eWASTE


AUSTRIA IST ÜBERALL.
Circular Economy 2030 –
Green Deal of the EU
Sewage water recovery in Europe
The new way of sewage sludge
recovering in Europe in the future
11/2022

Sewage Sludge Recovery in Europe // Zagreb, 23.11.2022

AGENDA // OVERVIEW

1. European Legal Framework
2. Examples from Austria and Germany
3. How and why sewage sludge has been treated in facilities in future
4. Sewage sludge is a resource for European industry and agriculture
5. Introduction of eWASTE and its services

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1. Main Goals of municipal wastewater management in the EU

Main Topic: Sewage sludge: source of pollution and raw material

Goals:

1. Protecting water - bringing cleaner rivers, lakes, bodies of groundwater and seas to the people of Europe
2. Environmentally friendly recovery of sewage sludge
3. Decomposition of the pollutants that are in the sewage sludge
4. Phosphorus recovery from municipal sewage sludge

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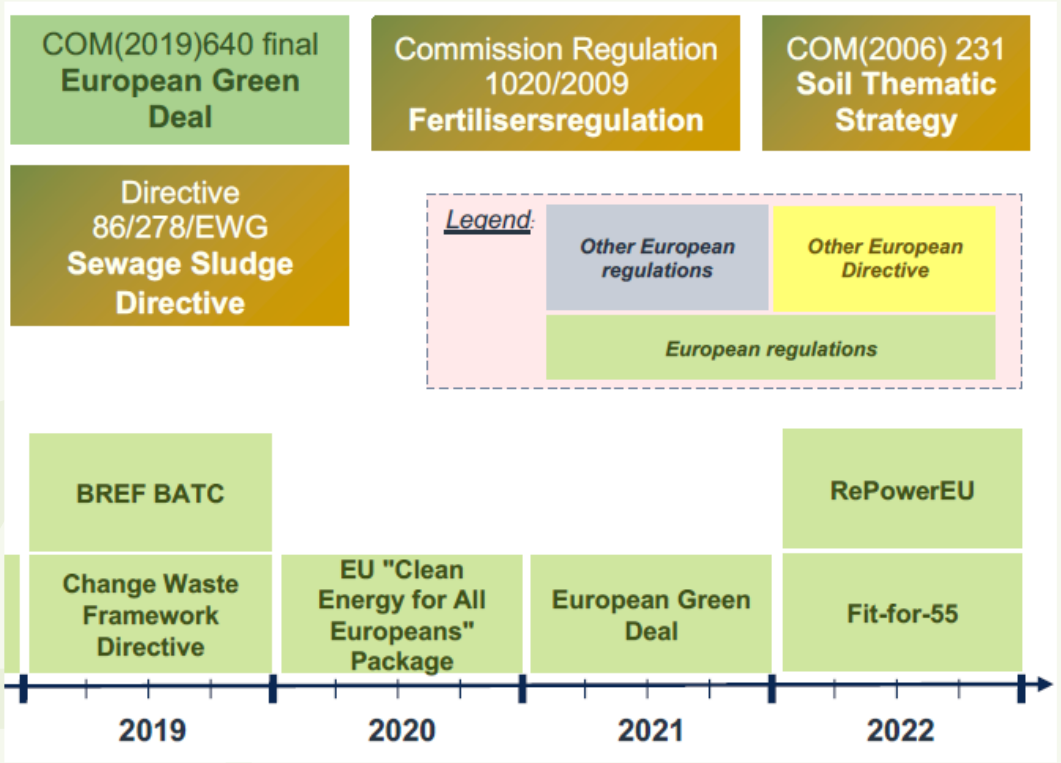
1. European Legal framework 2030

- The Green Deal of The EU (COM(2019) 640
- Urban Waste Water Treatment Directive
- Waste Framework Directive 2008/98/EG (WFD)
- Directive 2010/75/EU Industrial Emissions Directive (IED)
- Sewage Sludge Directive (86/278/EWG)
- Fertilisersregulation (2019/1009)
- Soil Thematic Stategy (COM(2006) 231)
- Circular Economy Package
- Fit-for-55 Regulation
- RePowerEU Regulation
- EU „Clean Energy for All Europeans Package



