



Stakeholder Workshop on

**Recycled Phosphorus Fertilizer-
Market Chances and Requirements**

Poděbrady, 17th September 2013

WORKSHOP CONTENT

This event will prepare the ground for a recycled phosphorus fertilizer market in Europe. It will provide insights in the state-of-the-art-of-phosphorus recovery and an analysis of the current European fertilizer market and legislation of selected countries. It is an ideal stage for cross-sectional discussions between stakeholders from wastewater treatment via factory to farm on experiences and expectations with regards to a future market for P-recycling products. The goal is to identify knowledge gaps and new angles for the fertilizer market study in the P-Rex project (as described below) and generate ideas for policy changes to improve regulatory conditions, e.g. establish a pre-normative matrix, for recycling of phosphorus.

P-REX

The workshop is part of the research activities in the FP7 Collaborative Project „Sustainable sewage sludge management fostering phosphorus recovery and energy efficiency“. This project with acronym P-REX (www.p-rex.eu) lasts 36 months and associates 15 partners from seven countries.

The project objective is to demonstrate novel and available technical solutions for phosphorus recovery and recycling in full-scale. Their performance and feasibility is systematically assessed and validated, as well as the quality of obtained recycling products. In parallel, analysis of European and national legislation framework, as well as analysis of pre-normative matrix and market study in different European regions are performed. Together with the analysis of the market barriers and the market potential for novel recycling technologies and their products, strategies and recommendations is developed for efficient and wide-spread phosphorus recovery and market penetration with regards to specific regional conditions, aiming to increase the European phosphorus recycling rate from municipal wastewater up to 80%.

During the workshop an analysis of the fertilizer market and the legal and societal requirements for recycling in five selected countries will be presented. After the workshop current business models for phosphorus recycling will be reviewed and together with feedback from workshop participants be the basis for the development of:

- Promising future recycling business models
- Suggested policy changes enabling those models
- A pre-normative matrix defining phosphorus recycling products categories and
- An E-market offering a first opportunity to trade the pre-normed recycling products

WORKSHOP PROGRAM

Morning Session Moderation: Boris Lesjean and Christian Kabbe, KWB

09:00 - 09:15 P-REX Project Introduction

(Christian Kabbe, KWB, Kompetenzzentrum Wasser Berlin)

09:15 - 09:45 Recovery Technologies and Products

(Anders Nättorp, FHNW, Fachhochschule Nordwestschweiz)

09:45 - 10:00 Scope of the Workshop (Anders Nättorp, FHNW)

10:00 - 10:40 Legal and Societal Requirements for Phosphorus Recovery

(Louis Hermann, Outotec)

10:40 - 11:00 Coffee break

11:00 - 11:45 Fertilizer Market Structure in Selected European Countries

(Marek Holba, Asio)

11:45 - 12:00 View of a Czech Phosphorus Processer (Hynek Charvát, Fosfa)

12:00 - 12:15 Phosphorus Management and Future Scenarios in the Czech Republic and CEE

(Jiří Wanner, Institute of Chemical Technology Prague)

12:15 - 12:30 EU work on sustainable Phosphorus (Francesco Presicce, EC, DG Environment)

12:30 - 13:30 Lunch

Afternoon Session Moderation: Anders Nättorp, FHNW

13:30 - 14:30 Interactive Tables – 1st round (see topics below)

14:45 - 15:45 Interactive Tables – 2nd round (see topics below)

15:45 - 16:15 Coffee break

16:15 - 17:55 Conclusion from each Interactive Table with Discussion (Moderators)

17:55 - 18:00 Closing Words (Anders Nättorp, FHNW)

INTERACTIVE TABLE TOPICS

1) Experiences with fostering of innovation in different countries. How can we improve European multi stakeholder cooperation? Moderation by Arnoud Passenier, Dutch Nutrient Platform accompanied by Jana Matysikova, ASIO

The experiences of participants from programs for fostering of innovation in different countries will be reviewed. The experience of multi-stakeholder cooperation in the Dutch nutrient Platform will be presented. Success factors in organisations and instruments for implementation of phosphorus recovery will be identified.

