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***EUROPEAN PACKAGING WASTE TRENDS  
AND THE ROLE OF ECONOMIC INSTRUMENTS***

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Mr. Chairman,  
Ladies and Gentlemen,

It is a pleasure for me to be here today to speak about “European packaging waste trends and the role of economic instruments” from the perspective of the European Environment Agency in Copenhagen.

Timing

I would like to thank *European Voice* for inviting me, and also to congratulate them on the timeliness of this conference.

The amended Packaging Waste Directive has just been adopted, and work is under way to develop EU thematic strategies on waste prevention and recycling as well as on the sustainable use and management of natural resources.

So it seems a very good moment to reflect on what worked well in the past, what perhaps did not work so well, and what our options are for the future.

EEA role

By way of introduction, let me say a few words about the changing role of the European Environment Agency in the European policy process.

The Agency began work 10 years ago with the purpose of providing the Community and the Member States with information on the state of the environment in Europe, and trends in it, so that they have a sound basis for policy action.

Our membership has steadily expanded. Having been the first EU body to take in all the acceding and candidate states, today we have 31 member countries.

Policy effectiveness

Increasingly the Agency has been asked by the European Parliament, the European Commission and our member countries to report and advise not only on the state of the environment but also on the effectiveness of environmental policies and their implementation.

EEA Strategy 2004-2008

We have responded by including this as an important new area of work in our strategy for 2004-2008.

One of our priority areas for the next five years is the

sustainable use and management of natural resources and waste.

Packaging waste

Packaging waste is of particular interest. It is a major and growing waste stream. The Packaging Waste Directive has been in place for a decade and stakeholders are now taking stock. And from the point of view of evaluating policy effectiveness, the Directive is especially interesting because it is one of the few pieces of legislation that contain directly measurable quantitative targets.

These are among the reasons why the Agency has chosen packaging waste as one of the first areas of policy we will assess for its effectiveness. I will come back to this later.

Three main points

I would like to highlight three points that I think are particularly important for the debate on packaging waste.

First point

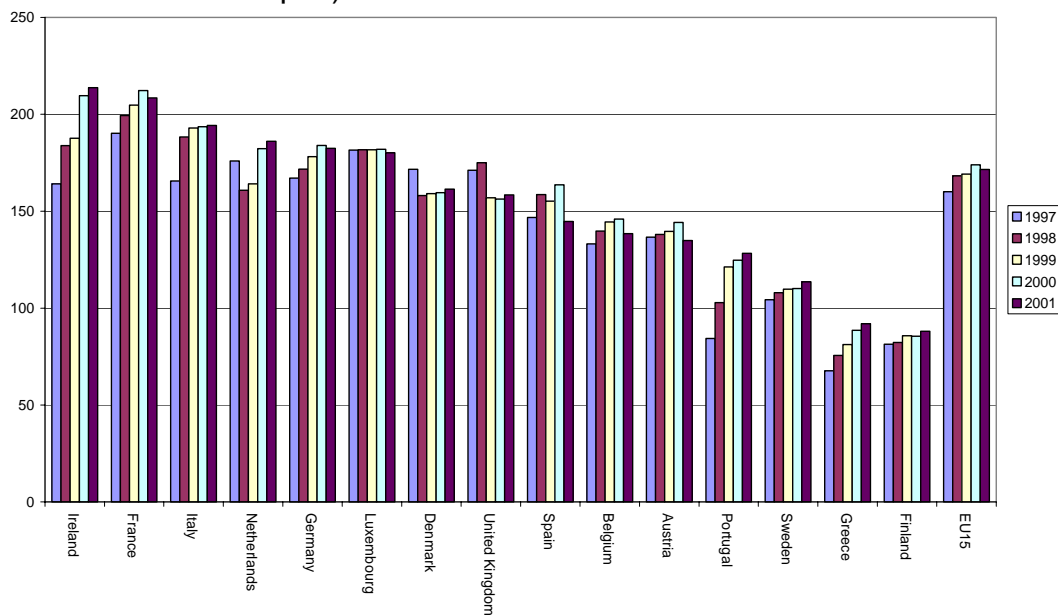
The first is that:

Packaging waste amounts have increased

Packaging waste amounts have increased in most European countries despite the agreed objective of waste prevention. This is both problematic and worrying from an environmental perspective.

Let me illustrate this with a graphic.

