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POLICY DEPARTMENT
ECONOMIC AND SCIENTIFIC POLICY **A**

Economic and Monetary Affairs

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Internal Market and Consumer Protection

Plastic Waste

WORKSHOP



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

WORKSHOP

Plastic Waste

Brussels, 26 September 2013

PROCEEDINGS

Abstract

This report summarises the presentations and discussions during the Workshop on Plastic Waste, held on 26 September 2013. The aim of the workshop was to allow an exchange of views between MEPs, the European Commission, stakeholders of the plastic and plastic waste treatment industry, NGOs, public administration and academia.

There is general agreement that plastic waste prevention is necessary, as is an increase of the recycling rates. Different ways to achieve these goals were discussed. These include better consumer information and labelling, a ban on materials which prevent recycling, improvement of separate plastic waste collection and sorting systems, a ban on the landfilling of waste with a high carbon content, and measures to make the recycling market more predictable, such as specific requirements for the use of recycled materials.

This document was requested by the European Parliament's Committee on the Environment, Public Health and Food Safety

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LIST OF ABBREVIATIONS

CoR	Committee of the Regions
ELV	End-of-life vehicle
EPR	Extended Producer Responsibility
HDPE	High-density polyethylene
LCA	Life-cycle analysis
NGO	Non-governmental organisation
MS	Member State
PAYT	Pay-as-you-throw scheme
PE	Polyethylene
PET	Polyethyleneterephthalate
PP	Polypropylene
WFD	Waste Framework Directive

EXECUTIVE SUMMARY

The workshop was held on 26 September 2013 at the European Parliament in Brussels to discuss options for improving the management of plastic waste. The workshop has been organised in support to the motion for a European Parliament resolution "on a European strategy on plastic waste in the environment" (2013/2113(INI), Rapporteur MEP Vittorio Prodi). The resolution is connected with the stakeholder consultation process following the publication of the European Commission's Green Paper "On a European Strategy on Plastic Waste in the Environment" of 07.03.2013 (COM(2013) 123 final).

Following an introductory presentations on "The State of Play in Plastic Waste Management in the EU", a member of the Environment Commissioner's cabinet gave an overview of preliminary results from a public consultation on the Green Paper. The rapporteur of the Committee of the Regions on the Commission Green Paper on Plastic Waste, provided her view on the Green Paper.

Several experts and stakeholders outlined their position on measures to improve plastic waste management.

There was general agreement that according to the waste hierarchy the prevention of plastic waste was a top priority. As important tools to foster prevention, eco-design and better consumer information were mentioned. Different opinions were expressed concerning certain plastic types which contain hazardous substances or are difficult to recycle should be restricted or even banned.

The participants considered efficient separate collection and sorting as well as high, specific recycling targets for all plastic waste types as important measures to improve the plastic waste management system. While some experts recommended learning from best performing Member States, other voices warned against copying collection systems of other countries without adapting them to domestic needs. Different opinions were also expressed regarding the cost-efficiency of handpicking in packaging waste sorting plants.

There was a common agreement that landfilling of plastic waste is the least desirable option of plastic waste management and should be banned. Energy recovery from plastic waste should only be regarded as a transitional step towards a recycling society. It should be taken into consideration, however, that countries which currently rely mainly on landfilling will face a huge challenge to move from landfilling directly to recycling.

Concerning bioplastics, there was some controversy for what purposes this material should be used. It was proposed to use biodegradable bioplastics for single-use products and durable bioplastics for durable products. There was agreement that oxo-degradable plastics should be banned.

As one of the preconditions for raising the recycling rate, it was considered necessary to increase the security of the plastic waste supply. Only with stable plastic waste supplies can investments in the recycling infrastructure be made. Information campaigns should be launched and legal and economic instruments applied to improve the collection rates and the quality of the collected plastic waste. Research and development are needed to develop eco-design for plastic products and to optimise sorting processes.

The option to motivate citizens to more plastic waste collection by transferring revenues of plastic recycling was discussed. Due to the volatility of the plastic waste market it is, however, unclear if such a measure can be financed by the revenues from plastic waste recycling.

WORKSHOP PROCEEDINGS

Opening Remarks

MEP Vittorio Prodi, ENVI Rapporteur

Mr Prodi welcomed all participants and especially thanked the speakers and panellists for their participation and their contribution. He identified plastic waste as an important topic which might become a showcase for the realignment of EU policy from a linear to a circular economy.

Mr Jürgen Schneider, Moderator

After welcoming the participants, Mr Schneider outlined the agenda of the workshop, which was divided into two parts. In the first part, background information on plastic waste was given and first results from a consultation of the European Commission's Green Paper 'On a European Strategy on Plastic Waste in the Environment' of 7.3.2013, COM(2013) 123 final (thereafter referred to as: 'Green Paper') were presented. The first part was complemented by some preliminary views on the Green Paper by the Committee of the Regions. The second part of the workshop gave stakeholders, NGOs and academia an opportunity to present their views on the issues highlighted in the Green Paper.

PART 1: THE EUROPEAN STRATEGY ON PLASTIC WASTE IN THE ENVIRONMENT

The State of Play in Plastic Waste Management in the EU

Mr Hubert Reisinger, Federal Environment Agency, Austria, started his presentation with the remark that plastic waste generation and management is a broad field and that, consequently, his introductory presentation highlighted only a few selected aspects. Thanks to its properties, plastic can serve many different purposes and the use of plastics is thus growing globally at an annual growth rate of 3.7%. The EU produces 25 million tonnes of plastic waste per year, 60% of which is plastic packaging waste. EU Member States vary widely with respect to their volumes of plastic packaging waste generation (factor 4), which partly reflects the different degrees of affluence in the Member States, but also the efficiency of collection schemes and monitoring systems. Environmental problems associated with plastic waste include aspects such as the loss of resources, hazardous substances in plastics, bad waste management and marine litter. Mr Reisinger stressed that the waste hierarchy had to be kept in mind when designing plastic waste management schemes. He highlighted a number of measures for plastic waste prevention and dealt with the topics "reusable beverage packaging" and "bioplastics" in greater detail. About one third of plastic packaging waste is currently recycled in the EU, which is more than the target of the Packaging and Packaging Waste Directive (94/62/EC) specifies, but still a long way away from the targets which were suggested in the course of the discussions on the Green Paper. With regard to recycling, Mr Reisinger stated also the importance of high quality recycling instead of downcycling. A remarkable share of plastic waste is currently not recycled in Europe, but shipped into the Far East. Finally, Mr Reisinger listed the necessary preconditions for increasing the recycling rate. In addition to an increased use of easily recyclable plastic materials, the improvement of separate collection and the purification of plastic waste, one of the main elements is the creation of markets for recycling materials.

The European Strategy on Plastic Waste in the Environment – Main Issues and First Outcomes of the Green Paper Consultation

William Neale, Member of the Cabinet of European Commissioner for the Environment considers the topic of plastic waste as a typical example of the resource efficiency debate. Plastic waste is an increasing problem due to the still increasing use of plastic materials. About 50% of plastic waste is deposited in landfills, which means that an equivalent of about 12 million tonnes of crude oil is wasted annually in the EU.

The Commission has issued a Roadmap to a Resource Efficient Europe (COM(2011) 571). The objectives of this Roadmap with respect to waste are to raise reuse and recycling to their maximum feasible levels, to use only non-recyclable materials for energy recovery and to landfill only residual waste.

The general aim of the Commission's launching of the Green Paper consultation was to obtain answers to two questions: how policies on plastics can be brought in line with the Roadmap's objectives and whether plastics still have a future in a circular economy. The consultation consisted of 4 main chapters:

- Application of the waste hierarchy to plastic waste management (including targets)
- Towards more sustainable plastics
- Internalisation of real costs and the role of extended producer responsibility systems (EPR)
- Product design (e.g. durability, repairability, recyclability, omission of toxic substances)

The consultation generated a lot of interest, documented by the large number (~ 270) of responses. About 60% of the replies came from the industry and 20% from NGOs, but replies from public authorities in the Member States were also received. At the moment the replies are being analysed, but Mr Neale gave a preview of some of the general messages. The overall direction of the waste hierarchy was confirmed; there was a consensus that incineration and particularly landfilling of plastic waste should be banned or reduced as much as possible, while recycling rates should be increased as much as possible.

A majority of the replies signalled the participants' support for the following approaches:

- Plastic waste landfill ban
- Improved doorstep collection and separation
- More and higher targets for plastic recycling
- Stricter export controls
- Introduction of business systems (e.g. deposit and return schemes, leasing, pay-as-you-throw (PAYT))
- Better consumer information (e.g. on recyclability)
- Better use of eco-design instruments (better design, restriction of additives, abolish planned obsolescence)
- Increased use of market-based instruments
- Define end-of-life criteria for plastic waste

However, views differ on the question to what extent voluntary versus mandatory measures are necessary to reach the objectives.

By way of conclusion, Mr Neale confirms that plastic, as a valuable resource, has to be kept within the production system. While policy and administration have to establish and provide the necessary framework, industry has to use its innovative capacities.

The Position of the EU Regions on Plastic Waste Management

Linda Gillham, Rapporteur of the Committee of the Regions on the Commission Green Paper on Plastic Waste welcomes the Green Paper, especially because it highlights plastic waste prevention from the start. With the collection and management of waste being one of their core activities, local authorities can have a great influence on the success of waste management. The main message of Ms Gillham is that the best results of household participation in separate waste collection can be achieved when it is made as easy as possible for the residents to put their waste into the right bin. This refers for example to labelling, which must be simple (not too technical) and truthful. The term “compostable” should only be used when the waste can be put into a home composter and can be used for improving the soil afterwards. Experience shows that people become involved more readily when they have a good feeling about an activity. Thus the promotion of take-back schemes can be combined with a charity activity.

In order to increase recycling rates, the situation of local authorities has to be taken into consideration. As waste disposal contracts often have a long duration (up to 25 years), local authorities need time and certainty for investments. A big problem of the local authorities is also the low weight of plastic waste, which makes its collection costly. Compacting is needed, as are better collection and transport systems. Therefore, new recycling targets should reflect the environmental weighting (alternatives to tonnage as metric for measuring). Local authorities look for easy ways to dispose of their plastic waste. If it is easier for them to send their waste to China than to a European treatment plant, they will use the easier option. In this context the Committee of the Regions recommends ensuring that recycling abroad complies with the same quality standards than recycling within the EU.

Furthermore, Ms Gillham calls for an improved implementation and enforcement of EU rules. Local authorities can help, for example in cases where retailers do not take back packaging material. Local authorities can also provide support on the topic of marine litter. Especially on the coast municipalities can start local campaigns and support local volunteers.

Although the Committee of the Regions supports a shift in plastic waste management from incineration to recycling, it points out that the situation of countries which currently rely mainly on landfilling should be taken into account. For them it will be a huge effort to move from landfilling directly to recycling.

Questions & Answers, open debate – Part 1

The Rapporteur, Mr Prodi, asks the experts for their opinion on whether plastic waste separation should take place before or after collection. Do they have any experiences with labelling of plastics to optimise plastic waste separation in a treatment plant? Mr Reisinger answers that in Germany a large number of projects involving mechanical separation have been undertaken. Generally speaking, the quality of recycling is better if separation takes place as early as possible in the collection and treatment chain.

Mr Prodi's next question is how separate collection can be improved to make it as easy as possible for the citizens. Mr Reisinger answers that a crucial point is to motivate citizens. It is not sufficient to provide containers for separate collection. The citizens need incentives to use them correctly. Ms Gillham adds that a combined collection of dry recyclables (metals, paper, plastics) is the most efficient way to encourage people to participate. Separation into different plastic types with a code list is not accepted very well by the citizens. Too many boxes and bins are also a problem as there is often not enough space. Mr Neale adds that the Waste Framework Directive contains an obligation to introduce a separate collection by 2015. Regarding awareness, Mr Neale announces that the Commission will launch a clean-up day on 10 May 2014 in order to motivate citizens to collect litter in their immediate vicinity.

