

What are all these sustainable phosphorus initiatives ?

Where are they going ?

Chris Thornton

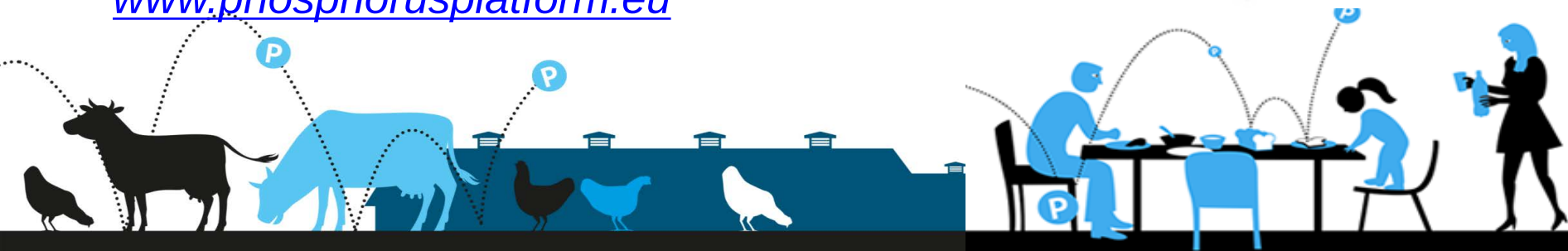
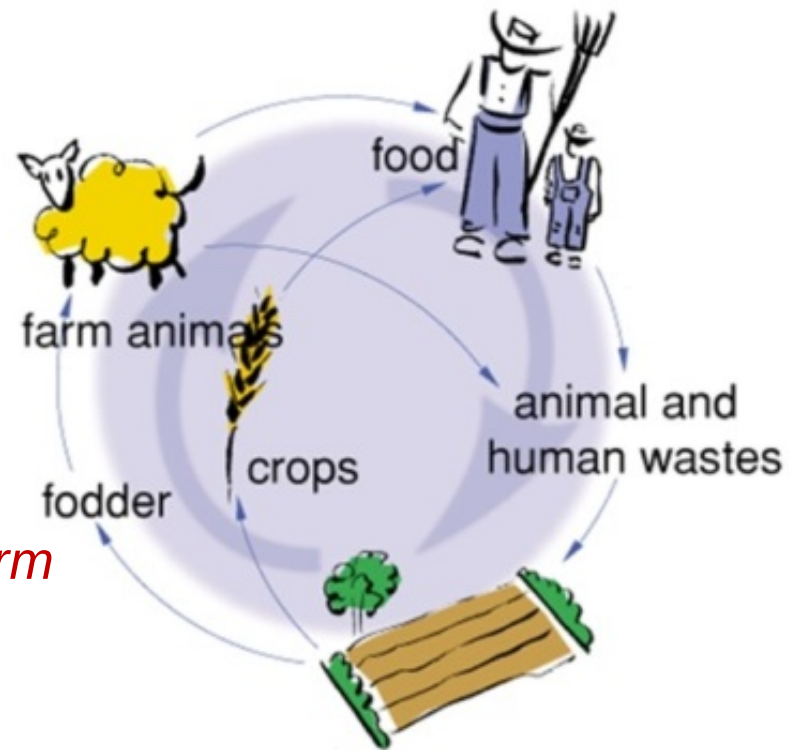
European Sustainable Phosphorus Platform

