

Twinning Project

PHARE RO/06/IB/EN/06

Romania - North Eastern Region

Household Waste Management at City level*

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Twinning project - RO/2006/IB/EN06 - Romania - North East Region

Outline of the presentation

1. National policy on waste treatment
2. Implications and objectives for cities
3. Infrastructure: how to collect waste?
4. Domestic waste collection in Nijmegen



1. National Policy

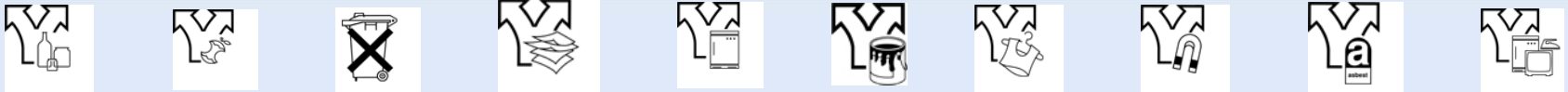
Waste Hierarchy:

1. PREVENTION

2. **RE-USE / RECYCLING**

3. INCINERATION with ENERGY-RECOVERY

4. LANDFILL



1. National Policy

- National waste management plan **2002-2006**
- For 34 categories of waste:
 - possible measures for prevention
 - minimum acceptable waste treatment
 - separate collection or not
- For example:
 - organic waste: composting, no incineration
 - paper/cardboard: recycling



2. Implications and objectives for cities

- Targets to be realised in 2006:
 - 60% recycling of all types of domestic waste
 - 55% by separate collection at the source
 - 5% by centralised separation afterwards



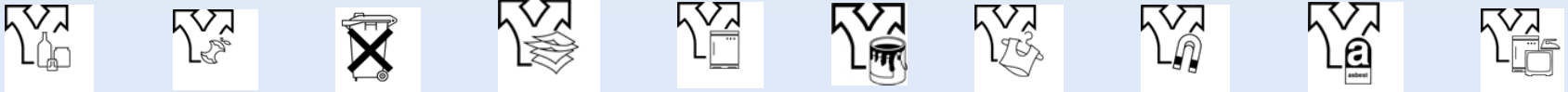
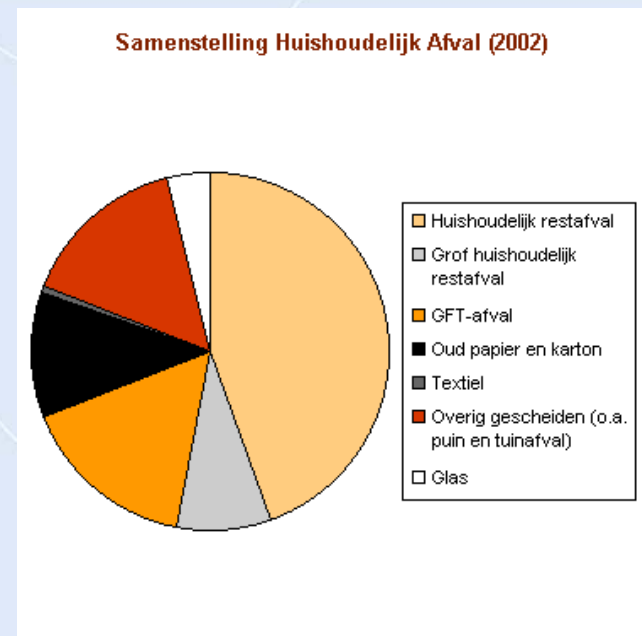
2. Implications and objectives for cities

- Obligation to collect separately:
 - Organic waste
 - Paper and cardboard
 - Glass
 - Textile
 - Chemical waste
 - Electric equipment (TV, radio, microwave)
 - (Left =) Residual waste



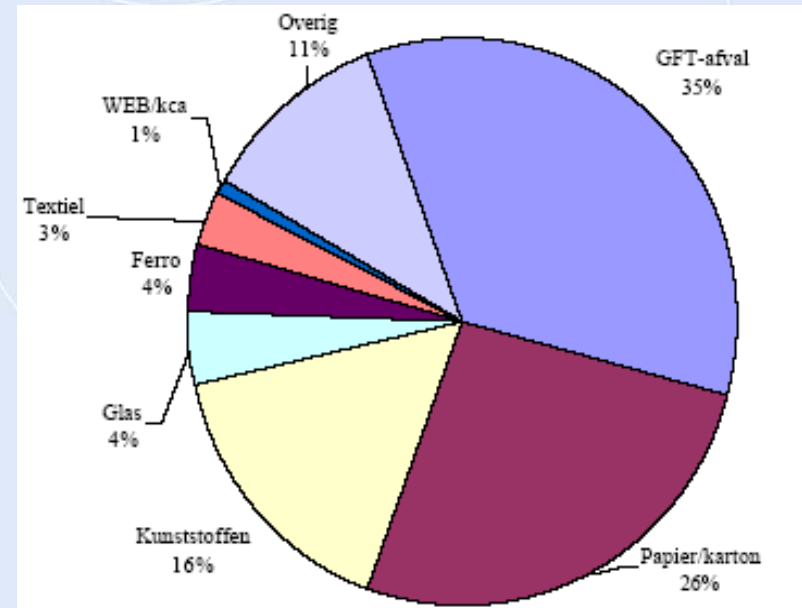
2. Implications and objectives for cities

