

BSR WATER

Solutions to enhance recycling of nutrients in waste water sector

TAAVO TENNO

University of Tartu

PLATFORM
BSR WATER

 **Interreg**
Baltic Sea Region


EUROPEAN UNION
EUROPEAN
REGIONAL
DEVELOPMENT
FUND

 **UNIVERSITY OF TARTU**

BSR WATER project

enhance cross-sectoral cooperation in smart water management by transnational experience exchange, sharing good practices and delivering a comprehensive overview of the current and future BSR policy contexts.

BSR WATER

Platform on
Integrated Water
Cooperation



Duration:
1 October 2018 to
31 March 2021

10

Partners



19

Associated partners



Funding:
Interreg BSR
Programme
2014–2020



Budget:
EUR 1,133,440.40
million



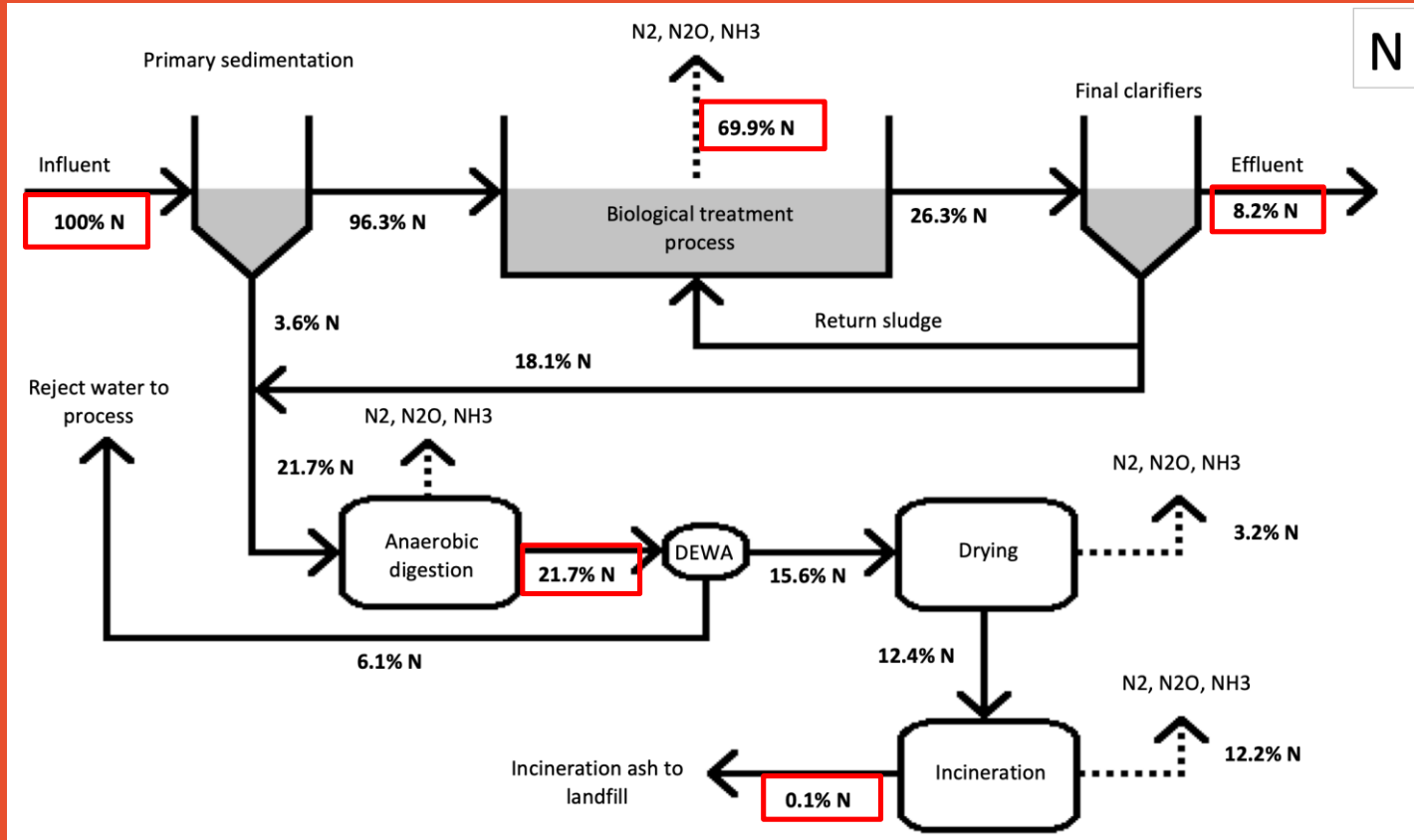
9

Countries
from Baltic
Sea Region

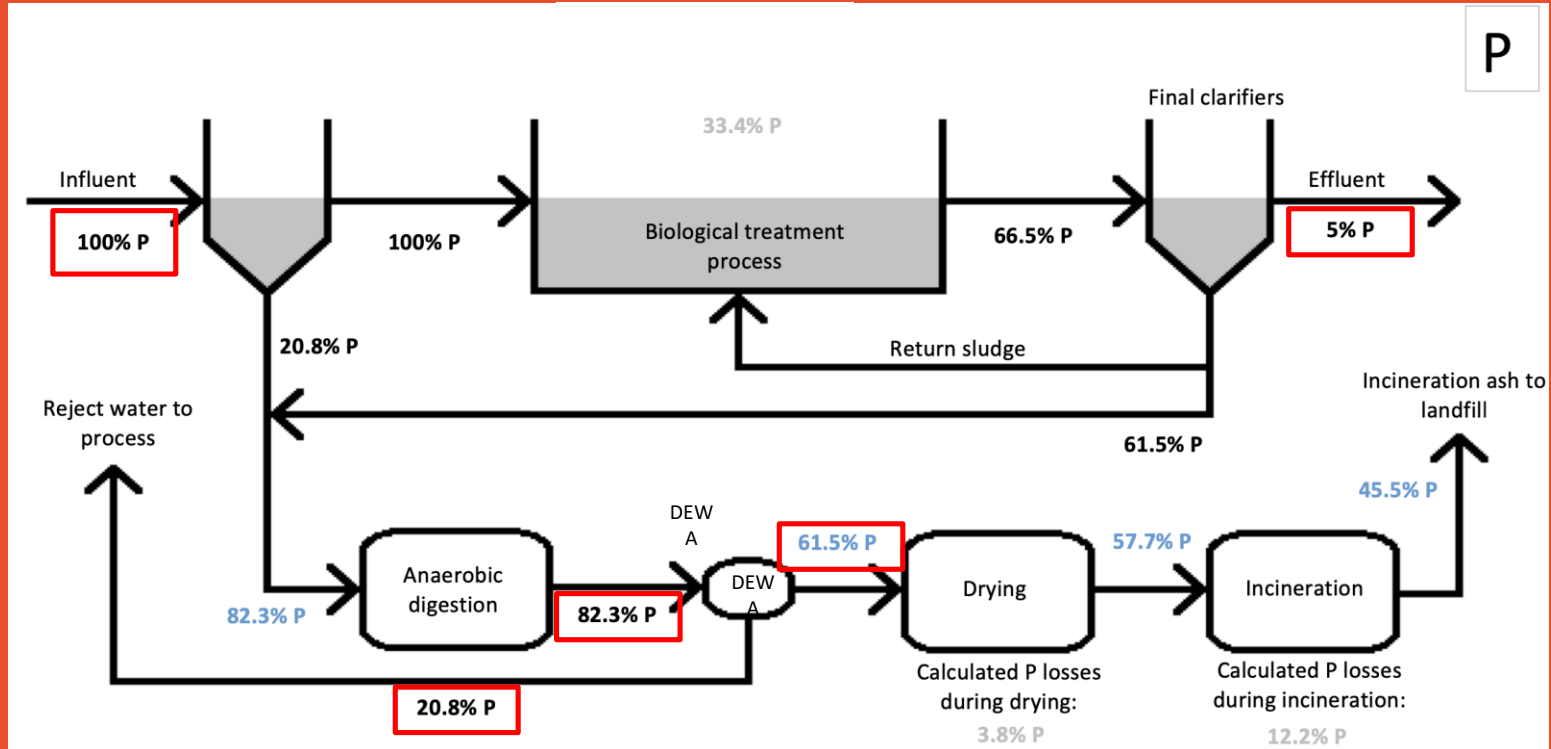


www.bsrwater.eu

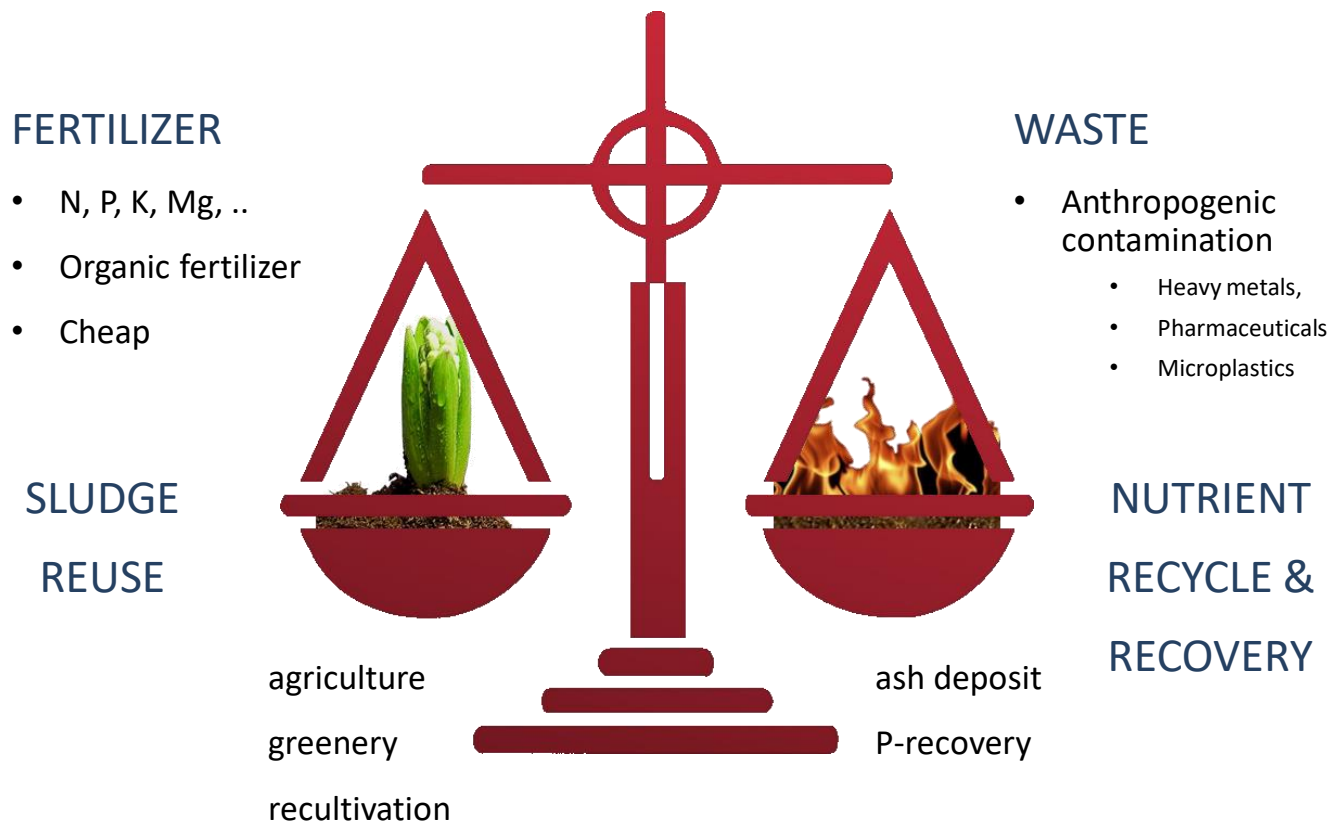
IWAMA - Sludge audit – nitrogen reuse potential



