

2015 BERLIN

European Sustainable
Phosphorus Conference
Programme

NOTE certain speakers
are invited and not yet
confirmed to date

www.phosphorusplatform.eu/espc2/

5th & 6th March 2015
Berlin

European Sustainable Phosphorus Platform

Brings together companies, knowledge institutes, public establishments, NGOs, agricultural organisations, to:

- Define a long-term vision for phosphorus sustainability in Europe
- Promote P use efficiency, reduce P losses, develop P-recycling and reuse
- Facilitate phosphorus value-chains, collaborative actions
- Create green jobs in a circular economy

Members to date:

Biorefine, DEFRA – Environment Agency, Ecophos, Fertilizers Europe, Flanders Nutrient Platform (Belgium), FHNW, Highlands & Islands Enterprise, ICL, Italmatch, Lancaster Uni., Kanton Zurich, Kemira, KWB, Netherlands Nutrient Platform, NuReSys, Ostara, Outotec, OVAM, PAPA (Cefic), Science Campus Rostock, Phos4Ever, SEI, Severn Trent, Thames Water, United Utilities, Wetsus, WssTP

Join to participate and benefit:

- Dialogue, networking, information exchange, expertise
- Innovation, business cases, benchmarking
- Develop projects, capacity building
- Define policy proposals and address regulatory questions:
P reuse & recycling, fertilisers, chemicals/REACH, compost/digestate, waste and wastewater treatment, agriculture, food quality and contaminants, EU raw materials strategy ...
- Phosphorus knowledge agenda:
define R&D priorities, avoid duplication, connect to EU Horizon 2020 and EIPs
- Communications and visibility (including in SCOPE Newsletter)



@phosphorusfacts
www.phosphorusplatform.eu

Deutsche Phosphor-Plattform

The Deutsche Phosphor-Plattform DPP e.V., established as a registered association since 12th February 2015, is the national institution for a sustainable phosphorus management in Germany.

The DPP has the objectives to

- support networking of phosphorus related stakeholders from agriculture, engineering, science, policy and municipalities,
- create interdisciplinary understanding,
- develop guidelines and recommendations on best practices for policy makers,
- provide data on mass flows and qualities of phosphorus in Germany,
- accompany and to coordinate projects,
- establish meetings, seminars and workshops to focused P-related topics,
- disseminate knowledge and needs of a sustainable phosphorus use to the public.

To become a member fill in the membership application directly on the conference or contact us:

info@deutsche-phosphor-plattform.de
www.deutsche-phosphor-plattform.de



Conference programme - 5 & 6 March 2015 - Berlin



European Sustainable Phosphorus Conference 2015 Taking P to the next level!

Moderator: **Sonja van Rensen** (freelance journalist Climate, Energy & Environment)

Venue: **Scandic Berlin Potsdamer Platz, Gabriele Tergitpromenade 19, D-10785 Berlin, Germany**

Following the successful first edition of the ESPC (European Sustainable Phosphorus Conference) in Brussels in 2013, and the launch of the European Sustainable Phosphorus Platform, Berlin this March will be the stage for ESPC2. Leading experts and decision makers in the field of phosphorus management will come together to exchange knowledge and experiences and take action. Join us for two days of inspiration and motivation in taking P to the next level!

The conference will showcase phosphorus management success stories and business cases, with presentations and parallel sessions covering the themes below, and working round-tables to enable participants to meet and discuss joint actions and projects.

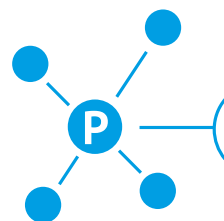
The organizers would like to thank the following organisations for their substantial financial support of the conference:



Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit



Government of the Netherlands



European Sustainable Phosphorus Platform

Plenary opening session

| | | |
|---------------|---|--|
| 09:00 - 09:10 | Intro/Welcome <ul style="list-style-type: none"> • Short welcome from conference organisers • Introduction of moderator Sonja van Renssen | <ul style="list-style-type: none"> • Stefan Gäth, Board of the German Phosphorus Platform • Arnoud Passenier, President of the European Sustainable Phosphorus Platform ESPP |
| 09:10 - 09:30 | <ul style="list-style-type: none"> • Germany's approach to phosphorus as a Critical Raw Material • German policy on phosphorus recycling from sewage • Taking knowledge into implementation. | <ul style="list-style-type: none"> • Florian Pronold, Parliamentary State Secretary for the Environment (BMUB) |
| 09:30 - 09:40 | <ul style="list-style-type: none"> • Länder actions on sustainable phosphorus and circular economy | <ul style="list-style-type: none"> • Martin Kneisel, Ministry of the Environment, Climate Protection and the Energy Sector Baden- Wuerttemberg |

What since 2013?

