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Material Value Chains

# CONSUMPTION-BASED BILLING OF SOLID MUNICIPAL WASTE DISPOSAL

Consumption-based billing of solid municipal waste disposal services might increase consumer awareness the amounts of waste they produce. Wisely implemented it might decrease the total amount of produced household solid waste, but several challenges persist.

## Consumption-based billing

Consumption-based billing is considered as an environment-friendly alternative, especially in the case of physical products and energy. However, flat-rated billing is a typical solution especially in the case of information products, transportation services and telecommunications. Consumers often like flat-price alternatives because of their stability, and the same holds true for suppliers. Often flat-rate billing takes place as building a billing procedure for consumption-based consumption is too laborious and expensive. This seems to be the case with most waste types also, especially municipal solid waste. There must be backlash and business as well as risk opportunities in the total system, as landfill waste amounts are usually anyway rather exactly weighted and billed for.

Flat-rate billing motivates to produce waste up to the amount paid for. The incentive is to use the capacity paid for in waste delivery. Every unused paid item is harmful for the consumer. In consumption-based billing, the real incentive is to lower the amount of waste.

## Data collection

Data was collected through a systematic literature review and interviews with 5 companies operating in the field of municipal solid waste, all situated in south-west Finland.

## Technical challenges

Flat-rate based billing of municipal solid waste for the households has been the norm in Finland and worldwide for a long time. For implementing consumption-based billing, each waste consignment should be identified with a waste producer, also household. Consumption-based billing could be based on waste weight or volume, or a combination of them. In principle arrangements where new product input is used as an approximation of produced waste – as is the case for example often in the billing or waste water based on the amount of fresh water consumed – could be also implemented. Implementing needed measurement and identification instruments to the different gates in the waste flow can be very challenging and costly. If the waste measurement is taken collectively for

example in a multi-dweller property, the needed effects are most probably not gained. It is worth noting that single house dwellers already pay for all the real costs of their waste management, but in the flat-rate arrangement.

Some environments, such as waste management systems based on vacuum pipe-line collection, can be especially demanding for consumption-based billing.

## Information or real billing

After having the needed infrastructure at place, decision on how to really bill remains to be taken. A typical phase usually taken when turning items from flat-rate to consumption-based billing is first delivering information, so that the payer has time to understand the situation and to adjust consumption behavior accordingly.

Often already having the real cost information at hand is enough to change waste behavior. Details of information or billing delivery, such as action frequency, details of waste amount, access channels to information, form and structure of distributed information, and privacy and security aspects all need further research.

A risk on consumption-based billing of waste disposal services is that households start to look for alternative, not wished-for alternatives to dispose their waste, such as own (illegal) burning or just dumping waste to nature and public place.

## Conclusions

Despite the well-known challenges, consumption-based billing, also billing based on produced amount of municipal solid waste, is the only economically, environmentally and ethically. Through working out solutions and concrete products to facilitate consumption-based billing of waste management in general and of solid municipal waste in particular, Finland can act as an international example, and at the same time work out export opportunities for concepts, products and services.

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