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Organizing Waste Reduction in the Dutch Waste Sector

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APPENDIX 1 Summary information about solid waste market in 12 national states ¹

COUNTRY/STATE	BELGIUM (FLANDERS)	DENMARK	FRANCE
<i>Inhabitants/km² '83</i>	323	119	100
<i>% incineration</i>	50	45	39
<i>% landfilling</i>	41	35	54
<i>% recycling</i>	9	20	7
<i>Propositions waste policy</i>	<ul style="list-style-type: none"> - hierarchy priorities waste management - levy industrial waste as waste reductive incentive 	waste reduction by registration volumes and by allowances waste producers using disposal capacity	<ul style="list-style-type: none"> - the polluter pays - hierarchy priorities waste management
<i>Examples of instruments waste policy based on</i>	transaction (ecotax, tax on disposal)	<ul style="list-style-type: none"> - transaction (waste tax; deposit refund system) - coercion (flow control) 	transaction (levy on non-recyclables & on landfilling)
<i>Tasks and jurisdiction public authorities</i>	<ul style="list-style-type: none"> - formulation and implementation by local governments - municipalities responsible for collection + disposal of household waste 	public authorities do not participate on waste market, but as regulators they formulate the conditions for the market	<ul style="list-style-type: none"> - local authorities responsible for collection and disposal of household waste - 'Plan Vert': possibly establishment of national waste institute
<i>Vertical separation</i>	no	yes	no
<i>Conditions to transactions</i>	?	?	?
<i>Waste market: mainly private or public actors</i>	public	private	public
<i>Scale planning</i>	regional	national	local
<i>Responsibility for waste reduction</i>	policy	policy	producer

<i>Remarkable</i>	<ul style="list-style-type: none"> - ecotax - packaging covenant 	<ul style="list-style-type: none"> - incineration with electricity generation is recycling - deposit refund system for glass bottles - handling hazardous waste in one central system 	<ul style="list-style-type: none"> - incineration with electricity generation is recycling - illegal landfilling - Plan Vert - producers financial responsibility packaging waste
<i>Case-study</i>	no	yes	no

¹ Not all the information needed for comparison of the 12 potential cases was available. Missing information on an item at the time of selection is marked by '?'

<i>COUNTRY /STATE</i>	<i>ICELAND</i>	<i>JAPAN</i>	<i>NEW JERSEY (USA)</i>
<i>Inhabitants per km²</i>	< 1	32	385
<i>% incineration</i>	22	50*	?
<i>% landfilling</i>	66		
<i>% recycling</i>	12	50	
<i>Propositions waste policy</i>	At the end of 1995 municipalities are responsible for the collection and disposal of all solid waste	Creation of a closing loops society in which depletion of natural resources will be prevented	Emphasis on pollution prevention or reduction of hazardous waste at industries
<i>Examples of instruments waste policy based on</i>	transaction (deposit refund system packages, differentiated rates for industrial waste, tax on hazardous waste)	transaction (producers are financially responsible for waste treatment)	persuasion (literature shows a lot of examples on pollution prevention (Toxic Release Inventory; Data collection form; 33/50-programme) and only one on solid waste (waste auditing))
<i>Tasks and jurisdiction public authorities</i>	a stronger role for central government would ease potential conflicts between two roles of municipalities in 1995: collector, processor, disposer of solid waste and enforcer of environmental legislation	there is no Ministry for Environment; policy is sectoral	On federal level no Ministry, but an office of Pollution Prevention. States in the North East have in common that they try to reach waste reduction by using strong regulation. County government does planning of waste collection and disposal.
<i>Vertical separation</i>	no	horizontal separation	no
<i>Conditions to transactions</i>	?	?	?
<i>Waste market: mainly private or public actors</i>	public	recyclables managed by private bodies, rest by public actors	?
<i>Scale waste management</i>	local	national	national