| | | |
|---------------|--|--|
| 09:40 – 10:00 | <ul style="list-style-type: none"> • Why the Netherlands are committed to support P sustainability in Europe and worldwide – Netherlands a frontrunner in innovation • Why a European Sustainable Phosphorus Conference • Outcomes of the first European Sustainable Phosphorus Conference (2013): conclusions, actions since | <ul style="list-style-type: none"> • Arnoud Passenier |
| 10:00 – 10:20 | <ul style="list-style-type: none"> • EU work on the sustainable use of phosphorus | <ul style="list-style-type: none"> • Pia Bucella, EC DG Environment |
| 10:20 – 10:40 | <ul style="list-style-type: none"> • Fostering research and innovation in support of circular economy | <ul style="list-style-type: none"> • Luisa Prista, EC DG Research & Innovation |
| 10:40 – 11:00 | <ul style="list-style-type: none"> • Sustainable phosphorus management; meeting the needs of civil society | <ul style="list-style-type: none"> • David Sears, European Economic & Social Committee |
| 11:00 – 11:30 | Press conference and Coffee break in exhibition and poster area | |

Success stories

11:30 – 12:30

*8 - 10 success
stories x 5 mins
each*

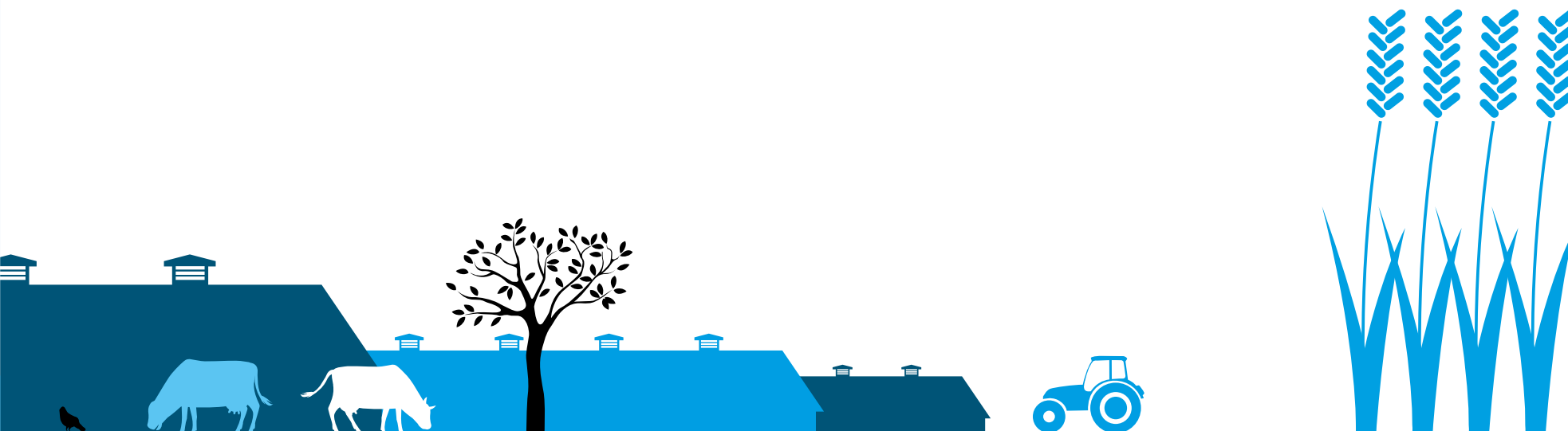
- **Rosanna Kleemann** (UK), Thames Water Utilities, Struvite recovery from wastewater
- **Alexander Schitkowsky** (DE), Berlin Water, Berliner Pflanze – A value chain from production to market
- **Carl Dewaele** (BE), NURESYS – From P recovery to fertilizer production
- **Cecilia Bertholds** (SE), Käppala WWTP, Sewage biosolids reuse in agriculture
- **Philippe Becquet** (CH), DSM, development of phytase in animal feed
- **Xiangyang Chen** (CN), Tianshui Sweetest Apples Company, Urine use in fruit production
- **Violtje Lebuf VCM** (BE), Manure management in Flanders
- **Ottilia Thoreson** (SE), WWF, Baltic farmers prize (video)

12:30 – 13:00

Panel discussion of success stories and Q&A. Panellists = the success story presenters

13:00 – 14:00

Lunch in restaurant



Parallel sessions I

14:00 – 15:30

1 ½ hours

= 3 x 15" talks

plus 45"

discussion

P in the environment – Reducing phosphorus losses: big returns on big investments

Actions and projects addressing eutrophication, river, coastal and marine eutrophication

Marine conventions and watershed management

Success stories in eutrophication restoration

Opportunities for nutrient recovery from eutrophic ecosystems

Solutions for farm level nutrient management and soil erosion prevention

- **Mathias Bergman** (FI), Baltic Sea Action Group: Cost efficient and profitable ways to counteract eutrophication
- **Beata Jurga** (PL), Institute of Soil Science and Plant Cultivation, Polish P index
- **Peter Leinweber** (DE), Rostock P Campus,
- **Kuno Kasak** (EE), Univ. of Tartu (Estonia) Prevention of P losses from agriculture

