



Separate Waste Collection in the context of a Circular Economy in Europe

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Introduction

In December 2015 the European Commission presented its package on the circular economy in which it indicated its ambition to make the transition from a linear economy to a circular economy. This should contribute to boosting the economic development of the Union and improve its competitiveness and resource efficiency.

An important element in the package is a review of the EU waste legislation. This review introduces ambitious targets for reuse and recycling of municipal waste. To reach these targets it is essential to change the way waste in the EU is collected from households. On 29 January 2016 the European Commission organized a conference on this subject together with Municipal Waste Europe and EUROCITIES. Moderator of this conference was Ms. Katrina Sichel.

The conference gathered a wealth of experienced experts on the subject. It was attended by over 300 participants nearly equally divided between representatives of associations and policy makers and professionals in waste management.

The conference addressed the policy issues related to separate collection, but also presented examples of good practice from all over Europe. It ended with two debates on the way how to facilitate the implementation of improved separated collection.

The conference addressed the following questions:

- What is the state of play and progress made in the Member States and in cities in Europe?
- What are the lessons we can learn from these experiences?
- What are contentious and unsolved issues and what are open questions?
- What are the political and legal implications for Europe?
- How will this help pushing the circular economy agenda?

The program and presentations that were given can be found on the web-site of the European Commission¹. The site also has a link to the recordings of the conference. This report presents outcomes of the conference. It can serve as a source of inspiration for those involved in the transformation process of our linear economy into a circular economy.

Part I: Policy

In this section 5 speakers gave their views on the policy agenda for the circular economy. This policy agenda is the driver for the transition from a linear to a more circular economy.

¹ http://ec.europa.eu/environment/waste/eventspast/separate_waste.htm

In his welcome and introduction **Mr. Kestutis Sadauskas**, Director of the Green Economy Directorate in DG Environment of the European Commission, explained the setting.

The package presented by the Commission contains a proposal for a review of the EU waste legislation. Key elements of this proposal are:

- A requirement for separate collection of bio-waste
- A ban on landfilling of separately collected waste fractions and
- A sharp increase of the targets for recycling

It is very important that materials are kept in the economy. This will require adaptation of processes to collect presorted materials as this will make high quantities of cleaner fractions available that are easier to recycle. Separate collection is key to achieve this.

There will be no circular economy without good separate collection

The Commission has ordered a study into the current practices in European cities and in particular in the capital cities of the 28 Member States. One of the conclusions from this study is that some of the cities in Central and Eastern Europe are doing very well. The best performing capital is Ljubljana in Slovenia and Tallinn, the capital of Estonia, also belongs to the top performers in Europe. This shows that it is a myth that Northern- and Western-Europe are frontrunners and that Southern- and Eastern Europe are lagging behind.

Mr. Weine Wiqvist, president of Municipal Waste Europe, stressed the role that the municipalities play in waste management. They organize the collection at local level and either do the collection themselves or contract it out to private contractors. Municipalities have a lot of experience as the conference demonstrates. It is important not only to focus on recycling, but to take into account all the aspects of the waste hierarchy, including prevention, reuse, incineration and landfill.

Smaller and medium size cities tend to have better results than the capitals

Ms. Anna Lisa Boni, Secretary General of EUROCIITIES, indicated that cities play a key role in promoting the circular economy and the cities are the closest to the citizens. They can provide them with information on how they can contribute. The revision of the targets is an important step but there are other measures that should be taken. Examples of these other measures are:

- product design
- resource efficiency labels on products
- innovative financing systems

The role of citizens is key and local authorities are the closest to the citizens

Mr. Karmenu Vella, EU Commissioner for the Environment and Fisheries indicated that promoting the circular economy is a priority of the EU agenda. It is also an important issue on the global agenda. Firstly because the EU imports 6 times more resources than it exports. Using natural resources in a smart way is an economical logic. Secondly because this improved efficiency will lead to reduction of CO2 emission. After COP21 the commitment was made to reduce climate change. Now it is time to deliver and the circular economy can play an important role in that. This will require bold action because habits and thinking of the citizens needs to change.

With its circular economy package the European Commission wants to address these challenges. It addresses all parts of the life-cycle of products. Separate collection of waste is a key enabler of recycling. It will allow reaching the targets that are set in the package.

The package will trigger investment and create employment. The EU economy will depend less on disposal and will use wastes as valuable resources and a source of energy. This will also contribute to reducing emissions of greenhouse gasses.

