in English, French and German in the plenary sessions. Registration: www.enrd.ec.europa.eu/news-events/events/enrd-seminar-resource-efficiency_en

BIG Phosphorus removal and recovery conference, 4-5 July, Manchester United Football Stadium

The BIG Phosphorus removal and recovery conference will discuss P-removal down to low consents, catchment permitting, new phosphorus recovery technologies, biosolids recycling to land, with water utilities, technology suppliers and R&D experts from across Europe. ESPP will present developments in European policies on biosolids, nutrient recycling legislation and standards. More information: www.aquaenviro.co.uk/events/conferences/big-phosphorus-conference

New ESPP members

EasyMining

EasyMining Sweden delivers processes for phosphorus extraction from various raw materials, such as sewage sludge incineration ash, mining residues and apatite, so creating circular flows of phosphorus. Ash2®Phos enables phosphorus recovery from ash of incinerated sewage sludge which can contain 7-10% P (phosphorus) and 5 – 10% Fe or Al (iron and/or aluminium). The Ash2®Phos process uses a wet chemical process to recover the phosphorus in the form of clean commercial products: mono/di-ammonium phosphates (fertiliser) or mono/di-calcium phosphates (feed phosphates). The process also recovers aluminium and iron in the form of precipitation chemicals to be recycled back to sewage works for phosphorus precipitation. Unwanted heavy metals in the ash are separated for disposal. Easy Mining's CleanMAP® process enables energy efficient production of ammonium phosphates (MAP or DAP, of technical grade) using phosphoric acid streams of high or low concentrations, without requiring steam for acid concentration. Easymining believes that ESPP can contribute to developing phosphorus recycling through information, monitoring and contacts with decision makers.

See for more information www.easymining.se

SYSTEMIC

New ESPP Member is the EU Horizon 2020 project SYSTEMIC: Systemic large scale eco-innovation to advance circular economy and mineral recovery from organic waste in Europe. The project is a public-private partnership, 2017-2021, to build operational technologies and business models to recover phosphorus, nitrogen and potassium as products corresponding to fertiliser market requirements from digestates, at sites treating different combinations of animal manure, sewage sludge, food waste and other organic wastes. The project will include five demonstration-scale nutrient recovery installations, operating in combination with large anaerobic digesters and field testing of the recovered nutrient fertiliser products to demonstrate agronomic value, business case and environmental benefits. The five demonstrations plants and technology will be developed at Groot Zevert (Netherlands), AMPower (Belgium), Acqua&Sole (Italie), GNS (Germany), RIKA biofuels (United Kingdom), then adapted and transferred to AMPower (Belgium), Group op de Beeck (Belgium), Biovakka (Finland) and Acqua e Sol (Lombardy). Nutrients will be recovered by ammonia stripping (product ammonium sulphate), reverse osmosis (N and NK concentrates), phosphate extraction and precipitation (calcium phosphate), in organic digestate residuals, alongside production of purified irrigation water and biogas. The project launch meeting will take place 13-14 June, Wageningen, including a visit of the Groot Zevert demonstration plant.

SYSTEMIC partners are: Alterra Wageningen NL: Wageningen Environmental Research NL (lead), AM Power BE, Group Of de Beeck BE, Groot-Zevert Vergisting NL, Biovakka FI, AcquaSole IT, RIKA Biofuels UK, GNS DE, A-Farmers Ltd FI, ICL Fertilizers Europe NL, Nijhuis Water Technology NL, Proman Management AU, Ghent University BE, Milano University IT, Waterschap Rijn en Ijssel NL, Zuidelijke Land- en Tuinbouworganisatie NL, VCM BE, Biogas-E BE, European Biogas Association BE, RISE BE. Website www.systemicproject.eu (underway). Note that this project SYSTEMIC is not related to the circular economy consultancy and investment enterprise SYSTEMIQ launched 2016 by Jeremy Oppenheim, Martin Stuchtey, Janez Potočnik et al. www.systemiq.earth