• Moderator: **Ottilia Thoreson**, WWF• Rapporteur: **Rostock P Campus****P from farm to fork – Phosphorus sustainability and innovation in the agricultural supply and the food industry**• **Will Brownlie** (submitted) meat in diet and P sustainability• **Rob de Ruijter**, EcoPhos, From Ash to fertilizer• **Frank de Ruijter**, Wageningen University and Sustainability Consortium• Moderator: **Rainer Schnee**, Budenheim

• Rapporteur: tbc

Phosphorus, global food security, planetary boundaries**Geopolitical issues, international cooperation, global nutrient governance**• **Felix Ekardt**, P Science Campus Rostock• **Arno Rosemarin**, SEI Stockholm Environment Institute• **Helena Kahiluoto**, LUKE Natural Resources Institute Vantaa• Moderator: **Oene Onema**, Wageningen UR• Rapporteur: **Kimo Van Dijk**, Wageningen University

15:30 – 16:00

Coffee break

Parallel sessions II

16:00 – 17:30

1 ½ hours

= 3 x 15" talks

plus 45"

discussion

Agricultural phosphorus efficiency and sustainable intensification

- **Allan Buckwell**, RISE Foundation Sustainable intensification
- **Debbie Mc Connell**, ECIP European Cattle Innovation Partnership
- **Javier Brañas Lasala**, Fertiberia

- Moderator: **Stephanie Fischinger**, Bioland
- Rapporteur: **Kurt Möller**, Univ. Hohenheim

Skill development for closing the P cycle

After a brief presentation that sets the scene of the skill development challenge related to greening the economy and establishing a circular economy, participants will be split in small groups to discuss how to translate this general skill development challenge to « skill development for closing the phosphorus cycle ».

- **Sofie Bouteligier**, OVAM (and on behalf of OECD)
- **Dirk Halet**, VLAKWA

- Moderator: **Stefan Gäth**, DPP
- Rapporteur: **Sofie Bouteligier**, OVAM

Regions implementing sustainable phosphorus management

National & regional sustainable P policies

- **Sébastien Homo**, Cooperl, France
- **Anders Nätörp**, FHNW/P-REX, Switzerland
- **Linda Bagge**, Danish EPA

- Moderator: **Diane Duncan**, Scotland – Highlands and Islands Enterprise
- Rapporteur: **Anders Nätörp**, FHNW and P-REX

17:30 – 19:00

Network drinks in exhibition and poster area – Possibility of side-sessions for company presentations

17:30 – 18:30

Announcement of establishment of the German Phosphate Platform (DPP) as a not-for-profit association (eV) and election of board

19:00 – 22:00

Network dinner at Scandic Hotel

Dinner speech – tbc

Theme discussions

8:30 – 10:00 **Tables with c. 15 participants**, enabling people to meet and discuss different themes face-to-face and allowing contacts between suppliers and users of expertise, technology, recycled phosphorus products.

10:30 – 12:00 Each table lasts 1 ½ hours then participants move to a new table and same themes are discussed by new participants
 3 oral presentations x 5 mins max. No beamer, but presenters can distribute photocopies of slides, then discussion
 Presenters make their talk twice, to two tables of different participants.

| | Topic | Short oral intro speakers | Rapporteur | Moderator & convenor |
|---|---|---|---|---|
| 1 | Awareness raising | Marissa de Boer , SUSPHOS Video project | Marissa de Boer , VU Amsterdam | Annemiek Strijker , NWP |
| 2 | Legal and economic policy options to foster sustainable nutrient management in Europe | Felix Ekardt , FNK, Leipzig/P Campus Rostock Sirja Hukari , FHNW/P-REX policy brief | Stephen Hinton , SSEF (Swedish Sustainable Economy Foundation) | Francesco Presicce , EC DG ENV |
| 3 | Bridging the gap between recovery and recycling | Christian Kabbe , Value chains and the eMarket for recovered nutrients Jan Neuber , Otto A. Müller Recycling | Dirk Halet , VLAKWA (Flanders Knowledge Center Water) | Christian Kabbe , P-REX/KWB |
| 4 | Perspectives for biological nutrient removal in municipal wastewater and synergy with P recovery | Bernd Heinzmann , Berliner Wasserbetriebe Wim Moerman , NuReSys | Wouter de Buck , Dutch NP | Christian Schaum , IWA Resource Recovery Group |
| 5 | Nutrient recycling in composts and digestates | Fabrizio Adani , (Univ. Milano) Adrie Veeken , (ECN) fertiliser value of digestates | Nico Vanaken , OVAM | Stefanie Siebert , European Compost Network |
| 6 | Sustainable manure management | Tarja Haaranen – Ympäristö – from manure to fertilizer factory | tbc | Violtje Lebuf , VCM |