Mr Axel Singhofen, Advisor on Health and Environment Policy from the Green Party, asks Mr Neale about the willingness of the Commission to tackle the first priority of the waste hierarchy, i.e. waste prevention. Mr Neale answers that the waste hierarchy is not absolutely rigid and that optimal solutions, including also other levels of the waste hierarchy, have to be explored. Mr Neale admits that regarding prevention there is still room for improvement. Besides awareness raising, eco-design should be a part of the further activities (recyclability, durability in product design). Finally, Mr Neale calls for suggestions from stakeholders for improvements of plastic waste prevention.

Mr Roberto Ferrini from Novamont S.p.a (a company producing biopolymers) points out that there is already a European Standard for compostable and biodegradable plastics in place, namely EN 13432 "Proof of compostability of plastic products". The Packaging and Packaging Waste Directive (94/62/EC) makes reference to this standard. Mr Ferrini criticises the fact that this standard has not been implemented properly in all the Member States, which may be confusing for citizens when they need to decide which plastics are recyclable and which are not.

In his concluding remarks Mr Neale comes back to Mr Singhofen's question and mentions a specific waste prevention activity of the Commission, i.e. a forthcoming legislative proposal on plastic bags. As the proposal has as yet not been adopted, Mr Neale cannot reveal any details about its content. In addition, a number of Member States have already been successful with their waste reduction activities and can be seen as a good example. Finally, he thanks all the participants for their comments on the Green Paper.

PART 2: PLASTIC WASTE OR WASTE OF PLASTIC: REASSESSMENT OF OPTIONS FOR PREVENTION, REDUCTION AND RECYCLING

Introduction by the moderator

Mr Jürgen Schneider, Moderator

Mr Schneider introduces the modalities of the panel discussion. The main topic is the re-assessment of options for prevention, reuse and recycling. First, all panellists are invited to make a short introductory statement.

Opening Statements from the Panel

Mr Karel van Acker, Leuven Materials Research Centre, emphasises in his introductory statement the importance of bringing together all stakeholders on the way forward to the prevention and recycling of materials.

Mr van Acker recommends an integrated approach (e.g. using life-cycle-assessment (LCA)) when evaluating options for waste management, in order to identify all the effects of the whole value chain on the environment (e.g. energy consumption). LCAs have also shown that in general, developing recycling is a better option than the use of bioplastics. An integrated approach must also take the design phase into account, which means that eco-design plays a key role. One conclusion to be drawn from the integrated approach for the policy level could be to develop a separate directive for all plastic wastes.

Furthermore, Mr van Acker states that a level playing field should be ensured in Europe for all Member States. Recycling should be given better opportunities by imposing uniform and higher incineration taxes as well as harmonised landfill taxes across the EU.

With regard to Extended Producer Responsibility (EPR) schemes, Mr van Acker is of the opinion that this instrument is a very powerful tool, but often too static when put into practice. EPRs must be steadily further developed in order to be effective and to drive innovation. For this purpose, targets should be combined with excise duties and disposal taxes to improve EPR efficiency.

Finally, Mr van Acker demanded more transparency regarding the chemical content of plastic materials. By developing a sort of “material passport”, information about the composition of diverse resin types (e.g. additives) and also their environmental impacts should be made available.

Mr Pádraig Nolan, Sector Groups Manager of European Plastic Converters (EuPC),

begins his statement with some information about EuPC, which represents 40,000 plastic producers with 1.6 million employees, producing about 46 million tonnes of plastic per year.

Mr Nolan summarises the 5 main comments of EuPC on the Green Paper:

1. EuPC is of the opinion that a plastic recycling target of 50% is realistic and achievable by 2025. In this connection clear recycling targets should be set for all plastic wastes.
2. EuPC supports the idea of zero plastic going to landfills in order to avoid a waste of resources and to increase the use of recyclates. The Landfill Directive should be amended to better reflect this objective.

3. The collection systems for waste should be harmonised across Europe by using best practice methods from best performing Member States. EU legislation should be stricter and not leave too much flexibility for Member States to select between too many options as in Art. 11 of the Waste Framework Directive.
4. Regarding design for recycling, EuPC has set up a voluntary initiative, the European PET bottle platform, with the objective to develop harmonised guidelines for the recyclability of PET bottles. It will be ensured that the concept, design and the materials of new PET bottles are tested for their recyclability before they are put on the market.
5. EuPC recommends bioplastics should be used with care, especially oxo-fragmentable plastics. Tests have shown that as little as 2% oxo-fragmentable plastic contamination in recyclers' feedstock can lead to visual and mechanical problems in the production process.

Mr Nolan concludes his statement by pointing out the importance of good consumer education for a high-quality separation of plastics at the source.

Mr Stefano Facco, Vice President of European Bioplastics explained the role of the bioplastics industry, which produces reusable and compostable plastics (about 50% each) with an annual capacity of about 1 million tonnes at the moment. Projections show that the annual production capacity will increase to 5.5 million tonnes by 2016. Without an appropriate framework there is a danger that the bioplastics industry will move outside the EU.

Mr Facco explains the advantages of bioplastics: Renewable plastics are mostly based on second and third generation crops and thus do not compete with food crops. They can be produced locally and grant independence from crude oil. Regarding environmental aspects, LCAs have shown the added value of bioplastics, especially with regard to their CO₂ performance, and they allow for better waste management.

With bioplastics two types have to be distinguished: One that can be treated organically (see also EN 13432 above) and another that can be treated mechanically and recycled.

With regard to the discussion on shopping bags, European Bioplastics strongly support the use of compostable or renewable shopping bags. They also support measures to minimise the use of shopping bags, be it by ban or by taxes. European Bioplastics will publish a position paper on this topic soon.

Mr Jean Marc Simon, Executive Director of Zero Waste Europe, explained that Zero Waste Europe is a network of organisations, but also of municipalities. Some of these municipalities are very successful in their efforts of waste prevention and high-level source separation and their experience can be used as good-practice examples.

The opinion of Zero Waste Europe is that plastic is a necessary material, but that there is too much plastic and too much bad plastic on the market. Thus the aim is to reduce the use of plastic, i.e. to use it only where it is really necessary and to recycle it when it becomes waste.

According to Mr Simon, a circular economy must be based on high-quality processes on three levels, i.e. design for plastics, collection and treatment of plastic waste.

- Design: Plastics should be designed in such a way that single use products should be able to join the organic cycle (biodegradable). Durable plastics should only be used for durable products and should be recyclable after use. Instead of products designed for the landfill, there should be designs for reusable products and designs for recycling.

- Collection: What is important is clarity for the user, who needs to know what biodegradable plastics and reusable plastics are. The collection system should be designed in such a way that no recyclables are lost. Good separate collection leads to high recycling rates, as examples have shown in a number of municipalities.
- Treatment: If the design is high quality and the collection as well, it is easy to treat plastic waste in such a way that high-value products are possible.

He also stressed the importance of prevention, which should be given more attention in the future. Finally, Mr Simon mentions two contradictions in the Green Paper:

1. The Green paper states that incineration is preferable to landfilling, but compared to recycling, incineration is no good solution either. There should be a general ambition to move up as far as possible in the waste hierarchy.
2. The Green Paper does not mention that it is important to reward energy preservation rather than energy generation.

Mr Ton Emans, President of Plastic Recyclers Europe (EuPR), started his statement by listing the problems which are generated by plastic waste. Due to an increasing use of plastics plastic waste is also increasing. This plastic waste is very visible as litter in the environment, e.g. as marine litter. The management of plastic waste is still dominated by landfilling and energy recovery. Less than 25% of plastic waste is collected for recycling. In 2012 more than 58% of the plastics collected for recycling went outside the EU, which means a loss of resources for Europe.

The main condition for a change is that society accepts that plastic waste is considered a valuable resource and should be used efficiently. EuPR is of the opinion that much more plastic waste can and should be recycled. At the moment, European recyclers produce only a small proportion (less than 4%) of the EU plastics demand.

Mr Emans mentions the following measures for improving the recycling of plastic waste:

- Ban on the landfilling of plastic waste
- Specific recycling targets for all plastic wastes and for the whole of Europe
- More resource efficiency and sustainable businesses
- Further development of eco-design (better recyclability, minimum content of recycled material in products).

With these measures 120,000 new jobs can be created in Europe, especially in SMEs.

At the end of his statement Mr Emans referred to the website of EuPR from which a plan for how to boost plastic recycling in Europe can be downloaded.

Mr Michael Heyde, Technical Director of Duales System Deutschland (DSD), speaks not only for the privately owned packaging waste compliance scheme in Germany, but also for one of the biggest plastic recycling companies in Germany.

Experience has shown that mechanical recycling, especially of packaging plastics, has become widely accepted and that recycling products are becoming more and more accepted as a resource in the plastics converting industry.

Mr Heyde points out that the plastics industry in many countries suffers from an unreliable material supply (compared to the supply of primary resources), which is one of the main barriers to investment faced by recycling companies. In his view, the market is ready for much more recycled plastic than the whole sector is able to produce at the moment. Investments in state-of-art technology and in the quality of products are needed, but they will only happen if reliable supply chains exist.

For this purpose, a stable infrastructure is necessary for the collection. Standards for collection systems all over Europe, as well as higher legal recycling targets would be helpful.

Mr Heyde advocates sector-specific recycling targets, as different treatment technologies need to be applied for different plastic waste types, as different markets need to be addressed for the different recycling materials from the different plastic waste types, and therefore plastic recyclers cannot switch from one plastic waste type to another within a short period of time. He also calls for a stringent implementation and enforcement of the Landfill Directive all over Europe.

Finally, Mr Heyde notes that an efficient and reliable infrastructure for the collection of plastic waste is the best way to prevent marine litter.

Ms Vanya Veras, Secretary General of Municipal Waste Europe, refers to the response of her organisation to the Green Paper. By way of introduction, she mentions the overall opinion that for solving the problem of plastic waste much more focus should be placed on the production of plastics, which means that the variety of plastics in fast moving consumer goods should be curtailed and plastic should be produced in such a way that after use it can be easily collected and recycled.

Ms Veras explains that, at the moment, separate collection and the recycling of plastic waste are limited to PET and HDPE, which means that still much more plastic waste is available for recycling.

In order to increase recycling rates of plastic waste, Municipal Waste Europe proposes to adapt the EU legislation in the following way:

- Push eco-design towards design for recycling
- Extend the Waste Framework Directive to include all plastics
- Set sector-specific targets for recycling
- Introduce a landfill ban and/or targets for steadily decreasing amounts of biodegradable landfilled waste. This should be done in such a way that a landfill ban does not lead to investments in energy recovery.
- Definition of the term biodegradable in the Waste Framework Directive
- Ban on oxo-degradable plastics.

Furthermore, more attention should be given to the enforcement of the Waste Framework Directive and its daughter directives. This should be complemented by knowledge transfer, especially with regard to practical implementation measures.

In addition to the push towards more recycling by legislation, Ms Veras demanded pull measures which create recycling markets by providing high-quality materials. This means that plastic waste must be collected in a way that is attractive to plastic recyclers and to plastic converters as well. Many exports to countries outside the EU take place because of the bad quality of the plastic waste which needs sorting by hand.

With regard to EPR, Ms Veras calls for more transparency of costs and material flows, including those costs which may be charged by municipalities.

Finally, Ms Veras highlights the importance of the consumer engagement, which can be increased by good communication.