Europe should become a global market leader for green technologies. The package has the potential to generate savings up to 600 bn € representing 8% of the BIP and to reduce 4% of Europe's CO2 emissions per year.

The transition to a circular economy is not a luxury, it is a necessity

Taking these measures is perfectly doable. The current low prices of commodities may cause some temporary problems, but they are not important in the long term perspective.

Policies are only effective if they can be applied. The conference gives a number of excellent examples of what is possible that could be duplicated in many places in Europe.

Mr. Domenico Gambacorta, President of the Province of Avellino in Italy and member of the Committee of the Regions of the European Union and rapporteur on the circular economy package stressed the important roles cities and region can play in the transition towards a circular economy. They are in charge of planning waste

management and of informing people. Since they are close to the citizens they can also bring the right people together to implement innovative solutions.

There are several issues where they can be decisive:

- public procurement
- raising awareness
- setting local and regional targets
- building up the necessary infrastructure
- implementing policies to reducing landfill

Good examples are the introduction of landfill taxes and systems for pay-as-you-throw where citizens pay for the real amount they throw away and not a flat rate.

What local authorities need to be able to play their role in the transition to a circular economy is an ambitious and comprehensive legally binding policy framework

This is important to ensure:

- limitations of incineration
- reducing landfill
- application of the polluter pays principle and
- a level playing field

Separate collection is a key instrument to reach the targets and to reduce CO2 emissions at the same time. Citizens are interested in EU policy and they do want to contribute. The local and regional governments can play an essential to realize this potential.

Part II: Practice

In the second part of the conference a number of practical examples were presented. The section was moderated by Mr. Patrick Hasenkamp, managing director of the municipal waste management company of the City of Munster, Germany and vice president of Municipal Waste Europe. The objective of this section of the conference is to show what is possible and what is being done in different parts of Europe. Examples come from small and medium sized cities and also from capital cities. The examples show that it is sometimes easier to get good results in smaller cities as they seem to have a higher performance than the capital cities. Each local situation is different and all local authorities are facing challenges. The conference shows examples on how the challenges can be overcome.

1. Separate collection in capital cities: EU study

Ms. Nicole Seyring, senior consultant at BiPRO and **Mr. Márton Herczeg**, senior consultant at the Copenhagen Resource Institute presented the study they did on separate collection in capital cities in the EU for the European Commission. This study was published in November 2015² and reports on the waste management practices in the 28 EU Member States. There is a specific emphasis on how their capitals manage municipal waste.

The study was done to investigate where the different Member States are regarding separate collection and recycling and what lessons can be learned from their experiences. The basis is the legal obligations for Member States in the EU waste Framework Directive to introduce separate collection in general and in particular for four waste types:

- paper
- metal
- plastic and
- glass

These obligations are strict, but there is a possibility to claim that separately collection is not practicable for technical, environmental and economic reasons (Article 11 of the Waste Framework Directive). The new package for the circular economy also introduces an obligation for bio-waste because it is clear that separate collection of bio-waste is lagging behind in Europe.

Member States performance

The Eurostat statistics for 2013 show that Member States' recycling performances differ greatly in Europe. On average 28% of the municipal waste in the EU is either recycled or composted. Germany has the highest performance with 64% and Romania the lowest with only 3%. A similar pattern can be seen for landfilling. On average 31% of the municipal waste goes to landfill in the EU, but in Germany this is nearly 0% and in Romania 97% still goes to landfill.

Some Member States make good progress towards reaching the current recycling target of 50% by 2020. These will make it when they keep up the current pace of improvement. Others will have to make a lot of efforts to reach this target.

If one looks at the primary collection systems for the different waste fractions, that is, the way the fractions are collected for most of the households in the Member State, the following pattern can be seen. For paper and cardboard door-to-door collection is the rule. For glass bring points are the rule in most countries. Metal and plastic are often collected together in a comingled collection system, while for bio-

² Assessment of separate collection schemes in the 28 capitals of the EU. It can be downloaded from the site of the European Commission: <http://ec.europa.eu/environment/waste/studies/>

waste door-to-door is the rule, but this fraction is not collected separately in all Member States. Most Member States have civic amenity sites for the separately collected fractions, but these are mainly a complementary service rather than de primary collection system.