Sludge audit - phosphorous reuse potential



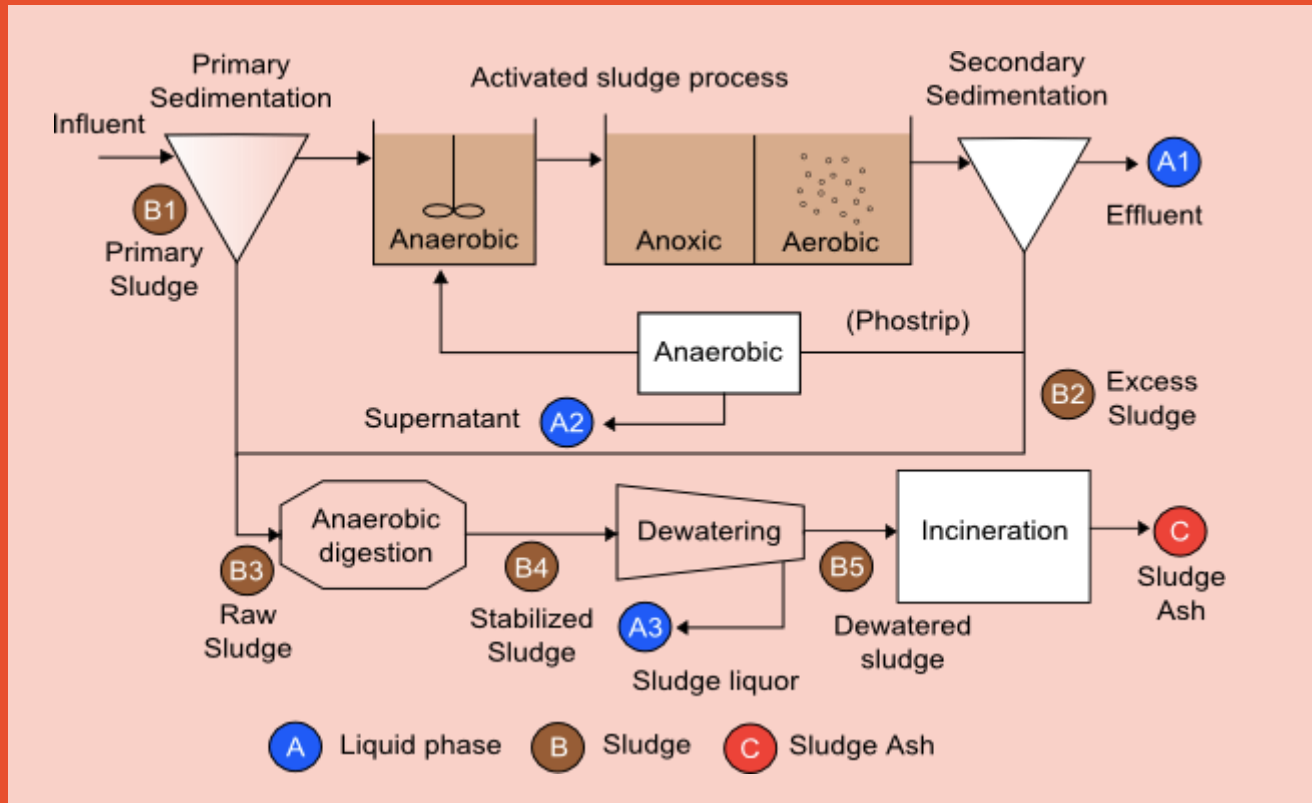
Should the sewage sludge be reused?



How is sludge managed in the Baltic Sea area?



Phosphorous recovery from sewage sludge



Technologies for P-recovery

	Crystallization	Wet Chemical	Thermochemical
Liquid phase	X		
Sewage sludge	X	X	
Sewage sludge ash		X	X

Which products are recovered?

- Struvite – Magnesium Ammonium Phosphate (MAP)



- Low water solubility ((0.18 g/l at 25°C)
- Slow fertilizer



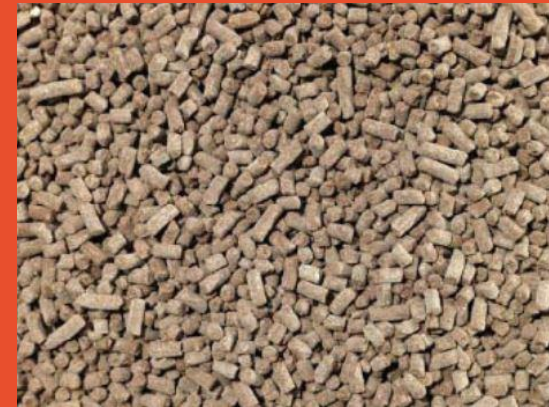
- Hydroxyapatite (Calcium phosphate)



