1. Introduction

Examination of the structure of the Dutch waste sector in 1993 clarified that several institutional aspects in the organizational structure of waste management impede the stimulation of waste reduction initiatives. (De Jong & Wolsink, 1997) To obtain ideas about improvements for the structure of the Dutch waste sector, some comparative case studies were conducted. The waste sector in New Jersey (USA) and Denmark were studied as well as the Dual System for the handling of packaging waste in North Rhine-Westphalia (FRG) (De Jong, 1999). Besides, the Dutch waste sector was compared with the electricity sector in the Netherlands (Slingerland & De Jong, 1997).

A total of five core elements formed the comparative baseline of the case studies. These core elements that appeared to be essential for (raising barriers against the) reduction of waste streams in the Dutch situation, are the following:

* separation of functions in the waste market;
* the conditions to transactions;
* the role of public authorities;
* the level of scale in the planning of waste management, and
* the actors to which the responsibility for waste reduction is attributed.

After the comparison one of the elements appeared to be of secondary order. The issue of the increase of planning scale is repeatedly in practice an aspect of the other elements. Therefore, scale level in waste management is not considered as a core element in the structure of the waste sector anymore (de Jong & Wolsink, 1999).

After studying the structures of these sectors in the Netherlands and abroad, five proposals were formulated for adaptation of the present structure of the Dutch waste sector. These proposals will be indicated in the next sections as ‘the five proposals’. They were presented to experts for an ex-ante evaluation. The objective of this ex-ante evaluation which is described in this paper was to examine advantages and drawbacks of the five proposals for adaptations of (parts of) the
structure of the Dutch waste sector. The key questions we want to address are:

- Will the five proposals result in incentives for waste reduction, i.e. will adaptation of the structure be effective?

- What will be the consequences of implementation of the five proposals for the quality of the services of collection, processing and disposal that have to be provided by the organizations in the waste market? Does adaptation interfere with the reliability, the payability and the attainability of services?

- What possible problems can be expected in case of application of the proposals?

First we will describe the procedure which made it possible to formulate five proposals. We will explain how the ex-ante evaluation has been set up as well as what procedure has been followed to gather data. In section 3 the five proposals will be presented. In section 4 the results of the ex-ante evaluation will be summarized. Finally, in section 5, conclusions will be drawn and some final recommendations will be made.

2. Method of Analysis

In order to formulate some alternatives for the Dutch waste sector, all findings across the multiple cases and all conclusions based on information beyond the case-studies were integrated. The comparison of waste sectors abroad showed that the effect of the distinguished core elements in the structure of the waste sector is dependent of the filling in of other core elements. In methodological terms: the interaction effects (combinations of factors) are more important than the main effects (single factors). Table 1 summarizes the main conclusions of the comparative multiple case study, which are presented in: de Jong & Wolsink (1999), and these are all interaction effects.
<table>
<thead>
<tr>
<th>CORE ELEMENT</th>
<th>NECESSARY CONDITIONS</th>
<th>FAVORABLE CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical separation of functions</td>
<td>• No market function for any public body or authority</td>
<td>• Independent (from ongoing public decision making in public bodies) regulator</td>
</tr>
<tr>
<td></td>
<td>• If public body has a market function, then no regulatory power (introduction of independent regulator)</td>
<td>• Regulation against long term contracting and put or pay contracting</td>
</tr>
<tr>
<td></td>
<td>• Independent (from ongoing public decision making in public bodies) regulator</td>
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</tbody>
</table>
extensively in section 3, can be summarized as:
Proposal 1: “Vertical Separation of Market Functions”;
Proposal 2: “Horizontal Separation of the Waste Market”;
Proposal 3: “Withdrawal of Public Bodies from Market Functions”;
Proposal 4: “Responsibility for Waste Reduction attributed to Market Actors”, and
Proposal 5: “Waste Collectors an Interest in Achievement of Waste Reduction”.

These five proposals were sent to 21 persons. Amongst them were some respondents, that were interviewed during the case-studies abroad and which were highly interested in the results of the project, some Dutch authors of studies which include proposals for altering (parts of the) structure of the Dutch waste sector, and finally some key persons within the Dutch waste sector. The latter were interviewed; the others were asked to give their comments either written or by telephone.

In total nine oral interviews were carried out. The respondents represent organizations that are part of the waste market, such as collectors, processors and disposers, and also public authorities at different administrative levels. Besides their points of view on the proposed adaptations on the structure of the waste sector and their assessment of the effect on solid waste flows in terms of quantity and quality, they were also questioned on their opinions about changes in the structure of the Dutch waste sector since 1993.

The conclusions in section 4 and 5 are mainly based on the nine interviews. Additional the information from two returned questionnaires has been used. Not all respondents were willing to give their comments on the proposals. A few promised to send their comments to the proposals soon. For this paper they did not arrive in time.

3. The Five Proposals

3.1 Proposal 1 ‘Vertical Separation of Market Functions’

Solid waste has to be collected by an organization that has no interference with the market functions of processing or disposal. *Vertical separation of functions* prevents putting the waste collection in service of reducing the risks of investments in the processing or disposal. Separation only works if the market participants have no other means of countering the risks of their investments in expensive processing or disposal capacity. Therefore, preferably
governments should not be involved with any market function. Then the role of governments would be limited to that of legislator and regulator.