Policy

Update ENRD thematic group Resource Efficient Rural Economy

ESPP joined the fourth and last working meeting of the Resource Efficient Rural Economy thematic group of the European Commission's European Network for Rural Development (ENRD), 3–5 May, Bologna, Italy. The meeting included a field trip to two projects: agriculture without tillage to enhance nutrient use and agricultural water reuse from a municipal wastewater treatment plant. ENRD is now finalising the final report and the outcomes will be presented during the **final seminar Opportunities and future perspectives for Resource Efficiency in Rural Areas, 13 June, Brussels**. ESPP made suggestions for the Rural Development Programme (RDP) to fund mechanisms to support recycling and more efficient use of nutrients, carbon and water. There are large opportunities for farmers and the rural economy to increase income, create jobs and develop farms and rural regions. ESPP recommends to include a stronger focus on nutrients in the existing set of measures, to be integrated with the energy and climate measures. There is a need to broaden the scope of measures to include losses in the whole rural food chain including crop production, livestock production and food processing. The RDP should also support the use of fertilisers based on recycled materials and collaboration of farmers and rural business in the nutrient circular economy.

Resource Efficient Rural Economy thematic group of the European Network for Rural Development (ENRD) https://enrd.ec.europa.eu/thematic-work/greening-rural-economy/resource-efficiency_en 4th ENRD meeting presentations and report https://enrd.ec.europa.eu/news-events/events/4th-meeting-thematic-group-resource-efficient-rural-economy_en Final ENRD thematic group seminar Opportunities and future perspectives for Resource Efficiency in Rural Areas, 13 June, Brussels www.enrd.ec.europa.eu/news-events/events/enrd-seminar-resource-efficiency_en

EU public consultation on pharmaceuticals in the environment

The European Commission has published a proposed 'roadmap' for a 'Strategic approach to pharmaceuticals in the environment', open for public comment to 26th May 2017. The three page document specifies the relevant EU regulatory framework, in particular pharmacovigilance, and proposes to address particularly pharmaceuticals in water but also pharmaceuticals in soil as specified by pharmacovigilance. The Commission estimates that EU pharmaceutical consumption doubled from 1990 to 2000 and doubled again from 2000 to 2012. The 'roadmap' proposes as main objectives to identify knowledge gaps and solution to fill these, and to protect the environment whilst safeguarding access to effective and appropriate pharmaceutical treatments for humans and animals. Uncertainty about levels of pharmaceuticals in the environment and need for risk assessment are underlined. ESPP has submitted comments to the EU to underline the importance of developing better knowledge concerning presence of pharmaceuticals in sewage biosolids and manures, fate and impact on soils and for agriculture, and removal of pharmaceuticals in sewage and manure treatments (e.g. sewage works, anaerobic digestion, composting). Among these topics there are important questions to maintaining recycling of sewage biosolids and manures to agriculture (safety, farmer and public confidence).

EU public consultation on strategy on pharmaceuticals in the environment, open to 26th May 2017 https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-2210630_en Pharmacovigilance http://ec.europa.eu/health/human-use/pharmacovigilance_en

ESPP submission to EU CAP consultation

ESPP has submitted comments to the EU public consultation on the CAP (Common Agricultural Policy). ESPP underlines the importance of phosphorus because of global food security and the environmental challenge of eutrophication, and underlines the importance of supporting phosphorus use efficiency and recycling in agriculture, in synergy with nitrogen management and return of organic carbon to soil. ESPP suggests to include in the CAP criteria and funding for closing nutrient cycles and for nutrient recycling, taking into account quality and safety, and including integration of nutrient management into farm, crop and food product sustainability criteria. Reference is made to the work of ENRD (European Network for Rural Development) working group on Resource Efficiency (underway) and the conclusions of the EIP-AGRI Focus Group 19 on "Recycled Nutrients" (See SCOPE Newsletter n°124).