Question & Answers, open discussion – Part 2

Large number of plastic types and additives

Mr Van Acker states that too many different plastic resins and compositions lead to problems with sorting and to low quality in the recycling chain. He asks for more transparency with respect to the materials which are used and their composition. The introduction of a material passport might be helpful. This would require also more interaction between producers and the recycling industry.

Mr Heyde refers to a different experience. On the German packaging market, what they essentially have to deal with are only 4 plastic types (polyethylene (PE), polypropylene (PP), polystyrene (PS) and PET). Only for two of these plastic types (PE and PP) has it been found that the quantities are growing. Therefore, the sorting problem has not become more difficult in recent years.

Mr Nolan expresses his opinion that no legal action should be taken to reduce the number of different plastic types. The needs of the consumers should be fulfilled with the most sustainable material. He suggests that materials should be better labelled so that the consumer can separate different plastic types more easily.

Eco-design and requirements for the use of recycled materials

Mr Van Acker sees a strong link between plastic recycling and an eco-design for materials and products. The link between recycling and the product design needs to be made clear. Much more needs to be known about the materials used. He also stresses the importance of research and development.

Mr Nolan calls for legal action to introduce a minimum content of recycled material in products. Van Acker agrees and adds that an obligation for a minimum content of recycled materials in products will be a driver for more compatible plastics.

Mr Emans adds that rules which restrict the use of recycled materials in certain products should be abolished.

Prevention measures and public awareness

Mr Simon explains that the consumer's freedom to choose products without packaging can lead to a waste reduction by 30%. Another prevention example is the replacement of plastic bottles for water by tap water.

Mr Nolan informs the audience that EuPC has launched an initiative to prevent plastic shopping bags. He is also in favour of a mandatory charge for plastic shopping bags as a measure to encourage the use of durable reusable bags.

Mr Nolan suggests a harmonised labelling standard which tells the consumers which product is compostable or recyclable and which bin should be used to dispose of it.

Ms Veras outlines the important role of the municipalities in separate waste collection and in awareness raising, because they are in close contact with the consumers, i.e. the citizens. She calls for more transparency and for a link between the producer (through EPR) and the municipality as a collector. This should be achieved through a reporting obligation in Art. 8 of the Waste Framework Directive for costs and material flows. This obligation should also include industrial and commercial waste.

Separate collection

Mr Emans states that separation at home is a good starting point. As Germany has achieved good results, other countries should learn from the advantages of this system in order to achieve harmonisation all over Europe.

Ms Veras warns against copying collection systems of other countries without adapting them to domestic needs. The main aim should be to avoid cross-contamination; good results have been achieved with the separate collection of dry mixed recyclables (plastic, metal, Tetra Pak). In this context she calls for a clear legal classification as to what is meant by separate collection and by dry mixed recyclables.

Ms Veras adds that in the case of several competing producer responsibility organisations in an EPR system within a country, there should be, for the benefit of municipalities, only one contact point per material and per country.

Sorting systems, price stability and recycling markets

Mr Heyde again points out that the stability of supply is the main element of a cost-efficient sorting system in Germany. A recycling plant needs to rely on the stable delivery of a certain material for at least two years in order to be able to invest in the adaptation of its technology to this material. This is an opinion which is supported by Mr Nolan and Mr Emans.

Mr Heyde expresses his opinion, i.e. that the efficiency of a technical device is linked to the throughput capacity. He states that cost-efficient sorting is not possible for small-scale sorting plants and advocates bigger units with a capacity of up to 80,000 t per year. In these big sorting plants sorting is mainly carried out by sorting machines (very little is done by hand-picking). Mr Simon contradicts, stating that in certain markets hand-picking can be an option. He adds that this is also a social and political question. In countries with high unemployment rates, unemployed people may work as hand-pickers. From his experience in Latin America and Asia, most of the waste is hand-picked, resulting in a comparably good quality of recyclables, especially in the case of metals. In addition Mr Simon stresses the need of shifting taxation from labour to the consumption of natural resources.

Mr Heyde and Mr Emans call for a certification system for the recycling market in order to create more transparency and a level playing field.

Mr Van Acker thinks that there should be more Research and Development of sorting systems to improve the sorting of plastic waste into the different plastic types. Mr Emans adds that more Research and Development of sorting systems could also help avoid exports of low-quality plastic waste to Asia.

Mr Simon states that downcycling is not the best option, but that it could be used during a transition period, because it is better than incineration or the landfilling of plastic waste.

Mr Prodi asks whether in cases where the recycled material is cheaper than the virgin material the difference in price could be transferred back to the consumer.

Mr Nolan answers that the prices for recycled materials may fluctuate strongly over short time periods (volatile market). Therefore, it is not possible to guarantee a profit which can be transferred back to the consumer.

Ms Veras mentions the possibility to pay some of the amount back to citizens through reduced waste collection costs.

Bioplastics

Mr Facco states that biopolymers fit into various recycling schemes: organic recycling for biodegradable bioplastics and mechanical recycling for durable bioplastics. He furthermore confirms that European Bioplastics share the opinion of the other panellists, which is that oxo-degradable plastics and plastics containing comparable additives should be banned. He adds that voluntary agreements have not always been effective to achieve the intended objectives. In some cases, mandatory action is needed; as an example, he mentions that in Italy non-compostable shopping bags have been banned. Supermarkets distribute only durable or compostable bags. The result was a decrease in the use of shopping bags by 40%.

Legal and economic instruments

During the discussion, a demand for some legal and economic instruments was expressed by a number of panellists:

Mr Simon recommends a progressive ban on durable plastics for short-lived products (bags, packaging made of styrofoam).

Mr Veras suggested that a reduced VAT on recycling products could be considered. However, special care needs to be taken to prevent fraud.

Mr Nolan advocates a clear legislative framework with recycling targets and obligations for Member States to meet them.

Mr Heyde is in favour of higher sector-specific recycling targets and the implementation of a landfill ban.

Mr Martin Engelmann from PlasticsEurope adds that in a number of countries with high recycling rates the starting point was a landfill ban on recyclable and high calorific waste.

CONCLUDING REMARKS

The moderator, Mr Schneider, concluded that there had been many clear statements on different options for moving forward. There was disagreement over some points, but also agreement on many important points, such as a plastic waste landfill ban, the importance of labelling and the need for recycling targets.

The EP rapporteur, Mr Prodi, reminded the participants of the purpose of the workshop, i.e. to obtain inputs from experts which would contribute to his task, which is to suggest legislation that is state-of-the-art on the one hand, and which, on the other hand, encourages further development. With this in mind, Mr Prodi asked the participants of the workshop to send him suggestions which they consider important and would like to be included in the process of adopting a position of the European Parliament on the Green Paper.



ЕВРОПЕЙСКИ ПАРЛАМЕНТ PARLAMENTO EUROPEO EVROPSKÝ PARLAMENT EUROPA-PARLAMENTET
EUROPÄISCHES PARLAMENT EUROOPA PARLAMENT ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΟΒΟΥΛΙΟ EUROPEAN PARLIAMENT
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**Organised by the Policy Department A-Economy & Science
for the Committee on the Environment, Public Health and
Food Safety (ENVI)**

Workshop on Plastic Waste

Thursday, 26 September 2013 from 12.30 to 15.00
European Parliament, Room P7C050, Brussels

AGENDA

12.30-12.32 Welcome by the Rapporteur

Vittorio Prodi, MEP

12.32-12.35 Introduction by the Moderator

Jürgen Schneider, Umweltbundesamt AT

Part 1 The European Strategy on Plastic Waste in the Environment

12.35-12.50 The State of Play in Plastic Waste Management in the EU

Hubert Reisinger, Thomas Weissenbach, Umweltbundesamt AT

**12.50-13.00 The European Strategy on Plastic Waste in the Environment
Main Issues and First Outcomes of the Green Paper Consultation**

*William Neale, Member of Cabinet of European Commissioner for the
Environment*

13.00-13.10 The Position of the EU Regions on Plastic Waste Management

*Linda Gillham (UK/EA) Committee of the Region's Rapporteur on the
Commission Green Paper on Plastic Waste*

13.10-13.25 Questions & Answers, open debate

Part 2 Plastic Waste or Waste of Plastic: Reassessment of Options for Prevention, Reduction and Recycling

13.25-13.30 Introduction of Panel

Jürgen Schneider, Umweltbundesamt AT

13.30-14.05 Opening Statements from Panel

Leuven Materials Research Centre

Karel van Acker, KU Leuven

European Plastic Converters

Padraig Nolan, Sector Groups Manager

European Bioplastics

Stefano Facco, Vice President

Zero Waste Europe

Jean Marc Simon, Executive Director

Plastic Recyclers Europe (EuPR)

Ton Emans, President

Duales System Deutschland

Michael Heyde, Technical Director

Municipal Waste Europe

Vanya Veras Secretary General

14.05-14.55 Questions & Answers, open debate

14.55-15.00 Conclusions by the Moderator

WORKSHOP BRIEFING PAPER

Highlights on the State of Play in Plastic Waste Management in the EU

AUTHORS: Hubert Reisinger, Thomas Weissenbach (Umweltbundesamt Austria)¹

ABSTRACT

The purpose of this briefing paper is to summarise basic facts on plastics and plastic waste, their generation in Europe, problems caused by plastic waste and options to reduce these problems. The focus of the paper is on options for waste prevention, that is primarily eco-design of products, and on the recycling of plastic materials. Additional background material provided comprises facts on plastic waste treatment and on the transboundary movement of waste.

PLASTICS, PLASTIC WASTE AND THE PROBLEMS THEY CAUSE

Plastics are inexpensive, lightweight and durable materials, which can readily be moulded into a variety of products which can provide many different services. Plastics can for example provide for

- transport and storage of liquids and solids (piping, vessels);
- protection of food, perishable and long-living goods, people (packaging, casings, bumper bar....)
- construction material (window frames, heat insulation)
- clothing (textile fibres)
- filters, membranes,
- electrical insulation
- toys

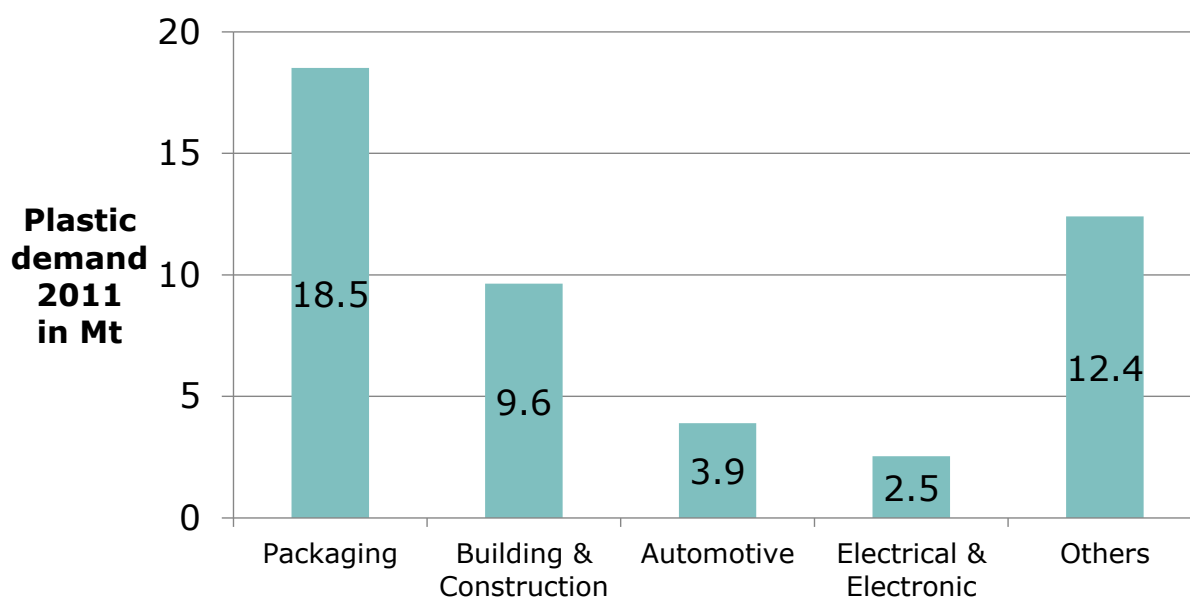
and many other applications. This variety of applications is a main driver for the strong growth of plastics demand and generation. In 2011 alone the global plastics production grew by 3.7 % (PlasticEurope 2012).