<i>Responsibility for waste reduction</i>	<i>policy</i>	<i>producer</i>	<i>policy</i>
<i>Remarkable</i>	60% of inhabitants live in Reykjavik. In rural areas exist no common waste handling system	shortage of disposal capacity gives push to recycling	Little information on the structure of the waste market. Much literature on pollution prevention. No measures on packages.
<i>Case-study</i>	no	no	yes

* The source only gives one figure for disposal and does not make difference in incineration or landfilling

COUNTRY/STATE	NORTH RHINE-- WESTPHALIA (FRG)	NORWAY	PORTUGAL
<i>Inhabitants per km²</i>	223	13	54
<i>% incineration</i>	23	15	0
<i>% landfilling</i>	70	45	83
<i>% recycling</i>	7 **	40	17
<i>Propositions waste policy</i>	<ul style="list-style-type: none"> - hierarchy priorities waste management - emphasis on reduction of packaging waste (= 25% of volume, 50% quantity household waste) 	<ul style="list-style-type: none"> - hierarchy priorities waste management - polluter pays principle 	<p>policy on the issue of solid waste management has not yet been formulated</p>
<i>Examples of interesting instruments waste policy based on</i>	<ul style="list-style-type: none"> - coercion (packaging ordinance) - transaction (deposit refund system, grants) 	transaction (deposit refund system for containers + cars; tax on not reusable packages)	no instruments
<i>Tasks and jurisdiction public authorities</i>	Local authorities: responsible collection and disposal of household and industrial solid waste.	local authorities: responsible collection and disposal of household waste.	local authorities are responsible for collection and disposal of household waste, but they are accused of illegal dumping of waste (±54%)
<i>Vertical separation</i>	yes and also horizontal separation	no	no
<i>Conditions to transactions</i>	?	?	?
<i>Waste market: mainly private or public actors</i>	private	public	?
<i>Scale level waste management</i>	national	local	local

<i>Responsibility for waste reduction</i>	waste producer	producer	nobody
<i>Remarkable</i>	<ul style="list-style-type: none"> - tendency privatizing disposal function - tension source reduction and recycling 		<ul style="list-style-type: none"> - increase in hazardous waste is remarkable: a rise of 40% per inhabitant in ten years; 75% of the hazardous waste is land-filled
<i>Case-study</i>	yes	no	no

** The division of percentages concern the whole FRG., not only North Rhine-Westphalia.

<i>COUNTRY/STATE</i>	<i>SWEDEN</i>	<i>SWITZERLAND</i>	<i>UNITED KINGDOM</i>
<i>Inhabitants per km²</i>	19	155	359
<i>% incineration</i>	45**	?	10
<i>% landfilling</i>	45		85
<i>% recycling</i>	10		5
<i>Propositions waste policy</i>	- hierarchy priorities waste management - emphasis on recycling	?	- no national policy plan on waste
<i>Examples of instruments waste policy based on</i>	transaction (50% of investments in new processing installations has been subsidized)	transaction (deposit refund system refillable packages)	- no specific measures
<i>Tasks and jurisdiction public authorities</i>	municipalities since 1972 responsible for the collection, transport and treatment of household waste	?	- municipalities collect household and industrial waste - counties formulate waste management plan, provide permits for recycling/disposal & own incinerators
<i>Vertical separation</i>	?	?	no
<i>Conditions to transactions</i>	?	?	?
<i>Waste market: mainly private or public actors</i>	private	?	disposal private collection public
<i>Scale level waste management</i>	?	?	local
<i>Responsibility for waste reduction</i>	producer	?	neither policy nor producer

<i>Remarkable</i>	<ul style="list-style-type: none"> - Incineration plants also local heating supply systems - Too less information available 	Too less information available	<ul style="list-style-type: none"> - 3388 private landfills - import hazardous waste due to co-disposal (mixing with solid waste) - landfilling rates low
<i>Case-study</i>	no	no	no

** The source is only providing figures on treatment of household waste

APPENDIX 2 Structure of interviews case studies

A. Organization respondent:

- * Who is the respondent; background, function?