When governments would be persistent in willing to participate in the waste market, then the involvement of governments should never concern more than one function. Involvement can range from putting the collection service in hands of a municipally owned company, to being shareholder or member of the board of management of some waste handling company. When the market is vertically separated and public bodies remain concerned with a market function, the regulation should be controlled by an independent body.

3.2 Proposal 2 ‘Horizontal Separation of the Waste Market’

Horizontal separation of market volumes can lead to positive results, when regulation ensures the introduction of interest in waste reduction. An example of a horizontally separated market is the Dual System in North Rhine-Westphalia. In this separated market for packaging waste it is shown that waste reduction could be accomplished (de Jong, 1999).

Regulation should prevent a tendency towards monopoly, because of the risk that this monopoly endangers the existence of the partial market, or may threaten the existence of other partial markets. The Dual System shows that a dominating position in one market offers a good base for activities in other waste markets. It also is very important to regulate the entrance of organizations from other sectors, like the energy sector, in order to prevent a situation in which the activity in the waste sector is put in favor of activities within the core business. For instance concentration and monopoly of energy companies in a separated part of the waste market must be considered as a serious threat to waste reduction when effective regulation does not prevent the incineration of collected waste for producing of electricity that can still be re-used or recycled. Such a monopoly will tend to define all incineration as ‘energy recovery’. Finally, within each partial market it is necessary to realize vertical separation of market functions.

3.3 Proposal 3 ‘Withdrawal of Public Bodies from Market Functions’

Withdrawal of public bodies from the waste market appears to be favorable to waste reduction under certain necessary conditions. Waste reduction as such is not served better or worse with either planning or competition. From that viewpoint, the question is whether a function should be in public or private hands. It appears that conflicts of interest more often occur within governments, because they not only participate on the market, but also try to direct waste streams through policy. Withdrawal from public authorities from the waste market, would give
governments the ability to regulate the waste market. Regulation of governments from outside the market could be more effective, so market functions should lay as much as possible in the hands of private companies. Through independent control and regulation steering in the desired direction could be achieved, because the regulator has no market interest to protect as they have in the present situation. The ‘desired direction’ is not toward disposal, but rather toward prevention and recycling, the real priorities of the waste management hierarchy.

Meanwhile in the interest of stimulating waste reduction, vertical separation is required, also in a privatized market. A tendency of monopoly has to be avoided through regulation. Public authorities must notice that certain conditions for transactions on the market have a restraining effect on the achievement of waste reduction. Long-term contracts that are directed at the covering-up of investment risks in disposal or processing need to be avoided because they do not benefit reduction as they contain ‘financial punishments’ for realized reductions. Sometimes permits issued by local governments which also carry investment risks, take over this role of contracts. Instead, clear and strict regulation is required. Short-term contracts leave a blank for reduction initiatives, because these initiatives need flexibility. Furthermore, payment for supplied services is preferable to payment for possible use of services. The final condition is that an independent regulator has to be introduced, if public bodies still fulfill a market function.

3.4 Proposal 4 ‘Responsibility for Waste Reduction attributed to Market Actors’

In order to stimulate the achievement of waste reduction, the responsibility for waste reduction has to be attributed to market actors like producers and distributors of goods. Regulation should be used to ensure that materials and products are recycled in a way that they retain the highest possible grade of quality. Regulation and planning of waste management remain laborious, because the official waste sector borders do not mark a closed system. Using regulation in order to direct waste streams ‘top-down’ without enforcement is not efficacious. Even when permits and bans are used to promote reduction, much effort would be required to enforce regulation and thus achieve the desired effects. Therefore, regulation has to be directed at conditions for the waste market. The obligation of internalizing of costs for waste handling into a product price is one example of attributing waste reduction to market actors through regulation. The German Ordinance for packaging waste can be seen as an example of setting the conditions for market participants which can function as an alternative for top-down regulation.
Horizontal separation of parts of the waste market makes it easier to attribute responsibility for waste reduction to market actors. *Monopolies or cartels should be avoided* and within a (partial) market *no public bodies with regulatory power should be active in the market.*

3.5 Proposal 5 ‘Collectors Interest in Achievement of Waste Reduction’

*Waste collectors*, the organizations that hold direct relations with customers, have to be given an *interest in waste reduction* in order to introduce a forceful incentive to achieving source reduction and recycling. This can be realized by:

* Establishing vertical separation of functions;
* Introducing competition on the collector level;
* Having collectors receive a fixed allowance, which is non-quantity based;
* Having consumers pay a quantity based bill for the collection service, and
* Establishing a (municipally-administered) demand management fund.