EU public consultation on the Common Agricultural Policy, to 2nd May 2017 https://ec.europa.eu/agriculture/consultations/cap-modernising/2017_en ESPP's submission www.phosphorusplatform.eu/images/download/ESPP-input-CAP-consultation-1-5-17.pdf

HELCOM Group on Sustainable Agricultural Practices

This HELCOM Group's fourth meeting, 3-4 April 2017, decided in particular how to take forward the HELCOM commitment to define guidelines/recommendations for national manure standards (now expected to be achieved by 2019), discussed developments in national nutrient accounting, nutrient losses from agriculture, implementation of the EU BAT BREF for intensive rearing of pigs and poultry, and addressed implementation of the nutrient recycling actions defined in the HELCOM Recommendation Rec 38-1 "Sewage sludge handling", 1st March 2017 (see ESPP eNews n°9). The Group is producing an overview of national nutrient recycling policies in Baltic countries and (with the HELCOM PRESSURE Group) of national policies on reuse of phosphorus in sewage sludges (by September 2017). The Group agreed on the "need of clear definition for nutrient recycling" and to start by "elaboration of strategy and definitions", The Group also decided to send a questionnaire to HELCOM countries to collect data on nutrient flows and potentials for reuse (by October 2017). Lead countries for these actions are Germany and Finland.

HELCOM Baltic Marine Environment Protection Commission "Outcome of the Fourth Meeting of the Group on Sustainable Agricultural Practices (AGRI 4-2017)", 3-4 April 2017 https://portal.helcom.fi/meetings/AGRI%204-2017-419/MeetingDocuments/Outcome%20of%20AGRI%204-2017.pdf

Innovation and implementation

Gasum Finland to develop nutrient recovery from sewage sludge digestate

Finland's leading biogas plant operator, Gasum, which processed over 260 000 tonnes of biowastes in 2016, has engaged the development of a system to recover nitrogen and phosphorus from the digestate and dewatering liquor produced at sewage sludge anaerobic digestion plant. In 2016, nitrogen stripping and recovery technology proven at Gasum Vehmaa biogas plant was transferred to the Turku sewage sludge biogas plant, showing that 500 kgN/day could be recovered as ammonium water. Gasum is investing in even more efficient technology to achieve over 90 % nitrogen recovery at Turku biogas plant. Dewatered digestate containing phosphorus, nitrogen and organic carbon is utilised as valuable organic fertiliser and soil improver. In addition, Gasum is demonstrating a pyrolysis process at Turku biogas plant to process the dewatered digestate into biochar.

"Gasum invests in further refining of recycled nutrients" 14/2/2017 www.gasum.com/en/About-gasum/for-the-media/News/2017/gasum-invests-in-further-refining-of-recycled-nutrients "Daily total of 500 kg of nitrogen recovered from biogas plant reject water of sewage sludge origin" 13/9/2016 www.gasum.com/en/About-gasum/for-the-media/News/2016/Daily-total-of-500-kg-of-nitrogen-recovered-from-biogas-plant-reject-water-of-sewage-sludge-origin "Gasum develops safe nutrient recovering technique from wastewater" BSAG News 17/3/2017 www.bsag.fi

US inter-State research project into biowaste and residuals recycling

The NIMSS (National Information Management and Support System) project W3170 "Beneficial Reuse of Residuals and Reclaimed Water: Impact on Soil Ecosystem and Human Health", 2014-2019, brings together researchers from 23 US States. Residuals addressed include food wastes, sewage biosolids, manures, agricultural by-products and industrial sludges. The project addresses bioavailability of metal contaminants, trace organic chemical contaminants (TOrCs, such as personal care products, estrogenic compounds, pharmaceuticals), antibiotic resistance, bioavailability of nutrients – leaching and atmospheric nitrogen losses, soil carbon, soil health and climate change, urban soil restoration and life cycle analysis. Objective outcomes include: Informing policy makers on optimizing the use of residuals for cost-effective soil restoration - including for contaminated soils; recommendations for managing nitrogen and phosphorus; and providing the needed environmental fate data (leaching, persistence, and plant uptake) on the trace organics and inorganics in organic residuals.