Capital cities

The study gives a scoreboard of the performance of the capital cities in the EU Member States. Considerable attempts were made to prepare a harmonized set of data, but the information provided by the cities is not always fully comparable and also not always fully up to date. The report therefore contains a large number of notes to explain the different figures. Often it is also not possible to follow the material flows beyond collection, and therefore it is not known if material losses will occur after the collected material has been delivered to the recycling companies.

The study looked at the amounts of waste that were collected separately in kilogram per inhabitant. This is not a very good indicator for performance, because the cities that collect high amounts of waste do not necessarily also capture a high percentage of the recyclable waste. The capture rate, that is the share of the waste fraction that is collected separately compared to the total amount which is generated, is the best indicator for performance, but this is more difficult to measure.

If one looks at the most efficient collection systems it can be seen that the highest capture rates for paper and metal is found when this stream is collected door-to-door. For glass a high capture rate can be obtained with bring systems. For plastics and co-mingled fractions of packaging the capture rates are much lower than for paper and glass. For bio-waste the system in Europe is still in its early stages of development and it is not yet possible to draw any firm conclusions regarding the best performing collection systems in capital cities.

Another conclusion of the study is that the cities with the highest capture rates of the different waste fractions have introduced financing systems based on a form of pricing via pay-as-you-throw. This provides financial incentives for citizens who use separate collection better and put less waste in the bin for residual mixed waste. The cities which came out with the highest recycling performance, including Berlin, Budapest, Dublin, Helsinki, Ljubljana, Tallinn and Vienna all use this financing system. They have an average overall capture rate of recyclables of 35% while the cities with other financing systems have an average capture rate of less than half of this percentage.

Capital cities that introduced pay-as-you-throw financing systems collect twice as much recyclables as the EU average

2. Experience in small- to medium-sized towns

MWE performs a benchmark comparing the waste management performance of different cities. During the conference the results of three small to medium sized towns were presented:

- Haderslev in Denmark
- Rimini in Italy and
- Zwolle in the Netherlands

The situation in **Haderslev** was presented by Ms. Laila Skov, manager at Provas, the publically owned waste management company of the city. Haderslev is a small city on South Jutland in Denmark with 56.000 inhabitants and 27.000 households. The population lives for 50% in rural areas.

The philosophy behind the collection system that was developed in the city is that it should be easy for the citizens to do it right which will allow the city to recycle as much waste as possible. The main collection system for residential houses is to collect recyclables via a duo bin in a comingled system for recyclables. The different fractions are subsequently sorted into pure fractions in a central sorting plant operated by the cities' waste management company. For apartment buildings the different fractions are collected via central placed buried containers. Finally for summer houses a system of bring points is put in place. There are also 3 civic amenity sites where waste can be deposited in nearly 30 different fractions.

Since the introduction of the new collection system in 2011 the recycling rate has increased with 11%. Currently around 40% of the waste is being recycled. The remainder is incinerated. The total costs of the system of collection and treatment are €114 per inhabitant and €232 per household per year, which is good average but has potential to decrease considerably with pay as you throw.

It is the ambition of the city to increase the recycling rate to over 50% in the coming years. The city uses a panel of users to communicate about new ideas and to look for possibilities to optimize the service to the citizens.

Make it easy for citizens to do the right thing

The waste management system of **Rimini** was presented Mr. Tiziano Mazzoni, Director at the company Hera. This company runs the waste management program of 189 municipalities in Italy serving around 3,3 million citizens. Hera covers the whole chain from collection to final disposal. The shareholders of the company are mainly public authorities. He presented the waste management concept of the

company on the basis of the system put in place in Rimini, a city of nearly 150.000 inhabitants at the Adriatic Sea in Italy.

The waste management system in Rimini was tailor made for the urbanization situation in the city. The collection consists for the majority in curbside collection sites or road site collection containers. Around 20% of the waste is collected door-to-door. Around 2/3 of all waste is collected separately. This increased over the last 5 years from 43% on 2009 to 63% in 2014.

Hera invests a lot in information technology to improve its performance. One example is the development of an app to inform citizens what to do with each type of waste, where it is collected and when. Citizens can also take photos of places where waste is dumped illegally. This allows the company to identify the location and to remove the waste.

It also developed a system for reuse of items such as furniture and electronics. Citizens can inform Hera they want to get rid of these items and the company comes to collect it for reuse. Their information system allows them to follow all waste from the collection to the end destination. It also pays a lot of attention to communication to the citizens. All these factors have led to the success of the system as implemented in Rimini.

