The effect on the GHG emissions of MSW management practices based on EU legislation targets

- a municipal case study -

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Porto: a story

Porto – population and waste

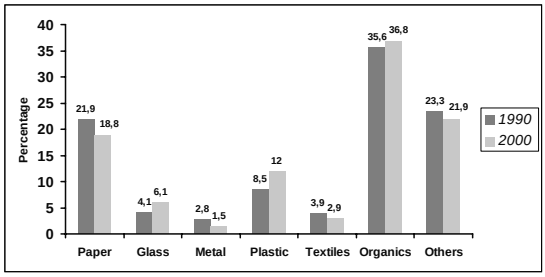
1990

- 302 500 inhabitants
- 383 kg/person/year
- **Collection**
  - **Kerbside mixed** (99,1%)
    - Bags, Containers
    - 6 x week
  - **Glass banks**
- **Treatment methods**
  - **Composting** (70%)
  - **Landfill** (30%)
  - **Recycling** of glass

2000

- 280 000 inhabitants
- 518 kg/person/year
- **Collection**
  - **Kerbside mixed** (96,4%)
    - Bags and Containers
    - 6 x week
  - **Kerbside dry recyclables**
    - Paper/cardboard, packages(1 x week)
  - **Central collection sites**
  - **Collection banks**
- **Treatment methods**
  - **Composting** (19,7%-mixed)
  - **Incineration** (79,2%)
  - **Landfill** (1,1%)
  - **Recycling** (glass, plastic, paper)

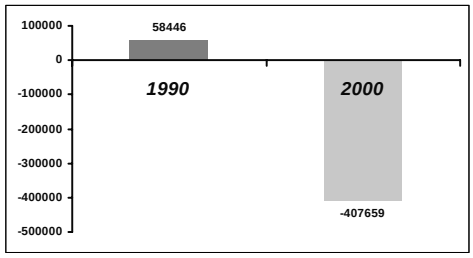
Porto – waste composition



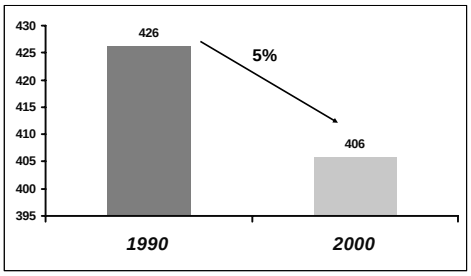
Model and methodology

- MSW collected during one year
- model developed by White et al
- quantification of energy consumption and greenhouse gases emissions
  - carbon dioxide, methane and nitrous oxide
- aggregation of greenhouse gases emissions
  - using the Global Warming Potentials (GWP) proposed by the Intergovernmental Panel on Climate Change

Energy balance (GJ)



GWP (Kg CO2 eq/person)



GWP (Kg CO2 eq/ton waste)