B. Waste market and waste sector: participants

- * What is the position of private organizations within waste market? kind of activities?
- * What is the position of public organizations within waste market? kind of activities?
- * What is the ratio public/private?
- * Is the market functionally integrated or separated?
- * Number of collectors, processors, disposers?
- * Which other actors play a role in the waste sector?

C. Waste market and waste sector: transactions

- * How can the market for solid waste be characterized: a free market or a regulated market?
- * Tariff structure households? flat rates? Tariffs industrial waste generators similar? Including taxes?
- * What kind of contract generally exists between collector & processor? Collector & disposer? Processors & disposers? What is the term of these contracts?
- * Contracts concerning solid waste from industries similar?

D. Relations of the own organization with other organizations:

- * With which organizations has your organization relations?
 - authorities: municipality, county, state
 - public or private organizations handling solid waste or their umbrella-organizations
 - employer organizations
 - consumer or environmental organizations
- * What is intention of having relations with those organizations?
 - consultation/exchanging information
 - cooperation/gearing activities
 - competition
 - tuning opinions/making policy

E. Amount and sort of solid waste

- * Most recent data of collected solid waste? Sources?
 - Is there a monitoring system? If so, since when, and how does it function?

- Are there registrations of the amount and sort of solid waste?
- Separate registration system 'municipal' and 'industrial' solid waste?
- Who's task is it to collect data? Independency?

F. Waste reduction: recycling and source reduction

- * Who is responsible for achieving waste reduction; consumer / producer / authority?
- * Emphasis in waste policy on source reduction or recycling?
- * What kind of instruments have been applied? What are the results?
Transaction based: waste tax / deposit-refund systems / grants / subsidy / funds / other? Examples?
Coercion based: ordinances/ prohibition / regulation / other? Examples?
Communication: voluntary agreements / other? Examples?
- * Which incentive will resort the most source-reduction in your opinion? (already applied or still hypothetical)
Which will be stimulating recycling the most (already applied or still hypothetical)?
- * When there would be one specific organization responsible for stimulation of waste reduction; should this best be an organization participating on the waste market or not?

APPENDIX 3 Proposals for the structure of the Dutch waste sector

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. The element 'role of governments' is inseparably entwined with division of 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 an 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*.

Proposal 2: horizontal separation of the waste market

The waste market has to be divided in several market volumes. Within each partial market interest in waste reduction has to be introduced.

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.

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*.

Proposal 3: withdrawal of public bodies from market functions (privatization)

Public authorities like municipalities and provinces have to step back from direct involvement in the waste market, and keep themselves strictly to: achieving the policy goal of waste reduction; reinforcing the maintenance of regulation; and, urging others more effectively to create conditions in favor of source reduction and recycling.

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*.

Proposal 4: responsibility for waste reduction attributed to market actors

Regulation and maintenance of regulation has to be directed at conditions for the waste market instead of prescriptions for transactions.

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*.

Proposal 5: waste collectors interest in achievement of waste reduction

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
- * establishing a (municipally-administered) demand management fund

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. 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.

APPENDIX 4: Interviews

Interviews were held with representatives of the following organizations. We deliberately do not refer to the names of Dutch respondents or the position. During the first stage of the research project, we discovered that people were very curious to know who had said what. There were some indications that the frankly formulated information and opinions could lead to consequences for respondents. Therefore we decided that we would not mention any of the names or positions of the Dutch interviewed persons.

A general description of the pool of interviewed persons is that all have varying positions and activities within the waste market and the waste policy domain. They were selected on these varying positions in order to cover the different scopes on the waste market and the issues involved.