Communication with the citizens is key for successful separate collection

The experience of **Zwolle**, a town with 125.000 inhabitants in the North-East of the Netherlands, was presented by Ms. Natascha Spanbroek, project manager sustainability at Rova. Rova is the publically owned company that organizes waste management for 23 municipalities in the region around Zwolle.

In 2011 Rova launched an initiative to work towards a waste free society. The main measures were the introduction of a reversed service level of collection and of a financing system based on the principle of pay-as-you-throw. Rova had seen that it was easy for the citizens to get rid of residual waste, as this was collected door-to-door, while the citizens had to do more efforts to get rid of recyclables as these were collected in bring systems and via the civic amenity sites. They decided to reverse this. Recyclables are now collected door-to-door and residual waste has to be brought to curbside collection bin where the citizen has to pay according to the amount that is put into the bin.

The result was that the amount of residual waste dropped from 150 – 200 kg to around 60 kg per inhabitant and that recycling increased from 50% to over 70%. Moreover, the costs of the system went down.

The objective for the future is to reduce the amount of residual waste even further, preferably to close to 0. They launched a pilot project that was called the 100-100-100 experiment. 100 families volunteered to participate for a period of 100 days with the objective to separate 100% of their waste. To be able to do that the citizens were trained to buy circular.

The results of the pilot show the possibilities and impossibilities of the roadmap towards a waste-free society and these results were promising. Some of the families succeeded in reaching 0% residual waste. On average the residual waste dropped to 22,5% of the total amount generated. Diapers formed the most important waste fraction for which no recycling options were available.

The initiative of Rova shows that a massive reduction of residual waste is possible. The factors for success are:

- Provide incentives for the citizens, via service levels and/or financially
- Chose the perspective of the household when designing the measures
- Communicate on the possibilities for prevention and reduction of residual waste
- Provide positive feedback on the results
- Provide for a long term intervention with a green perspective

If citizens are triggered to participate via a combination of clever service levels in financial incentives the results are impressive

3. Question and answer session

After the presentations from the 3 cities there was a session where the participants of the conference could pose questions to the presenters. Issues that were raised from the room included:

- What is the quality of the materials that are collected separately?

It may be that in the beginning the quality of the material drops. Typically the quality of materials in bring systems is a bit lower than for door-to-door collection. In bring systems the amount of material that is wrongly sorted can be around 8 – 10%. In door-to-door collection of paper the amounts are typically around 5%. In general the quality of the materials that are collected separately satisfies the recycling partners.

- Are sales of recyclables included in the cost figures that were quoted?

If one is to calculate the costs for the citizens one would normally also take into account the revenues of sales of materials that are collected if these have a market value. This is one of the reasons why the systems for separate collection do not

necessarily have to be more expensive than systems where all waste is collected as a mixture.

- Do citizens start dropping waste illegally when pay-as-you-throw is introduced?

If the population is consulted before the introduction of the system and agrees with the measure these problems are not so big. It is important that at the start of the project a lot of attention goes to communication and to control measures. It is also important to identify the individuals that behave improperly. The problem is not very big and manageable.

- How can collection vehicles deal with duo bins where several fractions are being collected via one bin?

The lorry that collects several fractions from one bin is split in the same way as the duo bin. The compartments of the bin are emptied into separate compartments in the lorry; the size of the compartment in the lorry is adapted to the expected volumes to be collected.

- How can we study the systems, communicate about the results, what technology is needed for waste diverted from landfill?

Each city or region has to find its own solution. MWE and EURO CITIES provide for platforms for exchange of information.

4. Large cities

Larger cities are often facing specific challenges to implement systems for separate collection. Therefore it is important to also study the experience of those larger cities to see what is possible and where the challenges are. EURO CITIES is the European organization of the cities with more than 500.000 inhabitants. Three of these cities that shared their experience:

- Milan in Italy
- Manchester in the United Kingdom
- Gothenburg in Sweden

Mr. Danilo Vismara, marketing manager of Amsa presented the system in **Milan**. The city itself has approximately 1,5 million inhabitants. To this one should add 800.000 commuters that enter the city every day to go to work. Amsa manages the collection, transportation and disposal of the wastes of the city and for 12 municipalities in its surroundings.

The system of collection has evolved more and more towards a domestic collection system with bins for paper, glass and organic waste and bags for metals, plastic and for residual waste. Other services such as civic amenity sites, a mobile civic amenity site and bring banks in certain areas complement this system. Residual waste is incinerated. None of the municipal waste is being landfilled.

