



HAL
open science

LCA Case Study: Tertiary treatment process options for wastewater reuse

E. Carré, J. Beigbeder, Vincent Jauzein, Guillaume Junqua, Miguel Lopez-Ferber

► To cite this version:

E. Carré, J. Beigbeder, Vincent Jauzein, Guillaume Junqua, Miguel Lopez-Ferber. LCA Case Study: Tertiary treatment process options for wastewater reuse. 22nd SETAC LCA Case Study Symposium, Sep 2016, Montpellier, France. 2016. hal-02494002

HAL Id: hal-02494002

<https://imt-mines-ales.hal.science/hal-02494002>

Submitted on 27 May 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Authors

Erwan Carré ^{a,b}
Joana Beigbeder ^a
Vincent Jauzein ^b
Guillaume Junqua ^a
Miguel Lopez-Ferber ^a

^a École des mines d'Alès, LGEI, 6 Avenue de Clavières, 30319 Alès, France

^b SAUR direction R&D, 2 rue de la Bresle, 78310 Maurepas, France

Acknowledgments



Context

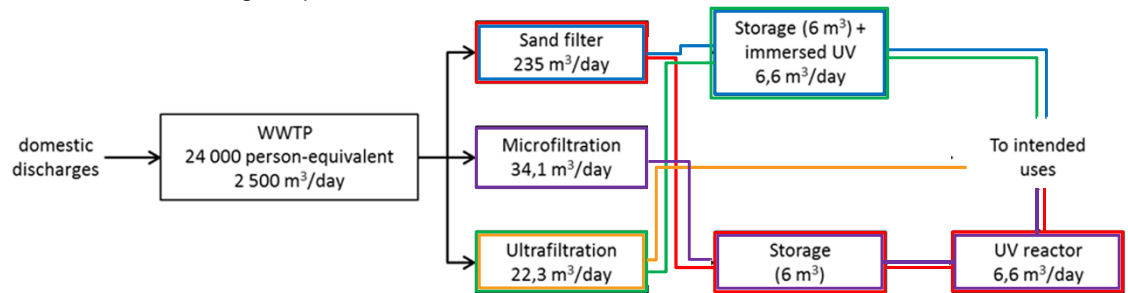
- Reclaimed water is a reliable and ongoing resource in arid regions
- Wastewater treatment techniques should allow meeting health related standards at low investment and O&M (operation and maintenance) costs, and requiring low O&M skills
- Life Cycle Analysis (LCA) can be used as a decision support tool to compare different treatment option

Purpose: to compare environmental impacts of different options of tertiary treatment processes following a conventional wastewater treatment plant

Methods

Data collection

- Five options of tertiary treatment processes following a wastewater treatment plant based on a conventional biological process scheme

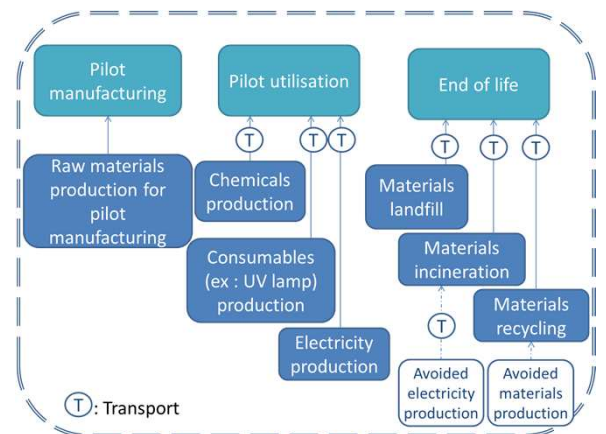


LCA Methodology

- Functional unit:

"To produce 1 m³ of water with a quality in compliance with the highest standard of the French reuse directive"

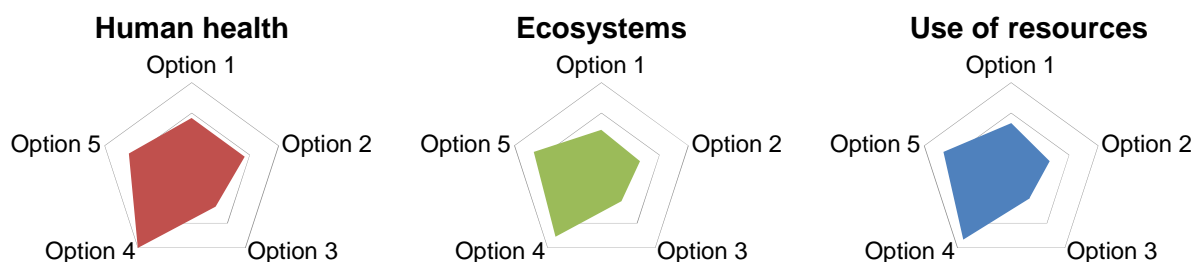
- Environmental impact indicators selected with ReCiPe method
- Model building : Gabi software
- Databases: PE International and EcolInvent v2.2



Borders of the systems studied for life cycle inventory

Results

Ranking of the five options studied according to the three main groups of environmental impacts



Study conducted at pilot scale: results hardly generalizable because other materials would be used in real scale