Slide 1: Packaging waste generation in EU 15 (kg per capita)



Big differences in EU countries

As you can see, there are big differences in the amounts of packaging waste EU countries generate. The levels range from under 100 kg per capita per year in Greece and Finland to over 200 kg in Ireland and France. Some of this difference can be explained by differences in the definitions of what constitutes packaging and packaging waste.

Amounts are increasing

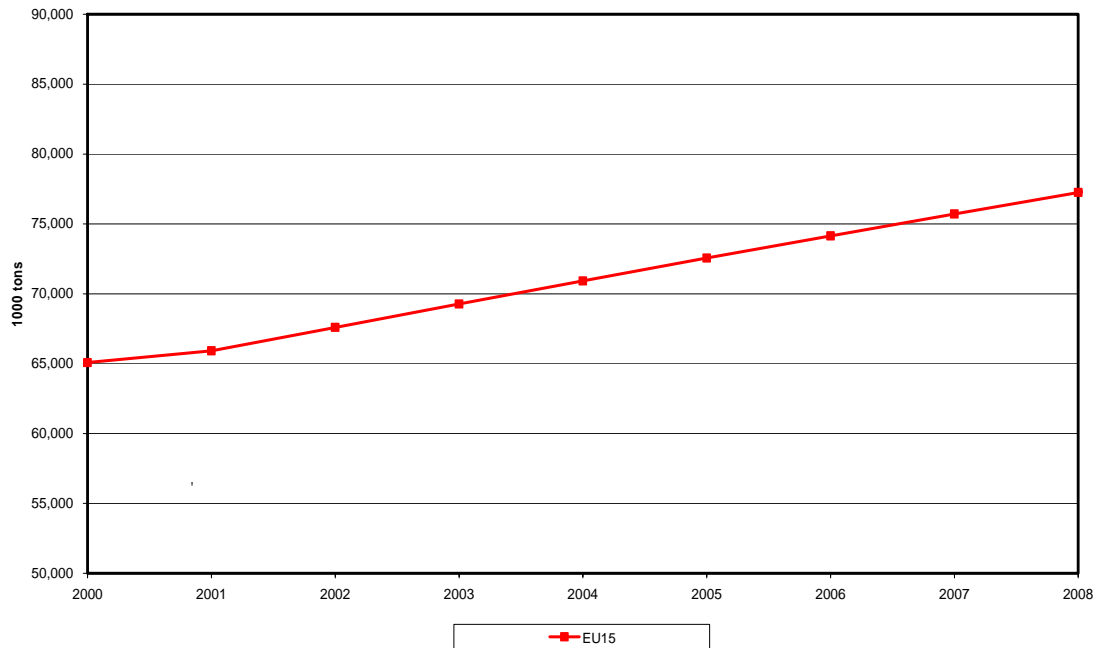
As you can also see, the amount of packaging waste is increasing in the EU. Between 1997 and 2001 it grew in 10 of the 15 EU countries. In the EU as a whole, the amount increased by 7% over the period.

For me it is difficult to draw any other conclusion from this than that the EU and most Member States have so far failed to meet the waste prevention objective of the Packaging Waste Directive.

Trend to continue?

Unfortunately it looks like this upwards trend is set to continue.

Slide 2: EEA projections of packaging waste in EU15 in a business as usual scenario (1000 tons).



Packaging

The EEA has used econometric modelling tools to project



waste  
projections

packaging waste amounts for the near future. These projections show that, assuming continued growth in production, the amount of packaging waste could increase by 18% from 65 million tonnes in 2000 to 77 million tonnes in 2008. This is under a business as usual scenario.

Of course, the introduction of additional policy measures could prevent this scenario from being realised. Much will depend on the measures countries put in place to implement the amended Directive.

Why are  
amounts  
increasing?

What is behind this increase?

The general answer is that the generation of packaging waste is closely related to production and consumption in society. That is why the big challenge is to put in place policies that are effective in decoupling waste generation from growth.

A more specific factor is that a large percentage of packaging waste is related to the consumption of food, which is continuing to increase in Europe. Consumers want larger amounts of imported and pre-prepared foods, which often require more packaging. At the same time, household sizes are decreasing. The larger number of households also means that we generate more packaging waste.

Problematic  
and worrying

This increasing trend is a cause for concern because the generation of waste always has environmental impacts and represents a loss to society of materials and energy.

Studies show that recycling generally creates less impact than disposal, but all waste management methods do have impacts.