In 2011 some 47 million tonnes of plastics were introduced into the economy of EU-27, Norway and Switzerland. 18.5 million tonnes or some 39 % of these are used as packaging material, 21 % as construction material, 8 % in cars and 5 % in electrical and electronic products (see Figure 1).

¹ *The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the European Parliament.*

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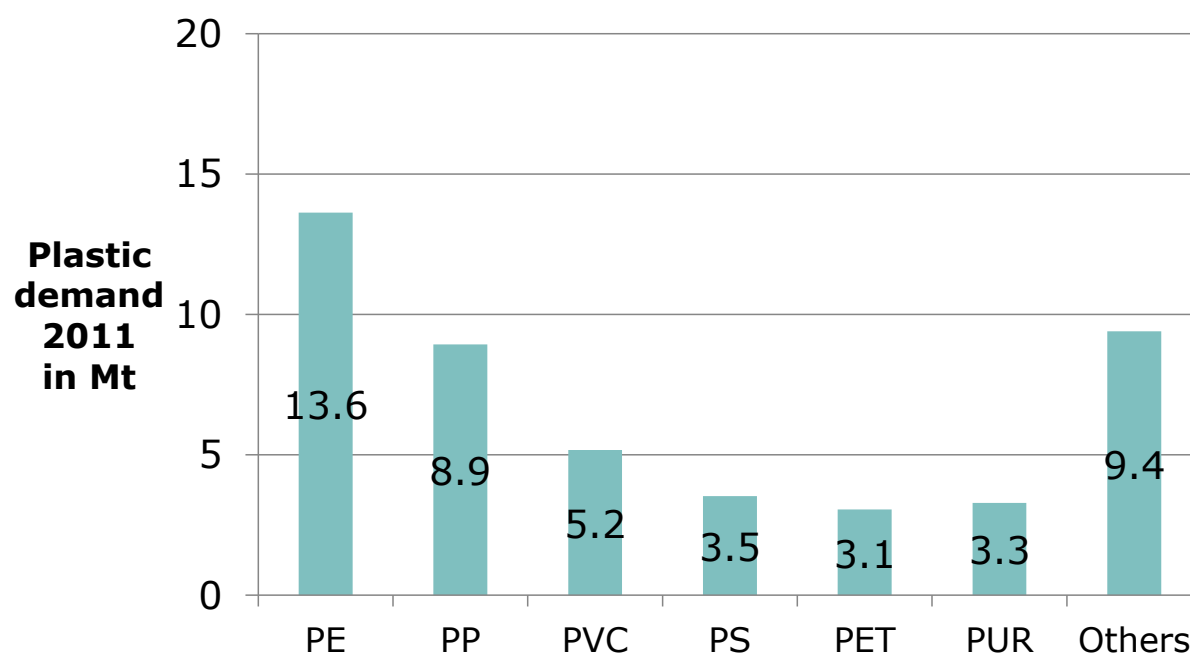
Figure 1: Demand of the EU-27 + Norway + Switzerland economy for plastics in the year 2011 by application type



Source: PlasticEurope 2012

From the 47 million tonnes of plastics, which were introduced to the economy of EU-27, Norway and Switzerland in 2011, 13.6 million tonnes or 29 % were polyethylene (PE), 19 % polypropylene (PP) and 11 % PVC. Also polystyrene (PS), PET and polyurethane (PUR) are in wide use (PlasticEurope 2012) (see Figure 2). The share of bioplastics is estimated to be 0.1 to 0.2 % or roughly 0.1 million tonnes per year (BioIS 2011).

Figure 2: Demand of the EU-27 + Norway + Switzerland economy for plastics in the year 2011 by plastic type



Source: PlasticEurope 2012

Plastic waste generation in the EU-27 + Norway and Switzerland in 2008 was 24.9 million tonnes (BioIS 2011). From this 15.3 million tonnes or 62 % was packaging waste (Eurostat 2013). Thus the share of packaging in plastic waste generation is considerably higher than in plastic demand. This may have two major reasons:

the average life time of packaging usually is much shorter than of other applications.

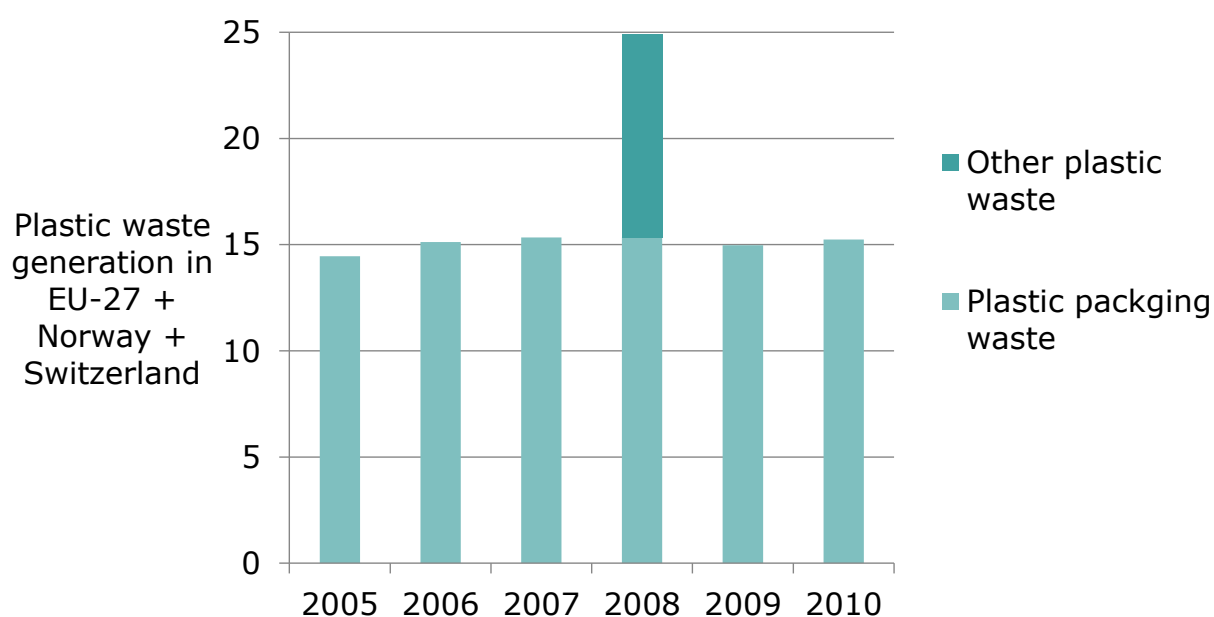
While packaging material usually becomes waste within one year or less, plastics stay for example in the automotive sector usually for 10 to 20 years, forming considerable stocks.

The separate collection system and the statistics may be more complete for plastic packaging waste than for other plastic waste types.

When looking at the development of plastic packaging waste generation over time, the amount of plastic packaging waste generated stayed almost constant in the period 2006 to 2010 (see Figure 3).

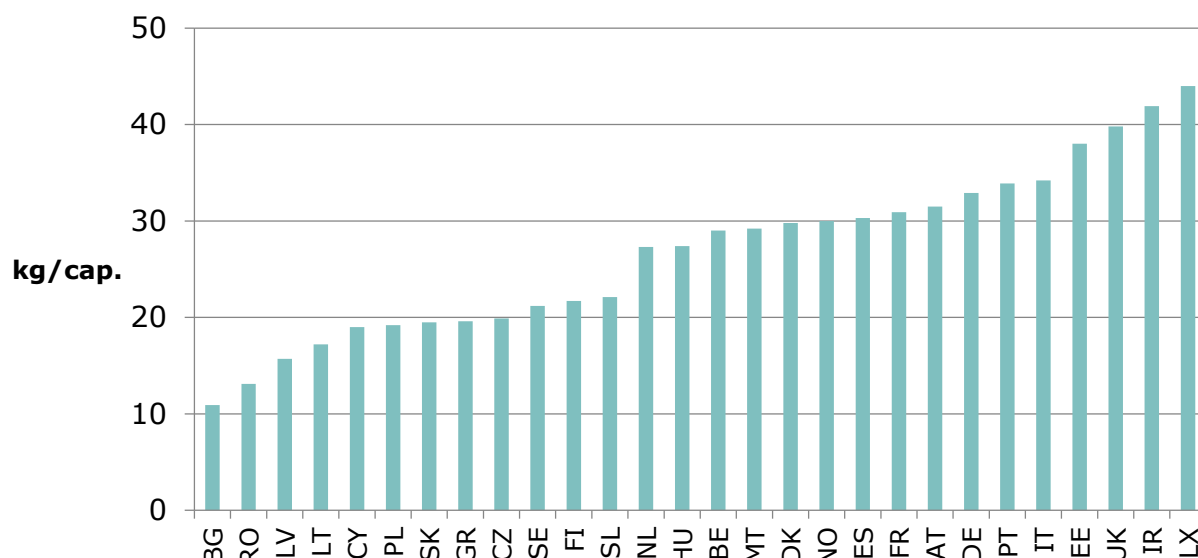
On a per capita basis there are huge differences of plastic packaging waste generation among the EU-Member States. In the year 2010 it ranged from 11 kg/capita in Bulgaria to 44 kg/capita in Luxembourg (see Figure 4)

Figure 3: Plastic waste generation in EU-27 + Norway + Switzerland



Sources: BioIS 2011, Eurostat 2013, authors' estimate for Switzerland

Figure 4: Per-capita plastic packaging waste generation in EU-Member States and Norway



Source: Eurostat 2013

While the use of plastics provides many benefits it also causes a number of environmental and economic problems.

Around 4 % of world oil and gas production is used as feedstock for plastics and a further 3 to 4 % is consumed to provide the energy for their production (Hopewell et al. 2009).

In order to fulfil their functions properly and reliably, conventional plastics contain a large number, and sometimes a large proportion, of chemical additives which can be endocrine disruptors, carcinogenic or provoke other toxic reactions. These additives can, in principle, migrate into the environment, though in small quantities (European Commission 2013). In spite of strong efforts to eliminate hazardous substances from use in plastics, e.g. brominated flame retardants or phthalate plasticisers are still in use. They are simply not easy to replace by less risky substances.

Because of the durability of the plastics, substantial quantities of discarded end-of-life plastics accumulate as debris in landfills and natural habitats worldwide. One example is marine litter. Major land based sources for plastic marine litter appear to be storm water discharges, sewer overflows, tourism related litter, illegal dumping, industrial activities, improper transport, consumer cosmetic products, synthetic sandblasting media or polyester an acrylic fibres from washing clothes. Waste patches in the Atlantic and Pacific oceans are estimated to be in the order of 100 Mt, about 80 % of which is plastic. Persistent organic pollutants (POPs), such as pesticides like DDT and polychlorinated biphenyls (PCBs) can attach themselves from the surrounding water to plastic fragments (micro plastics). These may enter the food chain via marine fauna and accumulate in the final food consumer (European Commission 2013).

