

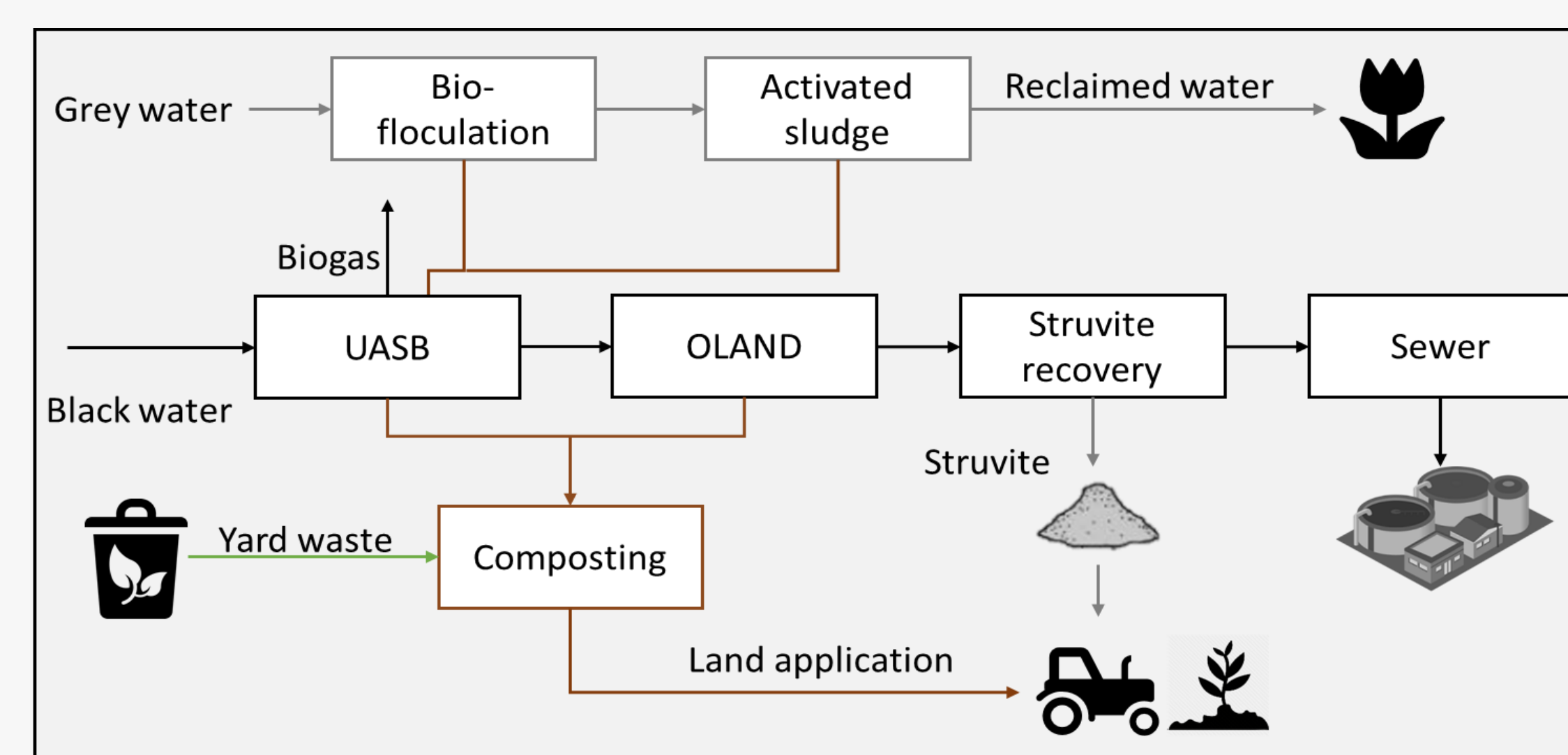
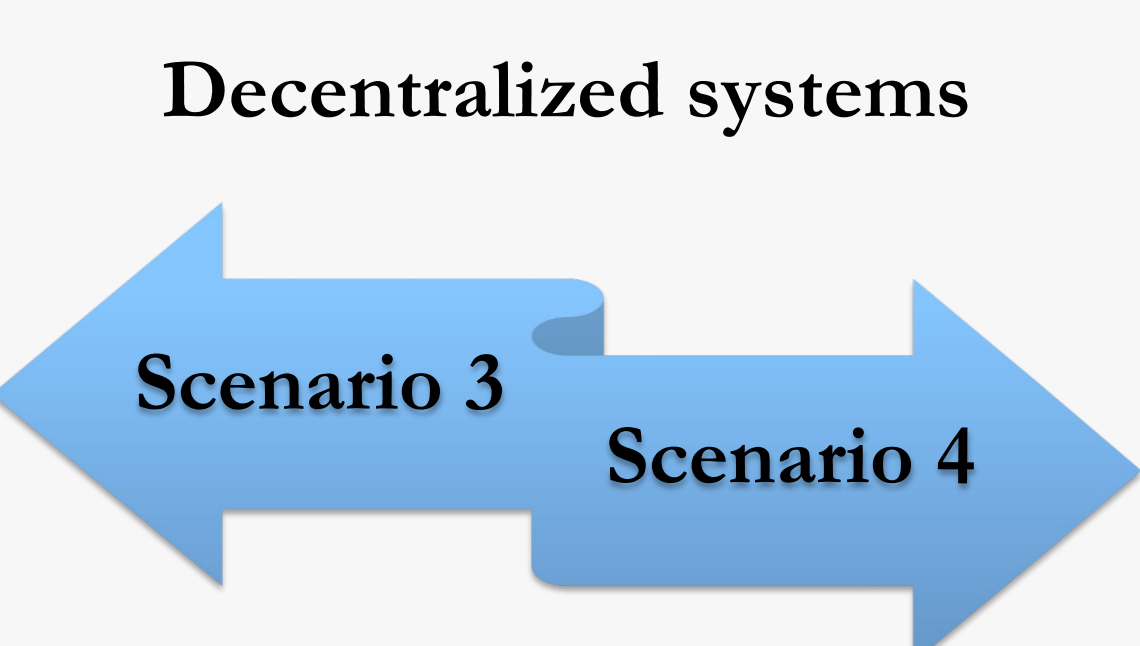
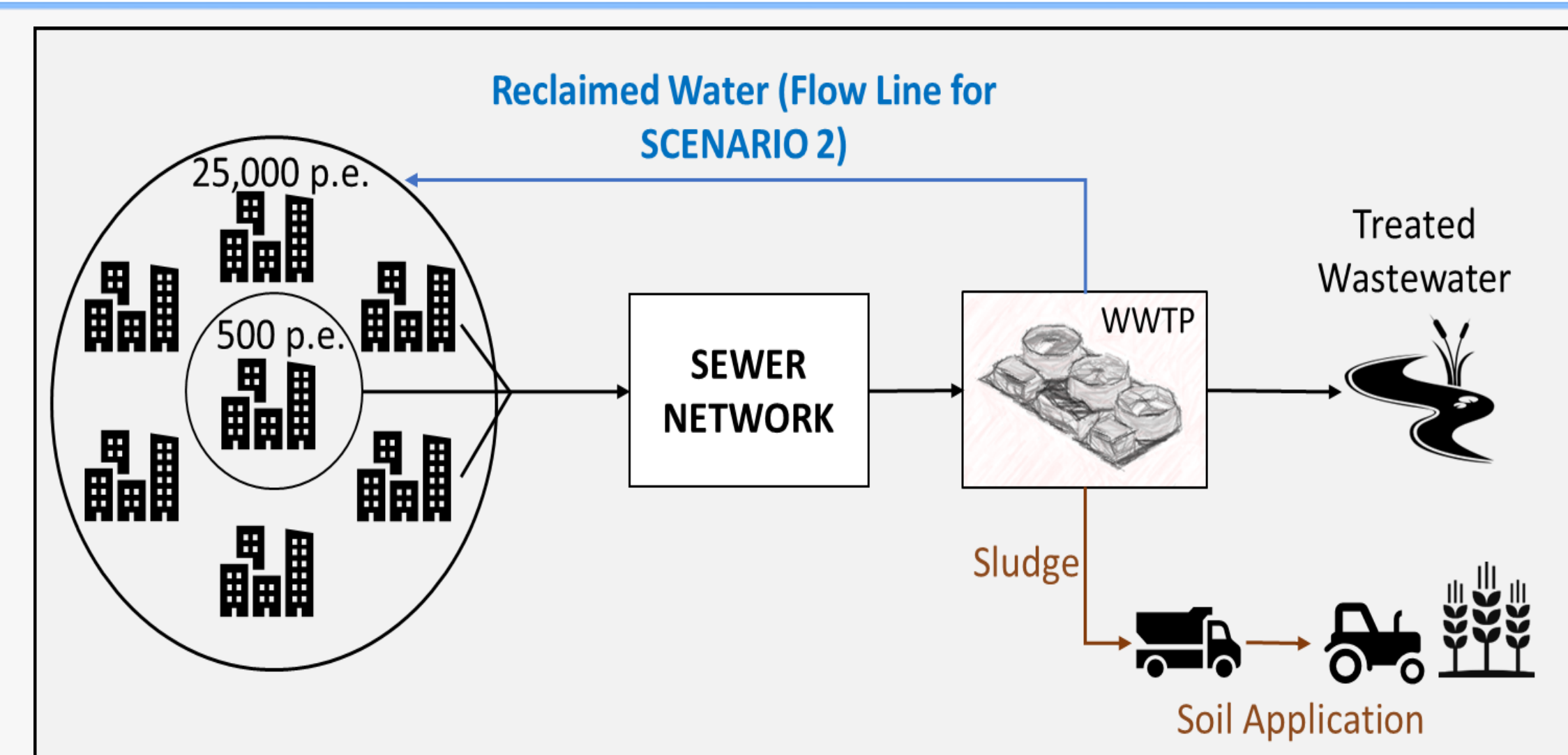
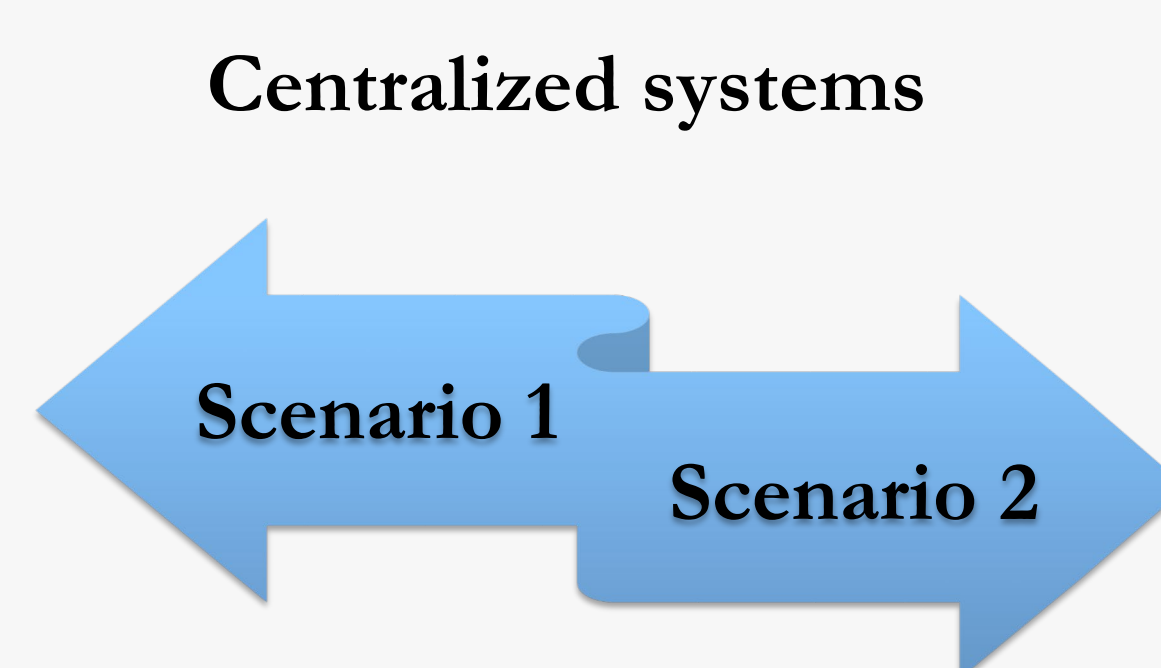