| Topic | Short oral intro speakers | Rapporteur | Moderator & convenor |
|---|--|--|--|
| 7 Recovering nutrients in biorefineries and biofuels production | Mette Dam Jensen , Krüger – Denmark biorefinery concepts | Eric Liégeois , EC DG GROW | Erik Meers , UGent/ Biorefine |
| 8 Nutrient and energy recovery from chicken manures, animal residues | Michael D'Arcy , BHSL, Ireland Gregory Krupnikovs , Rika Biofuels Ltd, UK Edward Someus , Terra Humana/Refertil, HU | Emilie Snauwaert , VCM | Ludwig Hermann , Outotec |
| 9 Nutrient recycling in organic farming | Michael Jedelhauser , Ludwig Maximilians Univ., acceptance of recycled P by organic farmers Ola Palm , JTI, food waste P for agriculture with full acceptance | Kurt Möller , Univ. Hohenheim | Stephanie Fischinger , Bioland e.V. |
| 10 White Phosphorus – a strategic raw material and an opportunity for P recycling? | Carlos Galeano , Phos4Ever User industries | tbc | Willem Schipper , WS Consulting |
| 11 Phosphorus efficiency, what does it mean | Cathal Buckley , TEAGASC, Ireland, P efficiency in 150 N Ireland farms | Laetitia Six , Fertilizers Europe | Antoine Hoxha , Fertilizers Europe |
| 12 Plant availability of recovered P products | Bengt Hansen , Kemira, long term availability of iron phosphate Ruben Sakrabani , Cranfield Univ., plant availability of biosolids | tbc | tbc |

| Topic | Short oral intro speakers | Rapporteur | Moderator & convenor |
|--|--|---|--|
| 13 Research integration and implementation agenda for P sustainability – what process to define one (NOT defining research priorities, but method to define them) | John Ingram , Oxford University, Priority research questions for the UK food system Sylvain Pellerin , INRA France, Trends in Phosphorus research over the last four decades – a bibliometric analysis 2013 | Tomáš Turecki , EC DG Research & Innovation | Suzanne Faber , Isle Utilities |
| 14 Financial instruments to foster sustainable nutrient management | Vittoria Paramithiotti for European Investment Bank | EIB | Vittoria Paramithiotti , European Investment Bank (EIB) |
| 15 Sound data alliance – MFAs, MSAs, nutrient flow analyses – data, action hotspots, criticality | Marijn van der Velde , JRC, monitoring and modelling Johan Selenius , EUROSTAT, Agriculture and Fisheries | Ottavia Zoboli , TU Vienna | Kimo van Dijk , Wageningen University |
| 16 LCA methodology aspects | Joana Rocha, Chemical Institute, Prague, Czech Republic | Lukas Egle , TU Vienna | Christian Remy , KWB/P-REX |
| 17 Phosphorus resources, supply and demand | Roland Scholz , Global TraPs, Fraunhofer IGB Arno Rosemarin , Stockholm Environment Institute Friedrich Wellmer , retired president of the Federal Institute of Geosciences and Natural Resources (BGR) Joost Edixhoven | Rob de Ruiter , [RBC]2 consultancy for EcoPhos | Roland Scholz , Global TraPs, Fraunhofer IGB |

08:30 – 12:00

Closed session Working meeting for ESPP members producing or using struvite. REACH (art 2(7)d) registration exemption for recovered substances, waste/product status, elaboration of struvite quality and safety criteria to propose for consideration in the EU Fertiliser Regulation

12:00 – 13:00

Lunch in restaurant – conclusions of tables on paperboards in exhibition area

International perspective

| | | |
|---------------|---|--|
| 13:30 – 13:50 | A success story of international cooperation (EU countries plus Russia) to protect and restore the Baltic | Monika Stankiewicz , HELCOM (Baltic Sea Commission) |
| 13:50 – 14:10 | Global policy experience with nitrogen: INI, Our Nutrient World, UN GPA ... why not also phosphorus? | Will Brownlie on behalf of Mark Sutton , CEH / INI (International Nitrogen Initiative) |
| 14:10 – 14:30 | P sustainability research coordination and emerging networks: a North American view | Helen Rowe , NAPPS (North American Partnership for Phosphorus Sustainability) |



Conclusions from sessions, contributions from workshops

| | | |
|---------------|--|---|
| 14:30 – 14:45 | Presentation of conclusions of R&D projects workshop (4th March) by DG Research and how this can fit into H2020 and DG Research orientations | Tomáš Turecki , EC DG Research & Innovation |
| 14:45 – 15:30 | Presentation of key conclusions of parallel sessions = 6 x 5 mins | tbc |
| 15:30 – 15:45 | Phosphorus Grand Challenge – A \$ 10 million prize | Melodie Naja , Everglades Foundation |
| 15:45 – 17:00 | Panel – questions – discussion – conclusions and outcomes Questions: <ul style="list-style-type: none"> • What are the priority areas: social, food, farm, efficiency, eutrophication, reuse /recycling...? • What policies? • What structures for action? • What skills have to be developed and how? | <ul style="list-style-type: none"> • Max Schulman, MTK/ Copa-Cogeca • Eric Liégeois, EC, DG GROW • David Sears, EESC • Sofie Bouteligier, OVAM • Ottilia Thoreson, WWF • Mika Saariaho, Outotec • Luc Bossyns, Aquafin • Jacob Hansen, Fertilizers Europe |
| 17:00 – 17:15 | Closing statement | tbc |
| 17:15 – 17:30 | Acknowledgements. Messages and actions. ESPC3 and Closure. | Arnoud Passenier , ESPP |