info@phosphorusplatform.org



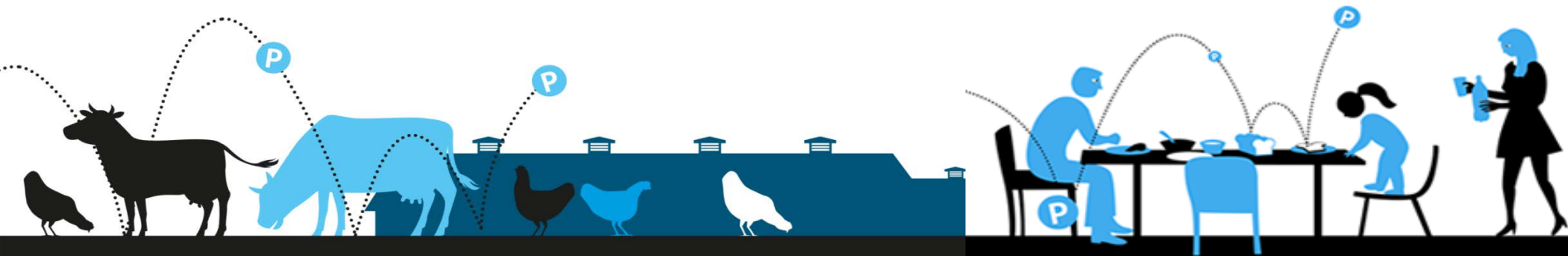
@phosphorusfacts

www.phosphorusplatform.eu



Phosphorus initiatives

➤ *from « militant scientists »
to institutional platforms*

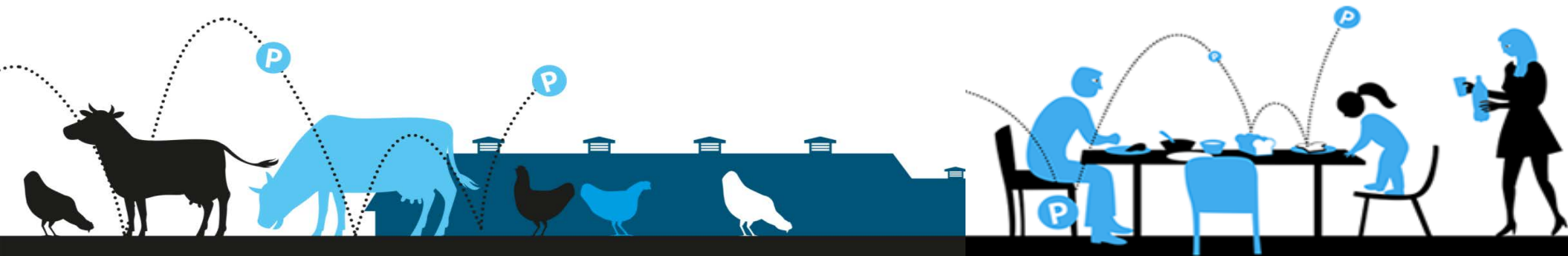


SERA17 <http://www.sera17.ext.vt.edu/>

Created 1993

US scientists' group working on P-sensitive waterbodies

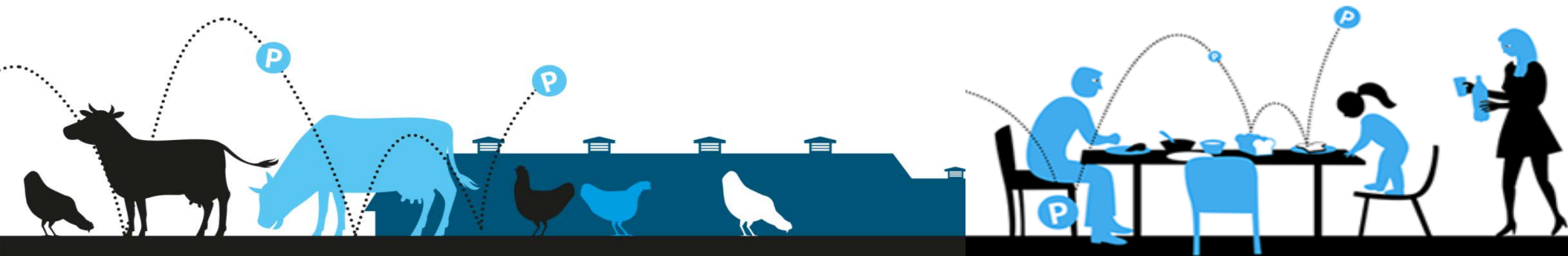
- develop best management practices
- manure management strategies
- soil P limits



Promoting P-recycling

- 1990: **SCOPE** Newsletter launched by CEEP
- 1998: 1st Int. Conference P-Recovery & Recycling
- 2007: Global Phosphate Forum (detergent P industry)
- 2008: Japan Council for Promotion of P-Recycling
- 2013: SCOPE Newsletter transferred to ESPP