2) Market structure and how to develop a business with recycled phosphorus. Discussion of a draft pre- normative matrix. Moderation by Carl Dewale, Nuresys and Christian Kabbe KWB.

1. Review of P-Rex findings on fertilizer market structure (centralized and decentralized distribution) and market value chain (production, refinery / distribution / endusers) in EU member states.
2. How do you best access the market (brand, partners, and quality requirements)? Possible approaches for known recycling products will be discussed. What customer needs could these products fill?
3. Pre-normative matrix (criteria and priorities)
4. Presentation of eMarket concept

3) Market barriers and how to overcome them? Moderation by Louis Herrman, Outotec and Dirk Halet, VLAKWA.

Market barriers, also known as barriers to entry, are obstacles that make it difficult to enter a given market. Such barriers may take the form of:

5. large upfront investment e.g. high research and development expenditures which cannot be recovered when leaving the market
6. perception of high risk because of unknown market and regulatory trends (in conjunction with large upfront investments)
7. economies of scale, necessitating heavy investment to achieve competitive pricing
8. access to raw materials,
9. restricted access to distribution channels,
10. availability of capital to start up,
11. clear product differentiation, necessitating heavy advertising expenditure to introduce new products
12. government regulations (e.g. fertiliser regulations, heavy metal limits, getting the necessary licenses and permits)

13. geographical location
14. predatory pricing policies
15. restrictive trade practices (e.g. taxes on import, exclusive agreements), etc.
16. intellectual property/patents

In this session we will identify the main market barriers for recycled phosphorus and see how these can be overcome

4) From waste to product. Issues like REACH at the end of waste status. Moderation by Chris Thornton, European Sustainable Phosphorus Platform and Christine Vanhoof VITO.

A range of regulations, standards and specifications potentially impact recycled phosphates: waste regulations/end-of-waste status, REACH, product safety and labeling (GHS), fertilizer regulations, animal byproduct and food waste disposal regulations, digestate specifications, compost standards, sewage biosolids spreading limits and standards, manure spreading standards, organic farming standards, agricultural or food industry specifications regarding product origin and tracking, Soil Directive, Water Framework Directive (as regards nutrients, contaminants) and local nutrient management plans ... The objective of this interactive table will not be to inventory these different requirements, but to discuss how they impact the production, transport, sale and use of recycled phosphorus-containing materials, and consequently to elaborate proposals for possible adjustments of regulations or clarifications of their implementation.

5) Legal framework: What needs to be harmonized within Europe? Moderation by Francisco Presicce DG Environment , accompanied by Michaela Pokorna, ASIO

The international community is discussing what actions could be taken for a more sustainable use of phosphorus. The current situation involves waste and losses at every step of the phosphorus life cycle. Existing measures and legal frameworks at national, EU and international level are mostly devised for other policy objectives (e.g. preventing and reducing water pollution), rather than for the purposes of recycling and saving phosphorus.

This session will explore the existing situation, at national and EU level and assess how the current legal framework could accommodate further action in terms of phosphorus recycling and more sustainable use. Identification of legal barriers, gaps, needs for harmonization as well as possible evolutions and improvements of regulatory conditions will be the focus of the discussion.

6) End-user perspective – demand and needs of fertilizer industry, farmers, etc. Moderation Jan Neuber Otto A. Müller Recycling GmbH and Max Schulmann, Finnish Farmers Association.

Questions for discussion:

1. Does the fertilizer have a stable quality (P-content, plant availability)?
2. Does the recycled P-fertilizer comply with national/ EU-regulations? (End-of-waste, REACH, fertilizer regulations)
3. How easily can you compare the recycled P pricing with standard fertilizer?
4. Are the produced quantities big enough (industry) & available at the right time (farmer)?
5. How are the conditions of the recycled P (liquid, powder, granular)?