And the environmental impacts from packaging occur not only in the management of the waste, but also in the production, transport and use phases of the packaging itself.

They can include, for example:

- emissions of air pollutants and greenhouse gases;
- use of fresh water and discharges of waste water, which if not properly treated can cause pollution;
- the depletion of non-renewable natural resources and the damage sometimes associated with their extraction; and
- using up limited space in landfills, whose own

impacts on the surrounding environment may or may not be properly managed.

Second point My second point is very much linked to the first.

The successful achievement of recycling and recovery targets is good news for the environment. But it is important at the same time to address both the broader objective of waste prevention and the marginal economic costs of achieving high recycling rates.

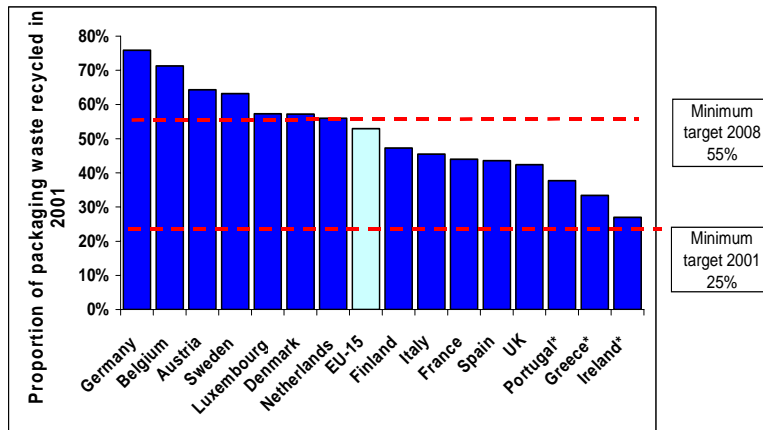
Target achievement If one looks at country performance in meeting the recovery and recycling targets of the 1994 Packaging Waste Directive, the picture looks very good in terms of target achievement.

Recovery For recovery, almost all EU countries met the minimum 50% recovery target in 2001, and seven countries have already met the 60% target to be achieved by 2008. Accessing countries are also achieving significant progress.

Recycling For recycling, the picture in 2001 looked like this:

Slide 3: Recycling of packaging waste in EU15 in 2001

Germany	Belgium	Austria	Sweden	Luxembourg	Denmark	Netherlands	EU-15	Finland	Italy	France	Spain	UK	Portugal*	Greece*	Ireland*
76%	71%	64%	63%	57%	57%	56%	53%	47%	46%	44%	44%	42%	38%	33%	27%



Remark: \* Derogation

All EU countries met the target of minimum 25% recycling by 2001. In fact, seven countries have already met the 2008 target of 55% recycling.

This is indeed very good performance in terms of target achievement – and it is good news for the environment.

Narrow focus? But to me it raises an important question. Are countries and



stakeholders focusing narrowly on reaching the recycling and recovery targets at the expense of waste prevention and economic efficiency?

Environmental perspective

Achieving recycling and recovery targets results in lower environmental impacts from the waste.

But meeting waste targets does not diminish the environmental impacts of the manufacturing, transport and use of packaging materials. So it is very important not to lose sight of the waste prevention objective.

Economic perspective

From an economic perspective, the marginal economic cost of increasing recycling is generally higher the more is recycled already. Therefore, at some stage countries may reach a point where recycling becomes economically inefficient compared to other solutions.

A question that may need to be addressed at some time in the future is whether it might be better for the environment and the economy to focus on recycling targets for materials rather than for packaging.

Third point

This leads me to my third main point, which is as follows:

Economic instruments have an overall efficiency advantage for society as they can achieve environmental objectives and targets at relatively low cost. Overall, a mix of policy instruments seems to be the most effective means to reduce the environmental impacts of packaging.

Questions in conference programme

I would like to expand on this point by addressing the three questions about economic instruments asked in the conference programme.

Question 1

The first question is “How far are the marginal environmental burdens imposed by packaging already covered by recovery organisation fees and other costs of compliance with regulations?”

This question covers several important points.

Polluter Pays Principle

As you know, a major objective of EU and national environmental policies is the Polluter Pays Principle. This means that polluters should pay for the costs they cause to society.

Economic activities such as producing, transporting and disposing of packaging cause environmental impacts that generate costs and loss of welfare that are not paid for by



the polluters.