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1. European Legal – The Green Deal

- Climate Pact
- Farm to Fork strategy (fair, healthy and ecofriendly food)
- Biodiversity
- Ecofriendly economy and industry
- Low-emission industry and transport
- Reduce pollution
- Financing – Next Generation EU Recovery Fund

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1. European Legal – The Sewage sludge directive (86/278/EEC)

- Climate goals
- Strategy of Methane
- Integration of the energy systems and sectors
- Circular Economy Action Plan
- Zero Pollution Action Plan
- Nutrient Management Action Plan (GAP)

Directive is still in evalution and process of renewing!

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1. EU Members have to implement all goals and requirements into their national laws

- All EU members are obligated to transfer all requirements and goals of the EU to national law
- Fertilisersregulation – 2 Goals:
  - Generation of fertilisers (Phosphore) from waste –streams
  - Phosphorous fertilizers: uniform cadmium thresholds

The EU Comission announced that EU-27 will get a Phosphore-strategy plan how local ressources like waste will be used for the production of fertilizers.

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2. Examples from Austria and Germany

Austria	Germany
Landfill ban since 2004	Landfill ban since 2005
Implementation of legal frameworks:	
Waste Incineration Regulation	Compost Regulation (A) Fertilizer Regulation (B)
Goals:	
By 2030, 65 - 85% of sewage sludge will be used for phosphor recovery.	Transition period of 15 years (start in 2017) Duty for the recovering of sewage in 2029 Treatment obligation for wastewater treatment plants > 100,000 inhabitants (later 50,000) Phosphorus recovery Restrictions due to direct use of sludge (limit values => thermal treatment necessary)
StraPhos study – how Austria will organize wastewater and sewage sludge management in future StraPhos = STRAgety of the PHOSphoremanagement in Austria	Limit values: Fertilizer Regulation Compost Regulation (old)

Cadmium	1,5	10
Lead	150	900
Chrome	-	900
Mercury	1	8
Nickel	80	200
Zinc	5.000	2.500

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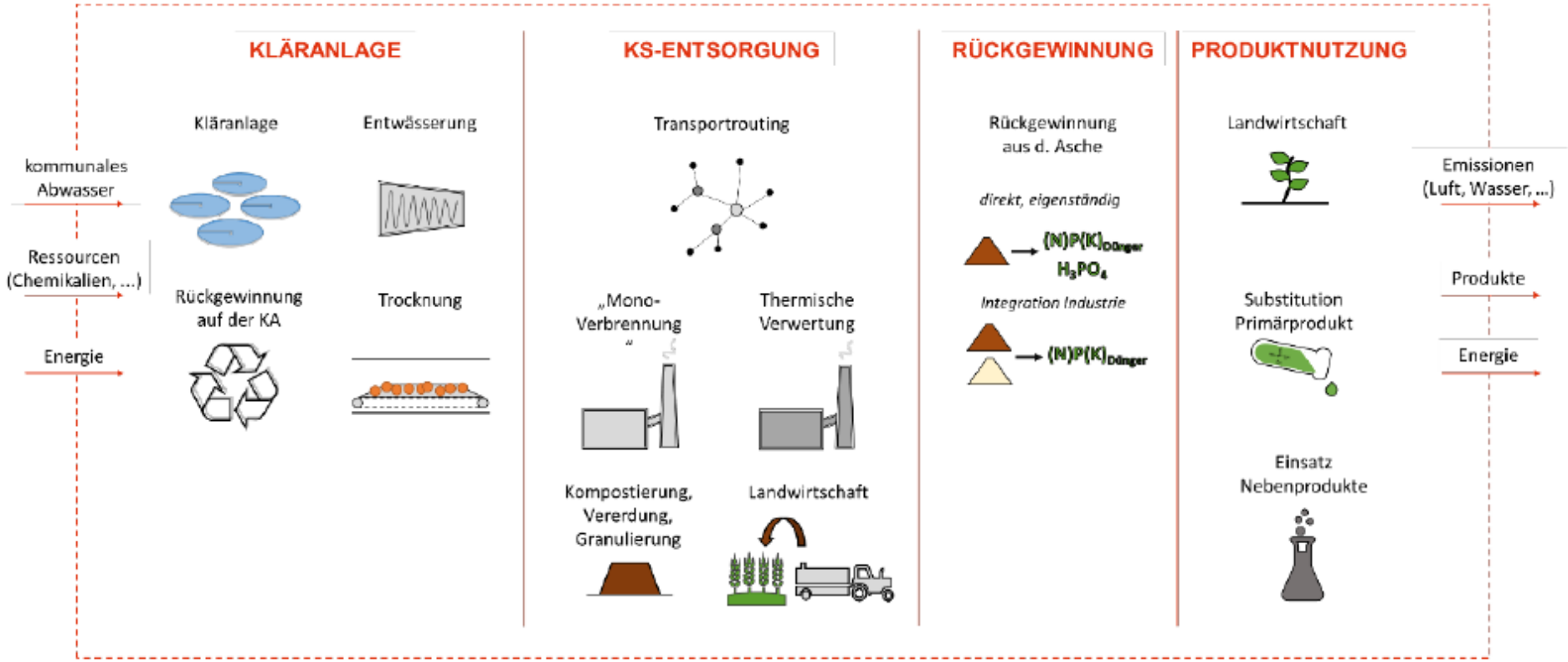
2. Main consideration of processes of recovery of sewage sludge