- Results of 2002
 - 8,7 Mton of household waste
 - 47% was recycled
- Composition:
 - Residual waste (3,9 Mton)
 - Residual bulky waste (0,8 Mton)
 - Organic waste (1,4 Mton)
 - Paper/cardboard (1,0 Mton)
 - Recycled bulky waste



2. Implications and objectives for cities

- Residual waste still contains a large fraction of:
 - organic waste,
 - paper and
 - plastics
- The composition differs among municipalities.



2. Implications and objectives for cities

- National target: $55\% + 5\% = 60\%$ recycling
- Differentiated targets for different types of municipalities

| class | residual (%) | separate collection (%) | |
|-----------------|--------------|-------------------------|-----------|
| 1 | 57 | 43 | Amsterdam |
| 2 | 47 | 53 | Nijmegen |
| 3 | 44 | 56 | |
| 4 | 40 | 60 | |
| 5 | 40 | 60 | |
| national | 45 | 55 | |

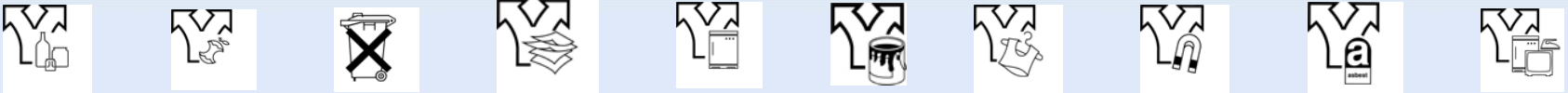


3. Infrastructure: how to collect waste?

The 3 important issues are:

1. system: what methods are available?
2. service: does it work for the public?
3. costs: what budget is acceptable?

The balance can be different for each type of waste (paper, glass or organic waste)



3. Infrastructure: methods

- **Individual systems:**

- mini-containers
- Bags

Applied for larger quantities like:

- residual waste
- organic waste
- paper



3. Infrastructure: methods

Collective systems (above or beneath ground level):

applied for:

- organic waste
- residual waste
- paper
- glass
- textile



3. Infrastructure: methods

Advantages collective systems:

- daily disposal of waste
- less logistic movements

Disadvantages:

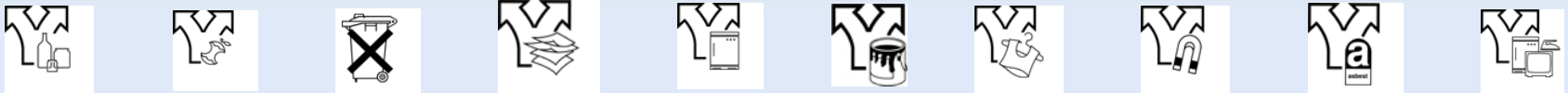
- a lot of pollution
- less social control
- anonymous



3. Infrastructure: methods

Beneath vs above ground coll. systems:

- advantage:
 - aesthetics
 - bigger capacity
- disadvantage:
 - costly

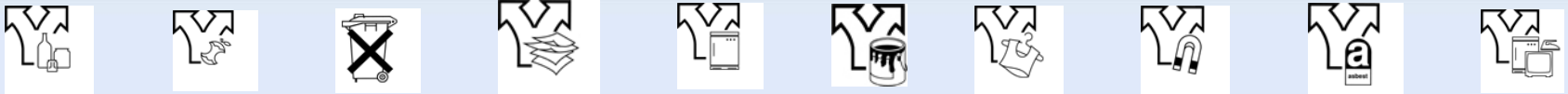


3. Infrastructure: other issues

Do we choose to:

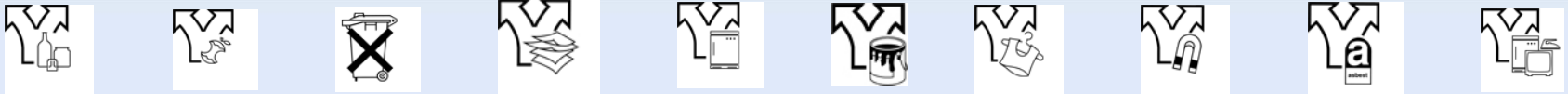
- collect a specific fraction of waste at home” or
- let people bring their goods
- a combination of both??