Getting the prices right	These external environmental costs should be included in the costs of activities and their market prices in order to “get the prices right”. If the prices are right, the market will sort out the demand for the polluting products and for non- or less-polluting alternatives.
Economic instruments	An efficient way to include these external costs is to use economic instruments, such as taxes, deposit-refund systems and tradable permit systems. Economic theory says that it is most efficient not to cover the average environmental costs but the marginal ones – in other words the extra costs caused by an additional unit of environmental burden.
Regulation	Applying economic instruments is not the only way to internalise costs, of course. Regulations that prescribe environmental improvements – for example reducing the weight of glass bottles or improving disposal methods – also reduce environmental costs, while the polluters bear the costs of these measures in line with the Polluter Pays Principle.
Preference for market based approaches	There is, however, a large degree of academic consensus on the preference for market-based approaches that in general lead to more efficient solutions. The basic argument is that environmental impacts get reduced where the marginal costs are lowest.
Marginal costs	Answering question 1 would require precise knowledge of what the marginal environmental costs are.
Life-cycle analysis	<p>A certain amount of knowledge exists but its precision is often disputed. A common assessment method is life-cycle analysis but its findings, and the methodologies used, tend to be contentious. Moreover, marginal costs are not constant, but differ from situation to situation.</p> <p>For example, the environmental costs of an empty one-way bottle dumped on a landfill in a densely populated area are higher than the costs of exactly the same bottle thrown on a landfill in a sparsely populated area.</p> <p>So the first question is hard – if not impossible - to answer. It is important to note, however, that in practice not only environmental and compliance costs count, but also the costs of legislation, implementation, enforcement and monitoring.</p>





Question 2	The second question is: “If the internalisation of external costs does not affect prices sufficiently to change companies’ or consumers’ behaviour, should further economic instruments be applied – and if so, what criteria should be used to judge whether these measures are fair or proportionate?”
Tautology	The way the question is posed a bit of a tautology. Assuming perfect knowledge, full internalisation of external costs does not require any additional change in behaviour. If society is still unhappy with the outcome, it means that external costs are higher than originally estimated, and internalisation has been only partial.
Second best solution	Of course, this is theory, but it indicates an important point. Ideally, we aim at full internalisation, but too little is known about environmental costs. So a second-best solution has been chosen, in the form of the objectives and targets set out in the Packaging Waste Directive.  We assume that these objectives and targets represent the optimal balance between compliance costs and remaining environmental damage – optimal in the sense that the costs of any further measures would be greater than the damage prevented.
Complying with targets	Although the main function of economic instruments is to internalise environmental costs, in practice they are used to get actors to comply with the targets.  If the targets are not met, instruments should be strengthened, and the question of whether or not environmental costs are fully internalised is less relevant. Of course, the question of whether or not the targets represent the optimum for society is still very relevant.
Criteria	Any measures taken should be judged against the criteria of fairness and proportionality. Instruments should be effective, flexible and low in administration costs. Economic instruments are increasingly seen as good performers in this respect.  The most recent addition to the set of EU policy and measures to control greenhouse gas emissions is the flexible mechanisms, which are good examples of economic instruments and include the first system of tradable permits introduced at the EU level. A breakthrough of a kind!
Question 3	This brings me to the programme’s third question, about the



potential benefits of the UK's Packaging Recovery Note or PRN approach.

Tradable permits in the UK

This is a tradable permit system working as part of a policy mix which also includes legal requirements for municipalities and a landfill tax.

Would it be worth considering a tradable permit system for packaging waste in other EU countries or in the EU as a whole?

The PRN system is still relatively new and I think the answer has to be that it is too early to say yet.

Increased recovery

What is clear is that with the help of the PRN system the recovery rate for packaging waste in the UK increased from 27% in 1997 to 48% in 2001. In addition, the direct costs of the system are relatively low.

Criticism

On the other hand one could also say that the PRN system fell just short of enabling the UK to meet the minimum recovery target of 50% set by the directive. I'm aware that there have been a number of other criticisms too.

Time to study

So I would say the jury is still out on the PRN system. It is definitely an interesting and innovative approach but its effectiveness needs further study before one can judge the potential for applying it more widely alongside other EU or national initiatives.

The packaging sector's perspective

What I have said so far is largely seen from the point of view of the environment and the efficiency of policy mixes at macro-economic level. But how does it look from the packaging sector's perspective?

