Establishing municipal solid waste management plans

STADTREINIGUNG HAMBURG

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1. <u>Starting point</u>: Reasons for municipal waste management plans

Waste management plans define for a specific region the expected generation of waste flows by ***type, volume, and origin,*** as well as the required ***treatment or disposal pathways*** for the flows. The plan has to show the ***journey of waste, from generation to treatment***.

The plans have to answer following questions for the present and future:

- What kind of waste streams are generated in what quantity?
- Where are the streams generated?
- Where are the waste streams stored, treated and/or disposed?
- How are quantity and quality of waste streams expected to change in the future?

1. <u>Starting point</u>: Target audience & authors

Main target audience for waste management plans are:

- Municipalities or other public bodies responsible for waste collection, treatment, and disposal
- Environmental authorities, which have to give permission to establish and run waste processing facilities
- Private companies willing to invest in infrastructure for waste management and require a long-term constancy

Most publishers of waste management plans are the responsible environmental authority. Co-authors can be specific departments, stakeholders, and consultants.

2. Institutional setting: Regulatory basis & target audience

European Waste Directive

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German waste law

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Federal waste regulations & plans

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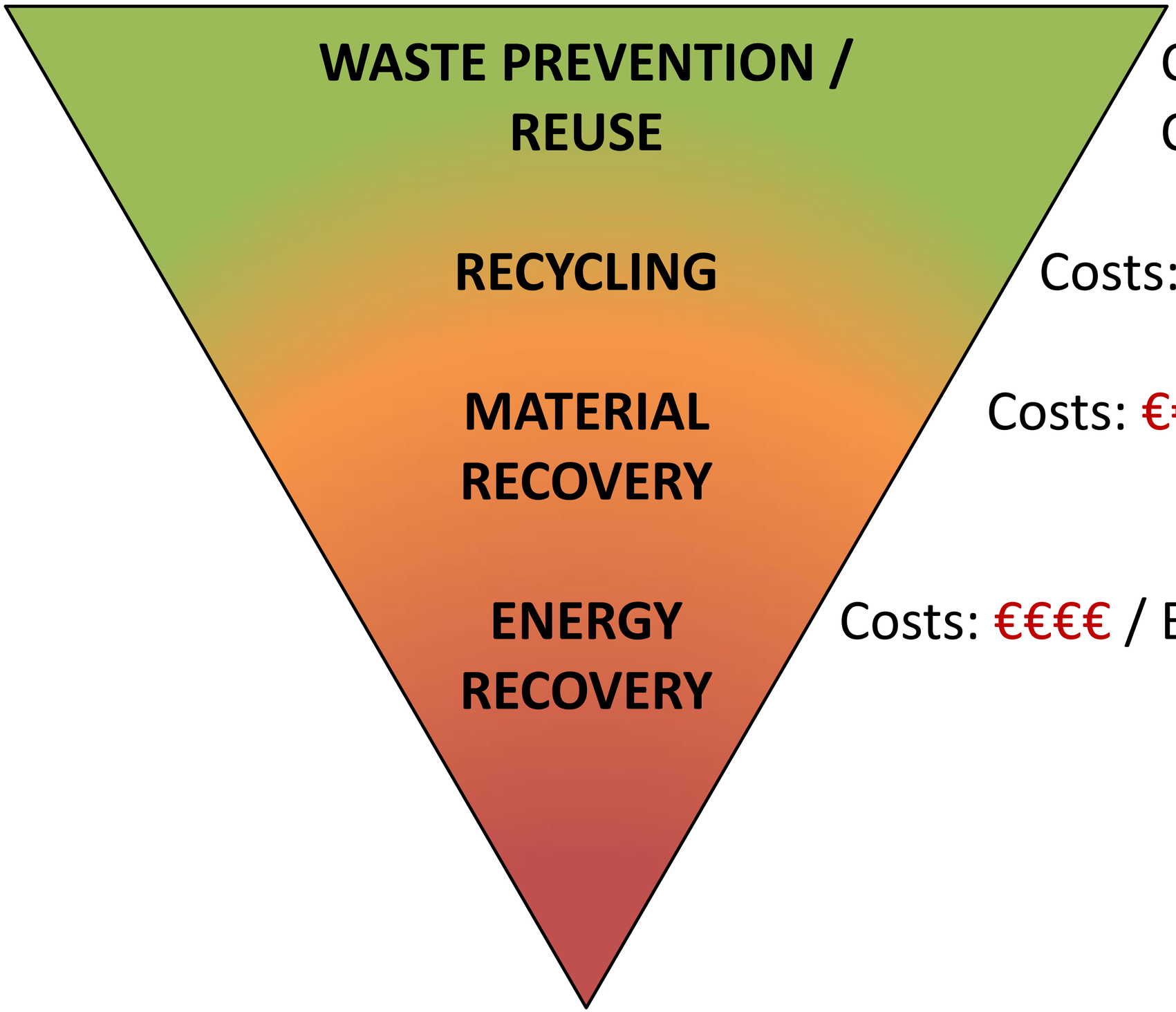
Municipal regulations & plans