Milan introduced separate collection of bio-waste. The quality of the material that is collected is good.

The experience in Milan shows that it is possible to collect even selected bio-waste (kitchen waste) in a large city with a high population density and with a majority of high rise buildings

With the stepwise introduction of new collection systems the separate collection rate increased from 35% in 2011 to over 50% in 2014. This is the result of optimization of the service levels and important efforts in communication. This is important to get the citizens on board.

John Bland, treasurer and deputy clerk at the Greater Manchester Waste Disposal Authority presented the experience in **Manchester**, UK. The Waste Authority is owned by the municipality and is responsible for the collection and treatment of the waste of the 2,6 million inhabitants of the area.

The city has a large number of old houses with very little space for storing waste bins. Despite these difficult conditions the current recycling rate is 41% and the landfill diversion rate 75%. These results are obtained by a combination of separate collection and mechanical-biological treatment to minimize incineration. The residual waste that is incinerated generates energy in a combined heat and power installation. Rail transport is used wherever possible.

When looking at the composition of the waste it would in theory be possible to recycle 75%. The qualities of the materials that are prepared for recycling have contaminations that are well below the limits required by the recycling industry.

Communication is essential for the success: one has to tell the citizens how they can recycle more.

Manchester demonstrates that even in a city with a lot of old houses and very little space for separate collection good results can be obtained

Henrik Kant, managing director of the department of sustainable waste and water of the city of **Gothenburg** presented the system of separate collection in his city.

Gothenburg is the second largest city of Sweden with 50.000 inhabitants. It also has the largest port of Scandinavia. 80% of the inhabitants live in high-rise buildings. The objective of the city is to make it easy for its citizens to live in a sustainable manner.

In the high-rise buildings fractions are collected separately in roll-containers. Bio-waste is collected separately as well as packaging and paper. The city also operated 350 recycling centres where citizens can bring waste. Hazardous wastes are collected at these centres but also with a mobile unit.

The amounts of waste collected for recycling went up the last years after the introduction of the collection of food waste. This is pretreated in a treatment plant to produce slurry which goes to a biogas plant. Residual waste is incinerated. The total costs for collection and treatment of municipal waste is €66 per inhabitant.

To measure progress the city has developed an indicator to communicate both to the citizens and to the politicians about the progress towards sustainability. The indicator starts at 0. If all waste would be landfilled the score would be 0. If all waste is prevented the score would be 100. Currently the score of Gothenburg is 39 and the score is climbing up. The city feels a need to further improve their score. This indicator is now under development and may become a national indicator.

Gothenburg developed a waste indicator that makes it easy to communicate progress to the citizens and the politicians

5. Question and answer session

After the presentations from the 3 cities there was a session where the participants of the conference could pose questions to the presenters. Issues that were raised from the room included:

- Do the costs increase with the introduction of separate collection and what is the quality of the collected material?

In Milan there were no important increases of costs. The quality of the collected materials is monitored regularly. Typically the amount of wrongly sorted material is around 3 – 4%. This good quality was reached from the very beginning. To get there one needs to communicate constantly. In certain parts of the town it may be necessary to communicate in other languages if there is a large population of foreigners.

- How to keep the population involved and motivated?

The experience of Manchester is that it is important to keep the local press informed so they know what is done and why. It is also important to be very transparent on the results and to communicate where the different fractions are being treated.

- How is it possible that the costs in Gothenburg are so low?

The city relies quite heavily on the bring points. It is envisaged to introduce more door-to-door collection and this would increase the sustainability of the system but may cause an increase of the costs.

6. Capital cities

The EU study on separate collection has made an overview of the experiences of the 28 capital cities in the EU. The findings were summarized in a scoreboard. The three cities that came out as best were:

- Ljubljana, Slovenia
- Tallinn, Estonia and
- Helsinki, Finland

These three cities presented their systems and the experiences that had led them to become the best performing capitals in the EU.

Janko Kramzar, CEO of SNAGA, the public waste collection company of the city of **Ljubljana** presented the waste management system in his city. Ljubljana is the capital of Slovenia and has around 380.000 inhabitants. The city started with collecting waste in ecological islands, where a number of collection bins were gathered in the street. Later on this was replaced with door to door collection with four bins:

- Bio-waste
- Paper
- Packaging
- Residual waste

The recyclables are collected more frequently than the residual waste. Only in the city centre the collection in ecological islands on the street is still in place, but this is done via underground containers.

