

WASTE REDUCTION AND THE STRUCTURE OF THE DUTCH WASTE SECTOR.

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Abstract

Waste is a source of greenhouse gases. In general, waste producers are not encouraged sufficiently to limit waste production. Reduction of waste can not be achieved by just formulating waste policy. The organizational conditions under which removal and processing take place frustrate the achievement of waste reduction.

The final objective of this research project is to design a structure for the waste sector which will contribute to the reduction of waste streams for incineration and landfilling. In this paper the results of the first two phases are reported: an analysis of the Dutch waste sector and the identification of key variables in the organizational structure of the waste sector.

1. INTRODUCTION

In many ways waste is a source of greenhouse gases. Waste incineration directly leads to the production of carbon dioxide. Waste on landfill sites also produces CO₂, but it is assumed that carbon containing waste decomposes while emitting methane. Since the global warming potential of methane is about 30 times that of carbon dioxide, carbon containing waste disposal in landfills might even be a greater problem than incineration. Furthermore, there is a loss of energy through the energy content of products and materials. Decomposition means the loss of energy previously used for refinement of raw materials and for processing these materials, as well as the energy used in the process of production of goods. In addition, a variety of non-carbonic waste is produced during production processes with sometimes high CO₂ emission per kilogram. A reduction of waste which will either be dumped at landfills or incinerated, will be a contribution in controlling the greenhouse problem.

2. WASTE POLICY AND THE WASTE SECTOR

In Dutch waste policy and in research a great deal of attention has been paid to the formulation of targets and regulations and to the selection of policy-instruments. Nevertheless, the tendency of growing waste streams has not yet been stopped in the Netherlands. The expected waste streams for incineration are growing and a large amount of new incineration capacity is planned. The size and composition of waste streams is determined by several factors like demographic developments (population growth, composition of households), economic developments (prosperity) and technological trends (mixing of materials). The fact that the size and composition is also determined by the conditions under which the removal and processing of waste takes place is too often neglected.

In many ways organizations (companies, public services, authorities) have conflicting interests. Their objectives often conflict with the policy goal of waste prevention. Neglecting the importance of organizational conditions is not an uncommon phenomenon. It is not restricted to the waste sector. A conflict of objectives also exists in the energy sector. Saving

energy by means of a reduction of energy consumption is a policy goal, but generally it is not an interest of utilities that gain economic benefits from the supply of more energy.

Due to the problem of conflicting objectives is the fact that policy ultimately has to be implemented within society by other actors than the policy formulating bodies. These actors have their own objectives and interests, which may differ from those of the policy makers. These actors try to find ways to seek the fulfilment of their own objectives and they have the capability to frustrate the seeking of fulfilment of others. Most of the actors have no interest in waste reduction or in altering the kind of waste that has to be processed.

3. ACTORS IN THE WASTE SECTOR

The best way to get insight in the structure of the waste sector and to understand the dynamics of it, is to adopt the idea that the organizations are linked together in an interorganizational network. Characteristic for such a network is the fact that the individual objectives of the organizations participating in the network are more important than the objective of the network itself (1). It seems as if they cooperate because they share interests and objectives, but more often the real reason for cooperation is mutual dependency (2).

Among the public and private organizations which try to influence the circumstances under which the removal and processing of solid waste take place, seven groups can be distinguished. The categorisation is primarily based on the interests and activities that organizations have in common and secondarily on which phase in the material life cycle their activities have impact (3).

1. Waste generators
2. Waste collectors
3. Waste processors
4. Waste disposers
5. Policy makers
6. Research groups and consultancies
7. Interest groups and umbrella-organizations

The first four categories of actors are those who are participating on the *waste market*. The *waste sector* is much broader: apart from the participants on the waste market other groups of actors are part of the waste sector. These are primarily governmental organizations that have to formulate waste policy. Secondly there are organizations that provide data and ideas to support the policy making process, like research groups and consultancies. Thirdly we distinguish organizations that either defend interests of groups of other actors, or try to influence policy (lobbying).