In each phase of the research that we collected data by interviews, we have spoken to representatives of:

- governments on all levels
- interest groups (organizations representing the interests of collectors; the interests of processors, and the interests of disposers)
- umbrella organizations (one for employers; one for employees; one for consumers)
- interest groups for the environment
- research institutions or consultancies.

We spoke with people having the position of: director, environmental coordinator, policy maker or consultant.

Between February and June 1993, during the first phase of the research interviews, representatives of the following organizations have been interviewed:

- Afval Overleg Orgaan (AOO, Waste Management Council)
- Bureau Milieu en Ruimtelijke Ordening (BMRO, Office for Environment and Physical Planning of the Confederation of Netherlands Industry and Employers)
- Centraal Bureau voor de Statistiek (CBS, Central Bureau of Statistics)
- Dienst Binnenstad (Downtown Amsterdam Division)
- Intergemeentelijk Samenwerkingsverband Waterland (ISW, Cooperating municipalities in the district Waterland)
- Milieudienst Amsterdam (MDA, Department of the Environment in Amsterdam)
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (VROM, Ministry of Housing, Physical Planning and Environmental Management)
- Nederlandse Vereniging van Reinigings Deskundigen (NVRD, Association of Waste and Sanitation Experts)
- Provincie Zuid-Holland (Province of Zuid-Holland)
- Rijks Instituut voor Volksgezondheid en Milieuhygiëne (RIVM, National Institute of Public Health and Environmental Protection)
- Vereniging Milieudefensie (VMD, Friends of the Earth Netherlands)
- Vereniging van Nederlandse Gemeenten (VNG, Association of Dutch Municipalities)

- Vereniging van Afval Verwerkers (VVAV, Association of Waste Disposers)

Between July 1994 and December 1997 single case studies (phase 3) were conducted in New Jersey, North Rhine-Westphalia and Denmark. Representatives of the following organizations were interviewed.

In New Jersey, United States, interviews were held in May 1994.

- Association of New Jersey Recyclers, Bridgewater, New Jersey (Marie Kruzan)
- Browning Ferris Industries Inc. (BFI), Elizabeth, New Jersey (Wayne DeFeo)
- Department of Engineering, New Ark, New Jersey (Frank Sudol)
- Inform, New York (research organization, Bette Fishbein)
- New Jersey Division of the Office of the National Solid Waste Management Association (NSWMA), New Jersey (Steve Changaris)
- State of New Jersey, Department of Environmental Protection and Energy (DEPE), Office of Pollution Prevention, Trenton, New Jersey (Melinda Dower, Debby Milcofsky)
- State of New Jersey, Division of Solid Waste Management, Bureau of Solid Waste Planning, Trenton, New Jersey (Robert Goodwin)
- State of New Jersey, Division of Solid Waste Management, Bureau of Rate Regulatory, Trenton, New Jersey (John Pislor, Jackie Shanudey)
- State of New Jersey, Division of Solid Waste Management, Bureau of Source Reduction, Trenton, New Jersey (Athena Sarafides)
- United Carting Company, Inc., Fairview, New Jersey (collection, recycling, transfer station, Ralph Mastrangelo, Jr.)
- US Environmental Protection Agency (US EPA), Municipal & Industrial Solid Waste Division, Washington DC (Janice Canterbury, Terry Grist, Timothy Jones)
- US Environmental Protection Agency, Municipal & Industrial Solid Waste Division, Washington DC (Steven Levy, Mia Zmud)
- Van Ponte & Sons Inc., Hoboken, New Jersey (collection and recycling, Irene Johnson)

In North Rhine-Westphalia, Germany, interviews were held in June 1995 unless otherwise noted.