Abbildung 6: Darstellung der betrachteten Prozessgruppen und Prozesse



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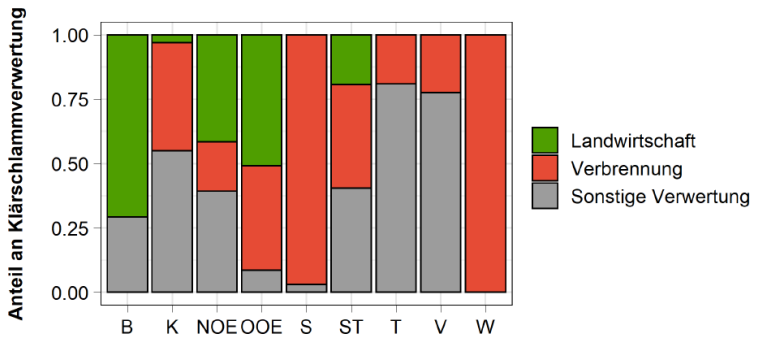
2. Disposal of sewage sludge in Austria 2016-2017

Abbildung 4: Klärschlammverwertungs- und Entsorgungswege der österreichischen Bundesländer im Jahre 2016



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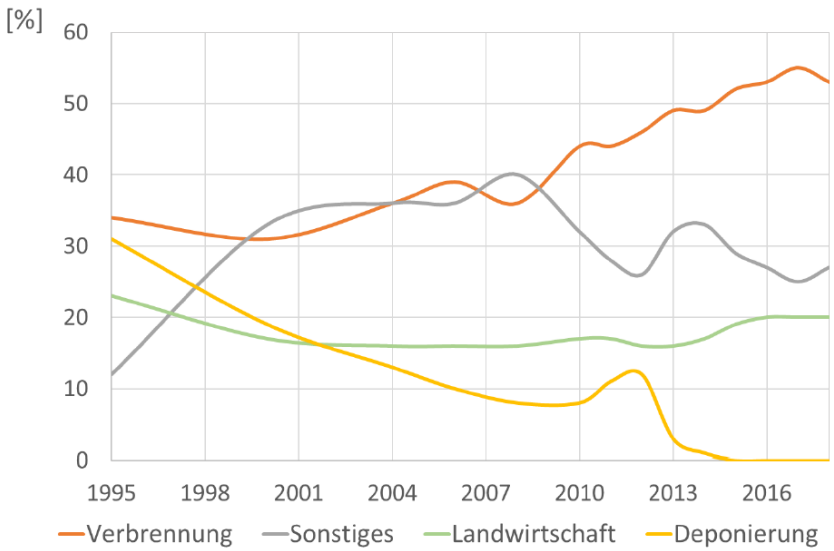
Klärschlammbehandlung (insg. 237.100 t TS im Jahr 2018)