W3170: Beneficial Reuse of Residuals and Reclaimed Water: Impact on Soil Ecosystem and Human Health (formerly W2170) www.nimss.org/projects/15936

Technical progress with JDC Phosphate "Improved Hard Process"

The CRU "Phosphates 2017" conference included a visit to JDC Phosphate's "Improved Hard Process" (IHP) installation, Fort Meade, Florida. David Blake of JDC presented current progress in the ongoing development of the IHP, which has now been piloted and tried for several decades. The process uses petcoke (cheap coke made from oil refinery residue) to produce highly concentrated phosphoric acid from normal or low-grade phosphate rock. Rock and petcoke are mixed and heated in a rotary ported kiln (specific kiln with ports to blow in liquid or gaseous fuels, air, etc.) which leads to local reduction and volatilisation of elemental phosphorus. This oxidises in the gas phase above the bed, releasing energy which returns to the process, and yielding P_2O_5 which is absorbed in a hydrating tower to give phosphoric acid. This is different from a phosphorus furnace process, such as Thermphos operated until 2012 in the Netherlands, where elemental phosphorus is produced (not re-oxidised), so requiring high electrical energy input. Elemental phosphorus (white phosphorus) has high-value applications in the chemicals industry, see SCOPE Newsletter n°123. The phosphoric acid from the IHP is concentrated and relatively pure, without the typical sulphates, aluminium, iron, magnesium and calcium contents of Merchant Grade Acid, but does contain fluoride and volatile heavy metals. The remaining calcium silicate phase from the IHP can be used as agglomerate for road construction, asphalt filler or in concrete. After solving problems with bed melting (by silica addition) and dust formation, JDC Phosphate now announces that it is modifying the IHP into two stages: a first kiln calcining the rock and driving out much of the cadmium, lead, zinc, and arsenic; and a second kiln performing the actual phosphate reduction/oxidation followed by hydration and absorption. This should leave fluoride as the only major contaminant in the phosphoric acid produced. JDC's current kiln facility has an annual capacity of 10 000 metric tonnes P_2O_5/year. They are planning to build a scaled-down two-kiln pilot to demonstrate and optimise operation in continuous mode and to test different phosphate rock types as inputs.

Article provided by Willem Schipper and North America Sustainable Phosphorus Alliance. JDC website www.jdcphosphate.org and www.jdcphosphate.org/a-step-in-a-better-direction/improved-hard-process-description

Circular Economy

Circular economy reference paper

As part of the EU Circular Impacts project, CEPS has published a 40-page review paper on circular economy definitions, processes and impacts. Twelve definitions of "circular economy" are summarised. Studies of circular economy environmental and economic impacts are reviewed. Relevance of renewable energies is discussed. The paper concludes that variation in impact analysis methodologies makes comparison difficult and that assessment of societal impacts other than job creation is lacking, e.g. indirect effects on value chains, consumption patterns, training needs and inequalities.

"The Circular Economy. A review of definitions, processes and impacts", V. Rizos, K. Tuokko, A. Behrens, CEPS Research Reports n° 2017/08, April 2017 www.ceps-ech.eu/publication/circular-economy-review-definitions-processes-and-impacts