Search for balance in costs vs service vs result



3. Infrastructure: other issues

- Number of flats:
 - less suitable for individual systems
- Magnitude of a population:
 - in general the larger the population the less interest in environmental issues



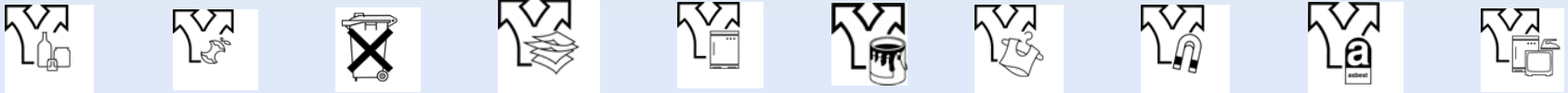
3. Infrastructure: other issue

Social structure and cohesion districts:

- average income
- number of different nationalities

Politics:

- different parties put emphasis on different issues

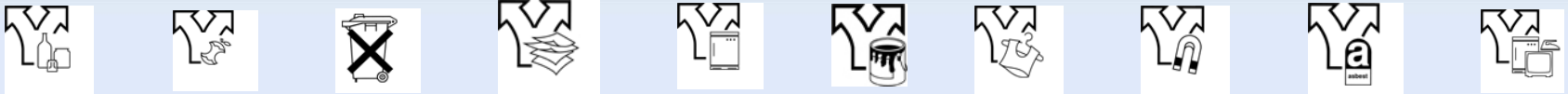


3. Infrastructure: how to influence human behaviour?

To obtain good results you should take care of:

- A good service-level of each collection system
- Listen to complaints and deal with them
- A thorough communication campaign to:
 - stimulate awareness
 - inform people how to separate their waste and how to dispose of it
 - inform them of the results achieved.

Is that enough?



3. Infrastructure: how to influence human behaviour?

Is that enough?

- Average result 2002: ca. 47% recycling
- Small towns do much better than bigger ones



3. Infrastructure: how to influence human behaviour?

Another possible instrument is **DIFTAR**

short for: DIFferentiated TARiffs (= Pay-as-You-Throw)

financial stimulus based on the principal:

The more (residual) waste one produces, the more one should pay



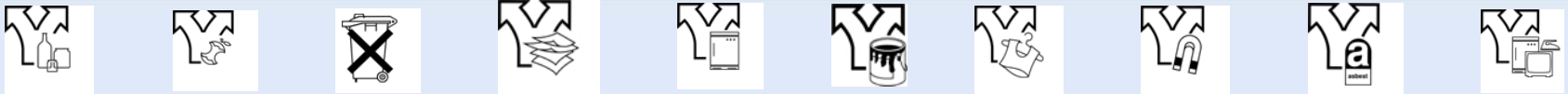
3. Infrastructure: DIFTAR

Advantages:

- stimulation for people to separate waste
- people who do save money
- a good overall results saves the town money

Disadvantage:

- evasive behaviour => dumping waste illegally



3. Infrastructure: methods of DIFTAR

Weighing the amount of residual waste

==> the more weight the more you pay

Volume:

==> the bigger the volume of your mini-container the more you pay



3. Infrastructure: methods of DIFTAR

- Frequency:
==> you pay for every time you want your mini-container being emptied
- Volume/frequency:
==> a combination of the volume and frequency-system
- the expensive waste bag:
==> you have to buy specific expensive bags in which one can put its residual waste



3. Infrastructure: methods of DIFTAR

- Remarks:
 - No DIFTAR system is watertight
 - The costs of introducing DIFTAR are considerable (administration and registration)
 - The cheapest one being the expensive bag system
 - The use of bags is in general considered to be the system with the least service-level



4. Domestic waste collection in Nijmegen

- Characteristics of Nijmegen:
 - 156.000 inhabitants
 - 70.000 households
 - class 2 town
 - DIFTAR-system: expensive bags
 - 1 waste collection station
 - waste collection company: DAR



4. Household waste collection in Nijmegen

- Collection of **residual waste**
 - DIFTAR expensive bag costs € 0,77 (2005)
 - that is € 40 per year (1 bag/week)
 - amount of residual waste is constant during 5 years while total amount has risen



4. Domestic waste collection in Nijmegen

- Collection of **organic waste**
 - houses with gardens use a mini-container



4. Domestic waste collection in Nijmegen

- Collection of **organic waste**
 - Apartment/flat buildings use a collective system



4. Domestic waste collection in Nijmegen

- Collection of **paper**:
 - monthly collection at every household
 - containers at student housing



4. Domestic waste collection in Nijmegen

- Collection of **glass and textile**:
 - glass: collective containers
 - textile: collective containers and collection at every household once every 3 months



4. Domestic waste collection in Nijmegen

- Collection of **electric equipment**:
 - at the waste collection station and
 - at shops (old for new)



4. Domestic waste collection in Nijmegen

- Collection of (small) **chemical waste**:
 - with special car weekly
 - at shops in town
 - at the waste collection station



4. Domestic waste collection in Nijmegen

- Collection of **big domestic waste**:
 - recyclable and non-recyclable goods at waste collection station
 - collection at home: twice a year



4. Domestic waste collection in Nijmegen

- Overall results in 2003:
 - 59% recycling of all domestic waste
 - for €220,- per household (averaged)
- Question is: How good is that? (benchmarking)





This document does not necessarily represent the official position of the European Commission.
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