

# MUNICIPAL EXPERIENCE OF VARIABLE CHARGING

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# 1. IOK wastemanagement

- intermunicipality – 500.000 inhabitants/29 municipalities

# 1. IOK wastemanagement

- geografic location



**Belgium**  
10.396.421 inhabitants  
30.528 km<sup>2</sup>  
340 inh/km<sup>2</sup>

**Flanders**  
6.016.024 inhabitants  
13.522 km<sup>2</sup>  
445 inh/km<sup>2</sup>



# 1. IOK wastemanagement

- strong program stimulating prevention, separate collection and recycling (1990)
- 70% separate collection (18% separate collection N-America: 100% 'economical market')
- rest mixed waste: 121 kg/pp in 2005
- objective 2010 met (limit rest mixed waste 150 kg/pp)

# 1. IOK wastemanagement

- costs
  - average cost 180 euro/household in 2003
  - global mix of:
    - costs
    - service
    - results
  - municipalities:
    - fix environmental taxes
    - contribution – variable charging
    - general budget

# 1. IOK wastemanagement

- 2000: 60 liter bag for mixed household waste= 0,66 euro (average)
- 2003: 60 liter bag for mixed household waste= 1,14 euro (average)

## 2. DIFTAR-system in Mol

- 1990: ± 300-350 kg mixed household waste
- step 1: waste-prevention
- step 2: separate collection organic waste and dry waste (paper, plastics, ...)
- 1997: mixed household waste: 184 kg/pp (target max. 150 kg in 2010)
- step 3 (1998): pilot-testcase/35.000 habitants Mol

## 2. DIFTAR-system in Mol

- 'perfect' variable charging rest mixed waste: 0,1 euro/kg (0,15 euro/kg in 2005)
- global system: to weigh is to know

## 2. DIFTAR-system in Mol

- global system: to weigh is to know
    - weight:
      - identification of containers
      - effectively weighing
- ↓
- fair split of cost
  - stimulate waste-prevention and selectieve collection

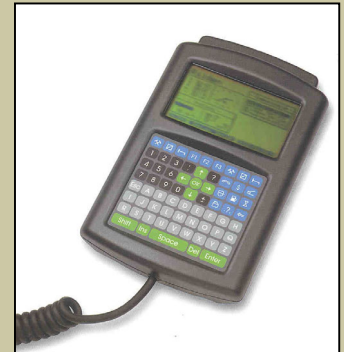


## 2. DIFTAR-system in Mol

- container with chip
  - placing-, collection- and controlldata
- collection truck
  - read-antenna
  - calibrated (certified) weighing system within 0,5 kg
  - on-board computer with data print-out
  - information-carrier

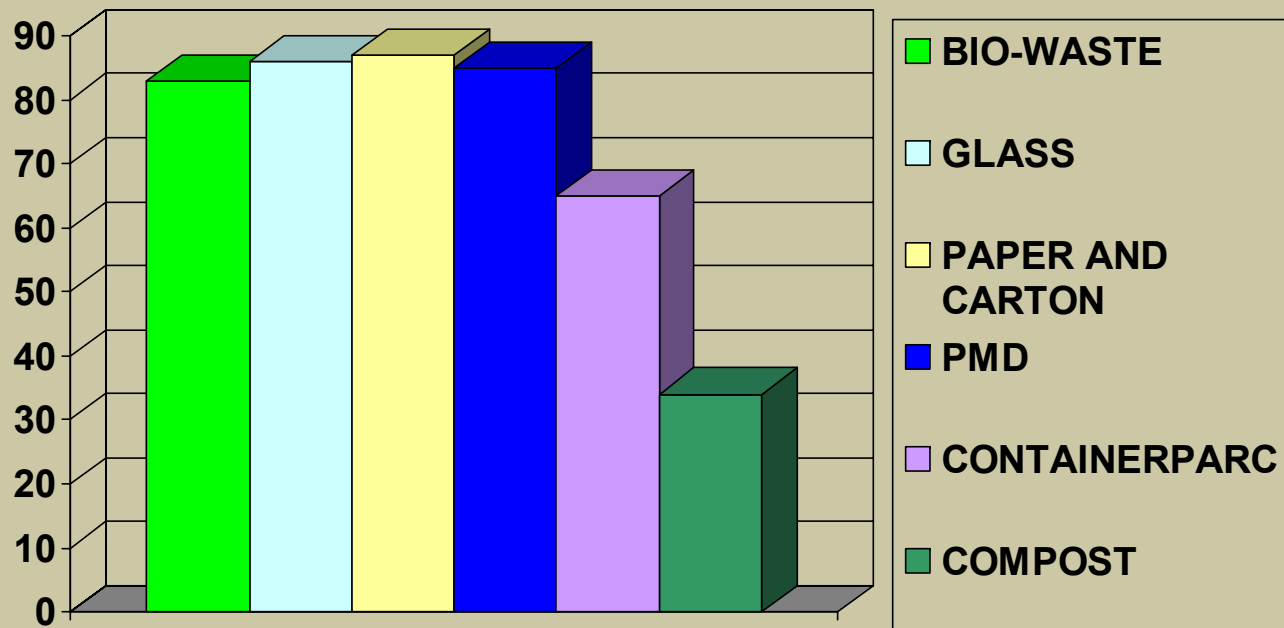
# 2. DIFTAR-system in Mol

- computer data-management
  - processing weighing-data
  - analyses of data
  - management of population data