For the inefficient design of products containing plastics frequently the expression “planned obsolescence” is used. While this obsolescence maybe not as intentional as believed, many produces do contain parts which easily break and limit the life time of products which otherwise could last much longer.

On the land the situation is acerbated by the fact that especially in southern and eastern Europe substantial amounts of waste are still deposited on illegal landfills non-compliant with EU regulations. In Cyprus, for example, 6 non-compliant landfills are expected to stay in use till 2015 (European Commission 2012).

In other countries (e.g. Italy, Bulgaria, Greece) delays with constructing sufficient treatment capacity and compliant treatment capacity caused creative solutions for “intermediate” storage still to be applied (European Parliament 2011).

Many techniques and approaches are at hand to reduce the negative environmental impacts from plastics and plastic waste and to increase the efficiency of plastic use. In accordance with the waste hierarchy defined in the EU waste framework directive (2008/98/EC), these techniques can be categorised as:

- Waste prevention measures
- Measures for enabling re-use
- Plastic material recycling
- Incineration with energy use and
- Final storage on compliant landfills.

The following sections present some selected highlights from the top of this hierarchy.

WASTE PREVENTION AND RE-USE

A resource efficient economy is an economy which meets the needs at low environmental impact level and at low consumption of natural resources. In order to create a resource efficient economy the first question is, which needs do we actually want to meet? Then the task is to find and implement options for

- meeting the demand by services without using or wearing off products
- introducing eco-designed products
- optimising production processes
- minimising the environmental impact of primary material mining and transport.

From the point of view of waste prevention eco-design means to create products which:

- contain few or no hazardous substances
- use materials from renewables or recycling, which in turn can be recycled after use
- are easy to maintain and repair
- are long-lasting
- can easily be adapted to changing needs
- can be re-used.

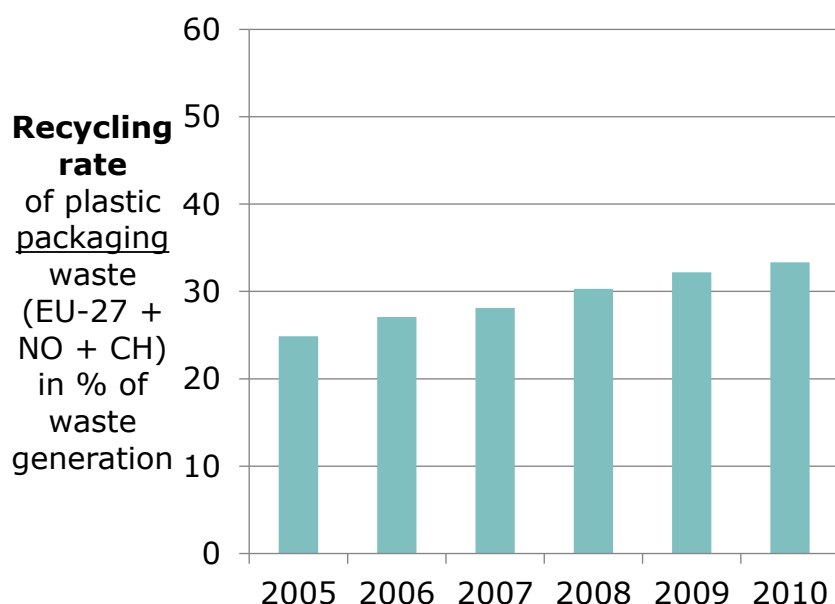
However, several of these approaches are limited by existing barriers. Only three shall be highlighted here:

- While bioplastics use renewable materials, they still become waste.
- For repair and re-use, additional structures need to be developed.
- In order to create EU-wide re-use systems either standardised products are introduced which can be re-used by all companies of the respective sector (e.g. one standardised beer bottle) or a very complex system for bringing back the waste product to each different production plant is required or more or less local markets are created.

RECYCLING

The recycling rate for the total plastic waste is estimated to be 25 % in the EU (Plastics Recyclers Europe 2013). The recycling of plastic packaging waste increased in the last years and has achieved a rate of 33 % in 2010 (see Figure 5).

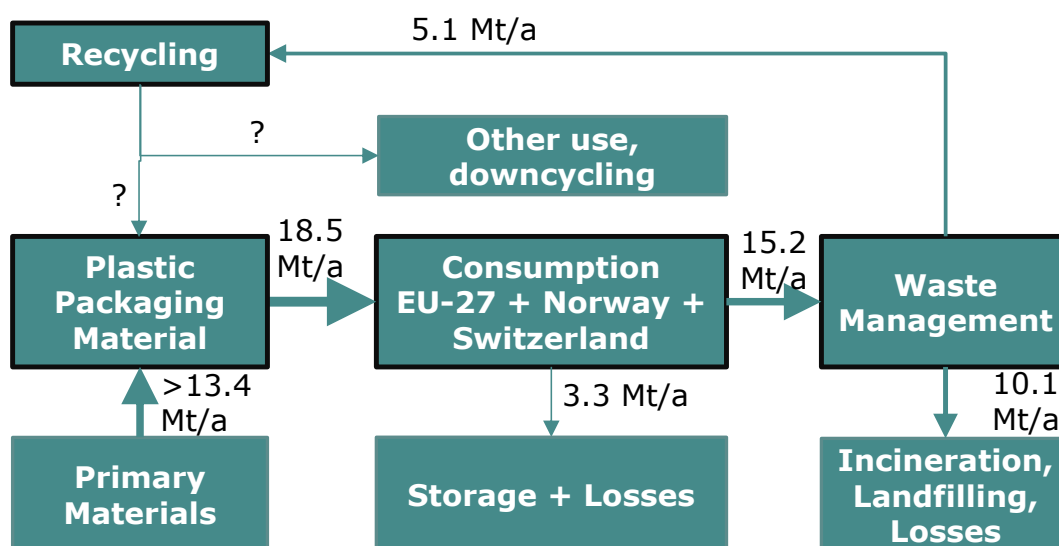
Figure 5: Recycling rate of plastic packaging waste in EU-27, Norway and Switzerland



Source: Eurostat 2013

Figure 6 shows the total balance of plastic packaging material flows in EU-27 including Norway and Switzerland. It can be seen that from the 18.5 million tonnes in packaging material introduced to the economy of these countries annually some 5.1 million tonnes are recycled. However, only part of these is used for producing new packaging material. Another part is used for lower grade applications and must be regarded as being downcycled.

Figure 6: Annual flows of plastic packaging material in EU-27, Norway and Switzerland



Source: Authors' estimates

Several factors limit the technical and economic potential of plastic recycling:

- Not all the plastic products introduced to the EU economy stay there. For example old cars or electrical equipment containing plastic parts are exported for further use or else to foreign countries. It was, for example estimated that about 60 % of the cars deregistered in 2008 in Austria and in Denmark did not enter the waste management system but were brought abroad. In Sweden these were even 84 % of the deregistered cars (European Parliament 2010).
- Some plastic types (such as PUR) must use chemical processes for a high-level recycling. However, in general, investment levels and energy consumption are such that only very large-scale plants are expected to be economically viable.
- Many potential users of new products are reluctant to buy products which contain recycling material. This can be seen for example with construction materials for public buildings.
- The best recycling quality can be achieved by homogeneous plastic materials. Thus plastics need to be separated not only from other materials, but also the different plastic types need to be kept separate from each other. The later in the life cycle this separation is done, the less plastic can be recovered for recycling. Also the quality of the recovered plastics is lowered.
- The lower the quality of the recycling material is, the lower is also the share of recycling material which can be used in the new product.

In order to address these limiting factors several measures have been introduced already or have at least been proposed. Here we want to highlight only some of them:

- A regulation could be introduced which would allow the export of used products only, if waste management standards are guaranteed in the receiving countries which correspond to the EU standards.
- Stringent quality standards for recycling materials are introduced which are controlled by third party certification. This is combined with the obligation for public purchasing to buy products with a certain share of recycling material.
- Extended producer responsibility systems are introduced for taking back plastic products and thus allow keeping plastic waste separate from other waste.
- Deposit refund systems which provide an incentive for consumers to bring back reusable products or plastic material. The effectiveness of such a system can be derived from the fact that the recycling rate for aluminium cans in Estonia featuring a deposit-refund-system achieves 59 % while in neighbouring Latvia, featuring kerb-side collection, reaches only 30 % (EAA 2011).

In total it can be concluded that the economic potential for the recycling rate of plastic waste is much higher than the 33 % already achieved.

FURTHER HIGHLIGHTS OF PLASTIC WASTE MANAGEMENT

Imports and Exports

Statistics on the amount of plastic waste and plastic packaging waste imports and exports are mostly missing. Only the statistic of the plastic packaging waste exports for recycling are almost complete (see Table 1). These statistics indicate that approximately 30 % of the plastic packaging material which is recycled, is exported to a different country for recycling.

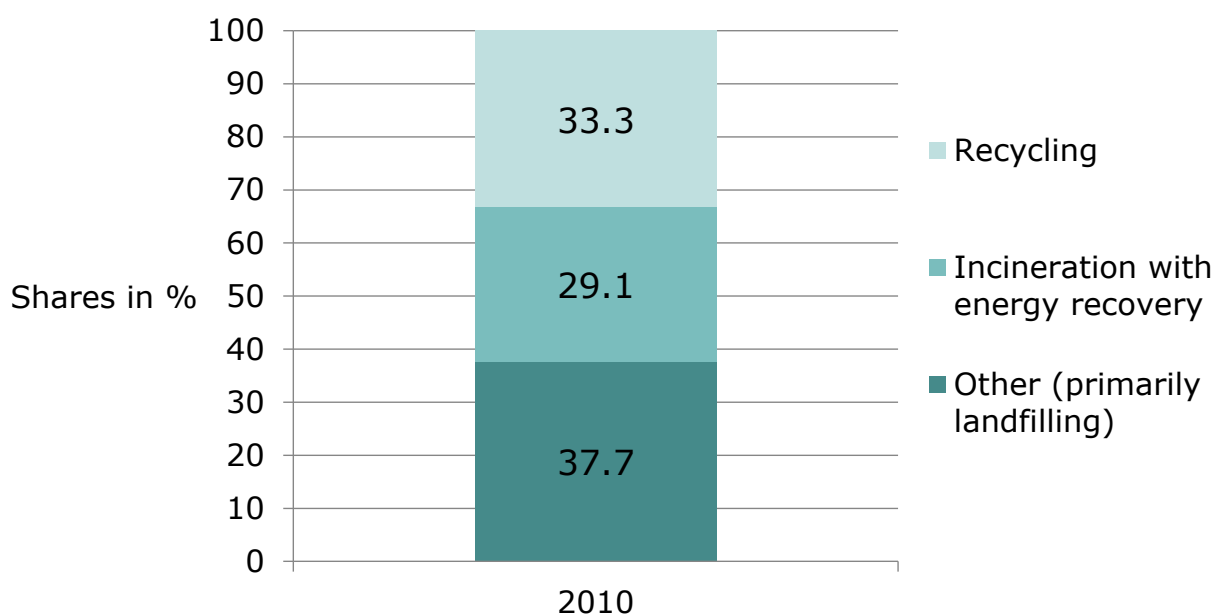
Table 1: Mass of plastic packaging waste exported for recycling in 2010 by EU-27-Member State and Norway

State	Export in tonnes		State	Export in tonnes
Belgium	98,149		Luxembourg	6,900
Bulgaria	data missing		Hungary	11,857
Czech Republic	42,516		Malta	2,675
Denmark	43,438		Netherlands	60,000
Germany	296,200		Austria	8,843
Estonia	13,353		Poland	21,603
Ireland	65,003		Portugal	11,687
Greece	52,000		Romania	data missing
Spain	data missing		Slovenia	2,217
France	201,100		Slovakia	1,615
Italy	29,000		Finland	16,473
Cyprus	4,103		Sweden	9,510
Latvia	4,917		United Kingdom	406,036
Lithuania	5,699		Norway	45,199

Source: Eurostat 2013

Plastic Waste Treatment

According to Eurostat (2013) statistics in addition to 33.3 % of plastic packaging waste nearly 29.1 % were incinerated with energy recovery within the EU in 2010. The bulk of the remaining 37.7 % or 5.6 million tonnes were landfilled (see Figure 7).

