From waste to product: A paradigm shift in LCA applied to wastewater sewage sludge
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To cite this version:
Marilys Pradel, Lynda Aissani, J. Villot, J.C. Baudez, V. Laforest. From waste to product: A paradigm shift in LCA applied to wastewater sewage sludge. SETAC Europe 25th Annual Meeting, May 2015, Barcelone, Spain. 2015. hal-02602118

HAL Id: hal-02602118
https://hal.inrae.fr/hal-02602118
Submitted on 16 May 2020

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From waste to product: a paradigm shift in LCA applied to wastewater sewage sludge

Directive 91/271/EEC and Directive 2000/60/EC ⇒ More effectiveness of wastewater treatment plants in releasing a good quality water into the natural ecosystem resulting in huge production of wastewater sewage sludge each year either land spreaded, incinerated or landfilled but…

Sewage sludge = waste or product?

An evolution in regulations considering sludge as a product more than a waste

New on-going technological development to create sludge-based added-value products

With scientific challenges to solve

⇒ Find new allocation factors or new form of allocation rather than mass, energy, monetary allocation factor

⇒ Define WWTP technological parameters or holistic sludge parameters that can be used to built these allocation factors

⇒ Define new aggregation forms to built a single allocation factor

⇒ Need to built a first aggregation level for each type of generated sludge

⇒ Combine them to get a single allocation factor

Need to affect an environmental load to the sludge

With scientific challenges to solve

⇒ Need to affect an environmental load to the sludge

⇒ The environmental interest to produce renewable “sludge-based” energy or resources

⇒ The impact of water treatment on the environmental load affected to the sludge

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Implications for LCA methodology…

Changing LCA modeling according to the change of the system under study

From « waste » LCA to « product » LCA

From monofunctional to multifunctional LCA

Solving multifunctionality thanks to allocation between the cofunctions

… Applied to wastewater field

As a consequence, solving such methodological developments will enable stakeholders and water companies to highlight:

• The environmental interest to produce renewable “sludge-based” energy or resources

• The impact of water treatment on the environmental load affected to the sludge