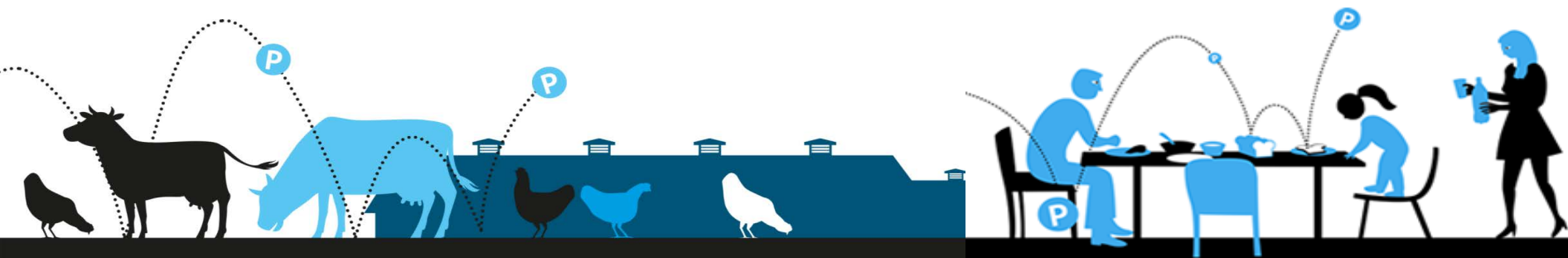
SCOPE NEWSLETTER



P-recycling R&D projects

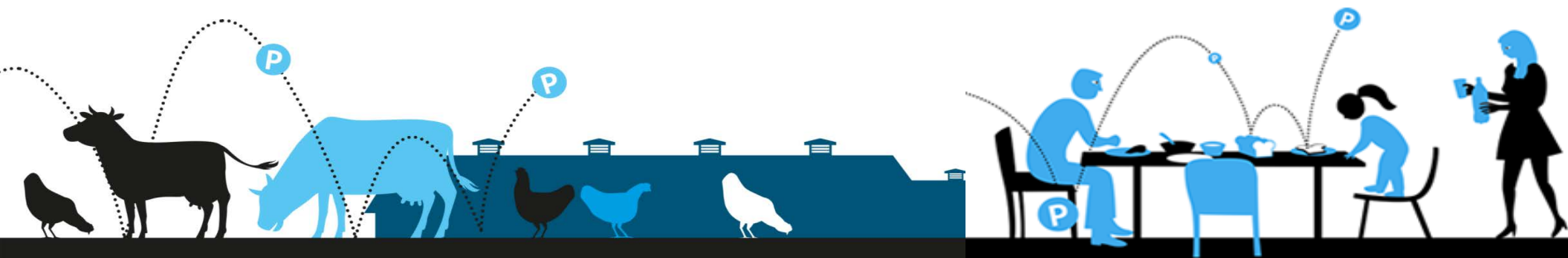
- INEMAD www.inemad.eu (Nutrient-Energy Management Anaerobic Digestion)
- ManureEcoMine <http://www.labmet.ugent.be/content/manureecomine>
- P-REX www.p-rex.eu (P-recovery from wastewaters)
- ReUseWaste Marie-Curie Network www.reusewaste.eu
- End-o-Sludge End-o-sludg: <http://www.end-o-sludg.eu>
- Interreg ARBOR (digestate resources recovery) <http://tudor.lu/en/projects/arbor>
- RecoPhos http://www.recophos.org/c/mid,1364,Media_Centre/
- Phosph'OR <https://phosphor.cemagref.fr/> VALORDIM (recycling digestates)

and others ...



GPRI / Global P Network <http://globalpnetwork.net/>

- Tina Smit Neset, Univ. Linköping, Sweden
- Arno Rosemarin, Stockholm Environment Institute
- Dana Cordell, Inst. Sustainable Futures, Sydney. Thesis 2010: “The Story of Phosphorus: Sustainability implications of global phosphorus scarcity for food security”

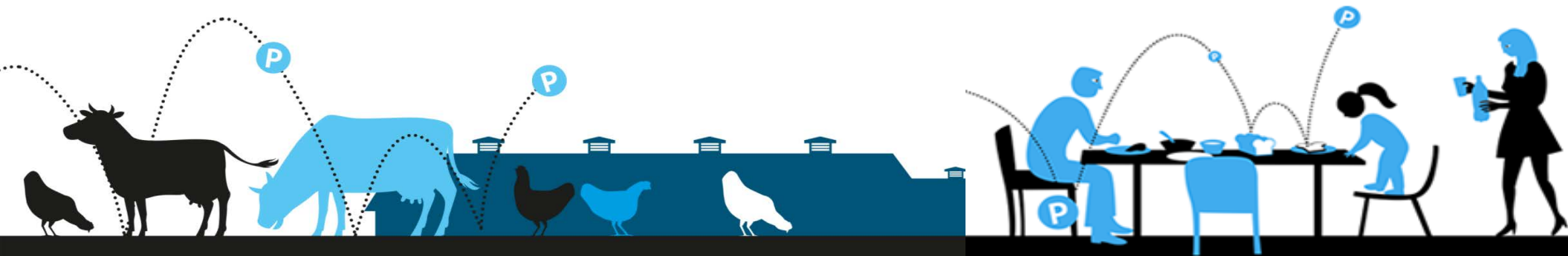


Phosphorus Summits <http://globalpnetwork.net/>

Linköping, Sweden, 2010 - Arizona 2011 - Sydney 2012

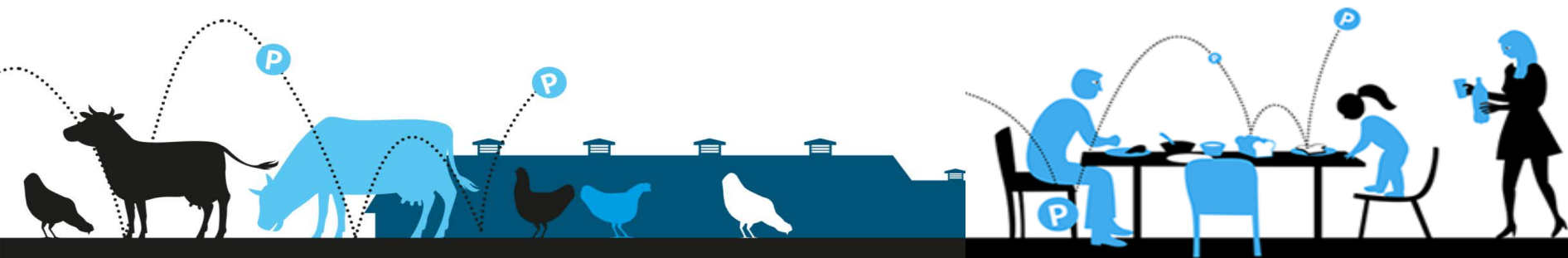
Montpellier France, 1 - 3 Sept. 2014 <http://SPS2014.cirad.fr>

Sydney summit led to Blueprint for global phosphorus security” <http://sustainablepsummit.net/>



Global TraPs www.globaltraps.ch

- transdisciplinary project
- launched 2010
- led by ETHZ Switzerland (until 2012) and IFDC
- meetings Zurich 2011, El Jadida 2012, Beijing 2013
- project closes end 2014