Bundesministerium
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie

StraPhos – Zukunftsfähige Strategien für ein österreichisches Phosphormanagement

Endbericht

BMNT/BMK 2018

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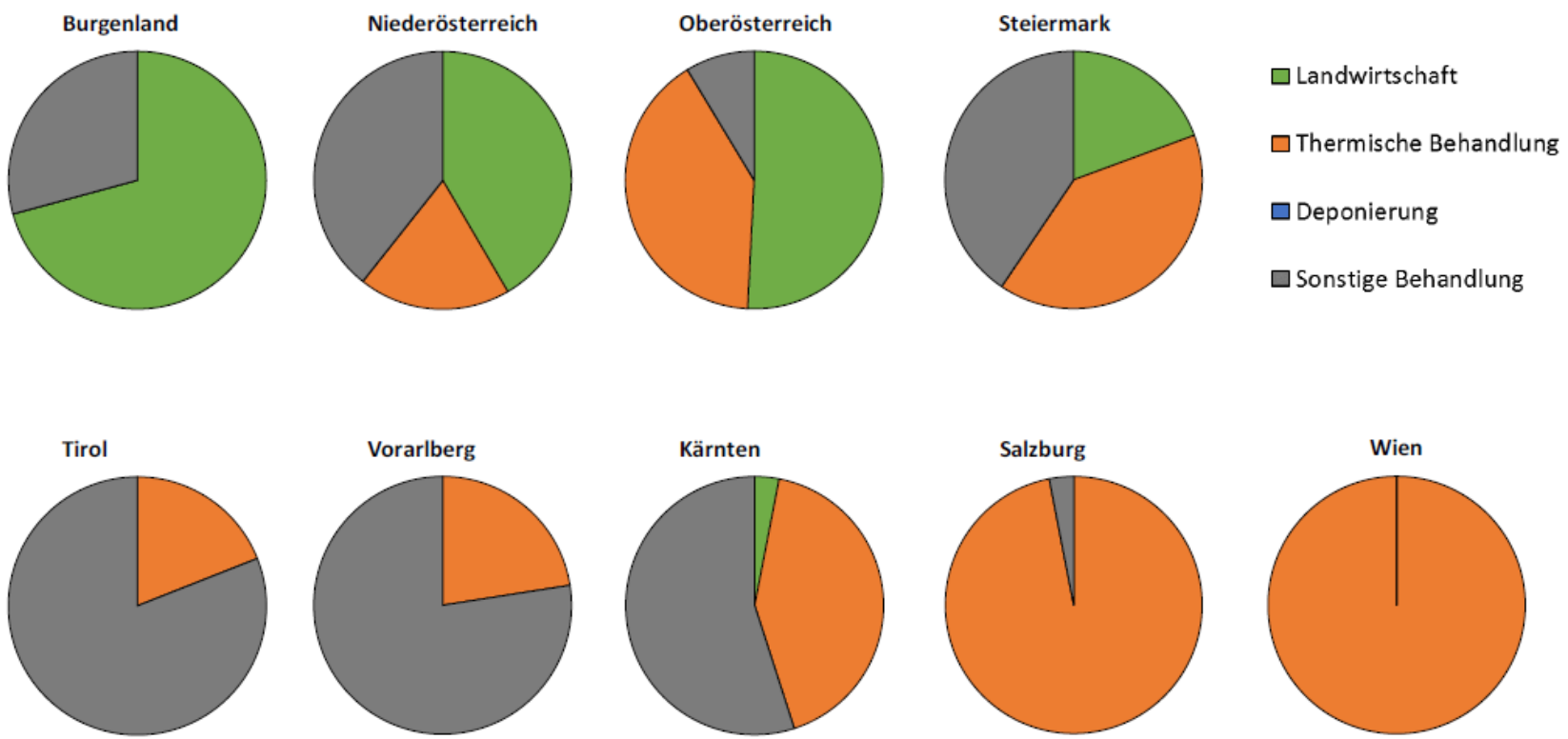
2. Examples from Austria and Germany



BMNT/BMK 2018

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3. How and why sewage sludge have been treated in facilities in the future

What are the dangers and problems of pure sewage sludge?