The packaging sector is confronted not so much with the Packaging Waste Directive itself as with the various different ways in which national authorities have implemented it.

Some Member States comply with the targets, some have set their own higher targets, and some have derogations.

Some apply taxes or charges on packaging, some have (mandatory) deposit systems, and an increasing number of Member States apply landfill and incineration taxes. Some arrange agreements with relevant parties.

All these approaches have various costs for the packaging sector.



Distorting the market	<p>Distorting the market by creating trade barriers or causing unfair competition is a major argument used by representative bodies in the packaging industry, and by the Commission, against some existing or planned economic instruments, in particular deposits.</p> <p>Yet correcting market distortions is the very reason for implementing economic instruments in the first place, as they are a straightforward way of internalising external costs and hence of “getting the prices right”.</p>
Differences of view are understandable	<p>These differences of appreciation are understandable, and perhaps inevitable.</p> <p>Industry sectors obviously prefer not to incur the additional costs that can result from policy measures, even when these measures may be beneficial to society as a whole.</p> <p>For their part, Member States don't always think the same way because they have different economic structures and interests, and different levels of environmental ambition.</p> <p>Comparing the environmental burdens of one-way and reusable packaging, and trying to agree on the results, seems to be one of those issues where these differences come to the forefront!</p>
Forthcoming Communication	<p>The forthcoming Communication on the use of market-based instruments in the internal market may help to find more common ground.</p>
Database on economic instruments	<p>Before I finish on economic instruments, let me just mention that the European Environment Agency and the OECD together maintain a database of economic instruments used in Europe. The database is freely available through our website.</p> <p>It shows, for example, that in 2001:</p> <ul style="list-style-type: none"><li>• Fifteen countries in Europe applied a tax or charge on packaging items;</li><li>• Thirteen countries had deposit-refund systems in place, although this information may not be complete;</li><li>• Seventeen countries applied taxes on waste disposal and/or incineration; and</li></ul>



- Six countries concluded covenants with relevant partners on packaging and packaging waste.

Policy effectiveness	<p>As I said earlier, packaging waste is one of the first areas of policy that the EEA is assessing for its effectiveness.</p> <p>We are currently looking into the effectiveness of packaging waste management systems in five EU countries: Austria, Denmark, Ireland, Italy and the United Kingdom. The study is not finalised yet, but we do have some initial insights.</p>
Austria	<p>One example is the Austrian packaging waste management system, which combines a mandatory producer responsibility scheme with an array of economic instruments. The results seem to be impressive from an environmental perspective.</p>
Objectives and targets met	<p>The prevention objective has been met as a result mainly of the ARA producer responsibility scheme. Recovery and recycling targets have been achieved and exceeded as a result of the producer responsibility scheme, the landfill tax and the landfill ban.</p>
Cost-effectiveness	<p>At the same time, financial indicators show a continuous improvement of the cost-effectiveness of the Austrian packaging waste system.</p>
The packaging waste directive	<p>As the Austrian waste management system was in place before the Packaging Waste Directive and before Austria joined the EU, the Directive does not seem to have had a major effect on packaging waste management in Austria.</p>
Other countries	<p>For other countries, for example Italy and the UK, the Packaging Waste Directive does indeed seem to have had a significant effect on the waste management systems put in place.</p> <p>The five countries have very different packaging waste management systems, but one general conclusion can be drawn from the exercise:</p>
Mix of instruments	<p>Countries that have put in place a mix of instruments seem to have been most effective in meeting their objectives and targets.</p>
To conclude	<p>This leads me back to my three main points. Let me conclude by going over them once again.</p>



Firstly, the amount of packaging waste has increased in most European countries despite the agreed objective of waste prevention. This is a cause for concern from an environmental perspective.

Secondly, the successful achievement of recycling and recovery targets is good news for the environment. But it is important at the same time to address both the broader objective of waste prevention and the marginal economic costs of achieving high recycling rates.

Thirdly, economic instruments have the advantage of being more efficient for society as they can achieve environmental objectives and targets at relatively low costs. Some economic instruments can generate additional costs for the packaging industry, but these costs can be reduced when common approaches are chosen in Europe. Tradable permits for packaging waste seem to have potential but it is too early to judge their effectiveness. Overall, a mix of policy instruments seems to be the most effective means to reduce the environmental impacts of packaging.

Thank you for your attention.