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ECOMONDO

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## Nutrient management in EU water utilities: the EurEau perspective



EurEau

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**3rd EUROPEAN NUTRIENT EVENT @ ECOMONDO 2018** 

8 - 9 November 2018, Rimini, Italy









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### **EurEau - Who we are**

## ~ EurEau is the European federation of water services

- We represent 32 national associations of drinking and waste water operators from 29 European countries
- ~ We represent both public and private sector
- ~ With 470,000 direct jobs, we make a significant contribution to the European economy.









### EurEau - What we do

Our experts exchange knowledge We establish positions We engage with EU policy makers.





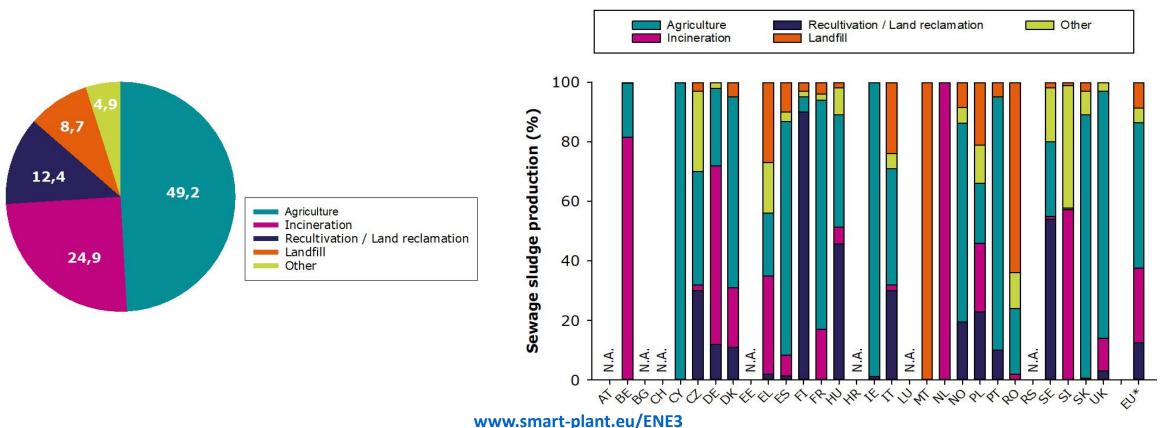






### **Sludge destination in Europe**

### ~Extensive survey with EurEau members in 2017



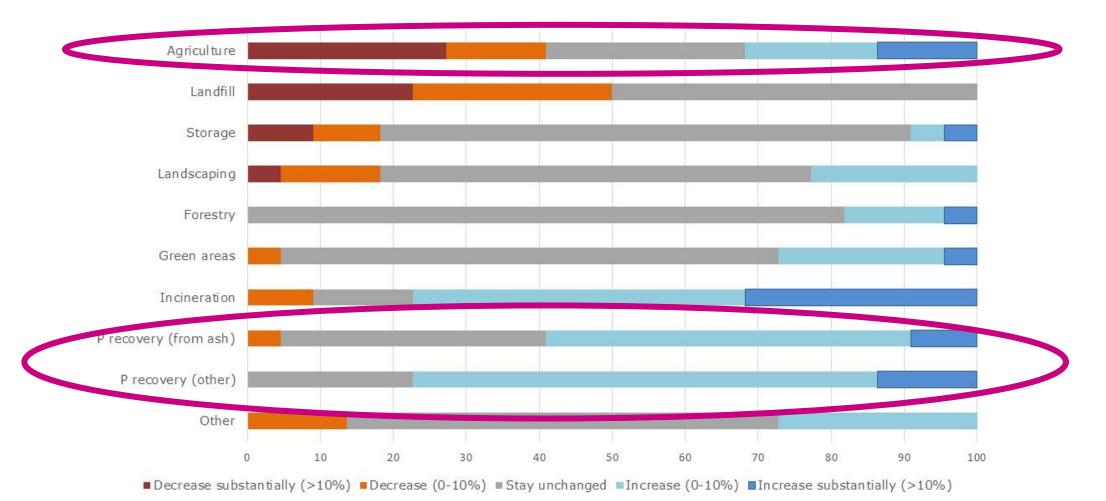








### **Trends for the future of sludge end-point**



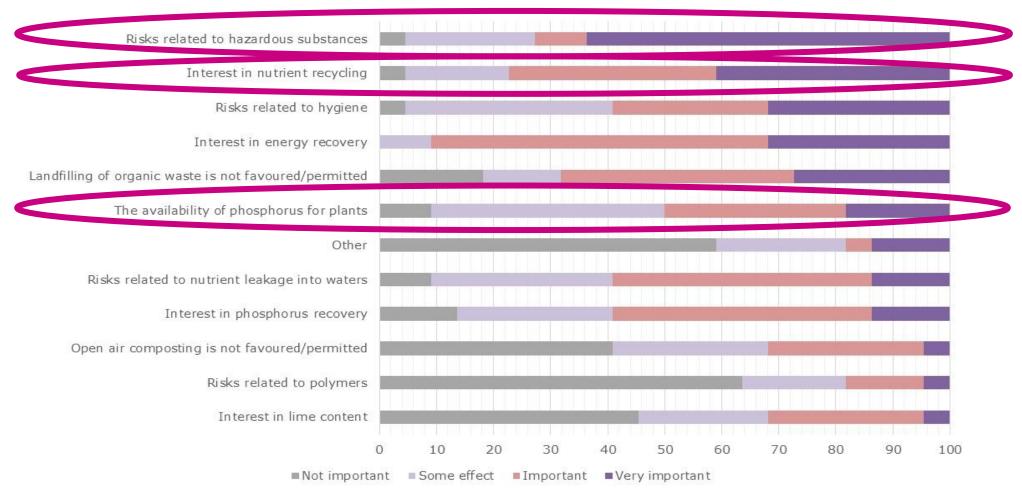








### **Driving forces for sludge destination**









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### **Sludge destination in Europe**

- ~ A lot of sludge is used in agriculture
- ~ Tendency to go for less use due to risks more than for nutrient content
  - ~ go for incineration and energy recovery?
  - ~ Less technological and easier to handle
- ~ Evolution of regulatory framework towards P recovery (DE, AT, SE(?))
- ~ Recycled P market?

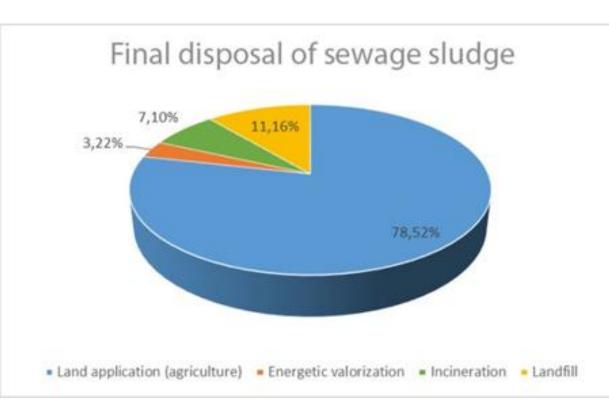








# Some examples in Mediterranean region ~ Spain ~ 1.5 million tons of dry



- ~ 1.5 million tons of dry matter/year
- ~ alkaline pH soils
- ~ deficiency of organic matter
- ~ low contents of heavy metals in sludge









# Some examples in Mediterranean region ~ Greece

~ Larissa WWTP



- **Design data:** 225.000 pe 40.000 m3/day
- ~ **2016 data:** 145.000 pe 26.200 m3/day













### Some examples in Mediterranean region

~ 4.800 tn/year (45% DS) applied to farmlands of the area ~ The farmland application: dosage 3,4 tn/m<sup>2</sup> (average ) ~ Crops: Wheat, barley, cotton, corn

