



The Greens | European Free Alliance  
in the European Parliament



Minutes  
Mini Seminar Phosphorus Shortage:  
European challenges

European Parliament Brussels  
A. Spinelli Building  
Room 5E1  
4 March 2010, 10.30 am – 14.00 pm

hosted by  
MEP Bas Eickhout (Greens/ EFA)

&

MEP Lena Ek (ALDE),

in cooperation with the Nutrient Flow Task Group



Netherlands  
Water Partnership



Development Policy  Review Network

## Minutes Mini Seminar Phosphorus Shortage: European challenges

The threatening shortage of phosphorus – a key component of fertilizers – is crucial for the world's food supplies. Phosphorus is an essential nutrient for all plants and animals. It is also one of the three key components (together with nitrogen and potassium) of fertilizers, and therefore crucial for the world's food supply system. Since there is not yet an alternative for phosphorus, innovative strategies are needed to ensure its availability. MEP Bas Eickhout, MEP Lena Ek and the Nutrient Flow Task Group<sup>1</sup> intend this European Mini Seminar to accelerate the search for solutions and help develop opportunities created by the phosphorus crisis.

## Introduction on Phosphorous Shortage, Arno Rosemarin (Stockholm Environmental Institute)

In order to start the discussion having everyone on the same level, Arno Rosemarin held a 30 minute introduction on phosphorus shortage and its implications. Please take notion of the powerpoint presentation attached to this report.

## Swedish Phosphorous Recycling Policy, Linda Gårdstam (Swedish Environmental Protection Agency)

As a possible inspiration for European policy, Linda Gårdstam presented the Swedish policy on Phosphorus recycling. Please take notion of the powerpoint presentation attached to this report.

## Panel discussion

The panel discussion was introduced by short statements from different perspectives, by the five panel members, with the exception of Arno Rosemarin. This in order to give a broad view on the different aspects of the problem and with that, different mitigation options.

### Timothy Hall – DG Research, European Commission

Representing DG Research, Timothy Hall points out to be responsible for primary production (agriculture, forestry, fishery – food chain in general). Besides focusing on sustainable production and animal diseases, food security becomes an increasingly important topic. Food security being a high priority, the issue of Phosphorus shortage has started to come on the agenda as well (not as strong as climate change, but it is coming through).

From the perspective of DG Research mitigation options that will be focused on will be more efficient agricultural practices, more precise use of chemical influence (precision farming), the reducing of inputs as much as possible and the reutilization of organic waste. In order to do so, traditional farming has to learn

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<sup>1</sup> **The Nutrient Flow Task Group (NFTG)** is a Dutch initiative facilitated by the Development Policy Review Network (DPRN) that strives to accelerate the search for solutions for phosphorus depletion and its global impact. The NFTG is a broad network of public parties (the Ministries of Agriculture and Spatial Planning, Water Authority de Dommel), NGO's (WASTE, ETC-RUAF, ICCO), private sector (Grontmij, Thermphos, SNB, GMB-Watertechnology, Royal Haskoning, Tebodin, Orgaworld 3R-Agrocarbon), knowledge institutions (Plant Research International, Alterra, Wageningen University, Unesco-IHE) and network organisations (Netherlands Water Partnership, Aqua for All). For more info see <http://phosphorus.global-connections.nl>. **The Development Policy Review Network (DPRN)** is a network of Dutch and Flemish development experts whose aim is to stimulate informed debate on development policies and enhance cooperation and synergy between scientists, policymakers, practitioners and entrepreneurs in the field of international cooperation. For more info see [www.dprn.nl](http://www.dprn.nl) and [www.global-connections.nl](http://www.global-connections.nl).

from organic farming. Better coordination between member state research initiatives is necessary (red: this is already happening by means of the Global Phosphorus Research Initiative: [www.phosphorusfutures.net](http://www.phosphorusfutures.net)<sup>2</sup>).