After analysis of the relations between the actors of the seven categories we established several structural impediments for the reduction of waste.

4. IMPEDIMENTS FOR PREVENTION IN THE WASTE SECTOR

The governmental institutions in the Netherlands find themselves in a paradoxical situation. Municipalities invest in disposal plants from the perspective of environmental hygiene. They invest in incinerators which have to be built in accordance to strict environmental standards. The investments are large and take a long period of time to write off. Therefore there is no interest in source-reduction which can be implemented in the short term. To the contrary, it creates an *interest in assurance of long term waste supply*.

The long term of writing off causes short term risks when installed capacity is not fully utilized. Waste processors attempt to guarantee a sufficient flow by tying waste suppliers to long term contracts. As a rule, governmental institutions become tied, while private enterprises remain free to change their supply from one processor to another. Private organizations which are not contractually bound can offer "extra" waste, but then they can negotiate about the rates of the incineration.

It is in the interest of the waste generating industrials or smaller enterprises that the above described situation of waste handling and management remains the same. *Overcapacity leads to lower incineration rates.*

In general, it is in the interest of private organizations to *keep authorities and policy makers in a situation of uncertainty* about the amount, sort and composition of waste that will be released. More information and better planning of facilities will not only limit bargaining opportunities of enterprises and lead to higher processing tariffs. On the other hand exchange of information will give policymakers tools to formulate strict prevention goals in quantitative and qualitative sense.

Policy and implementation is connected to a certain level of administration. In the meanwhile other, *private organizations operate on a higher level.* Those private organizations can not be forced to implement the policy of public authorities.

The legal jurisdiction offers authorities a basis for power but it also restricts them. *Public bodies are participating in the waste sector with different roles* at the same time, which may sometimes cause entanglement:

- * A role as representative of the law (functions of control and issuing permits)
- * A role as a participant on waste market.
- * A role as policy makers, in which general public interests must be served.

5. STRUCTURAL ELEMENTS IN THE WASTE SECTOR

Based on the analysis of the Dutch waste sector and a rough inventory of twelve different countries, five structural elements determining barriers for waste prevention in the waste sector were indicated. These five variables have been used as criteria for the selection of three cases for a multiple case study (4). This is the next phase of the research, directed at the identification of elements in the organizational structure of waste sectors, which might be implemented in the Dutch waste sector.

The five structural elements are: (5)

1. Scale of organizations which are handling waste.
2. Functional separation of tasks and responsibilities between actors
3. Activities directed at input and output attributed to different organizations.
4. The role of the authorities: utility-function vs. market participation.
5. Attribution of responsibilities for waste prevention to existing (or merged, or separated) organizations, or new organizations.

6. FURTHER RESEARCH PLANS

The starting point of this research project is that size and composition of waste streams are partially determined by the organizational conditions under which the removal and processing take place. After a first examination of the structure of the waste sector in the Netherlands it became clear that there exist several aspects in the organizational structure of the waste sector that impedes the stimulation of waste minimalization incentives.

To obtain ideas about improvements for (parts of) the structure of the waste sector that may lead to stimulation of waste reduction, a multiple case study has to be carried out. Therefore a broad inventory on significant structural conditions in twelve industrial societies was done. Out of this list of twelve, three cases were selected. Significant characteristics of the waste sectors of New Jersey (US), Nord-Rhein Westfalen (Germany) and Denmark will be investigated. The aim of these studies is to propose improvements for the structure of the Dutch waste sector.

Another way to search for ideas for improvement can be found in comparison of the waste sector with other sectors in society. A literature study of this subject will be made.

The final objective of this project is to design a structure for the waste sector which will contribute to the reduction of waste streams for incineration and landfilling. The last step in the research project will bring all results about possible improvements together and will have to result in a new concept for the structure of the waste sector. Ex ante evaluation has to be carried out to prospect the possible problems in the implementation of such a new designed structure. Also ex ante evaluation has to be done on the effects of altering (parts) of the existing structure in size and composition of waste streams.

7. REFERENCES:

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