### Application Overview:

- ~ Period of action: 9 years (2010-2018) and still on-going
- ~ Total amount of DS disposed on land: 19.440 tn
- Total amount of Nutrients returned to land: 372 tnP, 836 tnN
- ~ Total Cost for DEYAL: 10 €/tn (wet sludge)











### **Some examples in Mediterranean region** ~ Greece

~ Thessaloniki WWTP



- **Design data:** 1.333.000 pe 296.000 m3/day
- ~ **2017 data :** 160.000 m3/day













### Some examples in Mediterranean region

- $\sim\,$  Limed sewage sludge (aprox. 50% DSS) are applied annually to farmlands of the area
- $\sim\,$  Application depends on the farmers' annual needs and interest
- ~ Average dosage 2,5 tn /m<sup>2</sup>
- ~ Crops: Wheat, cotton, corn, rapeseed

**Application Overview:** 

- ~ Period of action: 8 years (2011-2018) and still on-going
- ~ Total amount of DS disposed on land: 62.222tn
- ~ Total amount of Nutrients reused on land: 622tn P, 2.675 tn N
- ~ Total Cost for EYATH SA: 17,9 €/tn (wet sludge)











### **Regulatory framework (Greece)**

#### Greek Common Ministerial Decision 80568-4225-91: "Methods, Terms and Limitations for the Agricultural Application of Sludge Deriving from the Treatment of Urban Wastewater"

- 1. Agricultural Soil Sampling and Analysis (from the scientific staff of the National Agricultural Institute)
- 2. Sewage Sludge Analysis
- 3. Application procedure to the Regional Governmental Authority (RGA) that includes a complete data file for each farming activity
- 4. Permit for a specific amount of biosolids is out after on site auditing by RGA
- 5. The exact amount of biosolids is transferred to the farm, mechanically spread, distributed and finally homogenized with the soil

➤The farmer is responsible for the distribution and the homogenization procedure as well as for full compliance with the permit provisions.









### Conclusion

- ~ Sludge destination: return to land for the vast majority
- ~ New routes to be developped in the future with P recovery pushed by regulatory framework
- ~ Need for a functionning recycled P market
- ~ Important for the Waste Water Sector: Leave all doors open, we will always produce sludge

### Thank you for your attention

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