When the profits of collectors are not related to the quantity of waste collected, whereas their costs are (a situation which is for collection of household waste already applied in practice) they would theoretically receive a financial incentive to stimulate consumers to reduce the quantity of waste offered for collection. This implies that *collection should not be connected to disposal.*

Another condition which is necessary for this incentive is a competitive situation. In the present situation any collectors’ costs can be reimbursed by a higher tariff charged to captive consumers. If *collectors of household waste receive a fixed allowance per customer,* competition has to concentrate on reducing costs by stimulating consumers to reduce waste production. Decrease in the amount of collected waste means reduction of costs, at least when vertical separation of functions has been established and the collecting organizations have no involvement with processing nor disposal. Hence, establishing vertical separation of functions forms another condition. Especially when collectors have to compete for acquiring a short term contract for the household waste collection service within an area, *competition on collectors level* would give an extra incentive to stimulating waste reduction by consumers and increasing service to customers.

*Consumers* would be stimulated to reduce their waste by *paying a quantity based bill* for the *collection service.* To combine a quantity-based charge to consumers with a fixed allowance to collectors, *establishment of an intermediate financial facility* would be needed to which consumers pay their bills and from which collectors receive their allowances. This facility could be provided by *a municipally-administered fund out of which also some additional waste reductive initiatives could be financed.* A condition should be a strict curtailment of
municipalities to this task, leaving the remaining functions on the waste market to other organizations in order to prevent entwined interests.

4. Results of Ex-Ante Evaluation

In the interviews, respondents often supported the expectation that the proposals at least in theory will have effect on waste reduction, but subsequently they give lots of arguments stating the rejection of the possibility of applying the proposal in practice. The amount of arguments pro or contra application does not reflect whether a proposal is evaluated as interesting or likely to be effective. For example the first proposal is evaluated as an adaptation that will very likely resort in a positive effect on waste reduction, but at the same time the respondents only bring arguments contra application into the discussion during the interview.

In the subsections beneath, the arguments contra application of the proposals and the additional arguments pro application will be presented. We tried to list all the arguments (pro and contra) that were given in the interviews, we did not only summarize those that we agree with. But first, some more, general remarks have to be made.

It is remarkable that most respondents prefer to avoid any changes at all, a psycho-social phenomenon known as “resistance to change” (Coch & French, 1948; LaPiere, 1965). These respondents prefer to avoid any new bureaucratically activity that is needed either on national level (Ministry of Economical Affairs) or on supra-national level (European Commission). Some respondents especially want to prevent the time-consuming and intensive process of negotiations required to achieve changes. In other words, often the status quo is preferred over any structural change of the waste sector. One respondent expresses his grieve that the discussion about the future structure of the waste sector is dictated by the argument that changing the status quo implies many practical disadvantages. Meanwhile, almost all interviewees expect that change of the structure is nevertheless inevitable. Some organizations are even pro-active in the sense that they recently financed research projects to investigate what strategy to conduct. See for instance studies of VNG (1998, another is forthcoming), NVRD (KPMG, 1998) and AOO(Moret Ernst & Young, 1998).
In the interviews one of the standard questions was whether the respondent missed a proposal or a part of an alternative that could contribute to structural changes in favor of waste reduction. Two respondents firmly pronounced that their alternative consists of maintenance of the present waste market. Another respondent did emphasize that only small changes that will contribute to improve the conditions for achieving waste reduction, are preferable for application.

Only one respondent formulated a real alternative: rearranging the responsibilities of public authorities in such a way that municipalities, and with them captive consumers, have to bear less financial risks. The present situation of a hybrid waste market can remain the same, but the national government -in casu the Ministry of Housing, Physical Planning and Environment- has to act as the investor in disposal capacity and maybe also as the one that is responsible for the collection of household waste. When the national government owns and administers disposal plants, it can put a surcharge on disposal tariffs in order to fill a disposal fund. In times of a shortage in disposal capacity, investments for new plants can be financed from the fund. In times of overcapacity, the national government should be able to decide to close plants prematurely and allocate some part of the fund for loss of income. (VNG, 1998)

Table 2 shows respondents’ assessment on the effectiveness of the five proposals.

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Positive result</th>
<th>No opinion or not sure of effect</th>
<th>Negative result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal 1</td>
<td>5,5</td>
<td>1</td>
<td>4,5*</td>
</tr>
<tr>
<td>Proposal 2</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Proposal 3</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Proposal 4</td>
<td>10</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Proposal 5</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

*One interview was with two representatives of the same organization. When the two respondents disagreed, each was counted as half.

The respondents disagreed the most on the assessment of the impact of proposal 1 and 3 on waste reduction. Remarkable is that during the interviews most respondents did not recognize the difference between the two proposals; they wanted to give their reaction on these proposals as if they were similar. After commenting the aspect of vertical separation in proposal 1 they wanted to comment the aspect of privatizing the market in proposal 3. In other words most respondents
mixed the two proposals and integrated them into one. Of course these proposals are containing similar elements indeed, but the lines of reasoning on which the proposals are based are different.

The interviewees think that proposal 2 and 4 will have positive influence on the stimulation of waste reduction. Finally, the assessment of the effect of proposal 5 is the most rejective.