Figure 7: Shares of techniques for treating/disposing plastic packaging waste in EU-27 in the year 2010

Source: Eurostat 2013

Plastic Recycling Industry

The European Plastics Recycling Industry comprises some 1.000 Companies, provides jobs for 30.000 Employees and features an installed treatment capacity of 3 million tonnes per year (Plastics Recyclers Europe 2013).

An exemplary recycling plant may be the Kruschitz plant situated in southern Austria. It comprises

- since 1999 a PET-Bottle to Bottle-plant for food-approved reprocessed pellets with an annual treatment capacity of 12,000 tonnes
- since 2002 a plant for the production of PET-sheets from recycled PET-bottleflakes with an annual treatment capacity of 4,000 tonnes
- a plant for the production of high-quality plastic raw materials from recylcables tailored to the requests of different customers' with an annual capacity of 18,000 tonnes (Kruschitz 2013).

LIST OF ABBREVIATIONS

GDP	Gross Domestic Product	PUR	Polyurethane
Mt	Million tonnes	PVC	Polyvinyl chloride
PE	Polyethylene	POPs	Persistent organic pollutants
PP	Polypropylene	PCBs	Polychlorinated biphenyls
PS	Polystyrene		

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SHORT BIOGRAPHIES OF EXPERTS

Jürgen Schneider, *Umweltbundesamt AT*

Dr Jürgen Schneider is the Head of the Directorate 'Economy and Impact' at the Austrian Environment Agency. Dr Schneider's Directorate includes four departments at the Environment Agency, which are responsible for areas such as climate change, energy, air pollution control, emission inventories, waste management and waste treatment, traffic, industrial pollution and households.

Dr Schneider studied chemistry at the University of Vienna, where he also obtained his PhD. After finalizing his PhD, Dr Schneider worked at the University of Vienna as a researcher and joined the Environment Agency subsequently in 1994.

From 2002 to 2004, Dr Schneider worked as project manager for the World Health Organization (WHO) in Bonn at the Centre for Environment and Health. In January 2007, he was appointed as head of the Directorate 'Economy and Impact'.

Hubert Reisinger, *Umweltbundesamt AT*

Hubert Reisinger is graduated chemical engineer with specialization in thermal separation and recovery processes. After a Post-Doc study in Berkeley California and some months working at the rehabilitation of a waste treatment plant he worked for an Austrian energy consultant with long term energy planning, featuring energy saving, renewables, innovative technologies, economic analysis and liberal markets.

Since 2003 Dr. Reisinger has been working with the Austrian Umweltbundesamt (Federal Environment Agency) mainly as project leader for developing the Austrian Waste Prevention 2011 and its policy instruments. In international projects he evaluates policy instruments on waste and resource management.

William Neale, *Member of Cabinet of European Commissioner for the Environment*

William Neale is a Member of Cabinet (private office) of Janez Potočnik, the European Commissioner for Environment.

Within the cabinet he is responsible for relations with the other European Institutions (principally the European Parliament and the Council of Ministers). He advises the Commissioner on resource efficiency, sustainable production and consumption, environmental technologies, eco-innovation and waste policy. On non portfolio collegial files he covers industry and entrepreneurship, science, research and innovation, digital agenda and taxation and customs.

He was also a member of the cabinet of Commissioner Potočnik in his previous mandate as Commissioner for Science and Research, where he was responsible for planning and resources, budget, simplification, transport, aeronautics, research infrastructures and external relations.

From 2000 to December 2007 Mr. Neale was an official in the European Commission's Directorate General for Enterprise and Industry where he coordinated legislative process for adoption of the Competitiveness and Innovation framework Programme (CIP) and prepared Commission input for the Competitiveness Council Group of Commissioners. He was previously responsible for the negotiation of the Statute for a European Cooperative Society which entered into force in 2006.

Before becoming a Commission official in 2000 Mr. Neale spent 13 years in the private sector in the fields of banking, retail and management consultancy. His background is in economics and political science, having studied for his degree and masters at the University of Manchester (Owens College).

Thomas Weissenbach, *Umweltbundesamt AT*

Thomas Weissenbach is an environmental engineer with specialization in waste management, graduated from the Technical University of Berlin.

Mr. Weissenbach has 20 years' experience in the field of waste management, as waste expert and as project manager for a number of national and international projects. The projects covered diverse aspects of waste management, such as waste management plans, policy instruments for a number of waste streams and implementation of waste legislation.

From 1994 to 1999 Thomas worked as university assistant at the University of Leoben (Austria) and was involved in the development of the newly created department of environmental engineering.

Since 2000 Thomas Weissenbach works with the Austrian Umweltbundesamt in the Department of Waste & Material Flow Management. He is involved in the data collection and analyses regarding waste treatment facilities in Austria and is responsible for the respective chapter in the Austrian Federal Waste Management Plan.

Linda Gillham, *Committee of the Region's Rapporteur on the Commission Green Paper on Plastic Waste Title*

I was first elected to the Runnymede Borough Council in 2000 as an Independent Councillor. My main interest has developed from the local environment which was under threat from extensive gravel raising and landfill operations as we live in the Thames flood plain. I became a Member of the Committee of the Regions in 2009 and have always been a member of the Commission concerned with Environment and Climate Change.

I was Rapporteur for an Opinion on Biodiversity Policy from 2010 and as a result when I was elected Mayor of Runnymede in 2012 I chose to use the Mayoral role to highlight the plight of honey bees and other pollinators. This was a great success and we now have beehives in one school and 12 local primary schools are growing "nectar rich" plants in their gardens. This will be extended with more community bee hives over the next year.

I am particularly pleased to have the opportunity to be Rapporteur on this important Opinion looking at the way we dispose of our plastic waste as I am only too aware of the problems associated with landfill and the need to preserve our natural resources,

Karel Van Acker, *KU Leuven*

Karel Van Acker is senior lecturer in sustainable materials and processes, coordinator of the Leuven Materials Research Centre at KU Leuven and Promotor-Coordinator of the policy research centre Sustainable Materials Management. He chairs the Flemish Transition Network on Sustainable Materials Management and is involved in numerous projects on sustainability assessments of material life cycles, ranging from CFRP to biobased plastics, and on urban mining and the valorisation of residues.

He graduated as M.Sc. in materials engineering and obtained a PhD degree in materials science, both from KU Leuven. After his PhD (1996), he worked during several years in industry as manager of a materials and mechanical testing laboratory and at the Flemish Institute for Technological Research. He joined KU Leuven at the end of 2005.

Padraig Nolan, Sector Groups Manager

Since December 2010 Padraig has been working as Sector Groups Manager at EuPC in Brussels, with responsibility for several product specific sector groups as well as trade policies and the Automotive & Transport Division of EuPC.

Padraig has been involved in several FP7 funded research projects including the start up of an FP7 SiS project on Marine Litter (MARLISCO). Padraig is also manager of the European Plastic Films Association (EuPF) which has expert working groups in packaging films (bags and sacks), agricultural films, construction/ industrial films, printing & converting and standards & test methods.

He has been involved in issues surrounding the sustainability of plastic carrier bags and is heavily involved in voluntary stakeholder actions to tackle such issues and bring about responsibility, awareness and environmental friendliness in consumption, use and disposal of plastic carrier bags.

Stefano Facco, Vice President

Stefano Facco is New Business Development Director of Novamont SpA as well as the managing director of the German subsidiary of Novamont, which is based in Eschborn. He has held this position since 1997, following six years as Product Development Manager for Montedison Deutschland, where he worked on the market introduction of biofuels and biopolymers.

Earlier, he had worked there on liquid crystal polymers for electronic applications like PCB and speciality fibres for EMI shielding. The first stages of his career were interspersed with two stints at the Italian Chamber of Commerce in Germany, as consultant for EDP and marketing issues and lately as Managing Director.

He was for over a decade member of the board and co-founder of EuBP, the European Bioplastics Association and former member of the Din " biodegradable polymers" working group.

Stefano Facco was born in Hong Kong 1963, went to High School in Germany and Austria, has a background in economics

Joan Marc Simon, Executive Director of Zero Waste Europe

Joan Marc Simon is the Executive Director of Zero Waste Europe. Trained as economist and with more than 10 years of experience in waste and resources policy at European and national level. Board member of the Zero Waste International Alliance.

Waste expert with hands-on experience in drafting waste management and prevention plants, local infrastructures and citizen-based solutions. Previous experience in local and international governance, economics and citizen participation.

Ton Emans, President of Plastics Recyclers Europe

President of Plastics Recyclers Europe and Director Group Supply Chain in CeDo Ton Emans has more than 20 years' experience in plastic recycling process.

Ton Emans started his career with DSM in Geleen (The Netherlands) and worked as researcher in the field of environment and safety. In 1991, he relocated to a subsidiary of DSM called REKO, a company which started to recycle plastics in 1979. As an Quality, Environment, Safety and Health Manager he became familiar with plastic recycling. After

In 2000, Ton was named Managing Director of the company which was purchased by the CeDo Group. In 2004, Ton Emans extended his responsibilities was named Supply Chain Managing Director of CeDo Group.

Ton Emans holds a Master of Science in occupational health and safety from the University of Amsterdam in the Netherlands and has completed several business programs.

In 2009, Ton Emans has been named Vice President of Plastics Recyclers Europe.

Michael Heyde, *Technical Director*

In April 1999, Michael Heyde made his debut in the secondary raw materials operations at Duales System Deutschland GmbH as Head of Engineering. At the end of 2000, he was given general power of attorney at DKR. Since 2005, he has been a member of the management board, which he has chaired from 2008-2011.

Since 2011 he is general manager of Systec Plastics GmbH.

Michael Heyde studied process engineering at the Technical University of Munich. Starting in 1989, he began working as a researcher in food technology and packaging at the Fraunhofer Institute for Food Technology and Packaging, specializing in environmental process engineering. He then moved to the environmental consultancy department at the same institute. Finally, he became Head of Systems Analysis with an emphasis on waste management. In addition to his work, he received his doctorate in engineering from the Technical University of Berlin in 1998.

Vanya Veras, *Secretary General of Municipal Waste Europe*

Vanya Veras has over 15 years of experience in waste management legislation, practices and systems. She is currently Secretary General of Municipal Waste Europe, the association which represents municipalities in their public responsibility and engagement in waste management services.

Vanya Veras is a multinational, multicultural individual who began her career in Brussels in 1996 with NGOs in the field of environmental protection and citizens' awareness, remaining in the field of environmental policy with Coopers' and Lybrand Europe, followed by a term in the European Commission's environmental management (EMAS) team.

In 1999, Vanya Veras joined FEAD, the private waste industry association and in 2000 at the age of 28, was nominated Secretary General of the organisation, a position which she held until 2005.

After almost twelve years in Brussels, Ms. Veras was offered the opportunity to return to her home country, Greece, with Coca-Cola Hellenic and there provided expertise as Environmental Affairs Manager for three years, learning a great deal about the practical functioning of various extended producer responsibility systems in the European Member States within the group's 28 countries and facilitating the transfer of knowledge between them. Following that, Ms. Veras advised several companies and local authorities on a variety of environmental issues, including the position of special advisor on waste management to the incumbent Mayor of Piraeus.