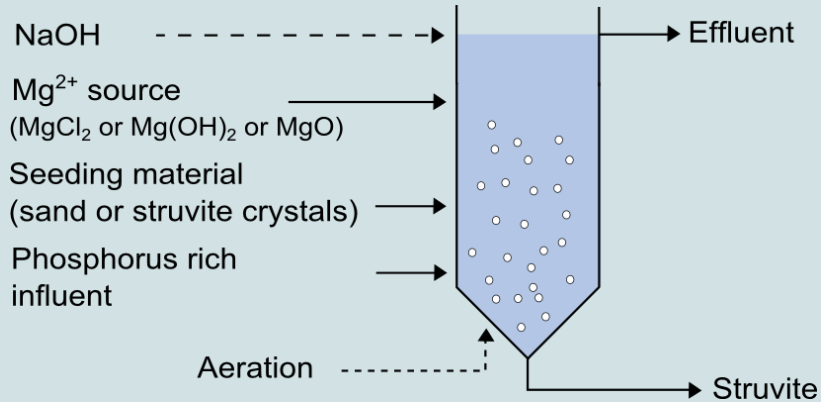
- Similar to the mined mineral rock

- Sewage Sludge Ash

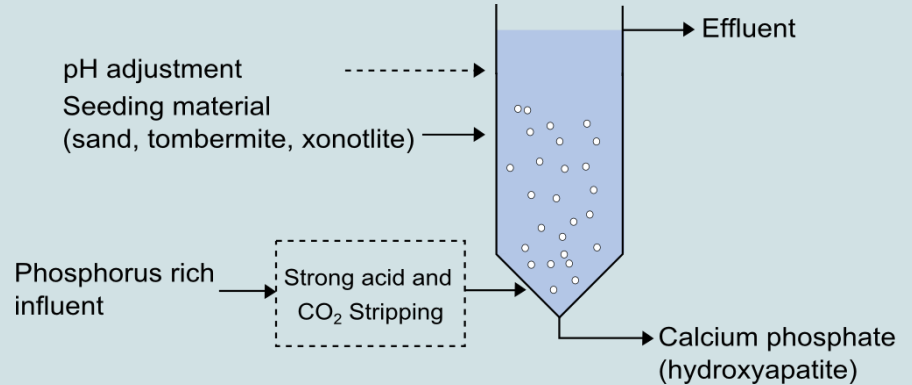
- Reduction of heavy metal content
- Bioavailability of phosphorous enhanced