P-RCN <http://sustainability.asu.edu/research/project.php?id=704>

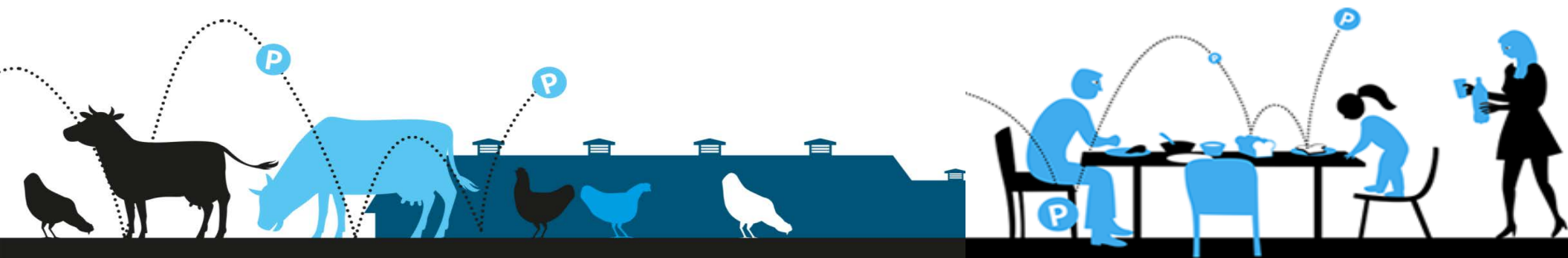
US National Science Foundation funded research coordination network

Led by Arizona State University (ASU)

1st meeting, Washington, May 2013

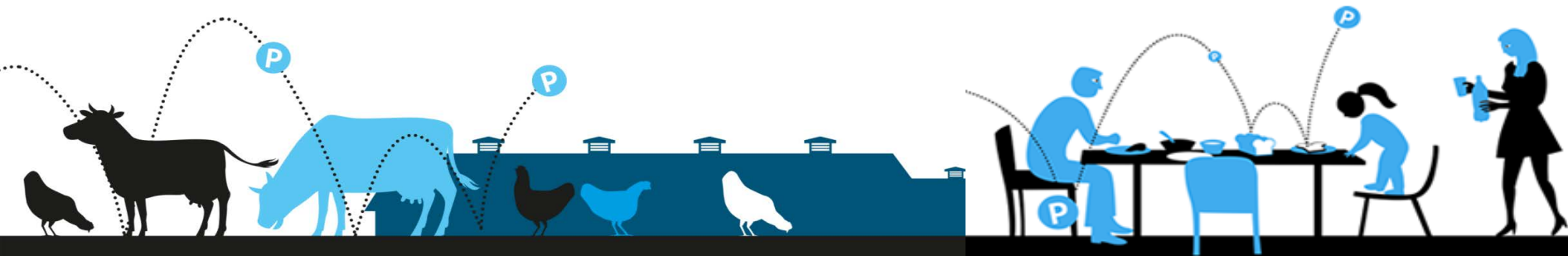
2nd meeting, Arizona, January 2014

3rd meeting, Washington, May 2015



National nutrient platforms in Europe

- Netherlands 2010 <http://www.nutrientplatform.org/>
- Flanders 2012 <http://www.vlakwa.be/nutrientenplatform/>
- Germany 2013 www.deutsche-phosphor-plattform.de



European Sustainable P Conference (ESPC)

Brussels March 2013, with EU Environment Commissioner J. Potoznick
→ led to establishment of European Sustainable Phosphorus Platform, summer 2013

- 2nd ESPC Conference, Berlin 5-6 March 2015

www.phosphorusplatform.eu

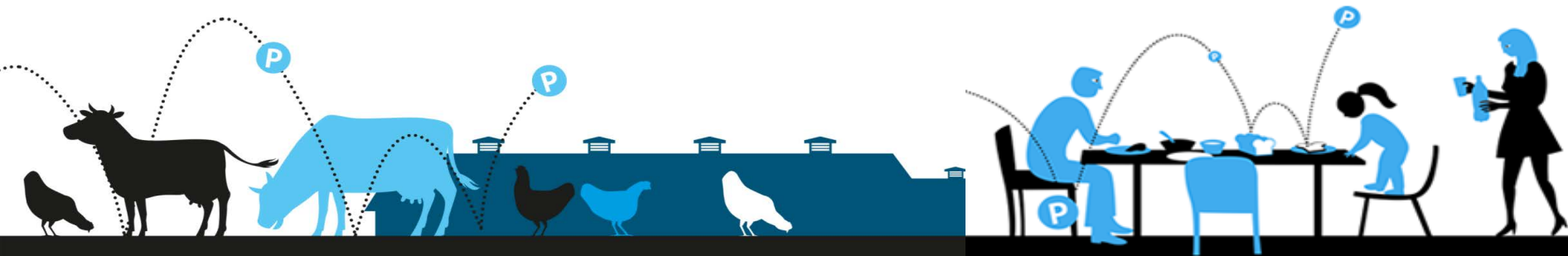
→ call for posters and contributions now open



Canada:
Ontario province
CCME
(Canada Council of Environment Ministers)