With the benefit of this combined experience of the waste industry, the producer and the local authority, Vanya Veras is now leading Municipal Waste Europe through the revision of the waste legislation.

PRESENTATIONS

Presentation by Hubert Reisinger and Thomas Weissenbach

ENVIRONMENT AGENCY AUSTRIA **umweltbundesamt**^U



Highlights on the State of Play in Plastic Waste Management in the EU

Hubert Reisinger & Thomas Weissenbach, 26.09.2013

ENVIRONMENT AGENCY AUSTRIA **umweltbundesamt**^U

Services of plastics

Plastics are inexpensive, lightweight materials which can provide many different services

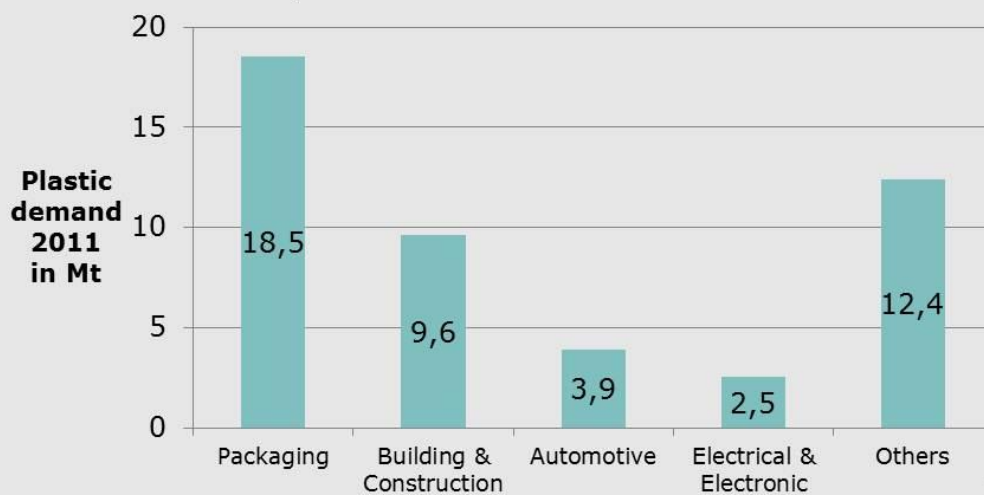
➡ Global plastic production + 3.7 % in 2011

2

Source: PlasticEurope (2012): Plastics - the Facts 2012. Brussels. <http://www.plasticseurope.org/Document/plastics-the-facts-2012.aspx?FoIID=2>.

Plastic demand by application

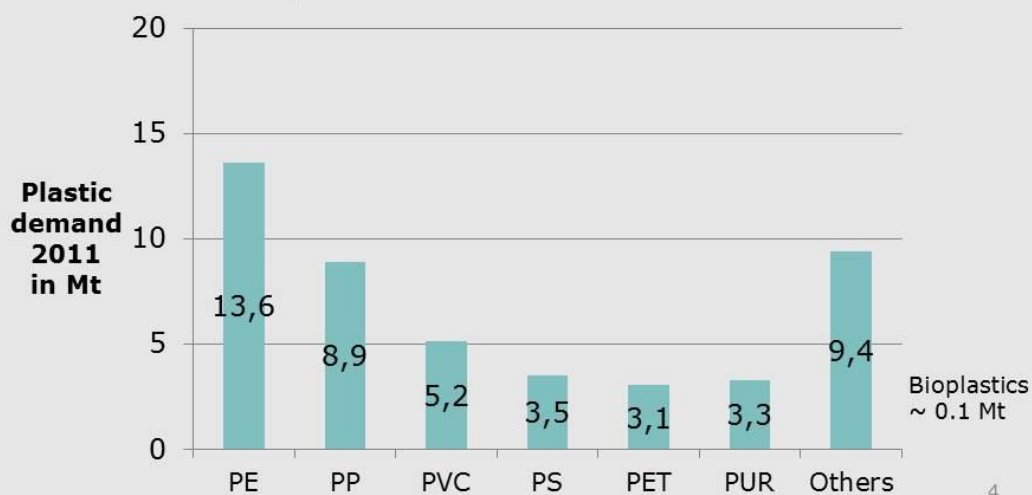
■ EU-27 + Norway + Switzerland Plastic Demand 2011: 47 Mt



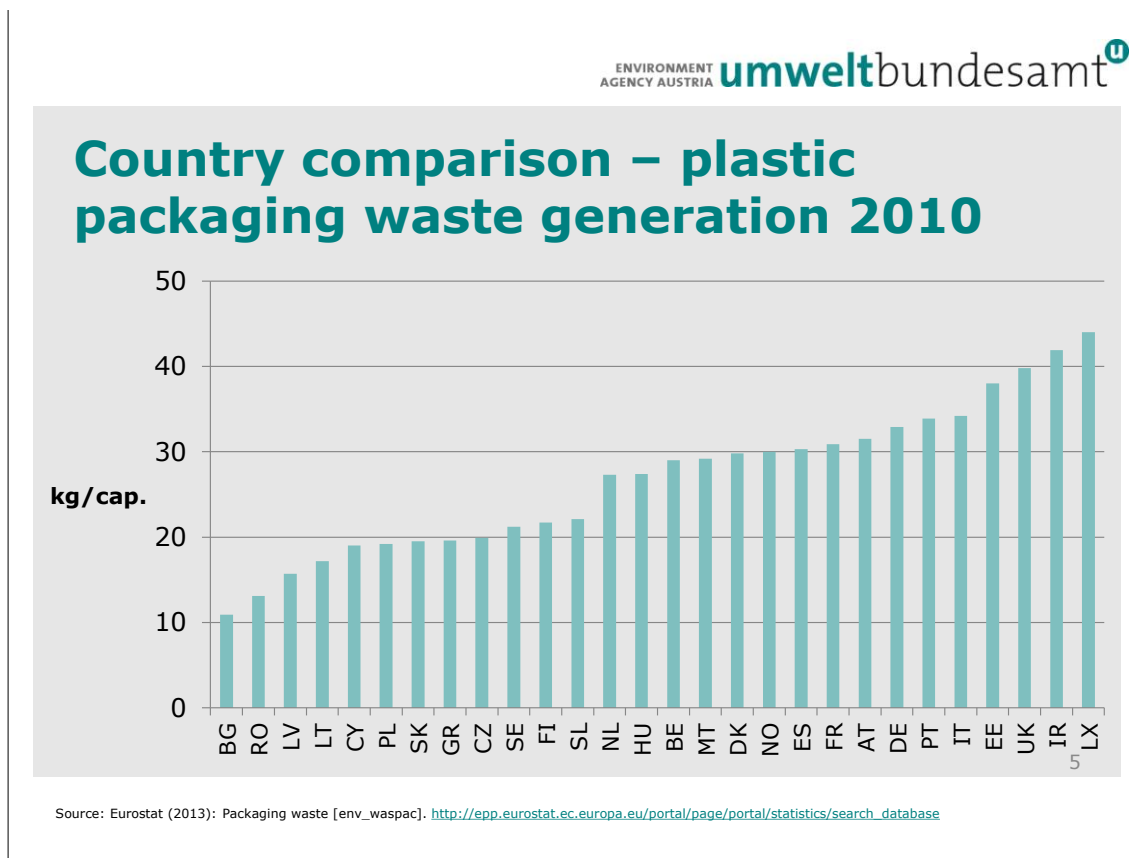
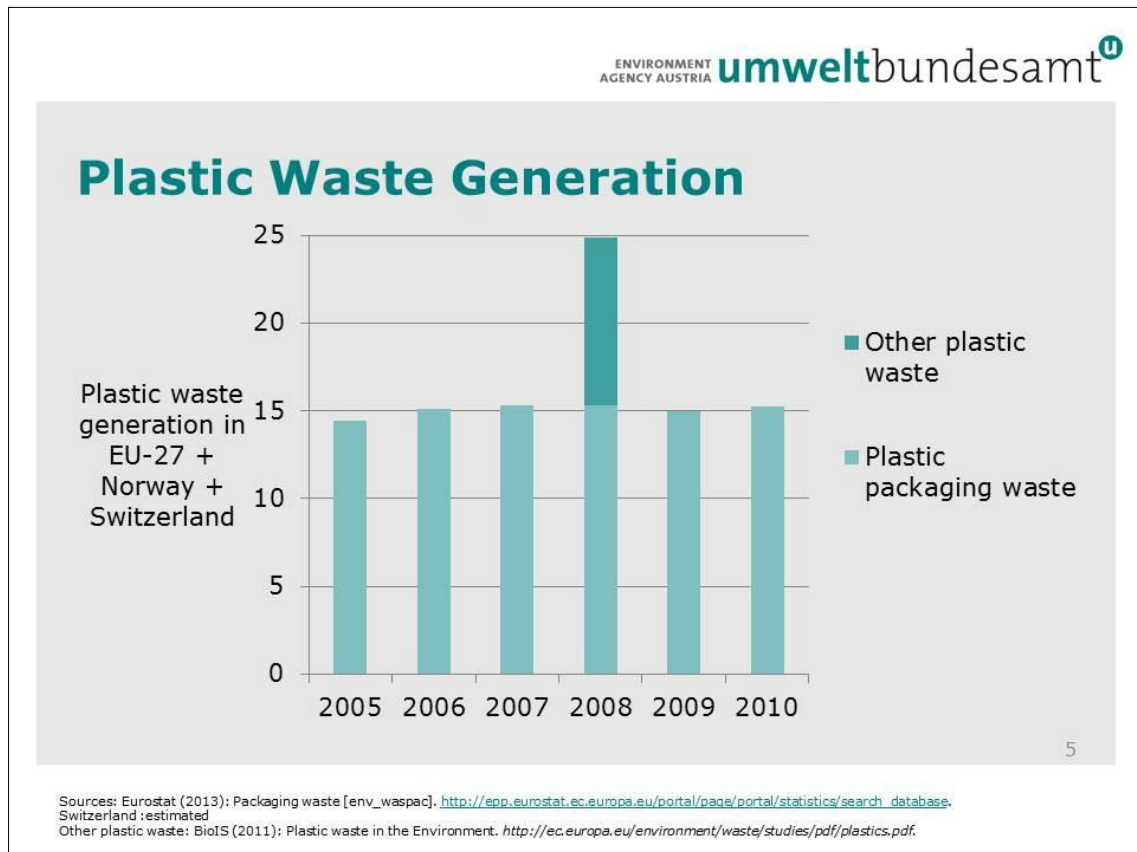
Source: PlasticEurope (2012): Plastics - the Facts 2012. Brussels. <http://www.plasticseurope.org/Document/plastics-the-facts-2012.aspx?FolID=2>.

Plastic demand by plastic type

■ EU-27 + Norway + Switzerland Plastic Demand 2011: 47 Mt



Sources: PlasticEurope (2012): Plastics - the Facts 2012. Brussels. <http://www.plasticseurope.org/Document/plastics-the-facts-2012.aspx?FolID=2>.
Share Bioplastics: BioIS (2011): Plastic waste in the Environment. <http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf>.