7) Successful demonstration/business studies. Moderation Willem Schipper (ex Thermphos) accompanied by Kirsten Remmen FHNW.

A succesful demo case in the strictest sense is one that has succesfully translated lab conditions to pilot or full scale demonstration. This usually means the project plan was executed according to schedule and budget, and that P is recovered in some form. However it needs to be discussed how success is or should be really defined. Some demos may be deemed very succesful by their inventors and operators, as they have met deadlines and have fulfilled their research plan. However a demo project can be regarded as a failure by others, e.g. because of low overall P recovery yield, a perceived lack of general applicability, weak economical prospects, questionable marketability of products, or a combination of these.

A succesful business case is a process or technology that has been implemented multiple times or has prospects of being applied repeatedly, and which gives the operator of the process some positive revenue. In addition it needs to be effective (in terms of P recovery yield and applicability of the product) and it's helpful if it's accepted in political and relevant professional circles (agriculture, wastewater treatment, industry...). Facts and hopes/expectations need to be separated, as unrealistic projections are often encountered in P recovery projects.

The aim of this Table Discussion is to generate a list of objective criteria to assess the success of a technology (if established), or its potential (demo case). This wil include the potential for universal application, marketability of products, investment needed and level of complexity, and the overall effectiveness in recycling P (how much is actually recovered vs wasted, how useful and pure/environmentally acceptable are the products, etc - additions or changes obviously welcome). Examples from practice will be reviewed and tested against these criteria, and a "wish list" of barriers to be lifted to make businesses more succesful will be coordinated with the Market Entry Barriers group, as some regulations may be a barrier for otherwise potentially succesful developments.

ORGANISING COMMITTEE

Anders Nättorp, FHNW, University of Applied Sciences and Arts Northwestern Switzerland

Christian Kabbe, Kompetenzzentrum Wasser Berlin, Germany

Marek Holba, ASIO, spol. s r.o., Czech republic

Jana Matysíková, ASIO, spol. s r.o., Czech republic

Michaela Pokorná, ASIO, spol. s r.o., Czech republic

Jana Šmídková, The Czech Water Association

CONTACTS

Conference service: registration, accomodation, etc.

Asociace pro vodu ČR CzWA

Masná 5, 602 00 BRNO, Czech Republic

Contact person: Michaela Pokorná, e-mail: seminar@czwa.cz

Tel.: +420 548 428 134

Application form: <http://www.asio.cz/en/registration-form>

VENUE

Congress Center Lázeňská Kolonáda

Náměstí T.G.Masaryka 433/II, 290 33 Poděbrady, Czech Republic

www.lazne-podebrady.cz/kongresy/

ACCOMODATION, TRAFFIC CONNECTION

Accomodation for workshop attendees is ensured at the bathhouses and hotels near the Congress Center. All accomodation facilities are within walking distance of the calm resort area of Poděbrady town. Poděbrady spa serves to cure disease of circulatory system, vessels, venous and high blood pressure. Poděbrady town has a one hour railway connections to the Czech capital Prague which is the nearest international airport. The town can be also reached by car following the D11 highway. Parking is possible at the bathhouses, hotels or at the central parking places.

CONFERENCE FEE

The conference is free of charge, but due to the limited number of places (70 persons), only most relevant participants will be selected upon application, in order to have a representation of varied stakeholders with specific interest or expertise on phosphorus recovery.

IMPORTANT DATA

- 31 July: Deadline for application – you can apply here <http://www.asio.cz/en/registration-form>
- 15 August: Information on selection of participants
- 31 August: Deadline for final registration
- 11 September: Last announcement, final program

LEISURE TIME

Golf - <http://www.golfpodebrady.cz/gb/home.html>

Relaxation Spa Procedures - <http://www.lazne-podebrady.cz/en/leceni-a-procedury/>