## 2. DIFTAR-system in Mol

- percentage sorting behaviour



## 2. DIFTAR-system in Mol

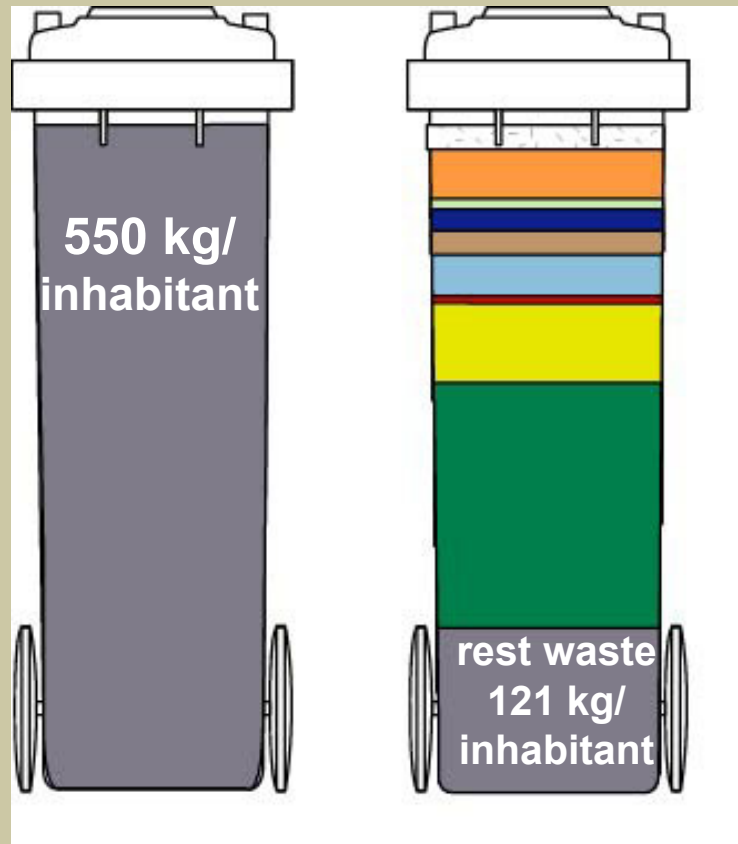
- conclusions DIFTAR-system
  - operational system
  - waste reduction through
    - better sorting
    - waste-prevention
  - pays for itself
  - better labor-conditions

## 2. DIFTAR-system in Mol

- slower per container
  - ↔ lower frequency of offering
- weighing data = important source for future policy

## 2. DIFTAR-system in Mol

- results Mol



no  
waste policy

2005  
waste policy

## 2. DIFTAR-system in Mol

- social survey in Mol (Stip-Ovam in 2005) after 15 years communication:
  - still people don't know enough the cost for mixed household waste
  - focus communication on the moment people handling waste
  - communication in relationship with the global cost for the municipality –individual responsibility

### 3. global situation in Flanders (Survey University RUG-2005)

- relationship of mixed household waste and variable charging ?

$$Y = a \times B1X1 \times B2X2 \times \dots \times BkXk$$

regression in 295 municipalities

is Y determined by income/pp,  
contribution of mixed household waste,  
frequency of collecting, separate  
collections, promotion for composting,  
... or not ?

### 3. global situation in Flanders (Survey University RUG-2005)

- results:
  - for exemple (b2X2): + 1.000 euro/income – mixed household waste + 1,82 kg/pp → but is not usable in a waste management program

### 3. global situation in Flanders (Survey University RUG-2005)

- usefel results:
  - maximum determination/expectation:
    - reduce frequency collecting mixed household waste and collecting organic waste:  $\pm -47$  kg/pp mixed household waste
    - using DIFTAR (weighing system):  $\pm -30$  kg/pp mixed household waste
    - direct cost allocation/contribution (until 100%):  $\pm -55$  kg/pp mixed household waste

# 4. conclusions

- individual variable charging = weighing system
- operational system since 1988
- individual information in combination with variable charging
- decreasing mixed household waste = global cost reducing
- the target -150 kg/pp: necessity of individual responsibility
- data = source for future policy