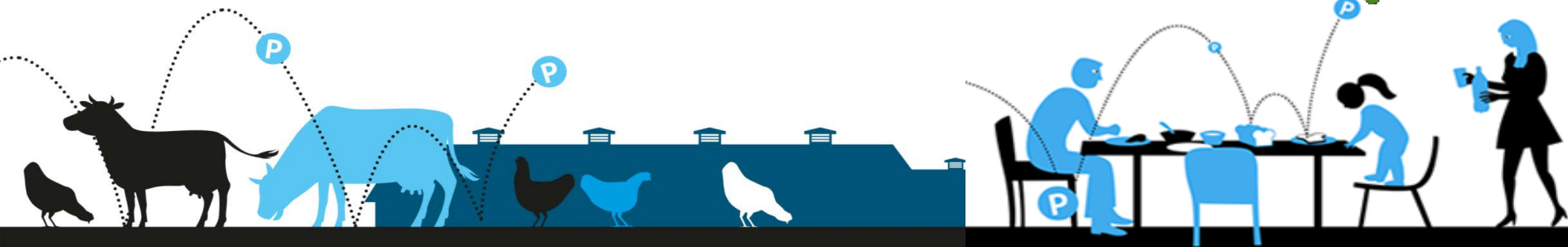
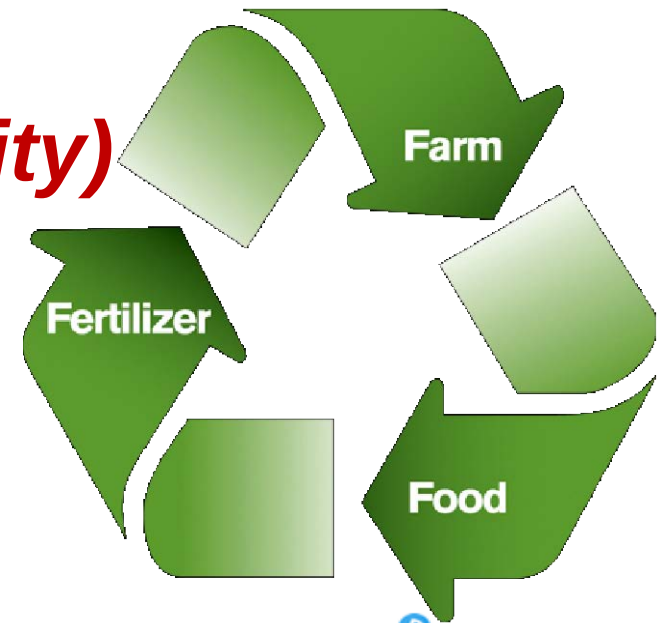
- Webinar on March 2013
- Toronto P-recycling seminar, 19 June 2014



NAPPS ***(North America Partnership for Phosphorus Sustainability)***

Launch underway, 2014 – 2015

<http://sustainablep.asu.edu/about>





United Nations Environment Programme

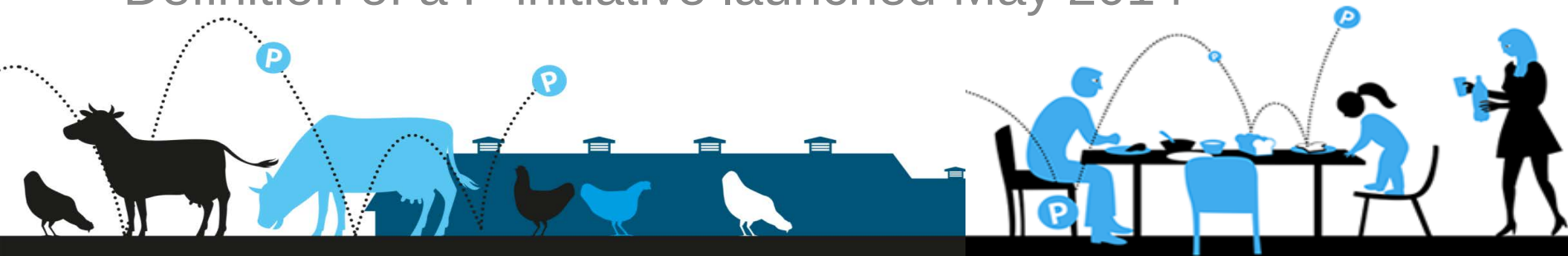
Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)

GPNM

Global Partnership on Nutrient Management

<http://www.gpa.unep.org/index.php/global-partnership-on-nutrient-management>

- **UNEP** initiative under GPA (Global Programme of Action for the Protection of the Marine Environment from Land-based Activities)
- Platform with governments, EU Commission, FAO, UNESCO, knowledge institutes, foundations, industry (IFA)
- Initially N-orientated
- Definition of a P-initiative launched May 2014



European Sustainable P Platform (ESPP)

www.phosphorusplatform.eu

Launched mid 2013 following ESPC

Dialogue between companies, science, NGOs,
farmers' organisations, regulators

President = **Arnoud Passenier** (Netherlands Env. Ministry)

Secretariat = **Chris Thornton**

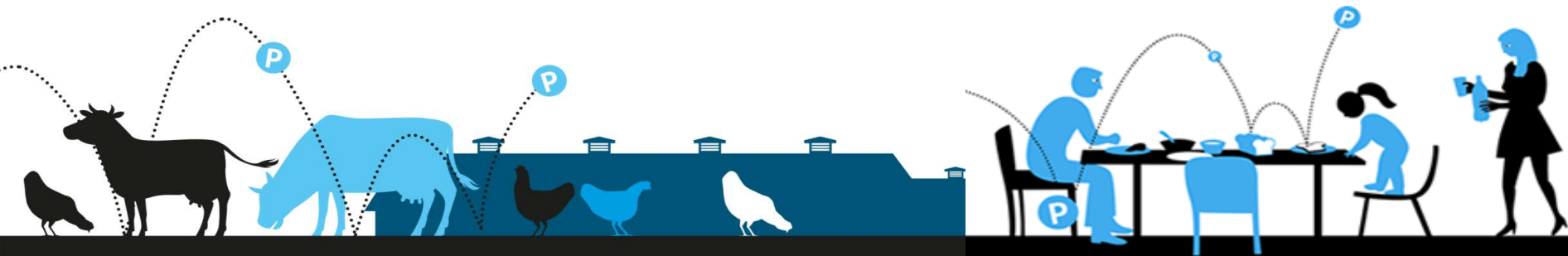


European Sustainable P Platform (ESPP)

www.phosphorusplatform.eu

Themes:

- P supply: resources, mining, processing
- P re-use, recovery and recycling
- P use efficiency in crop and animal production, bio-economy
- Sustainable and safe food chain, from farm to diet



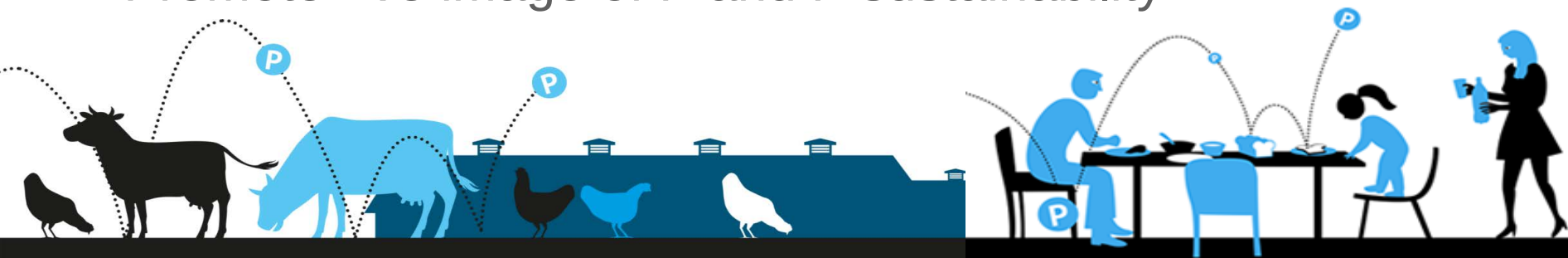
European Sustainable P Platform (ESPP)

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Actions:

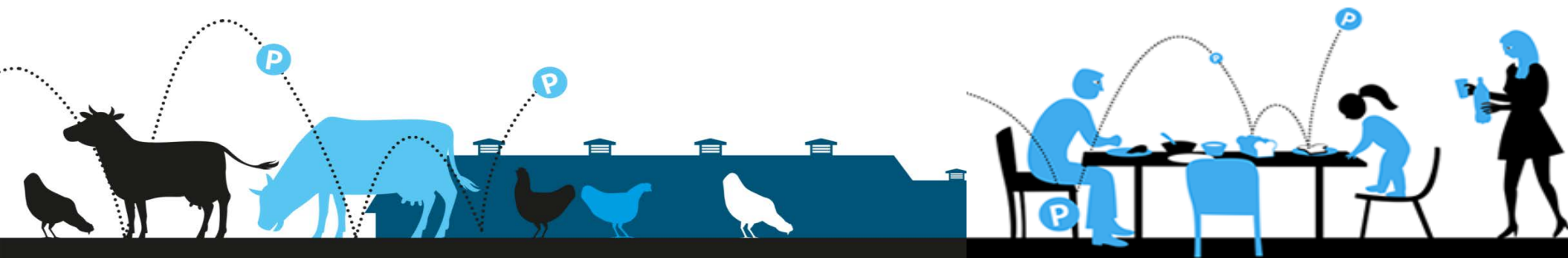
- Regulatory questions on P-recycling, P-management
- Stakeholder dialogue, network, expertise
- Long-term vision for sustainable P in Europe
- Define R&D priorities, avoid duplication
- Promote +ve image of P and P sustainability



European Sustainable P Platform (ESPP)

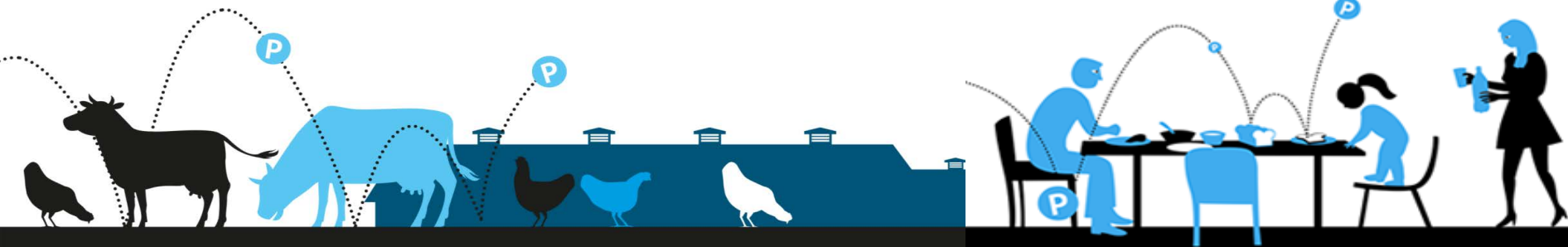
www.phosphorusplatform.eu

Members



Where are initiatives going today ?