Crystallization from liquid phase



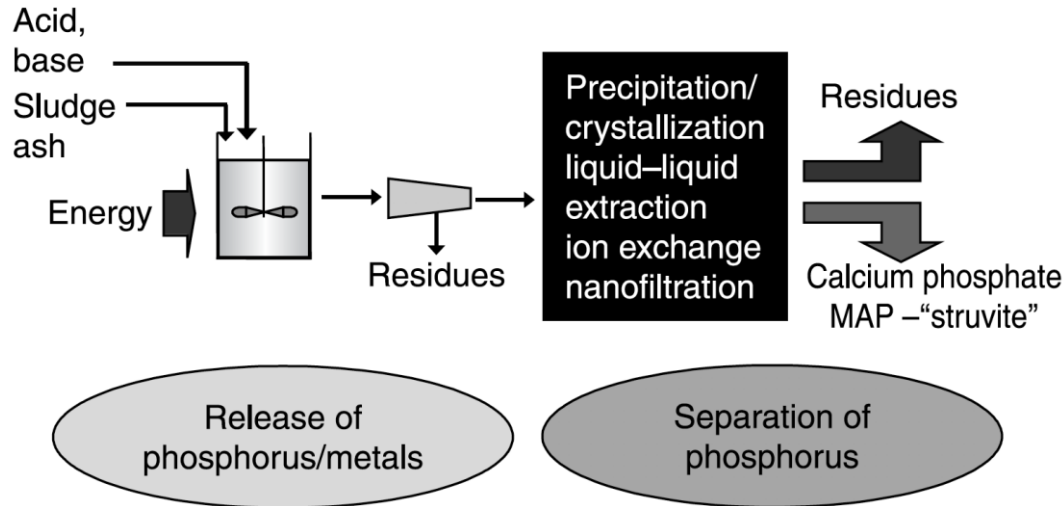
Crystallization of struvite



Crystallization of calcium phosphate

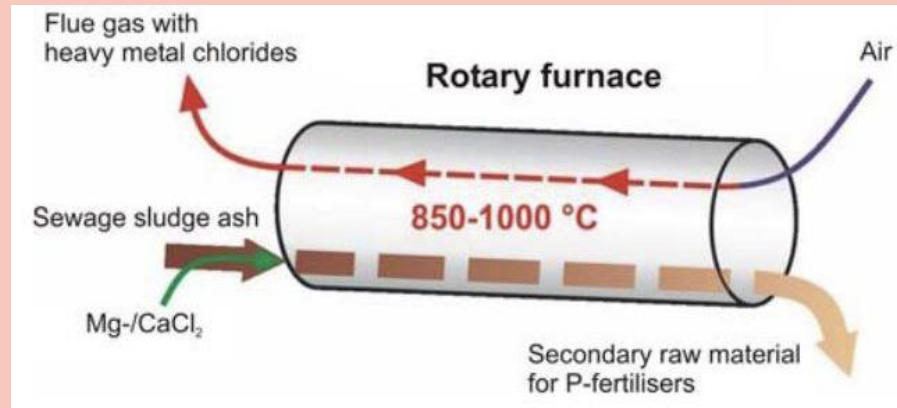
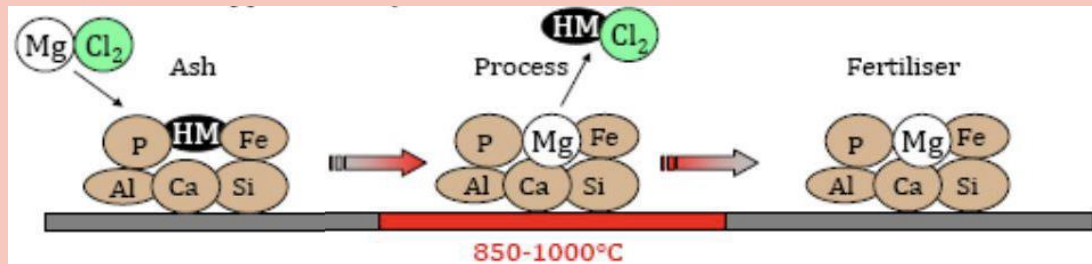
P-Recovery from sewage sludge and ash