In 2015 65% of the municipal waste was recycled. Bio-waste contributes the most to these high figures. By implementing a consistent policy the city managed to increase the amounts that were separately collected from 16 kg to 145 kg per inhabitant in a period of 10 years. The total costs for the collection and treatment of the waste is less than 100 € per inhabitant. In 2014 the company could even return some money to the citizens.

Snaga also operates a regional recycling centre where the residual waste is treated in a mechanical-biological facility. The city does not plan to have an incinerator. It focuses on the priorities of prevention, re-use and recycling.

The objective is to raise the recycling rate to 75% and to further reduce the residual waste from the current 117 kg to 60 kg. The amount that has to be landfilled should be reduced to 30 Kg.

Communication contributed largely to the success of the system. A number of targeted campaigns were launched in particular to promote reuse and for the reduction of food waste.

Ljubljana is not better or smarter than other cities. Every city can obtain high recycling rates. They should just decide they want it and start doing it

Mr. Relo Ligi from the Environmental department of the city of **Tallinn** presented the waste management system in his city. Tallinn is facing the challenge of a rapid growth of its population in the last 10 years. It now has nearly 440.000 inhabitants who live in a dense urban environment, mainly in high rise buildings often built during the period that Estonia was part of the former Soviet Union. The citizens produce around 400.000 ton of municipal waste and in 2012 53% was collected separately.

The collection system is based on a mix of collection modes, with door-to-door collection for bio-waste, paper and cardboard and comingled packaging as a backbone. This is complemented by bring points and civic amenity sites. For a number of waste streams the producers are responsible for the collection, including for packaging. The producers of packaging have installed 274 bring points in the town for packaging waste.

In Estonia there is also a widespread system for collection of packaging via a deposit refund system that is operational since 2005. The capture rates for glass and plastic are high in this system. The capture rate for metal beverage cans is lower. Alcohol is much cheaper in Estonia than in the surrounding countries. A lot of canned drinks are exported and the packaging waste does not come back.

Deposit refund systems for certain waste types can complement the traditional separate collection systems and contribute to recycling

The residual waste is treated either in a mechanical-biological treatment facility or in the incinerator of the city. Less than 5% of the waste is landfilled. Also Helsinki makes considerable efforts to communicate about the system to the citizens.

Mr. Petro Kouvo of the **Helsinki** Regional Environmental Services Authority presented the system of separate collection in his city. His company serves the capital and the surrounding municipalities in which 1,1 million people live, which is 20% of the total population of Finland. More than 70% of the inhabitants live in apartment buildings, but over 60% of the customers (service agreements) concern family houses. For all apartment buildings separate collection is implemented. For the villas separate collection is introduced on a voluntary basis.

There is a long tradition of separate collection. It started in 1987 with separate collection of glass, for which there are now 140 collection points. Separate collection of bio waste started in 1993. The composting plant for the treatment of this waste stream will be replaced with anaerobic digestion. Residual waste went to a landfill site until 2014. From that time onwards it is incinerated.

The system of separate collection is tailored according to the urban situation. The services for small and large apartment buildings may be different as well as for villas. There is also a system of a deposit refund for a number of types of packaging waste. In 2014 45% of the waste was recycled and it is projected that this will be 50% in 2016.

Helsinki has put in place an elaborated system of communication and training including by organizing workshops on waste collection at schools and for citizen groups

7. Concluding remarks

When one looks at the experiences of cities that obtain good results for recycling a number of conclusions can be drawn:

- There is not one solution, but there are several solutions; they should be tailor made for the specific situation of the city.
- Successful cities use a combination of collection systems geared at providing high service levels for their citizens
- The technologies that are being used are not that different. Organization is more important than technology. Motivating citizens is also more important than technology and communication makes sure that they know how to contribute and remain motivated.
- Introducing separate collection does not necessarily make waste management more expensive
- Pay-as-you-throw can provide for incentives that stimulate citizens to separate their waste in an efficient and effective manner and has before all a considerable cost saving effect for citizens.
- The quality of the material that is collected is typically good.

- Important improvements of the recycling performance can be obtained in a relatively short time period. What is needed is a clear political will and consistent policy and the courage to implement this policy.

Part III: Implementation

The last part of the conference was dedicated to the subject of the implementation of separate collection. It consisted of three parts. First the Joint Research Centre (JRC) of the European Commission presented the work it has undertaken to promote Best Environmental Practices in the waste management sector. This presentation was followed by two discussion panels. The first panel debated about the question how to strengthen local governance for separate collection, recycling and material recovery. The second panel debated about the question how producer responsibility and separate collection can support quality recycling and maximizing material recovery.

