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Assessing the importance of machinery, buildings and infrastructure in LCA of waste management systems

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Life cycle assessment (LCA) has been used many times to evaluate the environmental impacts from waste management systems. However, in most studies the environmental costs of the capital goods have not been included. Capital goods are in this context what is used in the management system as invested materials and energy to make the system work: machinery, buildings and infrastructure. Brogaard et al. (2013a+b, 2015) developed detailed inventories of materials and energy used in providing the capital goods for incineration, biological treatment facilities (composting and anaerobic digestion) and for landfilling. By conducting a full LCA for the four waste management systems and including the capital goods, it was found that the capital goods should be included in waste LCAs, although capital goods in terms of Global Warming may not always be important (See Figure 1). Key aspects are the use of steel in the infrastructure and how well it is possible to recycle the materials when the goods are scrapped and the facilities are demolished.

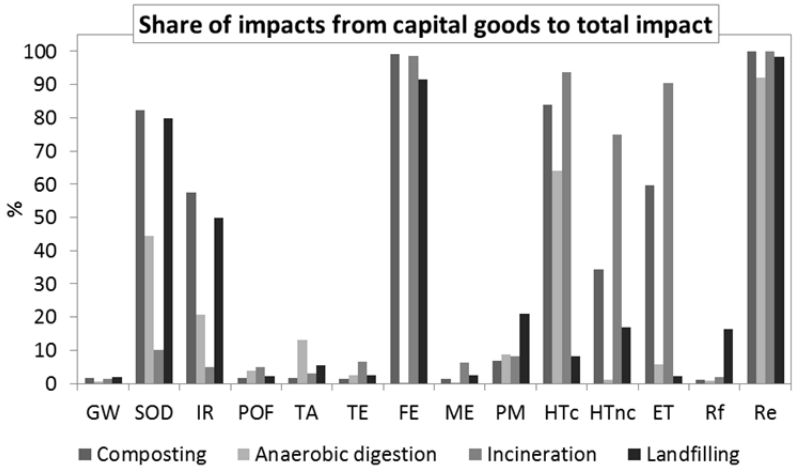

Figure 1: Share of impacts from capital goods to the total impacts to each of the four waste management systems. The categories on the x-axis refer to the impact categories specified in the ILCD handbook.

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