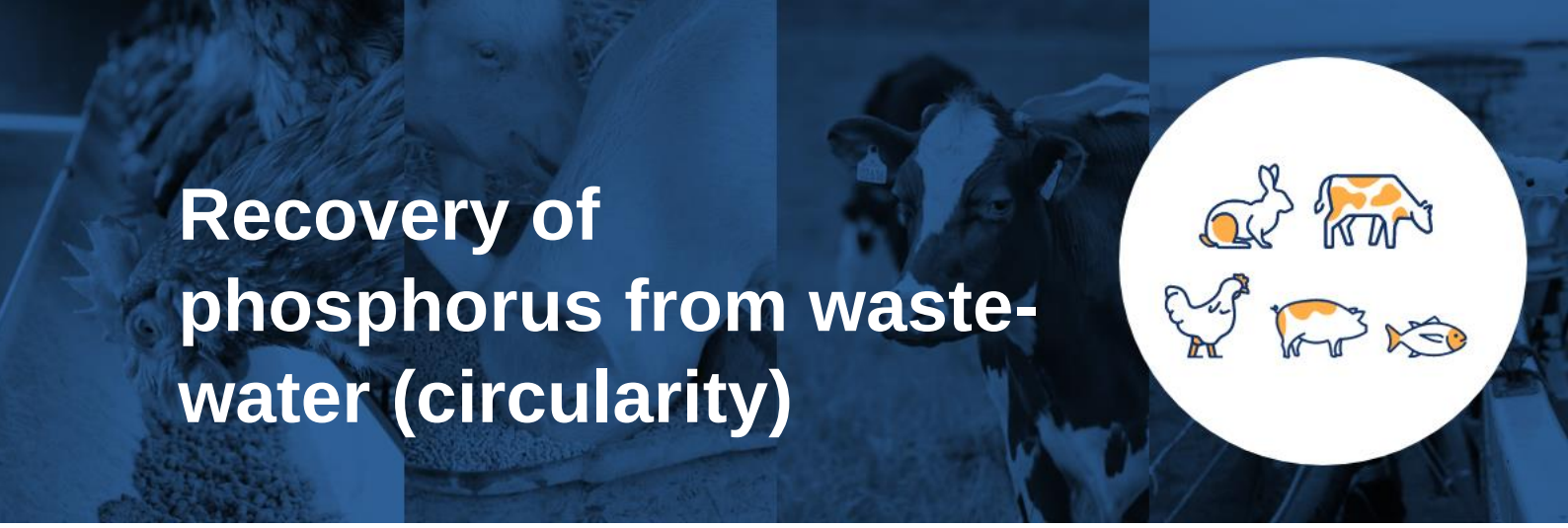

Recovery of phosphorus from waste-water (circularity)

Last update: 2 June 2023

- **Type of challenge**: Environment.
- **Challenge**: Resource management (resource depletion).
- **Action**: Use of phosphorus recovered with origin in waste-water.
- **Animal category**: All species.
- **Technique**: The use of recovered phosphorous from sewage sludge ash in animal feed (not allowed yet) as opposed to sourcing rock phosphates from mines with finite resources.
- **Mode of action**: Modern techniques and innovative chemical recycling enable safe recovery of phosphates from sewage sludge incineration ash up to 90%.
- **Mode of implementation**: Replacement of rock phosphate by recovered phosphorous in feed formulation.
- **Requirements/limitations**: The use of recycled phosphorous with origin in waste-water in animal feed is not allowed today.
- **Economic consequences**: The availability of phosphorous for feeding purposes would increase in the short term once approved in the EU, while in the long term it may be a necessity bearing in mind the finite availability of rock phosphate; competition with the use as fertilisers may impact on the competitiveness of recycled phosphorous in animal feed.
- **Other considerations**: The digestibility of recovered phosphorous is expected to be higher than rock phosphates and allows the reduction of phosphorous in diets and emissions of surplus in the environment; reduced use of rock phosphate would reduce the presence of uranium and cadmium contaminants, while it would stimulate the local bio-economy.
- **References**:

  - Luyckx *et al.* (2021). *Recovery of phosphorus from sewage sludge ash: Influence of incineration temperature on ash mineralogy and related phosphorus and heavy metal extraction*. Journal of Environmental Chemical Engineering 9(6):106471. https://doi.org/10.1016/j.jece.2021.106471
  - Shaikh (2018). Phosphorus recovery from sewage sludge and waste water treatment. International Conference On Sustainable Solutions in Industrial Pollution, Water and Wastewater Treatment. https://www.researchgate.net/publication/329144221

Charter Ambitions: 2, 5