4.1 Proposal 1: “Vertical Separation”
Summarized proposal 1 contains the following elements:

- **Vertical separation of functions**
- **Public authorities should not be involved with any market function or involvement should never concern more than one function**
- **When public authorities are involved with a market function, regulation should be controlled by an independent body**

The respondents agree with the analysis that the existence of incineration capacity attracts waste and does not stimulate waste reduction. Half of the respondents are convinced that when the incineration capacity will be “sharply tuned”, by which they mean that a little less capacity is realized than the calculated ‘need’ for it, this implies automatically an adequate incentive for striving towards waste reduction. Meanwhile all respondents agree that the actual situation is far from being sharply tuned. Only one respondent declares that this situation will come to an end in the near future, when the installations that are taken most recently in operation have been able to fill in their capacity by contracting collectors of industrial waste.

Some of the respondents agree with the formulation in proposal 1, that separation of functions is an essential prerequisite of achieving waste reduction. Others think that de-linking of the processing and disposal function will be sufficient. They plea for maintaining a link between collection and processing, because they consider collectors to be the most familiar with waste streams due to the fact that they own them physically. Furthermore, collectors have knowledge on new developments in the area of collecting and processing technologies and they can estimate most adequate when increase of scale of applicable technologies may result in economic advantage. Therefore, in the eyes of these respondents, giving collectors interest in processing will stimulate reuse and recycling, without doing any harm to the continuity of already existing initiatives for source reduction.
Some other respondents are defending an opposite position: they think that separation is not necessary nor desirable. They plea for integration of functions, because they expect functional integration to be a condition for achieving waste reduction. The arguments they use for this statement are that, on the one hand, scale benefits should lead to financial attainability of waste handling services when the collection, processing and disposal functions are integrated. On the other hand, they believe that waste reduction would more likely be stimulated when a private organization could extend its activities and as a consequence would be able to spread financial risks and neutralize disappointing company results. They argue that vertical separation will result in the withdrawal of private organizations; the financial backing up of investments in processing activities depends on the possibilities to reach scale benefits and spread risks for negative company results. In this respect, vertical separation could even be harmful to the already existing processing capacity.

Table 3: Summary of arguments contra or pro application of proposal 1 “Vertical Separation”
(frequency of arguments; n=9)

**Arguments contra application**
- Sharp tuning of incineration capacity gives an adequate incentive to waste reduction and it is not clear whether functional separation stimulates waste reduction more (3)
- Separation of processing and disposal functions will be sufficient (3)
- Functional integration has an important advantage: scale benefits financial attainability (2)
- Functional integration is condition for achieving waste reduction: when private organization can extend their activities, disappointing company results can be neutralized financially (1)
- Tendency develops itself in opposite direction; in practice functional integration takes place (3)
- According to European legislation on competition a private company is allowed to organize itself vertically (1)
- Rejection of the condition that public bodies have to withdraw from the waste market as participant (3)
- When public organizations have withdrawn from the waste market, functional separation is not necessary anymore when the market is regulated strictly (4)
- The vertical separation of market functions is artificial and will lead to more expensive costs (1)

**No additional arguments pro application were mentioned**

Criticism is pointed on vertical separation and rarely on the conditions for applying vertical separation. Most objections are linked to doubts about the feasibility of the whole package of elements in proposal 1. So is argued that separation of functions never will be attainable nowadays, because the tendency on the waste market goes towards further integration. Some disposal organizations are trying to attract customers by extension of their services in the field of processing or even in the field of collection. The AVR for instance, an organization that
originally started with disposal activities, has recently started a campaign to become known as a market organization that provides Modular Waste and Environment Services (AVR, 1998). This new service system intends to provide a ‘full services pallet’ to their customers. Besides operating in the field of incineration and handling of hazardous waste, the AVR also provides processing activities and nowadays they even are active in the waste market as collectors of household waste.

Some problems that are foreseen in case of application of the proposal concern the payability and reliability of services. As is formulated in the proposal, the condition that the market is regulated by an independent body is found of great importance. Waste reduction is not a question of who is doing what. Setting the legal frame and regulating the waste market should have the most far reaching consequences.

In conclusion we can say that although all respondents agree with the base statement in this proposal that disconnecting market functions could favor waste reduction, only a few expect positive results from the whole package of elements in the proposal. There is unanimity amongst the respondents in rejecting the possibility of application of this proposal in practice. This rejection is motivated by arguments that expresses doubts on the necessity to separate all market functions and doubts on the feasibility of applying vertical separation. Some arguments show a belief in the probability that integration would result in waste reduction too. Eventually the picture on the assessment is not supporting proposal 1. There is only support for the analysis by half of the respondents, and lack of support concerning the feasibility of the whole package.

4.2 Proposal 2: “Horizontally separated Market”
A summary of the elements in proposal 2 are:

- Horizontally separation of the waste market
- Introduction of regulation that ensures an interest in waste reduction
- Prevention of a monopoly through regulation
- Vertical separation of market functions

Although five of the respondents expect a positive result of raising partial markets on waste reduction, only one does support the idea of application the proposal in practice. Two additional arguments pro application are mentioned. First, that the concept of partial markets more or less
already exist in practice and second, that the tuning of supply and demand may have the result that the effect that new processing techniques will be developed and old ones will be polished.