Problems

- Limited resource base (crude oil, natural gas)
- Hazardous substances
 - e.g. brominated flame retardants
 - phthalate plasticisers
- Dumping on non-compliant landfills with long persistence in the environment
- (Un)-planned obsolescence – designed to break prematurely
- Marine litter + degradation to ingestible micro-plastics

7

Marine litter

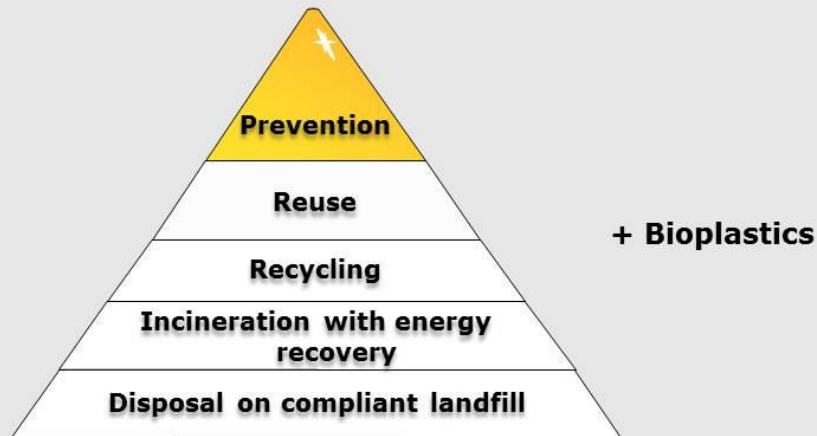
About 80 Million tonnes of plastic waste is estimated to float in the Atlantic and Pacific oceans.



8

Source: UNEP (2013): Distribution of Marine Litter.
<http://www.unep.org/regionalseas/marinelitter/about/distribution/default.asp>

Approaches for lessening the problems – the waste hierarchy



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Plastic waste prevention

- Which services do we actually need?
- Can we provide the service without buying a product?
- Use of long living products
- Eco-design
 - Without hazardous substances
 - With renewable or recycled materials
 - Easy to maintain
 - Repairable
 - Adaptable to changing demands
 - Recyclable materials
- Reusable products

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Reusable beverage packaging

- Advantages
 - reduced primary resource consumption
 - reduced environmental impacts
- Disadvantages:
 - either one standard EU-plastic bottle
 - or regional markets with separate back-transport logistics each

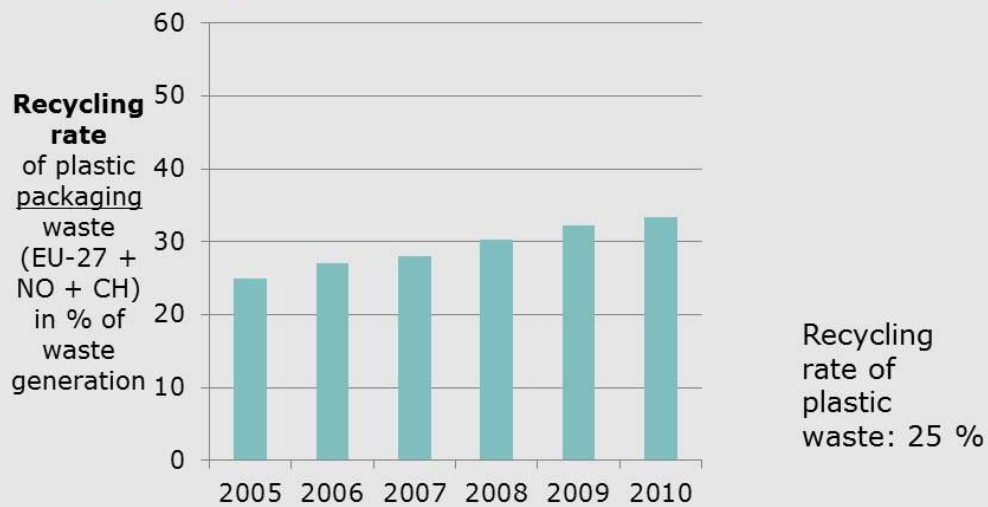
11

Bioplastics

- Advantages
 - Renewable resource base
 - (Partly) faster degradation
- Disadvantage:
 - No reduction of waste generation (if not reusable)

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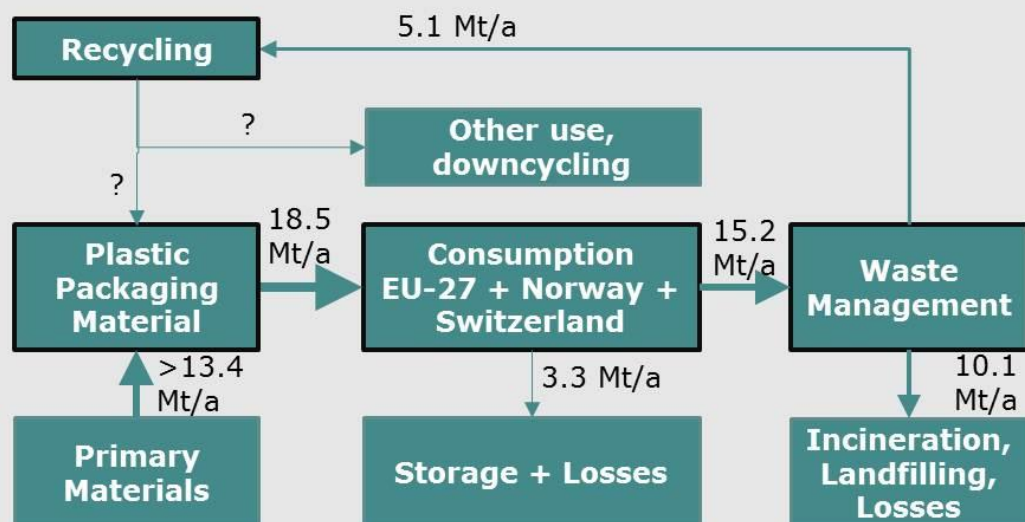
Recycling rates achieved



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Sources: Eurostat (2013): Packaging waste [env_waspac]. http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.
 Switzerland: estimated <http://www.plasticsrecyclers.eu/>

Flows of plastic packaging materials



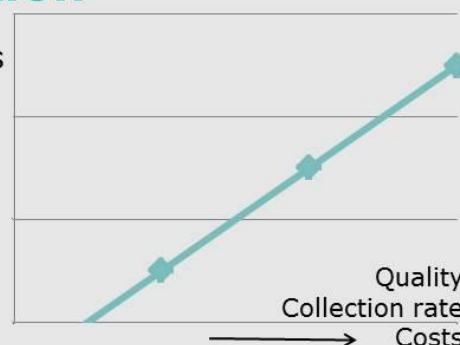
Pre-conditions for increasing the recycling rate

- Efficient separation / keeping separate of different plastic materials from other waste **and** each other
- Efficient system for bringing waste back to plastic production plants
- Efficient purification and make-up processes
 - Higher quality of the recycled material → higher share of recycling material in new product
- Use of plastics which can be recycled efficiently
 - Duroplasts can not be reshaped and thus not recycled at low cost
- Willingness of market to use recycling materials
 - Stringent standards for recycling material quality

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Crucial for recycling – effective plastic waste collection

- Bring back / take back systems (with deposits)
- Separate kerb-side collection
- Mechanical separation



	Aluminum beverage can recycling rates in 2009
Estonia (bring-back with deposit)	59%
Latvia (kerb-side)	30%

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Source: EAA - European Aluminium Association (2011) : Aluminium used beverage can recycling results, Europe 2009.
[http://www.eaa.net/files/aaa/documents/67/846/846_Press%20Release%20Alu%20bevcans%20recycling%202009\(fin al26July2011\)_ANNEX.pdf](http://www.eaa.net/files/aaa/documents/67/846/846_Press%20Release%20Alu%20bevcans%20recycling%202009(fin al26July2011)_ANNEX.pdf).

The earlier in the process foreign substances are removed, and the more thoroughly this is done, the more efficient the process is.



Decisive role of Extended Producer Responsibility Systems with take back of plastic waste for achieving a high recycling rate.

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Conclusions

- The focus of EU legislation regarding plastic waste was so far on packaging plastics.
- There are many options for making better use of plastics and for reducing their environmental impacts, especially in the fields of prevention, separate collection and material recycling.
- However, also many barriers have to be addressed to activate these options.

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Plastic Waste
Brussels ■ 26.09.2013

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Presentation by Linda Gillham



The Committee of the Regions' Position on Plastic Waste Management

*Workshop on Plastic Waste
European Parliament, 26 September 2013*

Linda Gillham
*Member of the Committee of the Regions
 Rapporteur on the European Commission Green Paper on Plastic Waste
 Member of Runnymede Borough Council, UK*




Foundations of the CoR's perspective on plastic waste

- CoR Opinion on the Green Paper on Plastic Waste (draft opinion 09/2013, final opinion 8/10/2013)
- CoR Outlook Opinion requested by the EC on "The review of the EU's key waste targets" (June 2013)
- CoR Opinion on "A resource efficient Europe – Flagship initiative of the EU 2020 Strategy" and the EC Resource Efficiency Roadmap (October 2011)



Applying the waste hierarchy to plastic waste management

- review of the Landfill Directive in 2014 to include a **landfill ban on plastics and highly-combustible waste by 2020** (with possible phase-in period for Member States lagging behind)
- EC to adopt in future reviews an **integrated approach to all plastics** including WEEE, ELV and packaging.
- setting of specific and ambitious, but achievable **targets for prevention, preparation for re-use and recycling of plastic waste**, to be harmonised in all relevant directives
- make **doorstep collection systems** mandatory and designed to encourage separation and maximise recycling
- make **PAYT** for bulky articles obligatory, using collection methods established by the local and regional authorities;
- EU should promote the **sharing of best practices** in waste management locally, regionally, nationally and internationally



Promoting plastic recycling - I

- there is a risk of increasing by a landfill ban the export of plastic waste outside Europe unless the **recycling market** is further developed in the EU
- new targets should reflect **environmental weightings** for the materials - tonnage is not appropriate as a measurement tool
- reporting on targets based on actual **recycling performance** and not on collection only
- ensure recyclers ship only to recycling plants with the same management obligations as EU plants; tighter monitoring of the application of **shipment** regulations at European ports



Promoting plastic recycling - II

- European Commission to promote **green public procurement** with greater incentives in prevention, preparation for re-use, recycling
- use **EU funding for future infrastructure** that recycles plastic effectively; cease funding for landfill and incineration, while also supporting the market for plastic recyclate
- increase possibilities for regional authorities to work together on **cross-border waste management** and treatment hubs



Extended Producer Responsibility (EPR)

- EC to study the best way of **applying EPR in the EU** - particularly with regard to plastic waste, the management of which is too often the responsibility of local and regional authorities
- for certain plastic products: payment of a **deposit and obligation to take back** the article at the end of its life, in particular for single-use disposable plastic items and disposable drink packaging
- **promote take-back schemes** to retailers, schools and workplaces and other frequently visited venues, where quantities of separated valuable resources can be accumulated to make recycling more viable



More sustainable plastics

- reduce the **number of types of plastic** (composition) in product design to make it possible to melt down sorted, compatible plastics; requirement for a clear statement of the type of plastic on packaging and products
- **mandatory minimum recycled content** in future design reviews (taking into account specified standards required by some food and personal health uses)
- **European Normalisation Standards** for compostable (both industrial and home), biodegradable and degradable plastics to be established with EU standard test methods
- avoid labelling plastics as "**oxo-degradable**" when being only oxo-fragmentable, with the potential to leave micro plastic particles in the environment



Tackling maritime litter

- a **specific reduction target for marine litter** can only be formulated if accurate data on the current volumes of marine litter are available
- the EU Marine Strategy Framework Directive sets indirectly targets for marine litter - any new targets should be coherent with existing waste targets
- specific targets for plastic could be considered but any target should be SMART and not just call for a reduction
- existing waste and resources legislation under MARPOL need to be better enforced



Thank you for your attention

Linda Gillham

*Member of the Committee of the Regions
Rapporteur on the Green Paper on Plastic Waste
Member of Runnymede Borough Council, UK*

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NOTES

DIRECTORATE-GENERAL FOR INTERNAL POLICIES

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