2. Institutional setting: Waste hierarchy as basis for planning



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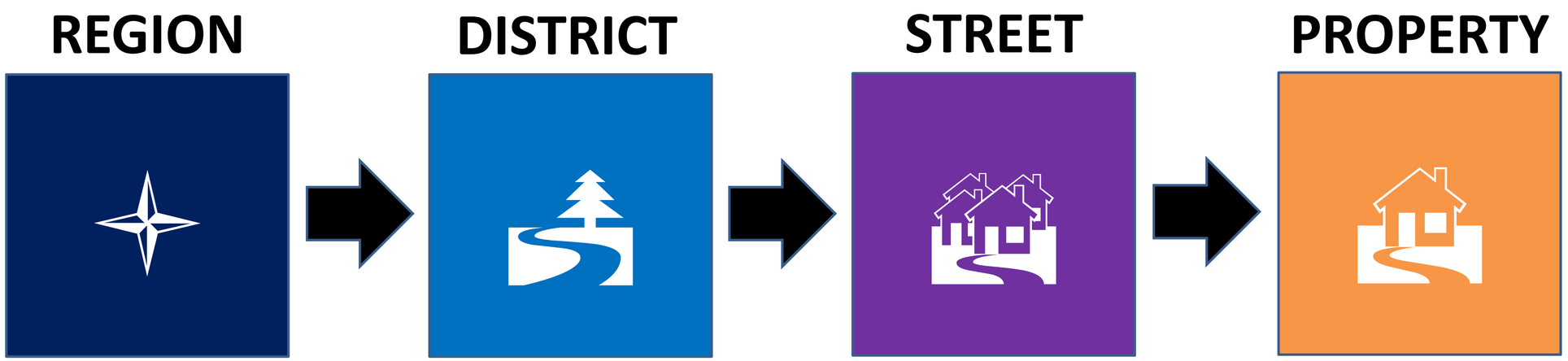
3. Approach: Involvement of stakeholders and waste generators

It is important to also involve bulk waste generators, such as industry, commerce, but also sectors who individually do not generate much waste, but together generate large volumes.