1. Best Environmental Practices in the waste management sector

Mr. Paolo Canfora of the JRC presented the work of the centre on this topic which they are doing as part of the work on the development of the European Eco-Management and Audit Scheme (EMAS). This EU Regulation provides for the framework of Environmental Management Systems and environmental performance reporting tools. Companies can adhere to the scheme on a voluntary basis. One of the key elements is that EMAS certificates do get recognition of authorities. The other key concept is that of inviting companies to continuously improving their environmental performance.

To assist companies the JRC has developed guidance on Best Environmental Management Practices (BEMP) destined to assist frontrunners in the sector to reduce their environmental impact. The guidance documents are adopted by the European Commission and are available on-line in all EU languages. The guidance document on waste management covers operations with municipal solid waste, construction and demolition waste and healthcare waste and is currently under development. Elements of BEMP include introduction of pay-as-you-throw systems and optimization of logistics for waste collection. The documents are developed based on stakeholder involvement. The document is expected to be adopted by the end of 2017.

The EMAS guidance on BEMP will assist frontrunners amongst the local authorities reducing the environmental impacts of their waste management system even further

Mr. Canfora replied to a number of questions after his presentation. He indicated that some of the schemes for Extended Producer Responsibility currently do have EMAS certificates but not all. He also explained that EMAS was deliberately a non-mandatory instrument because it is destined to assist the frontrunners. Best practices are inspiring, but it is often difficult to indicate what all actors in a sector should do in all cases.

2. Local governance

The first discussion panel looked into the issue how local governance could be strengthened to ensure separate collection and recycling. The panelists were:

- Mr. Jacob Simonsen, representative of Municipal Waste Europe and managing director at the Danish Waste Association
- Mr. Günther Langer, representative of EUROCITIES and director at the waste management corporation of the city of Munich
- Mr. Helmut Maurer, policy officer and legal advisor at DG Environment of the European Commission
- Ms. Françoise Bonnet, secretary general at the Association of Cities for Recycling
- Mr. Emmanuel Katrakis, secretary general at the European Recycling Industries Confederation EuRIC
- Mr. Piotr Barczak, policy officer on waste at the European Environmental Bureau
- Mr. Henrik Lystad, chair of the European Compost Network

Each panelist started with an opening statement to illustrate the position he or she wanted to defend.

Mr. Simonsen mentioned that municipalities set up the infrastructures as services of general interest. They also ensure that something sensible is done with the materials that are recycled. The focus is on the customers. It is important that setting up robust systems is and remains a public task. The key to success is flow control where the fate of the material is known until it has been recycled. There is also a need to ensure that the municipalities have adequate financial means. And finally it is important that the responsibilities are clear. Both municipalities and producers should know and respect each other's role.

Mr. Langer indicated he had 3 wishes that would help better local governance:

1. Knowledge exchange: municipalities have a lot of knowledge on how to do their work. The examples presented during the conference demonstrate this. For those that were not present during the conference it would be good to have a knowledge platform to exchange information on best practice.

2. Money: Cities need to have the means to implement the waste policies and waste collection services. This may come either from a fee or a tax. Member States may

need to be forced to provide such funding. EPR could also be one of the means to ensure funding.

3. Reliability: to ensure investment reliability of the general policy is a must. The other important aspect is that quality standards can be ensured if governments use public procurement as a tool to steer the market.

Mr. Maurer stressed the importance of good governance on national and on local level. Without them the European laws would not work, even if these laws themselves would be very good. The main success factor for implementation is the organization of the process and logistics and the building up of reliable and easily accessible infrastructure. Both cannot be done but by the local government. It is also very important to engage the citizens to consider waste management their personal issue. Policy must provide incentives that make good behavior pay and must provide clear information on how citizens can contribute to better recycling and in particular to waste prevention.

Ms. Bonnet indicated that the objective of local governance should be that all stakeholders: citizens, producers and local authorities can play their role. There has to be political commitment to take the right decisions and to use the right instruments. These instruments are:

- Targets
- Economic instruments such as pay-as-you-throw and taxes
- Technical measures such as bring systems, door-to-door collection
- Information on recycling but also on possibilities for prevention

ACR+ has developed tools to analyze policies and perform benchmarks and are active in sharing information and good practices with cities in Europe.