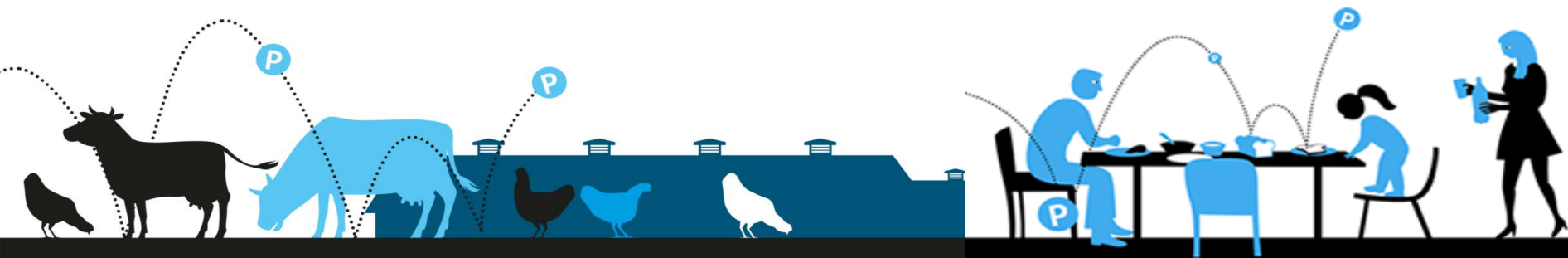
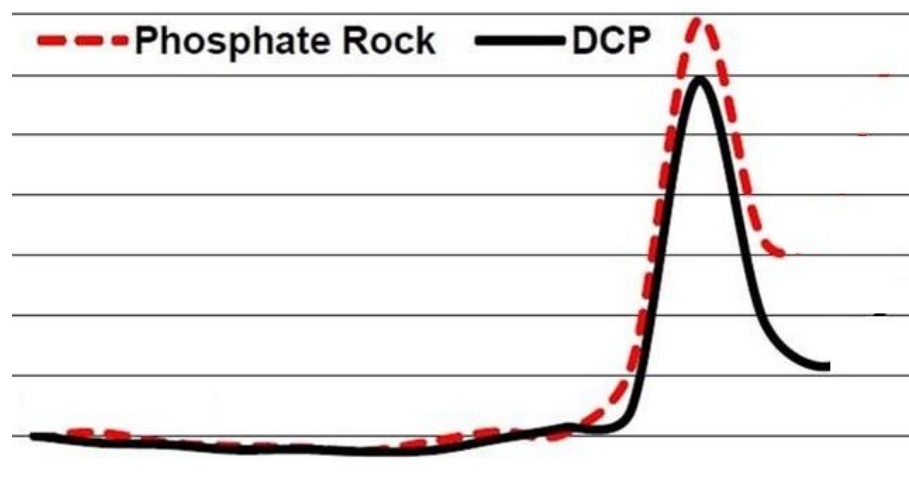
➤ *the bigger picture: P stewardship*



Drivers for phosphorus initiatives: *Beyond peak P*



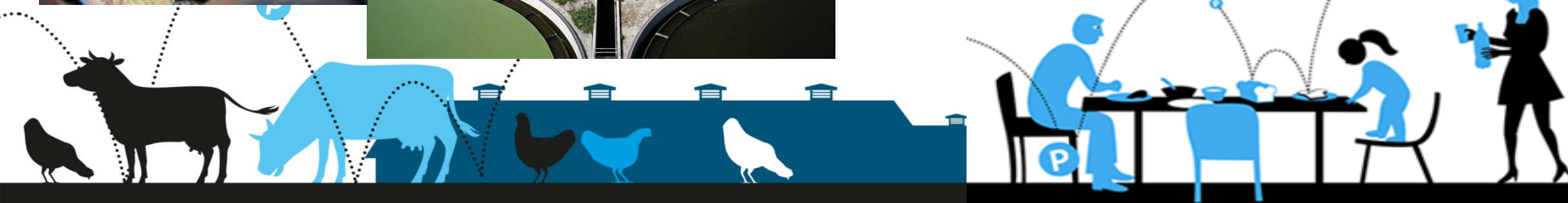
Phosphorus stewardship



Drivers for phosphorus initiatives:

*Regulatory and social pressure for **P-removal***

- *Livestock manures*
- *Wastewater treatment*
- *Food wastes*



Drivers for phosphorus initiatives:

*Pressures on P **disposal***

- *Landfill costs*
- *Biosolids application*



Drivers for phosphorus initiatives:

Synergies with waste/water treatment

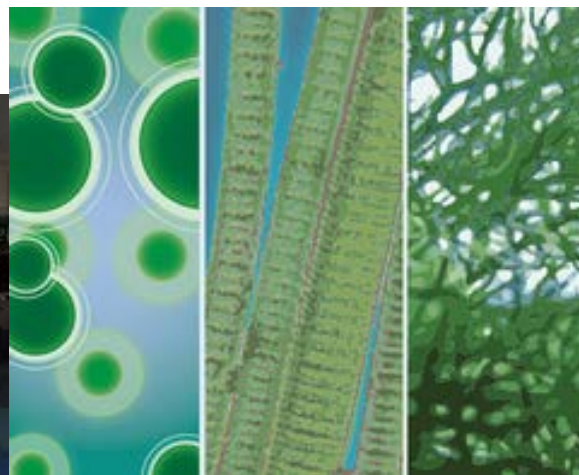
- *Anaerobic digestion*
- *Biological P-removal*



Drivers for phosphorus initiatives:

Biofuels and biomaterials

➤ *P-recycling is **unavoidable** prerequisite*



Drivers for phosphorus initiatives:

