

# Beyond waste – an examination of municipal waste practices in the Maltese Islands using comparative material flow accounting and carbon footprint assessment to analyse current and future planned scenarios

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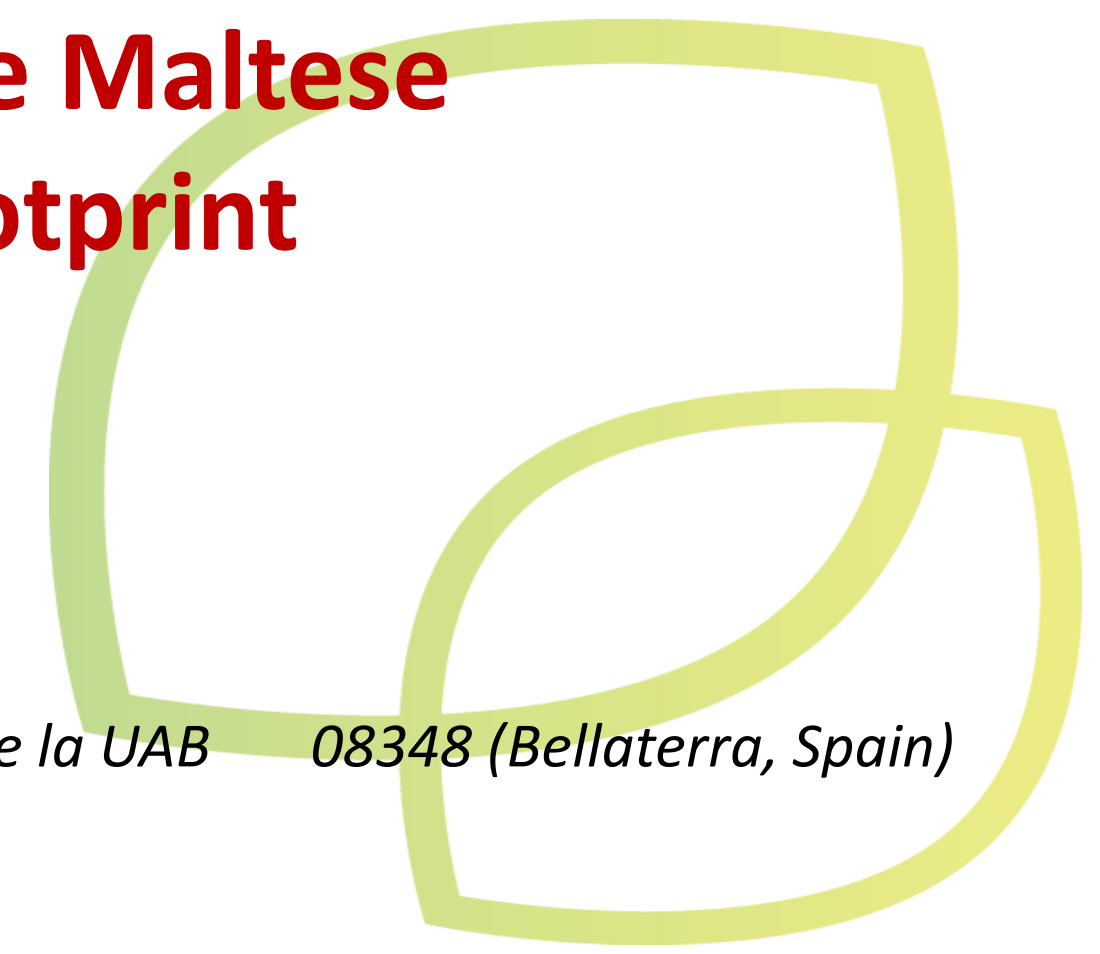
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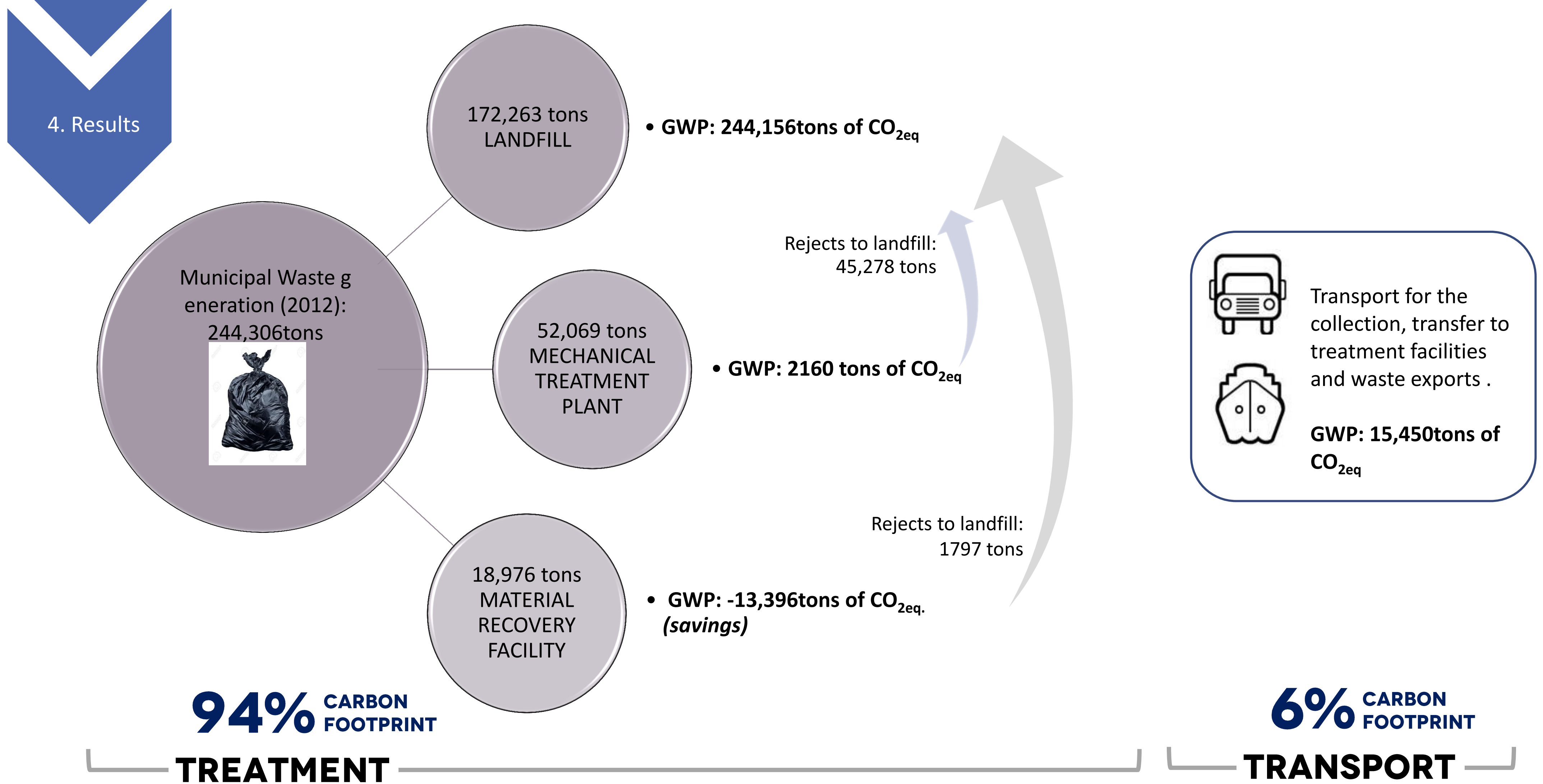
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- 1. Introduction**
  - Policies focusing on climate change do not often refer to waste management. However UNEP notes that in waste management GHG emissions and savings are attributable to various stages. In addition, landfills are the third largest source of methane emissions. In the case of islands, another point of contention is the transport of waste for long distance for recycling purposes, which can offset the energy (and emission) savings made from recycling.
- 2. Scope & Objective**
  - The paper is focused on municipal waste (MW) management in the Maltese Islands and analyses how much GHG is generated for the MW collection and treatment for the system to be functional using 2012 as a base year. The research includes an analysis of transportation required for the collection and treatment of MW.
- 3. Methodology**
  - Analysis is conducted using a material flow analysis (MFA) using Eurostat EW-MFA and Stan 2<sup>®</sup> and the CO2ZW<sup>®</sup> tool to present an operational picture of the system and calculate the Carbon Footprint (CF) of waste management. Data used corresponds to year 2012.



In 2012 waste management resulted in a total of 248,125 tons of CO<sub>2eq</sub> whilst recycling saved a total of 21,586 tons of CO<sub>2eq</sub>. Avoided emissions are a result of recycling (62%), the treatment of mixed general waste in MBT (30%) and biogas collected from landfill (7%).

The carbon footprint of waste management in Malta is 574 kg CO<sub>2eq</sub> per inhabitant and 991 Kg CO<sub>2eq</sub> per ton of managed waste. These values are relatively high in the European context.

- 5. Conclusions**
  - The waste management system in Malta is still very dependant on landfilling, which is contributing to direct emissions of methane. Current policies are aiming to introduce a new mechanical-biological treatment plant in order to increase the recycling of materials and reduce the amount of biodegradables sent to the landfill. This is expected to contribute to a substantial reduction of the carbon footprint of the Maltese waste management system.