Table 4: Summary of arguments contra or pro application of proposal 2 “Horizontal separation” (frequency of arguments; n =9)

<table>
<thead>
<tr>
<th>Arguments contra application</th>
<th>Arguments contra application</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Organizing partial waste markets is expensive (3)</td>
<td>- The financial expenses of the rise of the Dual System were far too high in comparison with the environmental benefit that could be achieved (1)</td>
</tr>
<tr>
<td>- There will be overlap between several market volumes which will make the market complex and will hinder outsiders to get insight in participants and relations or in the flows of waste and money between actors (2)</td>
<td>- It is very difficult to control monopolies in a divided market volume (1)</td>
</tr>
<tr>
<td>- The condition of vertical separation will not be achievable: recent developments show that incinerators successfully have been looking for extension of their activities within parts of the waste market and integration of functions has been the result and it will probably always be. (2)</td>
<td>- The condition of vertical separation will not be necessary: dividing the collection and processing function from disposal will be sufficient (2)</td>
</tr>
</tbody>
</table>

Additional arguments in favor of application:
- There already exist partial markets, like the one for automobiles, batteries and refrigerators (3)
- Within partial markets supply and demand can be better tuned, which will increase the probability of reuse (1)

The arguments pro application do not countervail the arguments contra application. Most respondents expect that organizing partial waste markets will be very expensive. According to some respondents it is evident that the example of the Dual System has shown that the financial expenses for initiating the system in Germany have been far too high in comparison with the environmental benefits that could be achieved.

Another expected problem concerns the reliability of services. Creation of partial markets could result in overlap between the several market volumes which probably makes the market complex and will hinder outsiders to get an overview of participants and the physical and financial relations between them. It is difficult to control monopolies, but especially in a divided, complex market this statement is true.

Some respondents argue that to some extent one could say that there already exist some partial markets, namely for products like automobiles, batteries and refrigerators. For these products special take-back procedures have been established as the outcome of negotiations between the specific branches and national government. Although these arrangements seem to function reasonably well, most respondents do not find application of the proposal desirable. Dividing the waste market in too many small parts would enlarge the complexity and besides, horizontal
separation may be realized, but fulfilling the condition of vertical separation at the same time will never be feasible.

Summarizing, the assessment on proposal 2 tends to objection, mainly because of problems with the feasibility.

4.3 Proposal 3: “Withdrawal of Public Bodies from Market Functions”
Proposal 3 contains the following elements:
- Withdrawal of public bodies from waste functions
- Vertical separation of market functions
- Avoidance of a monopoly through regulation
- Introduction of conditions for transactions on the waste market that stimulate waste reduction
- Introduction of a regulator when public authorities still fulfill market functions

This proposal is the most disputed one. The questions and ideas that are raised reflect the current debate between the participants in the waste sector. Table 5 resumes the pro’s and contra’s that are formulated by respondents. Five of the respondents do and six of them do not expect positive results on waste reduction.

The first element in the proposal is the necessity of limiting the range of tasks that public bodies have within the waste sector. This subject meets a lot of resistance. Remarkable in the discussion on the subject of privatization of the waste market is the statement of the representative of the local authorities that tries to illuminate that municipalities have been carrying most risks in the past. The local governments have always had to protect captive customers by collecting their waste and by investing in waste incineration plants. They want to free themselves from connections with disposal organizations and processors like for instance composting facilities. They would like to come into a more equal position with private organizations within the waste market. However, municipalities do not want to have the waste market privatized: they want the national government to become a major player in the waste market itself by taking over the role as investor in disposal capacity or even take the responsibility for having household waste collected. (VNG, 1998)

Others do not think either that withdrawal of public bodies can lead to a more stimulating surrounding for waste reduction. They are emphasizing that especially the reliability and the
attainability of waste management services will be endangered, and furthermore that the payability is not guaranteed. They doubt that the government will be able to regulate the waste market more strictly, when public bodies no longer participate in the market. Practice has learned that waste supply is difficult to forecast: the market is complex and several factors are responsible for fluctuations in supply. When the national government is not responsible for the planning of capacity, who will be responsible then? Leaving decisions for investments to the market will result in investments in large plants in order to create scale advantages. Competition between incineration plants may lead to too low tariffs. When too much competition leads to the liquidation of incineration plants, how can be avoided it will not be the environmentally sound plants which go bankrupt? Another serious threat forms the possibility in case of a European market, combustible waste will be imported (for instance from Germany) and probably Dutch waste will be pushed aside. Then other, less environmentally sound, ad-hoc solutions will have to be found for the disposal of Dutch waste.