- Amt für Umweltschutz (Environmental Agency at the City of Wuppertal), Wuppertal (Agnes Zehnpfennig)
- BUND für Umwelt und Naturschutz Deutschland e.V. (German Federation for the Environment and Protection of Nature), Bonn (Olaf Bandt)
- Bundesverband der Deutschen Entsorgungswirtschaft e.V. (German Association for Waste Management), Cologne (Hanskarl Willms)
- Cyclos (Research and Consultancy on Ecology, Energy and Waste management), Osnabrück, September 1995 (Agnes Bünemann, Gunda Rachut)
- Duales System Deutschland GmbH (DSD), Cologne (Helmut Schmitz)
- Entsorgungs- und Straßenreinigungsbetrieb (City of Wuppertal Department of Sanitation), Wuppertal (Günter Dietz)
- Ministerium für Umwelt, Raumordnung und Landwirtschaft des Landes Nordrhein-Westfalen (North Rhine-Westphalia Ministry for Environment, Physical Planning and Land Management), Düsseldorf (Frau I. Wies)

- Niederländische Botschaft (Royal Dutch Embassy), Bonn (Mariëlle Geraedts).
- Verband Kommunale Abfallwirtschaft und Städtereinigung e.v. (Association of Waste Management and Municipal Sanitation), Cologne (Achim Schröter)

In Denmark interviews were held in October 1996:

- Association of Danish Recycling Industries (Genvindings Industrien), Copenhagen (Klaus Müller)
- Association of Joint Municipal Waste Companies in Denmark (Reno-Sam), Roskilde (Ole Kirkelund)
- Centre for Social Science Research on the Environment of the University of Aarhus (CESAM), Aarhus (Ole Kirkelund)
- Danish Environmental Protection Agency (DEPA) of the Ministry of Environment and Energy, Municipal Waste Division, Copenhagen (Katherine Bom Hansen)
- Danish Environmental Protection Agency (DEPA) of the Ministry of Environment and Energy, Industrial waste division, Copenhagen (Christian Fisher)
- Danish Waste Management Info Centre (RENDAN A/S), Soborg (Susan Christensen, Ilonka Domela)
- Danish Waste Management Association (DAKOFA), Copenhagen (Henrik Wedjling)
- General Workers Union (SiD), Copenhagen (Ole Busck)
- National Association of Local Authorities in Denmark, Copenhagen (Anker Riis)

During the last phase of the research project interviews were held with representatives of the following organizations:

- Afvalbeheer (Association of Dutch Private Waste Companies).
- Afval Overleg Orgaan (AOO, Waste Management Council)
- Bureau Milieu en Ruimtelijke Ordening (BMRO, Office for Environment and Physical Planning of the Confederation of Netherlands Industry and Employers)
- Milieudienst Amsterdam (MDA, Department of the Environment in Amsterdam)
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (VROM, Ministry of Housing, Physical Planning and Environmental Management)
- Nederlandse Vereniging van Reinigings Deskundigen (NVRD, Association of Waste and Sanitation Experts)
- Provincie Noord-Holland (Province of Noord-Holland)
- Vereniging van Nederlandse Gemeenten (VNG, Association of Dutch Municipalities)
- Vereniging van Afval Verwerkers (VVAV, Association of Waste Disposers)

APPENDIX 5: Summaries of arguments against and for application of the five proposals

Table A: Summary of arguments against application of proposal 1 'Vertical Separation' (frequency of arguments; n=15)

Arguments against 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 activities, disappointing company results can be neutralized financially (2)
- Tendency develops in the other direction; in practice functional integration takes place (5)
- 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 (5)
- 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 for application were mentioned

Table B: Summary of arguments against or for application of proposal 2 'Horizontal separation' (frequency of arguments; n =15)

Arguments against application

- Organizing partial waste markets is expensive (4)
- The financial expenses of the creation of the Dual System were far too high in comparison with the environmental benefit that could be achieved (1)
- There would be overlap between several market volumes which would make the market complex and hinders outsiders' insight into participants and relations or into the flows of waste and money between actors (2)
- It is difficult to control monopolies in a divided market volume (2)
- What regulatory plan could prevent a tendency towards monopoly (2)