*Willem Schipper – Thermphos International*

*There is clear interest from the private sector to be active with this theme. The relevant parties can be divided into three different groups:*

- 1. Those who have phosphates*
- 2. Those who deal with phosphates (waste water treatment – technology and knowledge)*
- 3. Those who need phosphates*

*The main interest for the private sector, is recycling. As phosphorus is an element, destruction is impossible and important mitigation options for phosphorus shortage are found in reuse! There is ample potential within the EU to recycle phosphates; this should be seen as hidden internal P resources.*

*It is noted that there is a lot of business interest in the issue across the sector. However the lack of policy to stimulate recycling is a limitation to commercial success of all three groups. This is a situation not unlike other recycling sectors, so examples of successful recycling and the policies that realized this success can be used as a model for this case. The private sector urges policy makers and politicians to develop policy on European level that stimulates to recycle P (and other nutrients) where possible and the realization of mechanisms (subsidies, policy, etc) to make this possible and put this into practice. For example by:*

- 1. Giving financial support to demonstration projects (in or by European organizations) in order to reduce 'first movers' risks;*
- 2. Changing legal issues slowing down P-recycling: this pertains to fertilizer legislation and waste legislation. See the following two sub-points:  
\* Phosphate is often waste and the relevant legislation makes it difficult to change this status.. To apply "end of waste" to these materials, there needs to be an established market, which cannot be established as long as waste regulations are in place; a vicious cycle. Phosphate rich materials are not on the EU proposals list for "end-of waste" waste streams but merit inclusion.*

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<sup>2</sup> The Global Phosphorus Research Initiative (GPRI) is a collaboration between independent research institutes in Europe, Australia and North America. The main objective of the GPRI is to facilitate quality interdisciplinary research on global phosphorus security for future food production. In addition to research, the GPRI also facilitates networking, dialogue and awareness raising among policy makers, industry, scientists and the community on the implications of global phosphorus scarcity and possible solutions.

The GPRI was co-founded in early 2008 by researchers at the [Institute for Sustainable Futures](#) at the University of Technology, Sydney (UTS), and the [Department of Water and Environmental Studies](#) at Linköping University, Sweden. Today, GPRI members also include the [Stockholm Environment Institute \(SEI\)](#) in Sweden, the [University of British Columbia \(UBC\)](#) in Canada and [Wageningen University](#) in The Netherlands.

*\* Easier acceptance of recycled fertilizers /artificial manure, for example by the realization of a new distinctive recycle category in the currently existing legal categories for European fertilizers / artificial manure. <sup>3</sup>*

3. *Giving attention to psychological issues: raise awareness raising on the fact that waste is not always waste but offers opportunities. Actively support Cradle2Cradle philosophy. Phosphates lend themselves to a C2C approach.*

Arne Panesar – Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

### Bring economic peak and phosphorus peak together by legislation?

Arne Panesar states that technologies of the last 40 years won't help the next 40 years: We need a different type of agriculture (from a current mindstate of more fertilizer = more crop towards more efficiency. The economic peak and phosphorus / ecologic peak are not the same. It is more economic to specialize, resulting in lots of waste (including phosphorus). Both peaks need to be brought together by legislation. Are we optimizing the right systems? Soon the drivers for the system will change: energy, P and N will become too expensive.

### Decentralized vs Centralized

Arne Panesar raises the discussion between centralized and decentralized systems. Central options for recycling phosphorus do work in Western Europe, with sufficient infrastructure to build upon. However, still 90 % ends up in the environment.

In some cases (with a lack of infrastructure) sanitation systems need to be more decentralized (Eastern Europe, developing countries). Especially for developing countries it is interesting to create self sustaining areas in terms of food security (for example by connecting cities (human excreta) to arable land for P-recycling) and energy (biogas).