Finally, one important argument that can be used against privatization: it will stimulate the entrance of energy companies at the waste market. This is a real danger and for that reason the market has to be separated vertically and the entire column cannot be dominated by one participant (e.g. energy company) as we suggest in the proposal.
Table 5: Summary of arguments contra or pro application of proposal 3 “Privatization” (frequency of arguments; n = 9)

**Arguments contra:**
- Continuity of incineration capacity can not be guaranteed (3)
- Attainability and reliability of services can not be guaranteed (5)
- How can the captive consumer be protected otherwise? (1)
- National government will not be able to regulate the participants from outside the market (2)
- Attainability and reliability of services can only be guaranteed, when national government regulates the price-levels (1)
- In case of a European market combustible waste will be imported (for instance from Germany) and as a result Dutch waste will be pushed aside and other, less environmentally sound ad-hoc solutions have to be found (2)
- How can the volume of total capacity be planned? (2)
- Tendency of monopolization will have high tariffs as a result (2)
- A monopoly is difficult to control (2) or there exists no confidence in the NMA, which is the Dutch competition authority (2)
- A privatized market is not desirable, because a hybrid market prevents the tendency of monopolization, and keeps the participants awake (1)
- Privatization will stimulate the entrance of energy companies at the waste market (1)
- In the transition phase risks will be very high and as a result private collecting companies will not survive where public collectors will be covered. (1)
- Policy can best be strived for when municipalities are part of the market and can be aimed at (2)

**Additional arguments pro application**
- In general, monopolization results in increase of tariffs for provided services, but with regulation this can be prevented (1)
- The attainability, reliability and payability of services can be guaranteed by regulation (2)
- Companies will be reorganized and more efficient result will come into reach (2)
- The raise and establishment of any new entity, such as an independent regulator, has to be avoided. Therefore withdrawal of public organizations from the waste market is preferred (1)
- The result of a monopolizing tendency, namely higher prices, will not be determined by the presence of public participants on the waste market, but will be determined by transparency of the flow of money and material (1)
- An often heard reason for the presence of public bodies on the waste market is preservation of employability. The more important motive that never will be expressed explicitly is the existence of hidden employment (‘banenpoolers’ and ‘Melkert-banen’; low paid jobs for gaining experiences and work with retaining unemployment benefits) (2)

The respondents that are in favor of application of proposal 3 because of the positive result that they do expect from it for waste reduction, are opposing against the argument that without governmental bodies being part of the waste market it is not possible to guarantee the attainability, payability and continuity of waste handling services. This argument is often used to intimidate the discussion: you never can prove who will be wrong or right. An often heard argument for the presence of public bodies on the waste market is preservation of employability. The more important motive that never will be expressed explicitly in debate is the existence of hidden employment. The existence of ‘banenpoolers’ and ‘Melkert-banen’, low paid jobs in
public services for gaining experience and work with retaining unemployment benefits, explains the real necessity for local governmental bodies to remain active in the waste market. The respondents that expect positive results from privatization of the waste market, do think that national government will be able to regulate the market. The introduction of more competition within waste handling companies will lead to more efficient services and regulation.

Another aspect of proposal 3 is the condition that regulation of the waste market by either a governmental body or a regulator is required. Some fear that the national government will not be able to regulate the participants: when public bodies are no longer part of the market it is more difficult to get access to inside information and without that you got less power to direct waste streams. Furthermore, policy aims are best strived for when municipalities are part of the market and policy can be aimed at them.

All respondents agree that a monopoly has to be avoided, although it may be difficult to achieve. However, some respondents express that they have no confidence in the possibility that monopolizing tendencies can be stopped by a market regulator, such as the Dutch Competition Authority (Nederlandse Mededingings Authoriteit). They are supporting the hybrid market, in which public and private organizations are active.

The idea that the presence of public participants will prevent monopolizing tendencies, and with it a situation of higher prices, is challenged with the argument that the development of a monopoly will be determined by transparency of the flow of money and materials. Besides, the tariffs can be well maintained by regulation.

Proposal 3 evoked the strongest opposed opinions of the five proposals. It looks as if it has the strongest ideological appeal to either stressing the significance of involvement of public bodies in the market, or to emphasize the benefits of merely private actors on the market. However, it is not allowed to try to pick cherries, as a few only opt for a privatized market without accepting the necessary condition of re-regulation of the new market.

4.4 Proposal 4: “Responsibility for waste reduction attributed to market actors”

Summarizing, proposal 4 contains the following elements:

- Attribution of the responsibility for waste reduction to market actors
- Regulation has to be directed at conditions for the waste market
- Avoidance of monopolies or cartels through regulation
• *Introduction of a regulator when public authorities still fulfill market functions*

Remarkable is that only one of the respondents says to be uncertain of the assessment that this proposal will create conditions for achieving waste reduction. There is agreement among respondents on the fact that regulation has to be directed on market conditions. Internalization of costs into product prices will give the right incentive for source reduction. Some point at the option of charging a levy on the price of natural resources in order to discourage the use of primary materials in favor of the use of secondary materials.