- The condition of vertical separation will not be achievable: recent developments show that incinerators have successfully been looking for extension of their activities within parts of the waste market; integration of functions has been the result and will probably remain as such (3)
- The condition of vertical separation will not be necessary: dividing the collection and processing functions from disposal would be sufficient (2)

Additional arguments for application:

- Partial markets already exists like the one for automobiles, batteries and refrigerators (5)
- Within partial markets supply and demand can be better tuned, increasing the probability of reuse (2)

**Table C: Summary of arguments against or for application of proposal 3
'Privatization' (frequency of arguments; n =15)**

Arguments against application:

- Continuity of incineration capacity cannot be guaranteed (4)
- Attainability and reliability of services cannot be guaranteed (7)
- How can the captive consumer be protected otherwise? (2)
- National government will not be able to regulate the participants from outside the market (3)
- 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 less environmentally sound ad-hoc solutions have to be found for Dutch waste (3)
- How can the volume of total capacity be planned? (2)
- Tendency toward monopolization will result in high tariffs (2)
- A monopoly is difficult to control (5) or there is no confidence in the NMA, which is the Dutch competition authority(2) and also an independent regulator will be linked to their financier (1)
- A privatized market is not desirable, because a hybrid market prevents the tendency toward monopolization, and keeps the participants awake (2)
- Privatization will stimulate the entrance of energy companies onto the waste market (2)
- In the transition phase, risks would be very high and as a result, private collecting companies will not survive where public collectors will be covered (1)
- Policy can best be attempted when municipalities are part of the market and can be aimed at as cooperative target groups (2)

Additional arguments for application

- In general, monopolization results in increase of tariffs for provided services, but with regulation this situation can be prevented (1)
- The attainability, reliability and payability of services can be guaranteed by regulation (3)
- Companies will be reorganized which will benefit efficiency (2)
- The creation 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 rationale 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) (3)

**Table D: Summary of arguments against or for application of proposal 4
'Responsibility market' (frequency of arguments; n=15)**

Arguments against application:

- German strategy of creating a dual system is too expensive, but the Dutch way of negotiating about policy aims with targets groups resulting in covenants and creating rules requires too many laborious, time-consuming negotiations (3)
- 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)
- In German approach the privatized dual system is difficult to control by politicians (1)
- Harmonization of the several possible approaches on European level is required (3)

Additional arguments for application

- Internalization of waste handling costs in the product price has proven effective and easily applicable (5)
- The application of a levy on the price of natural resources in order to discourage their use, rather after having it tuned on European level, seems also an effective policy instrument (2)

**Table E: Summary of arguments against or for application of proposal 5
‘Waste collectors interest in achievement of waste reduction’ (frequency of arguments; n=15):**

Arguments against application:

- Collectors are not reliable (1);
- Collectors do not have the knowledge to instruct their customers on how to achieve source reduction (2)
- Collectors already stimulate customers to separate waste components and, when they are not also connected to the disposal organization, it is 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 (3)
- Putting a surcharge on collection tariffs in order to fill the demand management fund is wrong in principal (6)
- The proposal is inapplicable to the existing situation (5)
- The proposal is too complex from an organizational point of view (3)
- The proposal requires too much bureaucracy (6)
- The risk of malversation by customers and collectors is too high (6)
- Differentiation of tariffs is difficult to control and results would not be worth the effort (3)
- How will the system of concessions be maintained; how can the delivered service be quantified, and how must the payment be adapted? (3)
- Fixing rates for collectors will only stimulate the establishment of black markets and invalid information on collected amounts of waste (1)

Additional arguments for application:

- Several elements of the proposal are already applied in the existing situation, such as differentiated tariffs for households and municipalities that have the household waste collected by a private collector (2)
- Introduction of competition at collectors' level by inviting collectors to tender for short term obligations will be especially effective (2)
- Differentiation of customer tariffs has already proven successful in terms of waste reduction (2)