

# LCA Case Study: Tertiary treatment process options for wastewater reuse





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### Acknowledgments



# Context

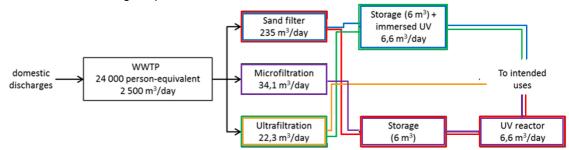
- Reclaimed water is a reliable and ongoing resource in arid regions
- Wastewater treatment techniques should allow meeting health related standards at low investment and O&M (operation and maintenance) costs, and requiring low O&M skills
- Life Cycle Analysis (LCA) can be used as a decision support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

<u>Purpose:</u> 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





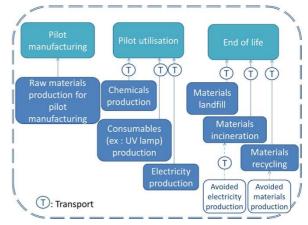
## **LCA Methodology**

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 EcoInvent 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