Report for CEFIC on circular economy for chemicals

CEFIC, the European chemical industries federation, has published a report by Accenture on how the chemical industry can integrate the circular economy. The report identifies two aspects to maximise chemical utility: reusing and recycling chemical molecules and enabling products that are more durable, suitable for sharing or energy efficient. Five pathways for improving circularity of chemicals are identified: substituting fossil raw materials by renewables; reuse of end product; mechanical materials recycling; chemical recycling (chemical reprocessing of materials) and finally energy recovery or carbon utilisation. Accenture estimate that 60% of molecules supplied by the chemicals industry could be re-circulated by one of these five pathways, but underlines that this assumes availability of cheap energy. An example of potential molecule recycling is phosphorus from sewage sludge. The report identifies needs to move forward including "design to reuse" partnerships with suppliers, OEMs (original equipment manufacturers) and end-customers; reverse logistics and processing partnerships; RD into chemical recycling and into catalysis for hydrocarbon re-synthesis. The report estimates that a total volume of 66 million tonnes/year could be re-circulated, requiring an investment of 160-280 billion Euros and net energy consumption of 21 Mtoe (equivalent to 19 000 offshore wind turbines).

"Circular economy: new Accenture study shows opportunities for EU chemicals", CEFIC 16th March 2017 "Taking the European chemical industry into the Circular Economy" www.accenture.com/us-en/_acnmedia/PDF-45/Accenture-CEFIC-Report-Exec-Summary.pdf

Media, conferences and research

Toilet Accelerator in World Changing Ideas Awards

Fast Company magazine has named the Toilet Board Coalition's "Toilet Accelerator' project as a finalist in its first World Changing Ideas Awards (24 overall finalists from 1200 entries). The Toilet Board Coalition's project (see ESPP eNews n°6) works with SMEs and multinationals to develop a business-led approach to demonstrate the economic and social advantages of bringing sustainable sanitation to the 2.4 billion people worldwide who do not today have sanitation. Other awarded ideas include the Fruit and Vegetable Prescription Programme for a healthy diet, World Food Programme Innovation Accelerator, a meatless burger that bleeds, Biovessel chic indoor composter for food wastes, vertical hop farming, Hop Compost for city restaurants, Hong Kong project for urban burials ...

"The Toilet Board Coalition Toilet Accelerator selected by Fast Company 2017 World Changing Ideas Awards" www.medium.com/@TheToiletBoard/the-toilet-board-coalitions-toilet-accelerator-selected-4a597d3a0957 and Fast Company 20/3/2017 www.fastcompany.com/3068873/world-changing-ideas-2017-winners

CRU Phosphates 2017

CRU's Phosphates 2017 conference, Tampa, March 2017, brought together over 400 delegates from over the world. With a strong technical focus, while maintaining emphasis on world markets for rock, fertilizers, white phosphorus, industrial, food and feed phosphates, this remains one of the most significant industry conferences for phosphate. Highlights included an elaborate review of OCP's measures to achieve a more sustainable operation, the Chinese phosphate, purified acid and white phosphorus market, outlook for feed phosphates, the Florida view on mining and acid production from Mosaic, fertilizer finishing, gypsum stack tailings management, and the extraction of various other elements from phosphate. Also, the various possibilities to improve MGA yield by using various permutations of DH and HH processes was highlighted by various speakers. In addition, CRU provided an overview of the most relevant markets, price trends, and new entries. Next year, CRU's Phosphates 2018 conference will take place in Marrakesh, Morocco 12-14 March 2018. This year's conference tour visited JDC Phosphate's "Improved Hard Process" installation, see specific article above.

CRU Phosphates Conference website www.events.crugroup.com/phosphates

Misleading Life Cycle Analysis

Two papers by Kjerstadius (Lund University) and others present Life Cycle Analysis type comparisons between source separation collection of domestic wastewater and food waste by vacuum piping systems and a conventional urban system (centralised sewage treatment, separate collection of household by trucks). The first study (fig. 4) suggest that phosphorus recycling to agriculture would be around three times higher with the source-separation system. The second study states that "roughly 17-23 times more phosphorus can be recovered as bio-fertiliser". In the first study, this difference is stated to be "mainly due to the recovery of nutrients as struvite or ammonium sulphate in the source separation system" (whereas nutrient recovery was assumed not installed in the 'conventional' system). Presumably, the results are also based on the assumption that a significant part of the phosphorus in sewage sludge in the conventional system is not recycled to agriculture, whereas it is indicated that 75% goes to "soil improver" and 25% to "soil storage and agriculture" – so in fact nearly all the phosphorus is potentially recycled as an agricultural nutrient input. Note that these ESPP comments concern only the treatment of phosphorus in these studies, not to nitrogen which is significantly 'lost' to the atmosphere in conventional sewage treatment. These study conclusions demonstrate how the results of an LCA depend strongly on the definition and boundaries of the systems compared.