From farm to fork

- sustainability
- diet

KIDNEY DISEASE PATIENTS UNABLE TO DISCERN PHOSPHORUS LEVELS IN FOODS, AND CLAIMS

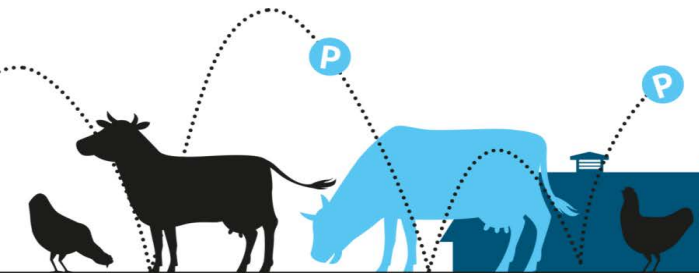
Nutrition Facts overhaul a missed chance to label phosphorus: AND

By Maggie Hennessy , 28-Aug-2014

Last updated on 29-Aug-2014 at 15:16 GMT



AND's Pepin Tuma: "Consumers probably are not aware of the ubiquity of phosphorus in foods, because not only is the content not required to be listed on the label...but phosphorus additives are typically unaccounted in the estimated phosphorus content of processed foods because food manufacturers are not required to list their quantities."





EUROPEAN COMMISSION

PRESS RELEASE

Brussels, 26 May 2014

Different levels of action

20 critical raw materials - major challenge for EU industry

The European Commission presented today a revised list of Critical Raw Materials. The 2014 list includes 13 of the 14 materials identified in the previous list of 2011, with only tantalum moving out of the list (due to a lower supply risk). Six new materials appear on the list: borates, chromium, coking coal, magnesite, phosphate rock and silicon metal bringing the number up to 20 raw materials which are now considered critical by the European Commission. The other 14 raw materials are: antimony, beryllium, cobalt, fluor spar, gallium, germanium, indium, magnesium, natural graphite, niobium, platinum group metals, heavy rare earths, light rare earths and tungsten ([MEMO/14/377](#)).



Local / national

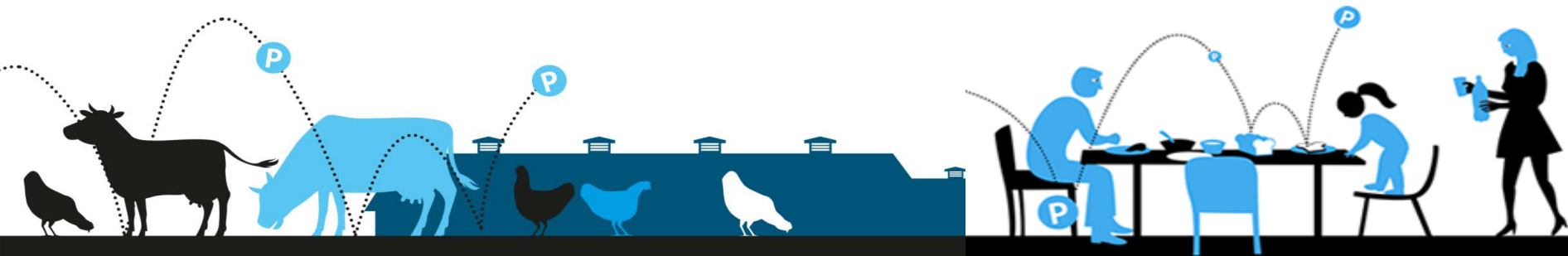
- *Building business value chains*

National / continental

- *Regulatory and policy vision*
- *Network & expertise*

Global

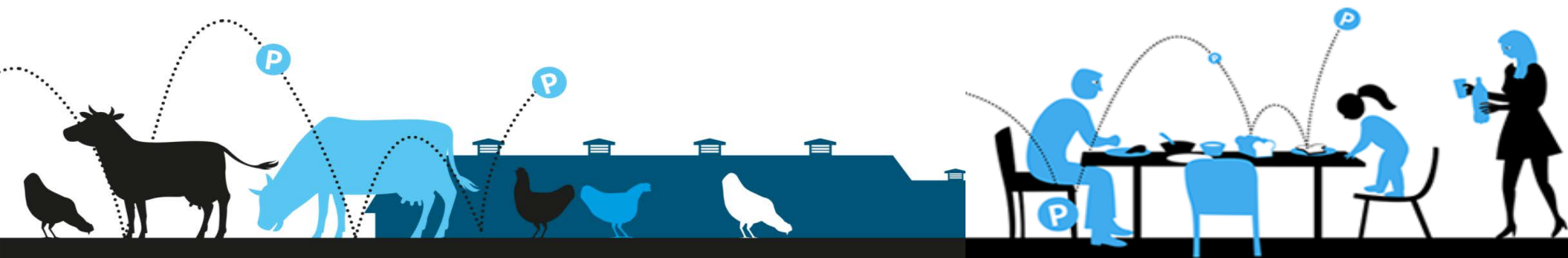
- *???*



With thanks

A number of ideas borrowed from Andrea Ulrich & Ewald Schnug, “The modern phosphorus sustainability movement: a profiling experiment”, Sustainability 2013, 5, p. 4523-4545;

<http://www.mdpi.com/2071-1050/5/11/4523> (Open Access)





European Sustainable Phosphorus Platform

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