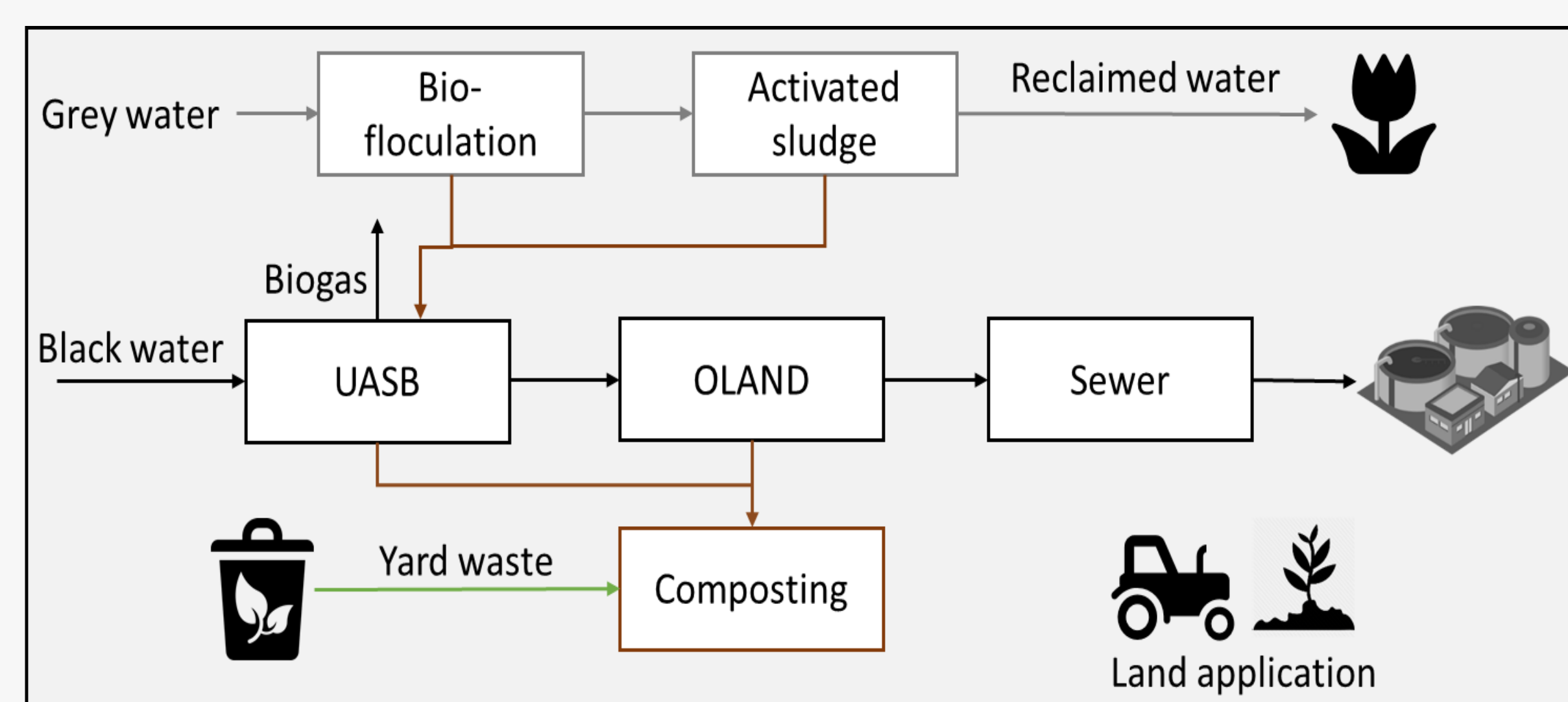
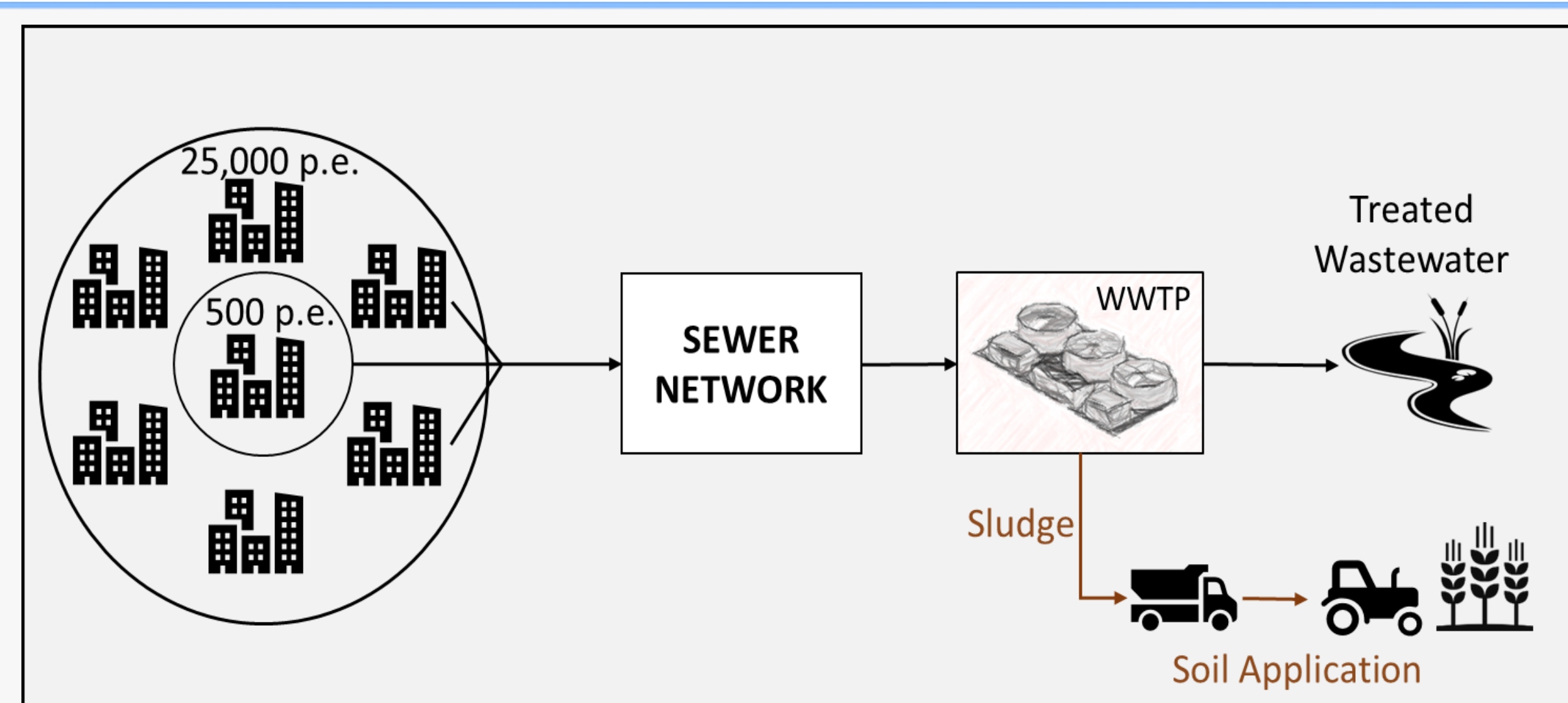
INTRODUCTION

In a context of growing population, it is difficult to assess whether conventional wastewater treatment systems will be able to manage contaminated water ^[1], therefore, new approach based on decentralized systems must be developed ^[2].

OBJECTIVE

The main goal of this study was to study and compare the environmental impacts of four wastewater treatment systems using the life cycle assessment (LCA) methodology (two centralized systems and two decentralized systems).