(1) "Carbon footprint of urban source separation for nutrient recovery", H. Kjerstadius et al., J. Environmental Management 197 (2017) 250e257 http://dx.doi.org/10.1016/j.jenvman.2017.03.094 (2) "Potential for nutrient recovery and biogas production from blackwater, food waste and greywater in urban source control systems", H. Kjerstadius et al., Environmental Technology, 2015 http://dx.doi.org/10.1080/09593330.2015.1007089

Events

Up to date list of events: www.phosphorusplatform.eu/upcoming-events

- **International interdisciplinary conference on land use and water quality (LuWQ2017)**
  29 May - 1 June 2017, Den Haag, Netherlands - Website
- **R3Water final conference**
  30 May 2017, Brussels, Belgium - Website
  With a focus on "Water in the circular economy – innovations for urban water treatment"
- **Sustainable Foods Summit 2017**
  1 - 2 June 2017, Amsterdam, Netherlands - Website
- **World Circular Economy Forum 2017**
  5 - 6 June 2017, Helsinki, Finland - Website
- **WEF Nutrient Symposium 2017**
  12 - 14 June 2017, Fort Lauderdale, Florida, USA - Website
- **+++ Kick-off meeting SYSTEMIC EU research project**
  13 - 14 June 2017, Wageningen, The Netherlands - Registration
  Start meeting of this project focussing on largescale demonstration projects for recovery of nutrients from manure and sewage sludge
- **+++ ENRD seminar Opportunities and future perspectives for Resource Efficiency in Rural Areas**
  13 June 2017, Brussels, Belgium - Registration
  Final seminar of the Thematic Group Resource Efficiency of the European Commission European Network for Rural Development (ENRD)
- **+++ All Ireland Phosphorus Sustainability workshop and conference Microbial Resources for Agricultural and Food Security**
  21 - 23 June 2017, Belfast, Ireland - Website - Contact - Flyer
  Starts with a 1 day workshop on 'Irish phosphorus sustainability' to establish the need for an Irish nutrient platform, and First conference of the Ireland EPA funded project "Phosphorus from wastewater: Novel technologies for advanced treatment and reuse".
- **The Raw Materials Conference 2017 - No energy transition without raw materials**
  23 June 2017, The Hague, Netherlands - Contact
  Organised by the Dutch Ministry of Foreign Affairs
- **International conference Innovative solutions for sustainable management of nitrogen**
  26 - 28 June 2017, Aarhus, Denmark - Website
- **International Fertiliser Society (IFS) Technical Conference 2017**
  29 - 30 June 2017, Geological Society, London, United Kingdom - Website
- **PBSi 2017 - International Conference On Phosphorus, Boron and Silicon**
  3 - 5 July 2017, Paris, France - Website
- **+++ The BIG Phosphorus Conference and Exhibition – Removal & Recovery**
  4 - 5 July 2017, Manchester United Football Stadium, United Kingdom - Website

The event is supported by the UKWIR National Phosphorus Trials steering group and the National Chemical Investigation Programme (CIP) Phosphorus Steering Group