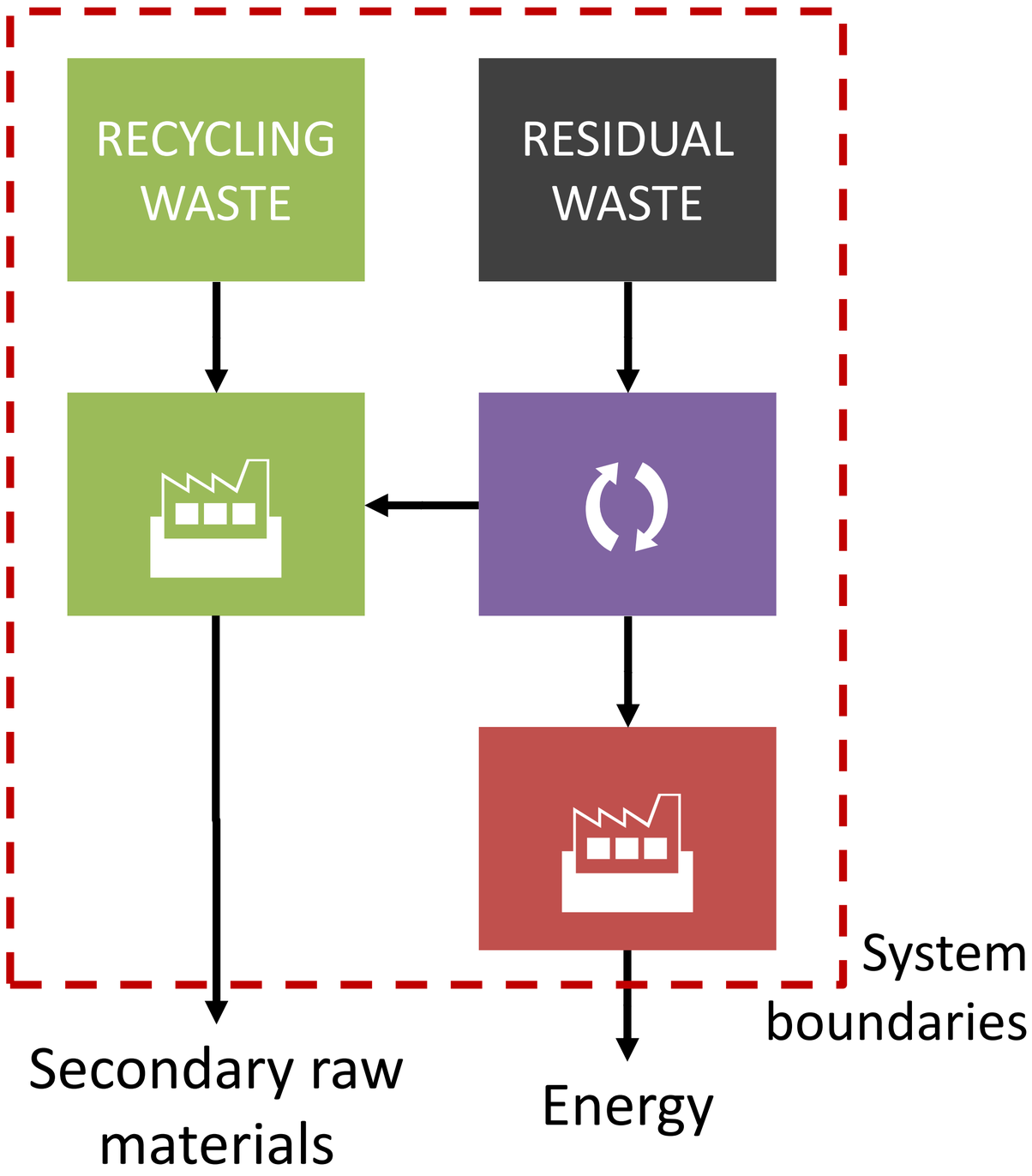
Waste management operators need to break down the planned volumes into smaller sections for their collection route design:



This provides the basis for calculations on required vehicles and staff.

3. Approach: Material Flow Analysis (MFA) and Prognosis

Example of MFA:



Prognosis for future waste generation are key to planning. Following factors can have an impact on quantity and quality of waste generation:

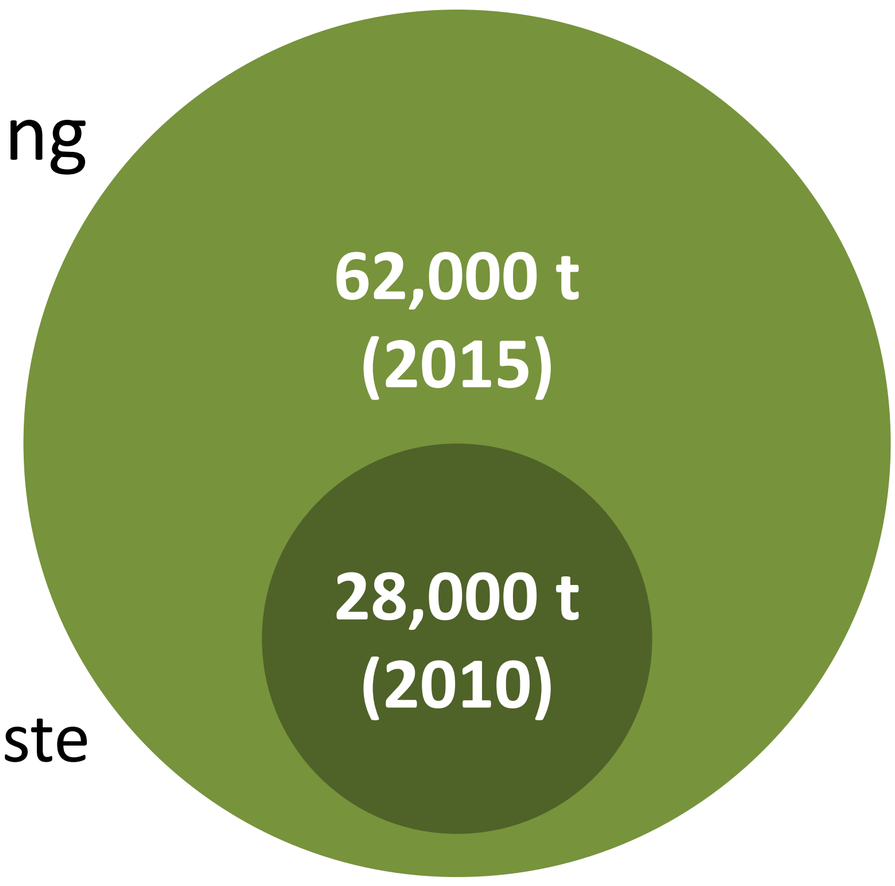
- Change in population
- Lifestyle changes (single households or big families?)
- Consumption patterns
- Effect of awareness programmes
- Economic activities

Additional other factors?

4. Outputs: From waste to resource management

Waste planning is the main tool to ensure reliable waste services to the public. This means:

- Establishment of safe disposal pathways for municipal waste
- Create wherever possible positive ecologic and economic value from waste streams
- Focus not just on “end-of-pipe” disposal, but also waste prevention, reuse and recycling
- The generation of waste streams can be shifted through incentives for recycling, better services, and awareness campaigns



Change in organic waste collection

4. Outputs: New waste infrastructure

The already changed waste flows in Hamburg and future prognosis led to the decision to close an old waste-to-energy facility, because the treatment capacity was not required anymore.

Now new waste infrastructure is planned, where more organic waste will be processed and material as secondary raw material recovered.

Challenge is to balance disposal security with flexibility to adapt treatment methods to changing waste flows.

An example is the upgrading of compost facilities to a biogas or mechanical-treatment plant.

5. Lessons: Waste planning should be a continuous process

Especially during uncertain and dynamic times it is important to review regularly the data and assumptions of a waste management plan. German law requires to renew waste plan every six years, but:

- Better to review data from the prognosis and actual generation results on a shorter interval (yearly/quarterly/monthly)
- Look at bulky waste generators (sectors) and define ways to incentives them to prevent, reuse, or recycle material
- Financial incentives to prevent, reuse, and recycle not only work for businesses, but also for households.
- An approach could be: ***Provide recycling services for free or at low-cost, but charge high for residual non-recyclable waste***.

6. Transfer: Commitment and patience from stakeholders

The design and development of a solid waste management plan is a long process. Expect following points to be of importance:

- There is no uniform blueprint for planning, every country, region, and city has it's unique features
- The plan needs to be prepared by the responsible authority for waste, other stakeholders and consultant can support, while keeping in mind that every stakeholder has it's own interest
- Private sector should be actively involved, especially in regard to waste generation and use of secondary raw materials

The plan is just a document: In the end it requires committed authorities and public servants to implement the plan.