<table>
<thead>
<tr>
<th>Table 6: Summary of arguments contra or pro application of proposal 4 “Responsibility market” (frequency of arguments; n=9)</th>
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</thead>
<tbody>
<tr>
<td><strong>Arguments contra application:</strong></td>
</tr>
<tr>
<td>- German strategy of creating a dual system is too expensive, but the Dutch way of negotiating about policy aims with target groups resulting in covenants and creating rules requires too much negotiations which are laborious and time consuming (3)</td>
</tr>
<tr>
<td>- Internalization of costs for waste handling in the price of a product is only allowed when it really results in reuse and recycling and not in ‘energy recovery’ (3)</td>
</tr>
<tr>
<td>- Harmonization of the several possible approaches on European level is required (2)</td>
</tr>
<tr>
<td><strong>Additional arguments pro application</strong></td>
</tr>
<tr>
<td>- Internalization of waste handling costs in the product price has been proven effective and easily applicable (4)</td>
</tr>
<tr>
<td>- The application of a levy on the price of natural resources in order to discourage the use of them, rather after tuning on European level, seems also an effective policy instrument (2)</td>
</tr>
</tbody>
</table>

Application of the concept of producer responsibility in Germany and also the concept of product responsibility in the Netherlands have shown that attribution of responsibility for waste reduction to market actors will create conditions that stimulate the achievement of waste reduction. In both cases producers of goods are forced to think in life-cycles and material streams instead of trust on the functioning of waste handling systems. However, four respondents emphasize problems such as the possibility of cartel forming, the complicated prescriptions for trade and the problem of free riders.

Some only favor internalization of waste handling costs in the product price when the possibility of goal attainment is guaranteed. They refer to experiences in Germany with major problems. There must be enough processing opportunities, fixation on the caloric contents of a product must be avoided, and not only recycling but also reuse has to come into reach.
For proposal 4 the assessment on the feasibility is generally positive as well. It is explicitly stated that no dramatic changes in the already existing waste market will be needed. Some respondents, however, plea for harmonization of the decision on the system for allocation of responsibility on European level. The reason forms the following. A Dutch consumer that buys a refrigerator does pay a fee which also include a tax for future waste handling. A German consumer that wants to offer its refrigerator to a collector has to pay a certain amount for disposal. Therefore, a consumer best can buy a refrigerator in Germany and offers it for waste handling in the Netherlands.

Summarizing, this proposal is supported by almost all respondents. Results in terms of waste reduction are expected as well as a fair chance that it actually can be implemented in practice.

4.5 Proposal 5: “Waste collectors interest in achievement of waste reduction"

Proposal 5 contains the following elements:

- Introduction of interest of waste collectors in achievement of waste reduction by:
  - Establishing vertical separation of functions;
  - Introducing competition on the collector level;
  - Having collectors receive a fixed allowance, which is non-quantity based;
  - Having consumers pay a quantity based bill for the collection service, and
  - Establishing a (municipally-administered) demand management fund

To start with, the respondents find this proposal the most difficult to give their assessment of the impact on waste reduction, because the proposal is too theoretically. The respondents can be divided into two groups: those that find the idea attractive that collectors are paid per capita and consumers have to pay by the amount they generate, and those that do not find it attractive. Remarkable is that those that are attracted do think that it is a good idea to give collectors such a key position in the achievement of waste reduction. At present, collectors do not stimulate their customers enough to produce less waste, even although separated collection often is beneficial to the collector itself. In the view of the others, however, collectors are unreliable or they are not able to instruct their customers how to achieve waste reduction.

| Table 7: Summary of arguments contra or pro application of proposal 5 “Waste collectors interest in achievement of waste reduction” (frequency of arguments; n=9): |  |
### Arguments contra application:
- Collectors are not reliable (1);
- Collectors do not have the knowledge to instruct their customers how to reach source reduction (2)
- Collectors already stimulate customers to separate waste components and, when they are not also connected to the disposal organization, it is already in their interest to avoid disposal costs and have waste components processed as much as possible. However, they are not able to stimulate source reduction (2)
- Putting a surcharge on collection tariffs in order to fill the demand management fund is principally wrong (5)
- The proposal is far fetched from the existing situation (4)
- The proposal is in organizational view too complex (3)
- The proposal requires too much bureaucracy (4)
- The risk of malversation by customers and collectors is too high (3)
- Differentiation of tariffs is difficult to control and it will have too little result (2)
- How will the system of concessions be maintained; how can the delivered service be quantified, and how has the payment to be adapted? (1)

### Additional arguments pro application:
- Several elements of the proposal are already applied in the existing situation such as differentiated tariffs for households, municipalities that have the household waste collected by a private collector (2)
- Especially the aspect of introduction of competition at collectors level by inviting collectors to tender for short termed obligations will be effective (2)
- Differentiation of customer tariffs have already been proven successful in terms of waste reduction (2)

Half of the respondents object against the element in the proposal of raising a surcharge on collection tariffs in order to fill the demand management fund. The rate of the charged tariff should be closely related to the costs that are made. It is found inconvenient when a fund is filled with the surplus of surcharges. Some are referring to the functioning of a deposit-refund system for automobiles. Dutch consumer pay a waste handling deposit when they buy a new car. The relation between rate and destination should have been chosen on arbitrary grounds and it leaves the impression to these respondents that the purposes for which the spare money is used is unclear, which is principally wrong.

Other arguments express the uncertainty of reaching the effect due to the fact that the proposal is far fetched from the existing situation. This makes it difficult for respondents to estimate what would be the impact of the proposal on the reliability, attainability and payability of waste handling services. Pproposal 5 is far from popular, because the waste reduction it might achieve is doubted, and because the feasibility is doubted as well.