Helias Udo de Haes – TA Steering Committee (Independent advisory body for Dutch ministry of Agriculture)

The Steering Committee recommends giving priority to the reuse of phosphate from waste streams and to the development of the corresponding technology. The most important waste streams are animal manure, sewage sludge, slaughter waste, and ash and slag from industrial combustion processes. In addition, the Steering Committee recommends mandating the reuse of phosphate in the combustion ash from sewage sludge as soon as possible, as is already the case in Sweden and Denmark. The residues from the production of biofuels are

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<sup>3</sup> This may also include the following, more detailed amendments:

- *Replacing comprehensive description of fertiliser types in 2003/2003 A.2 by generic description (e.g. chemical compound names) to allow placing to market of recycled fertilisers that correspond to certain but not all specifications.*
- *Enabling individual registration of specific recycling fertiliser types by a standard mechanism within reasonable timeframe (3-6 months).*
- *Introducing limit values for heavy metals and other toxic substances with equal regulations for traditional and new recycled fertilisers.*



another potentially important source of phosphate. In total, these waste streams contain very large quantities of phosphate; in the Netherlands this is even more than the total quantity of artificial phosphate fertilizer that is used.

The Steering Committee also believes that the ban on the use of meat–bone–meal should be lifted in stages. First, processing for use in fish feed should be permitted, followed by processing into animal feed, but only for other animal species. This will require strict regulation, monitoring and certification.

High priority should also be given to promoting more efficient fertilization regimes in agriculture. This concerns precision fertilization, functional use of organic manure and better utilization of the phosphate already stored in the soil. Besides this, efficiency improvements can also be made in mining.

On EU level the TA Steering Committee recommends the following :The EU must let go of the illusion that it is self-sufficient in food. This is because the internal phosphate reserves of the EU (in Finland) are much too limited. For its food security, the EU will have to rely even more than today on phosphate imports, with the corresponding increase in costs and uncertainty. This has far-reaching consequences. Over the long term, phosphate supplies should become an important part of Common Agricultural Policy. Proactive policy is required, with priority on research into more efficient forms of phosphate use in agriculture and into recycling phosphate from waste streams. In order to accelerate such adaptations – which will be unavoidable in the long term – a levy on phosphate can be considered. In this case it would be advisable to use the revenue from the levy to promote better use of phosphate. In this way, two goals will be accomplished with one measure. Finally Helias Udo de Haes would like to give special attention to the following research question, as there is no overview on different supplies depending on different price levels: How large are effective supplies of phosphates? <sup>4</sup>

## **Conclusion MEP Bas Eickhout**

The main problem is how to get it on the European agenda. Different DG', countries and political streams from the European Parliament have visited this seminar are here. We need to try to get forces together to get process moving. However, we need to be patient. It took many years to get climate on the agenda, this will not be different for phosphorus shortage. Probably the parliament together with some member states should take the first initiative. On the political playing field however, it is probably necessary to approach it from a somewhat broader perspective. Phosphorus shortage as a trigger for sustainable use of nutrients, maybe in relation to food security, would be a possibility.

Concerning mitigation options the EU should look at the problem on at least two different levels.

First of all on a international, global scale the enormous geopolitical implications of this problem should be used to put the problem on the agenda. Geopolitical power play of for example China is not unrealistic. On the aspect of mining for example there are ways for the EU to put pressure on the mining countries to also make this more efficient, by using demand policy.

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<sup>4</sup> For more information on the recommendations of the TA steering committee, please go to <http://stuurgroeppta.nl/> to download their policy memorandum and advise to the Dutch minister of Agriculture.

# Phosphorus Depletion

On European level a few mitigation options seem to be the most relevant:

- First of all improving efficiency by precision farming. The DG Agriculture must come in here. Efficient use will have to be part of systematic changes towards closing cycles and eliminating soil erosion.
- The second important option lies in recycling by waste (water) treatment. Here it is important not only to focus on phosphorus, but to put other nutrients and contaminations in it too it as well. One mean of investing in recycling is putting together European and Swedish legislation.
- European policy should also give an impulse to new forms of sanitation solutions (separating different waste streams at the source, decentralised waste (water) solutions and ecosanitation in developing countries).
- An important research direction lies in the global reserves in connection to changing price levels.

In the end, the content is complex, but not unconquerable. It is a matter of how to put the different pieces of puzzle together. Getting it on the agenda is probably more difficult. The Parliament and some member states like the Netherlands, Germany, Sweden, and Austria should take the initiative in this. The European Water Partnership could probably have a role in mobilizing some member states. Important next steps should be to identify policies that are already addressing the issue and to link the issue to existing policies and change these were necessary and possible.