Posters will be displayed throughout the conference inside and outside the plenary conference room. Authors will be available for discussion by their poster during breaks

| Title | Author | Institute |
|---|--------------------------|--|
| Uranium in phosphate fertilizers | Michaela Achatzw | Federal Office for Radiation Protection (BfS), Germany |
| Crossing the valley of death for phosphorus | Priyanka Banerjee | VU Amsterdam |
| P dynamic in sediments of the Darß-Zingst-Bodden chain | Franziska Bitschofsky | University of Rostock |
| Scenarios for future agricultural phosphorus stocks and flows | Benjamin Bodirsky | Potsdam Institute for Climate Impact Research |
| Putting a Phosphorus Bounty on Society's Bad Behaviour | Will Brownlie | Centre for Ecology & Hydrology, Edinburgh |
| Reactive materials for P control in outdoor pools and bathing ponds | Agnieszka Bus | Warsaw University of Life Sciences SGGW |
| Reactive filter for phosphate control in backyard pond | Agnieszka Karczmarczyk | Warsaw University of Life Sciences SGGW |
| PhosFarm: sustainable P recovery from agricultural and food residues | Alejandra Campos Cuellar | Fraunhofer IGB Stuttgart |
| Phosphorus recovery from pig slurry and digestate in Flanders | Jennifer Bilbao | Fraunhofer IGB Stuttgart |
| Urine use in fruit production | Xiangyang Chen | Tianshui Sweetest Apples Company |
| Phosphorous valorization by modification of zeolites produced from flying ashes | Jose Luis Cortina | Barcelona TECH, Universitat Politècnica de Catalunya, Barcelona |
| Sustainable P management in Spanish agricultural irrigated systems | Farida Dechmi | Unidad de Suelos y Riegos, Zaragoza |
| Phosphate and ammonium removal by modified natural zeolites | Guaya Diana | ETSEIB, Universitat Politècnica de Catalunya, Barcelona |
| Eutrophication mitigation and phosphorus harvesting via PhosphoReduc technology | Aleksandra Drizo | Heriot-Watt University, Edinburgh, UK |
| New possibilities for modelling dissolved phosphorus losses from agricultural areas | Peter Fischer | Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), Berlin |
| Phosphorus recovery with carbonized sewage sludge | Kevin Friedrich | University of Applied Sciences, Bingen |
| Criticality Assessment of Phosphorus regarding Specificity and Functionality | Oliver Gantner | Augsburg University, Germany |
| Luckily enough, green plants haven't studied phosphorus chemistry | Bengt Hansen | Kemira |
| Phosphorus recycling using amorphous calcium silicate hydrates. | Ohtake Hisao | Osaka University |
| Impact of zeolite and soil moisture on P uptake | Amir Hossein Shokouhi | University of Tehran, Iran |
| P-Supplies of soils to meet sufficiency, efficiency, consistency | Klaus Isermann | Bureau of Sustainable Nutrition, Land Use and Culture (BSNLC), Hanhofen |
| Relative phosphorus availability in biosolids prediction model | Alfred Jaouich | Université du Québec à Montréal |