### 5. Conclusions and discussion
When a respondent evaluates a certain proposal as positive for waste reduction this does not necessarily mean that he or she also prefers the specific proposal to be applied in practice. Table 8 shows the answers given by respondents asking them to indicate their priorities on the application of the five proposals. They were asked to decide which proposal they would apply in practice, and in what order the others would follow. Most of the respondents could only mention which proposal they would prefer to be brought into practice and/or which they would not.

Remarkable is that none of the respondents gives the priority for application to proposal 1, a proposal which is evaluated as positive by half of the respondents (see table 2). Proposal 4 gets the most frequent a high priority for application in practice which is also in accordance with their prospecting of the likely impact of the proposal on waste reduction. The ideas about application of proposal 3, privatizing the waste market, are judged the most differently.

<table>
<thead>
<tr>
<th>Table 8: The priority in application given by the representatives of nine Dutch organizations in the waste sector</th>
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<tr>
<td>high priority(1)</td>
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<tr>
<td>proposal 1</td>
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<tr>
<td>proposal 2</td>
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<tr>
<td>proposal 3</td>
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<tr>
<td>proposal 4</td>
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<tr>
<td>proposal 5</td>
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</tbody>
</table>

* This table does not contain information given from the questionnaires for the simple reason that these respondents were not asked to make a priority.

We can conclude now that vertical separation will definitely be positive for waste reduction. The most important restraint to put the proposal into practice is the fact that the actual tendency within the waste market goes into the opposite direction. Integration of functions is a tendency which brings a major, economic advantage, namely the possibility to spread corporate, investments risks and to achieve financial scale advantages. Forbidding the integrating tendency will be a tough job, but besides, it will have consequences for the payability of services. However, the problem of vertical integration as an impediment to waste reduction is still not yet solved. A significant amendment is proposed by some respondents. They effectively argued that the issue is not separation of all functions but rather the separation of the waste collection and disposal, while collection and processing may be integrated with benefits for reduction. Therefore, we remain consistent and would plea for vertical separation; at least the disconnection of processing and disposal. Although the original proposal does not find any supporters among
the respondents, some interviewees do agree with the benefits that will be brought by the unlinking of processing and disposal activities.

Organizing partial markets in order to reach better management of supply of materials and products and the possibilities of processing and disposal, is found a positive idea which will stimulated waste reduction. At the same time can be concluded that disadvantages for the attainability, payability and reliability of services are hardly expected. Some practical problems can be expected that must not be neglected: creating partial markets probably makes the market more complex and this may have large impact on the reliability of the waste handling services.

Proposals in which privatization of the waste market is a key element, proposal 1 and 3, definitely provokes the most discussion among respondents. The exact effect of the proposal in terms of payability, reliability and attainability remains unclear. Because of the strong ideologically assessment of the colored opposite views. The assessment of the effects of withdrawal of public bodies from the market is mainly determined by beliefs. Furthermore, in both proposals privatization is only part of the package. Our previous research has indicated that the positive incentives of a private market will only exist when other key elements are also implemented (de Jong & Wolsink, 1999).

Privatization and regulation are two phenomena which are linked. Saunders and Harris (1990) show that different types of privatization exist. They describe four types of privatization, although two refer to types in which the new responsibilities are shifted not to producers, but to consumers. These two types which involve a change of responsibility at the producer side are: a change in ownership of utilities and a change of control. In practice privatization limited to change in ownership, often of formerly public utilities, is a type they call “denationalization”. The second type means that public companies which used to have full control because they maintained a monopoly, have to compete on the market with private companies. This is better described as liberalization. In practice, as we see in the argumentation of the respondents, these types are seldom well articulated, which causes much entanglements. In the waste sector, both types of privatization are interesting, because ownership and control are both involved. Particularly in these kind of markets, where ownership and control are both involved, the new situation has to be re-regulated. Studies on the energy sector also show that, although political rhetoric often links deregulation to privatization processes, in practice re-regulation is needed (Slingerland, 1998; Klintmann, 1998).
There are strongly supporters of privatization and persons that plea as strongly for the opposite. Those that are against privatization want to guard interests of the captive consumers and society in general. The others find it possible to provide in these tasks by strong regulation of an independent national government.

Proposal four is clearly the most supported option. The proposal is evaluated as one that will stimulate source reduction and it provides a way to ensure the creation of closed loop systems. Meanwhile too much efforts are needed to implement the proposal and dramatic changes in the existent structure have to be made. No huge problems with regard to the payability, reliability and attainability are expected and therefore application is strongly recommended. Of course it remains important to avoid some concrete problems, like the following which are also brought by respondents: avoidance of cartel forming or monopolizing tendencies, establishing funds to provide financial means, or international trade. Again, regulating the market is a key issue here. We have to emphasize the fact that part of the proposal is effective regulation to prevent monopolization trends. Privatization may be inevitable to achieve the responsibility of market actors and the withdrawal of regulation to setting conditions only. If public actors are still active on the waste markets, the consequence is that an independent regulator must be introduced. Even with this last consequence, which not appeared to be a popular option for some actors in the waste sector, the proposal of attributing the responsibility for achieving waste reduction to producers and distributors got the strongest support of all proposed

References