- **+++ SMART-Plant research project launch**
  11 - 13 July 2017, Severn Trent Water, Coventry, United Kingdom - Website
  Launch meeting of the EU funded SMART-Plant research project
- **N8 AgriFood Food Production for the Future conference**
  11 - 13 July 2017, Durham, United Kingdom - Website
- **2nd IWA Resource Recovery conference**
  5 - 9 August 2017, New York, USA - Website - Email
  2nd International Water Association conference on resource recovery from wastewater
- **17th International RAMIRAN conference 'Sustainable utilization of manures and residue resources in agriculture'**
  4 - 6 September 2017, Wexford, Ireland - Website - Email
  RAMIRAN (Recycling of Agricultural, Municipal and Industrial Residues in Agriculture Network) is a research and expertise network dealing with environmental issues relating to the use of livestock manure and other organic residues in agriculture.
- **+++ ESPP meeting EU Fertiliser Regulation and STRUBIAS**
  5 September 2017, Brussels, Belgium - Registration
  Stakeholder meeting on EU Fertiliser Regulation developments and biochar, struvite and ash-products criteria
- **DPP-FORUM 2017 (in German)**
  12 September 2017, Berlin, Germany - Website
  National conference of the German Phosphorus Platform with a focus on how to get P-recycling to the market
- **European Waste Water Management Conference 2017**
  3 - 4 October 2017, Leeds, United Kingdom - Website
- **IFDC and IFA workshop Phosphate Fertilizer Production Technology**
  5 - 9 October 2017, Berlin, Germany - Website
- **NORDIWA - Nordic Waste Water Conference**
  10 - 12 October 2017, Aarhus, Denmark - Website
  Potential phosphorus session is planned, check for an update
- **+++ Nutrient recycling R&D projects and technologies meeting and technology fair**
  18 - 19 October 2017, Basel, Switzerland - Registration
  18 Oct: FHNW, DPP and Phos4You meeting "Sludge and phosphorus recycling in Switzerland and beyond (German, English translation)
  19 Oct: ESPP and Phos4You meeting EU (H2020, LIFE, InterReg) and national funded R&D projects on nutrient recycling (English, German translation)
- **Conference Managing Global Resources for a Secure Future**
  22 - 25 October 2017, Tampa, Florida, USA - Website
- **World Resources Forum 2017 - Accelerating the resource revolution**
  24 - 25 October 2017, Geneva, Switzerland - Website
- **EU Raw Materials Week 2017**
  6 - 10 November 2017, Brussels, Belgium - Website - Email
  Organized by the European Commission, DG Growth, with side events organized by other organizations. You can add you event by email. See the website for an up to date event list. Nutrient relevant events are:
  - 7 Nov.: EU critical raw materials event
  - 8 Nov.: 5th annual high level conference of the European Innovation Partnership (EIP) on raw materials
  - 9 Nov.: Horizon 2020: societal challenge 5 infoday & and brokerage event
- **European Biosolids & Organic Resources Conference & Exhibition**
  20 - 21 November 2017, Leeds, United Kingdom - Website
  Conference for the biosolids and biowaste industries
- **Conference Phosphorus a critical resource with a future (in German)**
  22-23 November 2017, Stuttgart, Germany - Website
- **+++ ManuREsource 2017 - International conference on manure management and valorisation**
  27 - 28 November 2017, Eindhoven, Netherlands - Website - Email
  In cooperation with the Dutch Nutrient Platform. A facultative field trip with exclusive site visits to local manure processing installations will be organised on 29 November 2017.

- **3rd International Conference on Global Food Security and Sustainability**
  3 - 6 December 2017, Cape Town, South Africa - Website
- **Course Phosphorus Removal and Tertiary Treatment Processes**
  7 December 2017, Wakefield, United Kingdom - Website
  This course will review the design and operation of the main markets available for N and P removal technologies.
- **Phosphates 2018**
  12 - 14 March 2018, Marrakesh, Morocco - Website
  Gathering for decision-makers representing the fertilizer, feed and industrial phosphates industries.
- **IFAT trade fair for sewage - waste – resources**
  14 - 18 October 2018, Munchen, Germany - Website

ESPP Members

Up to date list of members: *www.phosphorusplatform.eu/members*