| Title | Author | Institute |
|--|----------------------|--|
| Losses and efficiencies of phosphorus on a national level | Michael Jedelhauser | Ludwig-Maximilians-Universität, München |
| Transdisciplinary P research driven by a participative scientific comic | Jens Kirstein | Free University of Berlin |
| Phosphorus recovery from wastewater: local & national effects | Rosanna Kleeman | Surrey University, UK |
| Implementing agricultural phosphorus strategies to combat eutrophication | Peter Kleinmann | USDA-ARS, Pasture Syst. And Watershed Management Research Unit |
| Data structure in MFA and its effects on results: a comparison of P in Denmark and Austria | Manfred Klinglmair | Technical University of Denmark, Kongens Lyngby |
| Arbuscular mycorrhiza fungi along forest soil sequences differing in P-availability | Josef Kohler | Freie Universität Berlin |
| Phosphorus from wastewater in agriculture - a risk assessment | Fabian Kraus | Kompetenzzentrum Wasser Berlin and P-REX |
| Adsorptive phosphate recovery in decentralized wastewater treatment | Marco Kunaschk | Technische Universität Dresden |
| Policies for transition to sustainable P and N: Netherlands and Finland | Anna Kuokkanen | Lappeenranta University of Technology (LUT), Finland. |
| Sediment of agricultural constructed wetland as site amendment | Johanna Laakso | University of Helsinki |
| The Swedish way to a cleaner sludge | Kersti Linderholm | Silver Mountain Environmental Engineering |
| Enhancing the bioavailability of phosphorus from organic wastes | Jaakko Mäkelä | Natural Resources Institute Finland (Luke), Vantaa |
| Chemical precipitation of phosphorus in water and wastewater samples | Mitrakas Manasis | Aristotle University of Thessaloniki |
| Phosphorus use and acquisition efficiency of Solanum tuberosum L. | Verena Pfahler | University of Rostock |
| Phosphates in groundwater under grassland in Poland | Stefan Pietrzak | Institute of Technology and Life Science, Falenty, Poland |
| Polonite® & Sorbulite®: calcium silicate/hydrate for P removal & recovery | Gunno Renman | KTH Royal Institute of Technology, Stockholm |
| A new biosolids derived fertiliser supports crop yields | Ruben Sakrabani | Cranfield University, UK |
| P externalities from EU agriculture | Nikolinka Shakhmryan | University of Lüneburg, Germany |
| Potential and value of recycled phosphate from organic wastes | Stefanie Siebert | European Compost Network ECN |
| In line: waste - biochar - phosphorus fertilizer | Gerhard Soja | AIT Austrian Institute of Technology, Tulln |
| Animal bone biochar concentrated organic phosphorus fertilizer | Edward Someus | REFERTIL |
| Structure liming reduces phosphorus leaching from clay soils | Annika Svanbäck | Stockholm University Östersjöcentrum |
| Digestate as source of P renewable fertilizer | Fulvia Tambone | Ricicla Group, University of Milan |
| Chemical precipitation of phosphorus: the role of water components | Athanasia Tolkou | Aristotle University of Thessaloniki |
| From Pee to P: role of civil society in nutrient recycling | Karoliina Tuukkanen | Global Dry Toilet Association of Finland |

| Title | Author | Institute |
|--|---------------------------|--|
| Innovation of phosphorus-efficient crop production and phosphorus cycling | Marinus van des Maas | Wageningen UR |
| Biogas digestates - effects on phosphorus supply to plants | Telse Vogel | University of Rostock |
| Waste water products as P fertilizer - An evaluation in the field | Telse Vogel | University of Rostock |
| Simultaneous P removal and recycling with Polonite multipurpose reactive filters | Anders Norén | Bioptech |
| Bavarian Phosphorus Strategy | Sonja Wiesgickl | Fraunhofer UMSICHT, Sulzbach-Rosenberg |
| Global stakeholder platforms for sustainable phosphorus governance | Masaru Yarime | University of Tokyo and University College London |
| National phosphorus flows in the Czech Republic | Joana Rocha | Institute of Chemical Technology, Prague |
| Up-flow velocity influence on struvite particle size distribution | Maël Ruscalleda | LEQUiA - University of Girona, Spain |
| Microbial recovery: a natural solution for phosphate demands | Mohammad Ali Malboobi | SWede Green Biotech, Stockholm, |
| Polish P-Index - characterization of P-risk model's crucial components | Beata Jurga | Institute of Soil Science and Plant Cultivation IUNG-PIB, Poland |
| Phosphorus management and recovery from wastewater as struvite | Laura Pastor | Depuración de Aguas del Mediterráneo (DAM) |
| ICL: Your partner to use recovered P | Kees Langeveld | ICL Fertilizers Europe |
| Nutrient recovery and recycling in European agriculture | Allan Buckwell | RISE Foundation |
| Outotec Modular Energy and Phosphorus Recovery Processes | Ludwig Hermann | Outotec |
| The Role of Struvite from Sewage Sludge in a regional Phosphorus Flow Analysis | Jürgen Kern | Leibniz-Institute for Agricultural Engineering Potsdam-Bornim e.V. |
| TL-BIOFER: twin-layer system for microalgae biofertilisers production in wwtps | José Maria Gómez Palacios | TL-BIOFER Consortium (LIFE+) |
| Plant availability of P in sludges and manures | Kari Ylivainio | Natural Resources Institute Finland (Luke) |
| Responses to various dietary P-levels in growing pigs | Christian Polley | Leibniz Science Campus Phosphorus Research Rostock |
| Thermochemical treatment of sewage sludge ash for P-fertilizer production | Hannes Herzel | BAM Federal Institute for Materials Research and Testing, Germany |
| 90% of the phosphorus removed from pig farms through scraping" | Sébastien Homo | Cooperl-Arc-Atlantique - French pig cooperative group |
| Manufacture of organic fertilizers from livestock manure : examples in Brittany | Bertrand Convers | The association IF2O (Organic Fertilizers for inter West France) |
| Engineering the Economy with dividend-bearing pollutant surcharges | Stephen Hinton | The Swedish Sustainable Economy Foundation |
| Nutrients (N & P) recovery optimisation through composting process: the REFERTIL results | José Maria Gómez Palacios | REFERTIL Consortium (FP7) |
| IWA Resource Recovery Cluster | Hong Li | International Water Association |
| Nutrient and energy recovery in WWTPs by pre-concentration and adsorption processes | Carme Garcia-Belinchón | Cetaqua, Water Technology Center. |

Please visit our stand at the exhibition area.