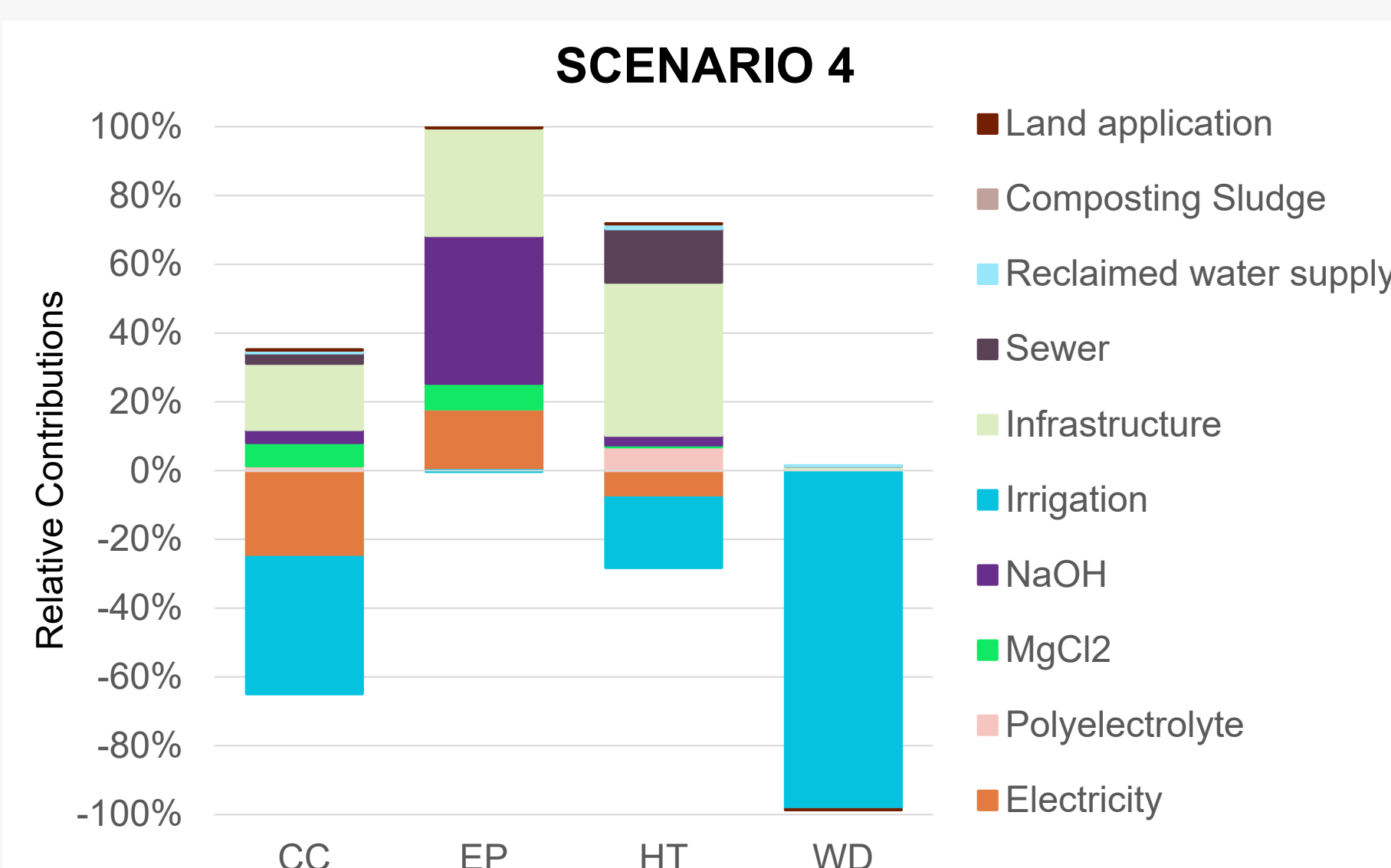
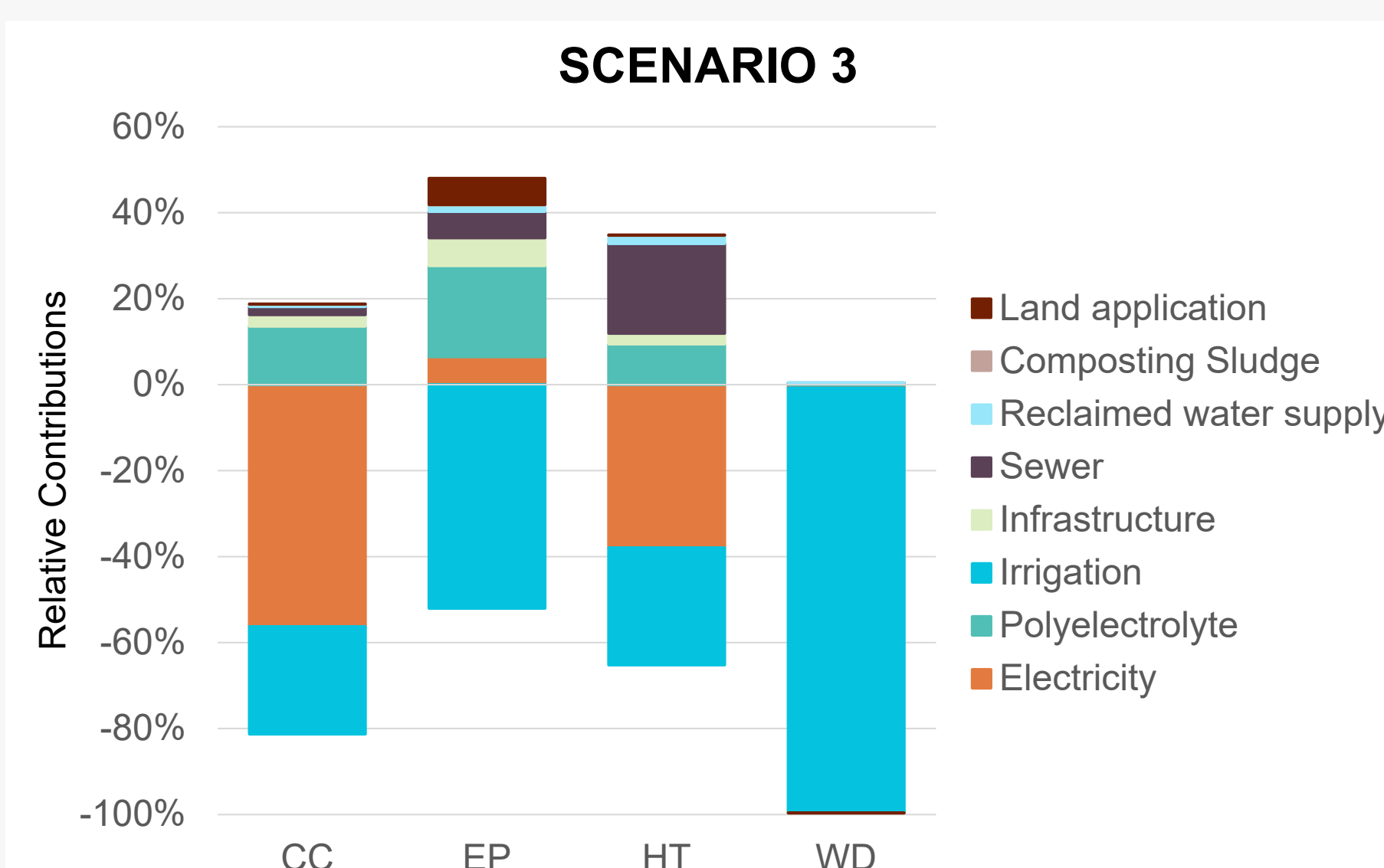
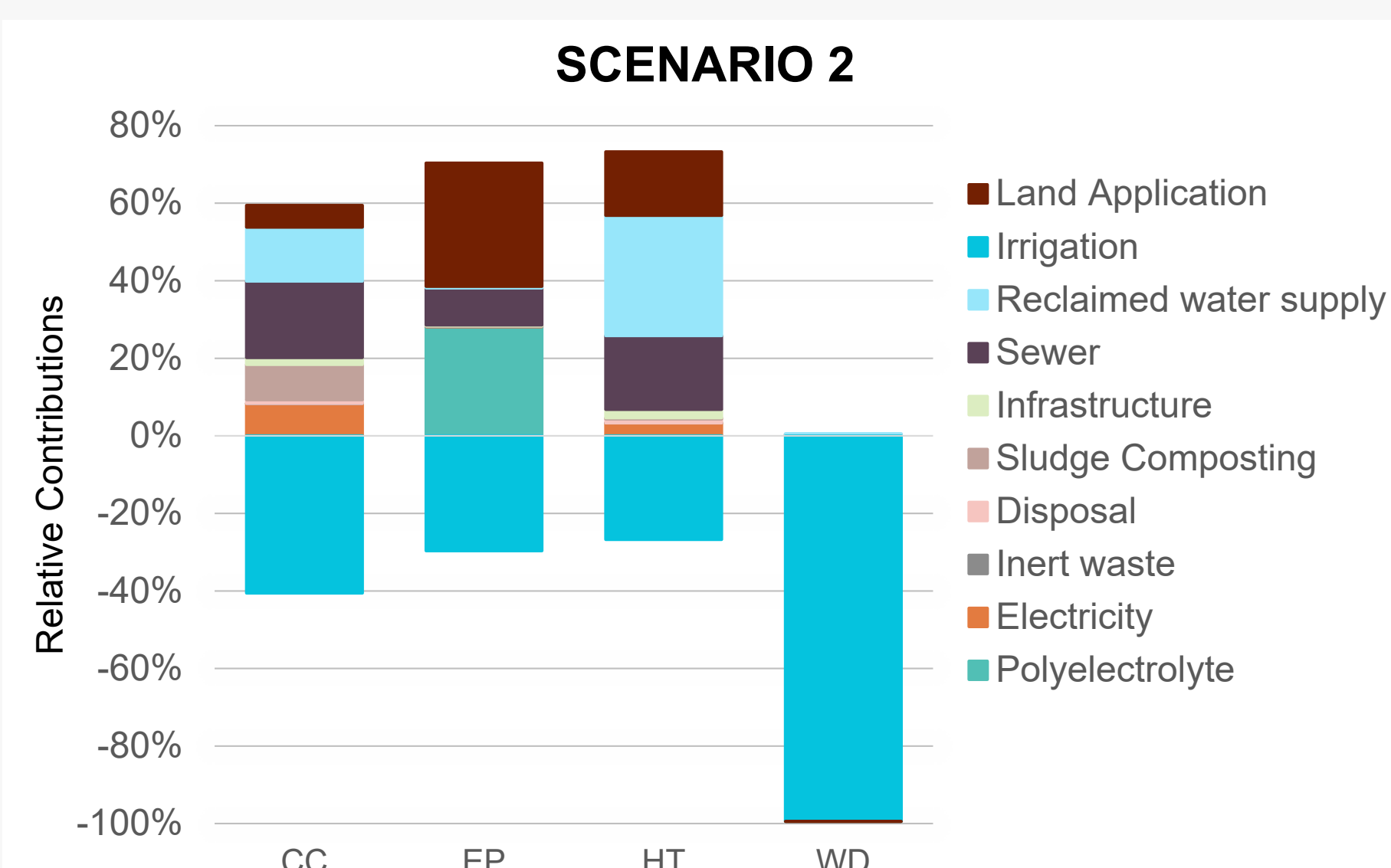
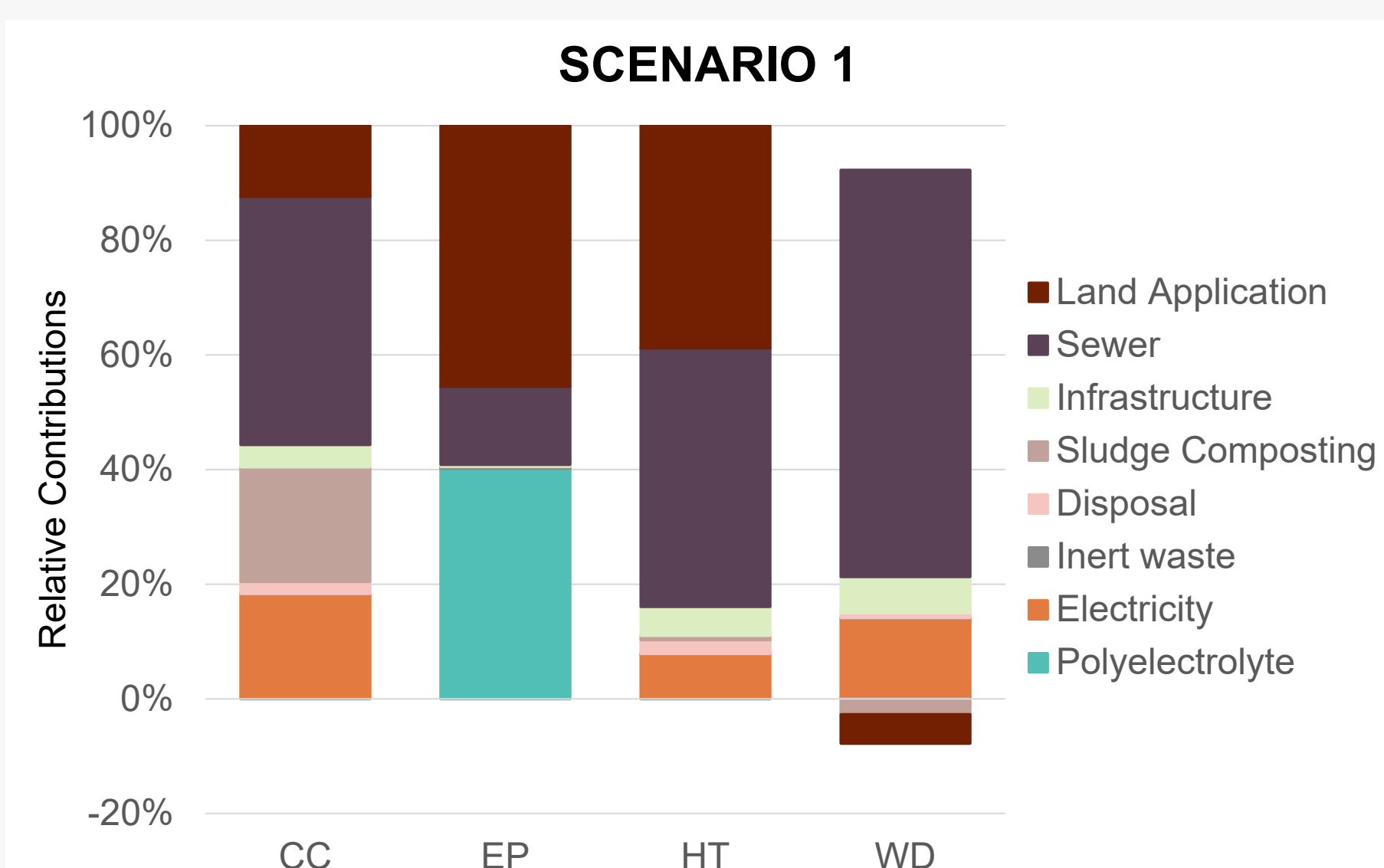
MATERIALS & METHODS



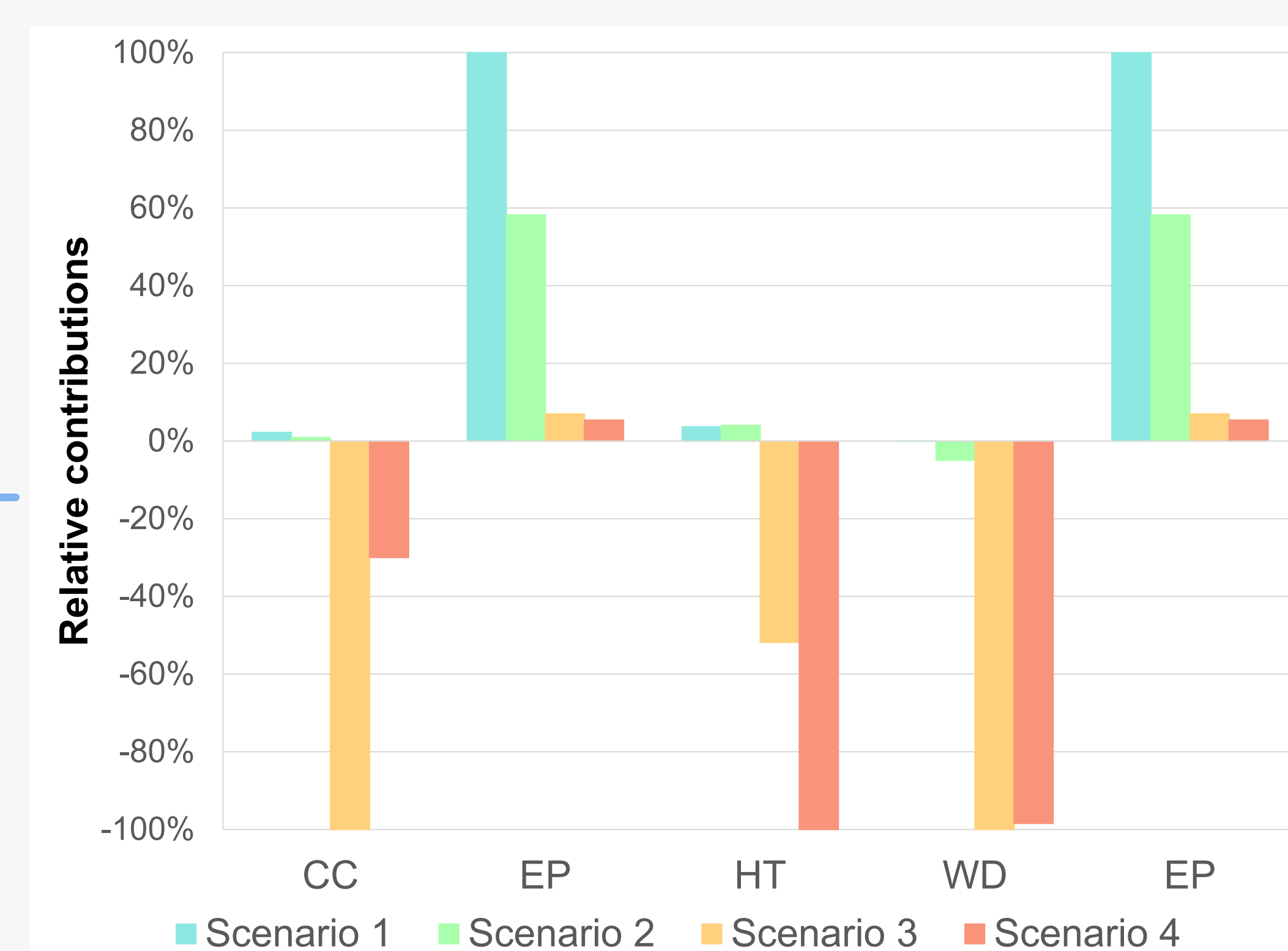
ENVIRONMENTAL RESULTS

Four impact categories were evaluated based on the characterization factors defined by the ReCiPe Midpoint 1.12 methodology and CML 2001 ^[3]: climate change (CC), human toxicity (HT), water depletion (WD) and eutrophication potential (EP). Main results:

- In the centralized systems, the sewer presents high environmental impacts in the construction phase.
- Irrigation has an positive effect in all categories and the decentralized systems are energy sufficient and no need extra electricity.



COMPARISON



CONCLUSIONS

- ❖ Decentralized systems present improvements regarding the recovery of the resources but it is also essential to ensure their valorization. 🌱
- ❖ Resource of the wastewater shows benefits in the conventional systems but the construction of the water supply could increase the impacts in all categories. 🚰

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