- Contaminants and substances, which are dangerous for the environment and soil
- Mircoplastic
- Hormones, pathogens and medicines
- Over-fertilisation

Based on these facts sewage sludge will be treated in modern plants:

- Energy source
- Phosphore
- Minimisation of all hazards

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3. How and why sewage sludge have been treated in facilities in the future

Types of recovering technologies of sewage sludge:

- Waste-to-Energy – pre-treating in Incineration plants of MSW (no opportunity to separate phosphore)
- RDF – Mono-Incineration (Fluidised bed or rotary kiln)
- RDF – pre-incineration (no opportunity to separate phosphore)
- Pyrolysis
- Gasification

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3. How and why sewage sludge have been treated in facilities in the future

Abstracts of projects in D-A-CH (Austria – Germany – Switzerland) area:

MVV, Mannheim – Rotary kiln

Wien Energie – 3 x Fluidised bed

Schongau, Grate

Kalogeo AT

Lighthouse project T-Park Hong Kong – unique project of sewage sludge incineration plant:

1.200 t per day today
2.000 t per day in 2030
850° C
90% reduction in volume
European standard and technology
Since 2018 in operation and still going

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4. Sewage sludge is a resource for European industry and agriculture

- Phosphore is a critical raw material for the European argiculture and industry
- Demand of phosphore > 40 Billion tons p.a. world-wide as fertilizer
- 75% of the production of phosphore will be done in China, USA, Marocco, Russia and Tunisia
- 37% of the world quantity is owned by China
- Every human produces 1.8 gramm of phosphore every day
- Roughly 300.000 tons of phosphorus are being produced, simply by excreation, by the 447 000 000 residents of the EU.

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5. Introducing of eWASTE Umweltconsulting GmbH (Austria and Hong Kong)

eWASTE Umweltconsulting GmbH is group member of the alroka group, Linz and follows a strict industrial focus that offers services only in the so-called circular economy and sustainability.

As a consulting boutique, eWASTE pursues sustainable goals in the interest of its customers.
eWASTE offers tailor-made solutions and services for the challenges and tasks ahead in a sustainable and long-term manner.

Furthermore, eWASTE is the leading company to create solutions in the circular economy industry. The main goals are to use resources and establish new energy solutions for different industries and municipalities to help achieve the goals in the energy and waste sector.

Our goal is to close loops and secure an ecofriendly utilization and generating of new resources from waste.

Decision-makers, such as board members, managing directors, political representatives, but also supervisory or advisory board members, need completely objective and solid support for being enabled to take solid decisions based on economical and ecological facts and helping to meet set objectives.

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Memberships

eWASTE

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5. Consulting & project development

The core services and impacts of eWASTE AT are:

- POWER – TO – X // ENERGY – TO – X
- Strategy consulting in the portfolio of waste/secundary raw materials, water, wastewater and infrastructure management
- Recycling of plastics (mechanical/chemical)
- Supply Chain Management/Material flow management
- Innovation of technologies, know how/knowledge and experience, Development of new technologies, markets opportunities and solutions // R&D
- Strategic expert in the waste management and recycling industry
- Second opinion
- Business development
- Sales and marketing support
- Change Management
- M & A Advisory and Investments

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5. Consultancy services & project and business development

An overview of our services

- Extended producer responsibility
- Material flow analysis, material flow management and secondary raw material marketing
- International key account support
- Supply chain management
- Disposal concepts and supervised waste management
- BLOT, BOT, BOO and PPP – private public partnership models
- Analysis of waste management processes and structures
- Municipal services
- Waste storage and shipment of waste
- Analysis of waste management processes and structures

Sectors and industries

SECTOR

- Waste
- Disposal
- Recycling
- Water/Wastewater
- Alternative energy, energy from waste
- Processing of animal by-products

CLIENT

- Disposal companies
- Infrastructure companies
- Recycling and processing companies
- Suppliers
- Municipals, associations and cooperatives

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