Animal Bone bioChar as concentrated organic Phosphorus fertilizer

Biochar is plant and/or animal biomass by-product based stable carboniferous substance with well defined/controlled quality, manufactured under reductive thermal conditions. "ABC" Animal Bone bioChar is made of food grade category-3 bones, having ~30% P₂O₅ nutrient composition with controlled release fertilization effect and applied as organic P fertilizer/ growing media/adsorbent. The ABC is highly macroporous, optimized for significant enhancing of soil microbiological life, having high water holding and macromolecular organic nutrient retention capacity. The high quality output ABC products aiming to reduce the use of mineral fertilizers and intensive chemicals in agriculture; enhancing the environmental, ecological and economical sustainability of food crop production. The ABC is manufactured by the advanced "3R" zero emission carbon refinery technology, which technique and advanced product has been developed under several EU co-financed applied RTD and industrial engineering development programmes since 2002. Since 2011 the REFERTIL project developed a new-generation zero emission industrial scale biochar technology for safe, economical and ecological nutrient recovery process, most importantly Phosphorous, for conservation agriculture. The REFERTIL converted applied Phosphorus recovery science into validated and market competitive technology. The REFERTIL project also provides strong policy support to the European Commission for Fertiliser-Regulation-revision safe biochar/compost products use.

<http://www.refertil.info> Contact: Edward Someus biochar@3ragrocarbon.com
Skype: [edwardsomeus](https://www.skype.com/people/edwardsomeus)



Hitachi Zosen Corporation

Our business domains are Green Energy and Social Infrastructure Development & Disaster Prevention. In the area of energy issues, we are providing energy-from-waste, wind farm, photovoltaic/solar thermal power generation and other technologies, and expanding our business as "The Environmental Hitachi Zosen" in aims of becoming number one in the world. We are also focusing our efforts on everything from constructing seawater desalination plants to solve global water shortages and performing maintenance on aging social infrastructure. We are also accelerating our efforts to establish locations overseas in order to expand our business domain. The Hitachi Zosen Group aims to deliver satisfaction to our stakeholders and contribute to society based on our corporate philosophy, which states, "We contribute to a prosperous future by leveraging technology to create value useful to society." We look forward to your continued support as we continue to develop and grow. Founded: 1881. Net sales 2014: 333 billion yen. Capital 45 billion yen. Employees: 9,039. Address: 7-89, Nankokita 1-chome, Suminoe-ku, Osaka 559-8559, Japan.

Website and contact form: <http://www.hitachizosen.co.jp/english/index.html>



Hitz
Hitachi Zosen

Flanders' Nutrient Platform

Flanders' Nutrient Platform brings together all relevant stakeholders needed to close nutrient cycles. Government, industry, research and knowledge institutes and civil society together make possible the transition towards the sustainable phosphorus use and management. The stand at the 2nd European Sustainable Phosphorus Conference highlights the main projects and successes in Flanders.

Contact Sofie Bouteligier (OVAM): sbouteli@ovam.be



Dutch Nutrient Platform

The Nutrient Platform is a cross-sectoral network of Dutch organizations that believe in a pragmatic approach towards nutrient scarcity. Frontrunners from the water sector, agriculture, waste sector and chemical industry have joined forces to close nutrient cycles. Together with the government, knowledge institutes and NGOs we accelerate the transition towards sustainable nutrient management by creating a market for recycled nutrients.

Above all, the Nutrient Platform aims to turn the surplus of phosphorus in the Netherlands into an opportunity. This surplus causes environmental problems. By recovering phosphorus from our 'waste' streams and turning it into valuable new products, not only the environment is improved but also the phosphorus cycle is closed.