Wet chemical technologies

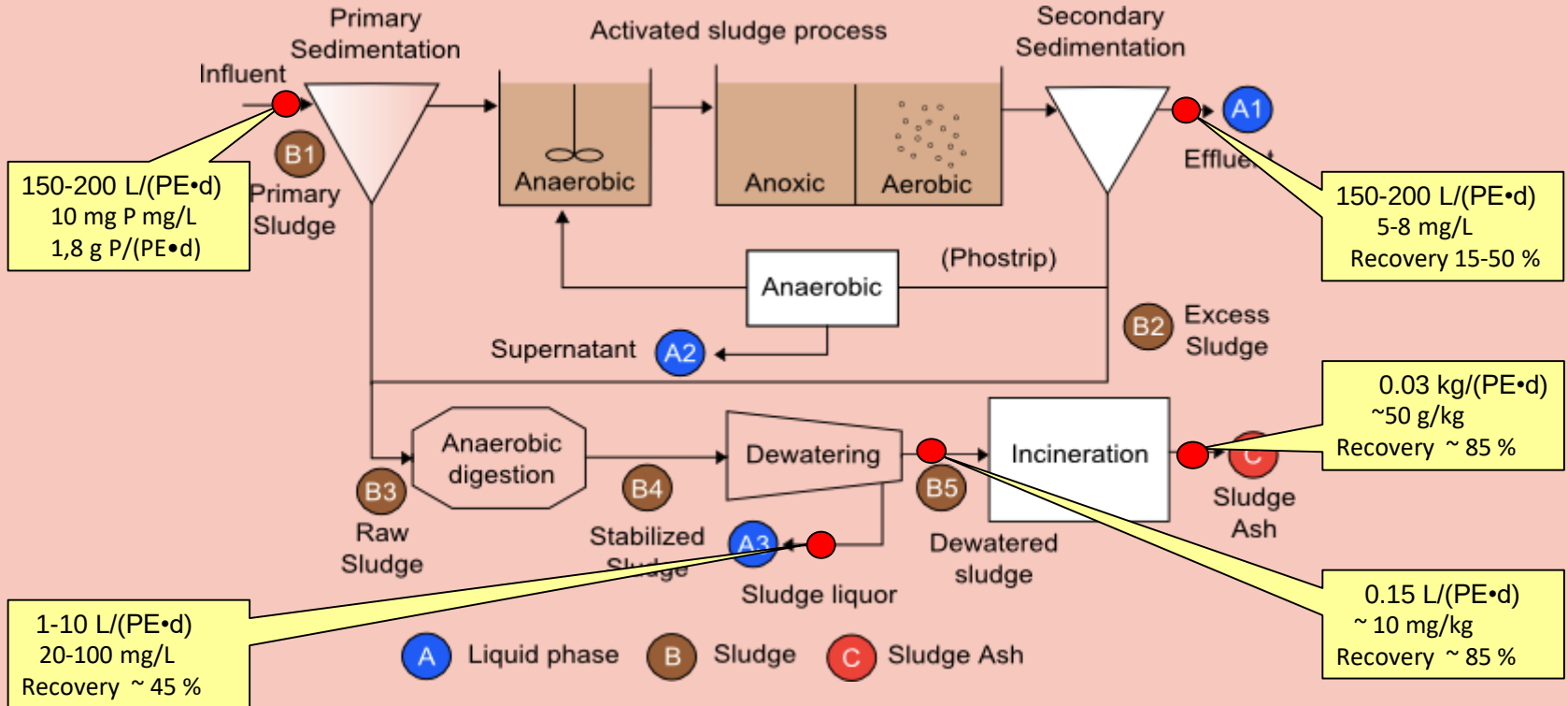


Thermochemical technologies

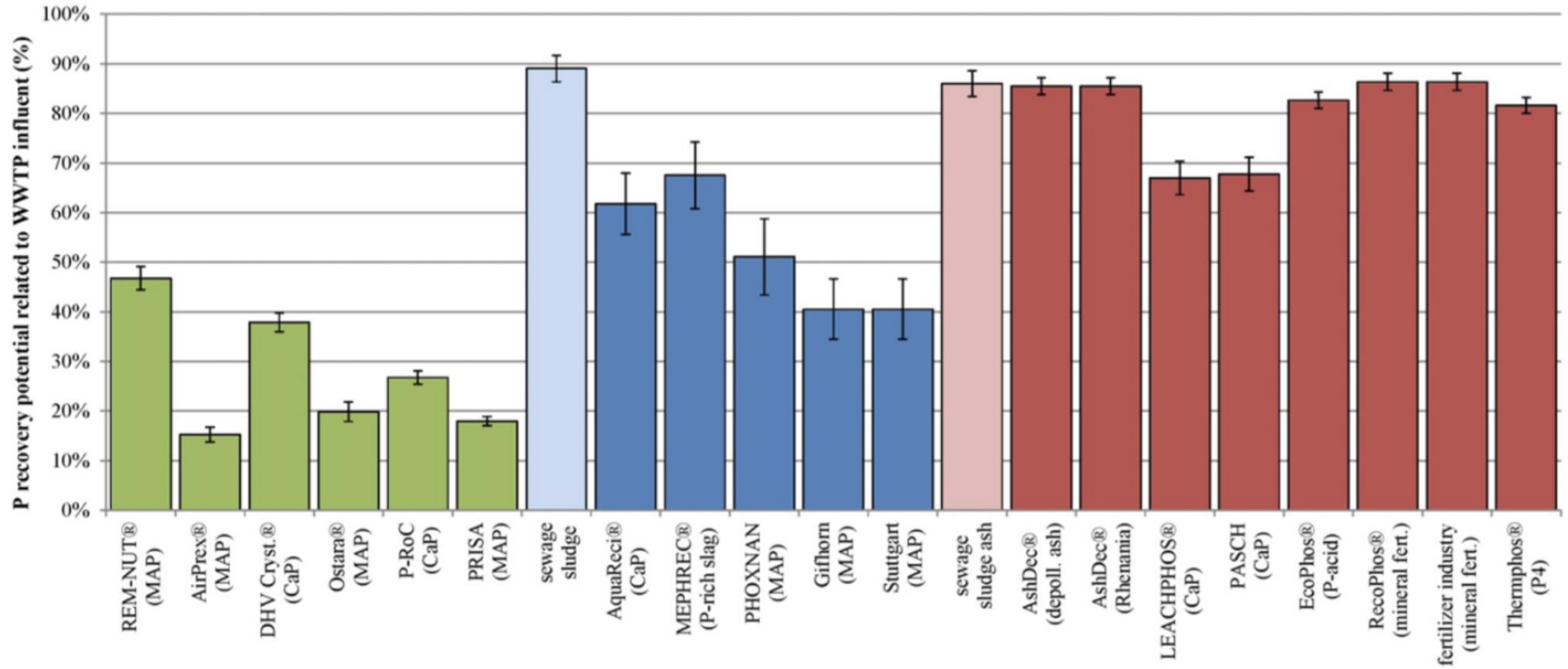
Recovery from sewage sludge ash



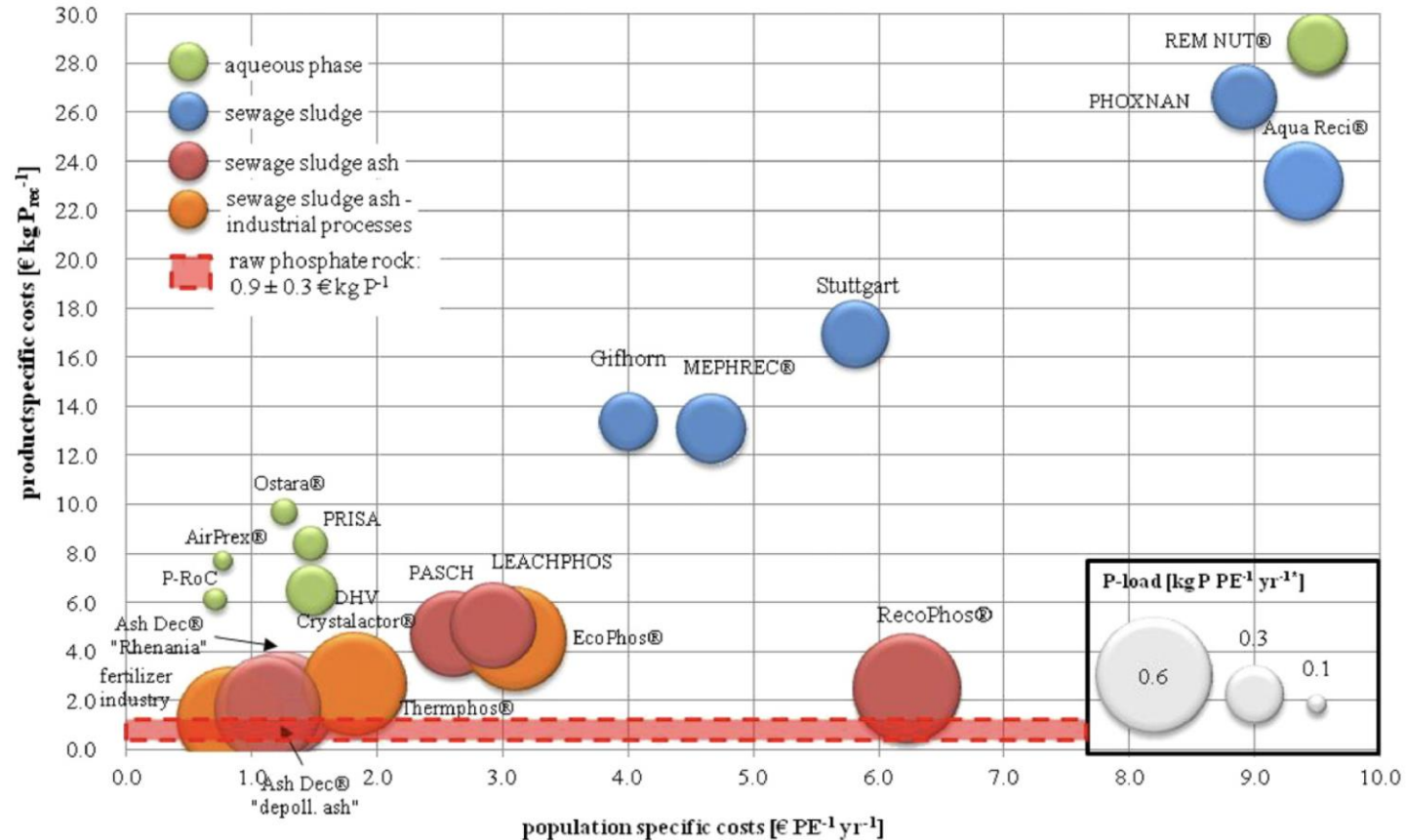
Phosphorous recovery from sewage sludge



P recovery potential (%) of recovery technologies relative to the WWTP influent.



Economy of P recovery



Thank you!

CONTACT

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