Contact Wouter de Buck: w.debuck@nutrientplatform.org

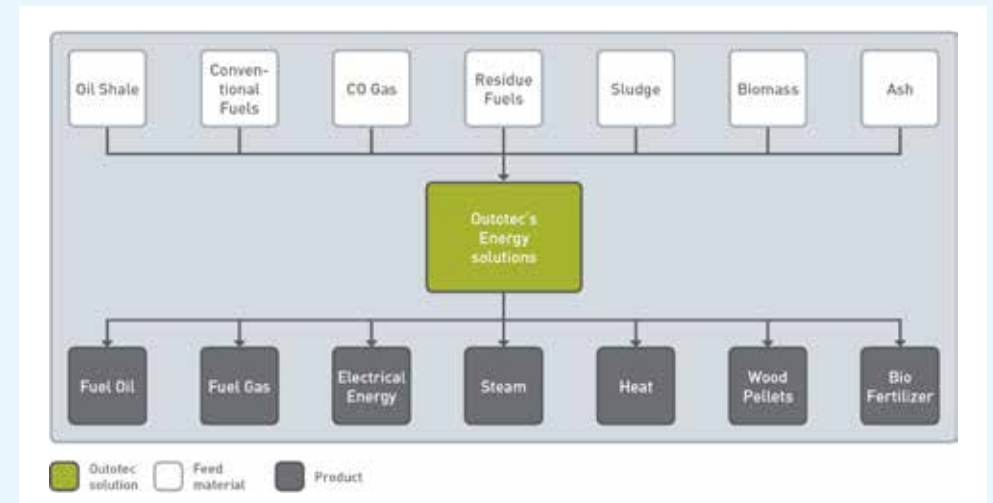


Outotec Modular Energy and Phosphorus Recovery Processes

Outotec offers value-adding technologies and services to the energy industry with a view to renewable resources. After decades of providing expertise and innovation to the mining and metallurgical industries, Outotec realized that its capabilities, technologies and proprietary equipment could be expanded to include the energy sector. Our offerings include combustion and gasification technologies for various fuels, such as biomass, industrial side-products and sludge, as well as unconventional oil winning and thermal processing of conventional fuels.

<http://www.outotec.com/en/Products--services/Energy/>

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Outotec

KUBOTA Surface Melting Furnace for Phosphorus Recovery

KUBOTA Surface Melting Furnace(KSMF) is unique and commercialized technology which can recover safety phosphorus from sewage sludge with high recovery ratio (more than 80%).

www.kubota-global.net Contact fumiki.hosho@kubota.com

For Earth, For Life
Kubota



Leibniz ScienceCampus Phosphorus Research Rostock

The Leibniz-ScienceCampus Phosphorus Research Rostock focuses on the exploration of the essential and irreplaceable element phosphorus and its diverse chemical compounds. We investigate specific modes of action in agricultural and environmental systems as well as in technical and industrial processes. The overall aim of the interdisciplinary collaboration is to find solutions to counteract the limited phosphorus availability envisaged in the foreseeable future by means of focused thematic networking. This task is a challenge to science, agriculture and economy as a whole.

Cooperation partners of the ScienceCampus Phosphorus Research Rostock are the Leibniz Institute for Baltic Sea Research Warnemünde, the Leibniz Institute for Catalysis, the Leibniz Institute for Farm Animal Biology, the Leibniz Institute of Plant Genetics and Crop Plant Research, the Leibniz Institute for Plasma Science and Technology and the University of Rostock (with 4 faculties).

The ScienceCampus Phosphorus Research is divided into four areas of research (clusters):
I. Phosphorus cycles and fluxes in the environment
II. Sufficiency and efficiency of phosphorus utilisation, phosphorus recycling
III. Phosphorus as an element in and as a result of catalytic processes
and as a cross-sectoral topic: The development of advanced phosphorus analysis methods

www.sciencecampus-rostock.de/

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Biorefine Cluster Europe – Energy & Nutrient Cycling for a Sustainable Economy

The Biorefine Cluster Europe interconnects projects and people within the domain of nutrient and energy cycling. As such, the Cluster aims to contribute to a more sustainable resource management, both from an economic and ecologic point of view. The cluster finds its origins in the EU INTERREG IVB NWE project BIOREFINE on the recovery of inorganic minerals from agro- and bio-industrial waste streams. The main goal of the Biorefine Cluster Europe is to increase the interaction between its participating projects and consequently leverage the projects' impact on stakeholders as well as on the development of policies, business and research projects. Although the Biorefine Cluster Europe only emerged early 2014, it is currently in full growth, welcoming new projects and their consortia, applying for membership at increasing pace. At the moment, the cluster contains 19 projects, with 163 partnering entities, spread over 20 EU member states and a combined working budget of 55 million euro. While the projects continue to operate autonomously, their association to the cluster increases their impact by exchange of information, interlinking working plans wherever mutually opportune and organizing joint events, publications, position papers, new proposals and the BioRefine Bulletin, newsletter of the Biorefine Cluster.

www.biorefine.eu

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NuReSys recovers P & N from liquid waste streams

Nutrients Recovery Systems technology allows to make the available PO₄-P and NH₄-N react with the added Mg to form struvite crystals. NuReSys knows how to make these crystals grow to struvite prills (2 to 3 mm) which can easily be harvested for re-use. As crystals are pure by nature, these struvite prills are for 99% pure and heavy metals content is far below the allowed values. The first NuReSys phosphorus recovery system was built in 2006. Since then a vast experience was gathered. In Flanders several plants were built at potato processing plants which have high volumes and high concentrations of ortho-phosphate. Because the Opex to remove and recover P & N through struvite recovery is far below the cost for P precipitation into the sludge using FeCl₃, the ROI showed to be extremely interesting and so several plants were built. Recently two plants were installed to treat the concentrate of sludge on Municipal WWTPs. NuReSys technology was also successfully applied directly on the sludge at the exit of the digester. Bringing down the PO₄-P was no problem; however we have some doubts upon the origin and the volumes of the recovered struvite. We are further investigating this point.

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