Mr. Katrakis explained that the recycling companies are a key player as they would enable the recycling of the fractions that are collected separately. There are three important issues.

1. Responsibility: to reach high recycling rates there is a shared responsibility of citizens, authorities and the private sector. Information and education are very important and it is also very important to provide information to make the citizens understand what will happen with their waste after collection.

2. Waste hierarchy: the policy put in place to respect the hierarchy should be predictable for a long period to stimulate investment in technologies that are higher up in the hierarchy.

3. Private sector involvement: this involvement is essential to ensure that the system is optimized.

The local authorities are very important to implement separate collections. But there is also a need to have access to markets for recyclables and these markets are often global markets. There is a need to have the possibilities to market recyclables globally and not to consider this on a level which is too local.

Mr. Barczak drew the attention to the provision in the proposal to amend EU waste framework directive that requires Member States to set up systems for separate collection for bio-waste 'where technically, environmentally and economically practicable and appropriate'. This provides for a possibility to waive the obligation and may be a large loophole.

He also indicated that collecting waste in a comingled manner is not a good option. Introducing a ceiling on residual waste would boost recycling and also stimulate prevention. Economic instruments to boost recycling such as pay-as-you-throw and rebates for the fee in case of home composting could be introduced.

Mr. Lystad explained the benefits of separate collection of bio-waste. It closes the loops, promotes the use of bio-base products to replace the use of peat and fossil fuels, enables improved recycling of dry recyclables and would be creating 20.000 – 50.000 jobs in the EU. There is a potential of 100 Mt of bio-waste to be treated in the EU. To stimulate separate collection introduction of a recycling target for bio-waste would help as well as a date before which Member States would need to have set up separate collection.

3. Question and answer session

The issue raised by the EEB of the possible **loophole** for Member States not to introduce separate collection of bio-waste was raised. It was indicated that there are no reasons not to implement such separate collection systems, because experience has shown that it is feasible everywhere. It was also explained that the legal interpretation of such a waiver would be that this only applies to exceptional cases and never can be turned into the rule. Any exemptions would need to be motivated with extensive evidence of exceptional circumstances. It is therefore not likely to create a large loophole.

There was some debate about the role of **home composting**. Some indicated the need to stimulate this. Others questioned the environmental benefits because of the methane emissions which makes that the option does not perform much better than incineration.

Also the important opportunities for use of **biogas** were mentioned, e.g. for use in trucks or busses.

Local governments can do a lot because they are close to the "*citysumers*" (citizens are also consumers) and they have influence on the markets for recyclables if they

include a link to waste management during **procurement procedures**. Public authorities' spending represents approximately 20% of the total market.

It is clear that one size does not fit all. Local governments can **customize** the collection systems to adapt to the local situation. It is also important to ensure that something good happens with the waste that is collected. Otherwise the system will lose credibility and citizens will no longer be motivated to contribute.

It is very important to take into account the characteristics of the **recycling market**. Currently the recycling business is difficult, due to low prices of commodities. Governments can help creating market conditions for recycled products. They can also set requirements for products to increase recyclability. And finally the end-of-waste criteria are important to stimulate recycling.

The current targets are focusing mainly on environment but there are also aspects of **public health** to be taken into account. The focus for separate collection and recycling should be on clean streams of uncomplicated materials. Complex products often contain a lot of chemicals. For those products incineration may be a viable option to destroy hazardous chemicals and reduce impact on health. There will always be a need to incinerate and landfill certain fractions of the waste.

3. Extended Producer Responsibility

The second discussion panel debated over the question how producer responsibility can play a role in supporting separate collection and supporting quality recycling. The panelists were:

- Mr. Nicolas Garnier, vice president of Municipal Waste Europe and executive officer at AMORCE, the French organization of public waste companies
- Mr. Håkon Jentoft, representative of EUROCITIES and managing director of the Norwegian waste association
- Mr. Marton Herczog, consultant at the Copenhagen Resource Institute
- Mr. Joachim Quoden, managing director at the Extended Producers Responsibility Alliance (EXPRA)
- Mr. Michal Len, director at RREUSE
- Ms. Virginia Janssens, managing director at the European Organization for Packaging and the Environment (EUROPEN)

Mr. Garnier stated that France is the champion of introducing EPR. This is because it became clear that even though 1/3 of the waste is recyclable and 1/3 is organic the remaining 1/3 is 'the dark side of the moon'. One of the reasons this problem occurs is that producers do not think about the end-of-life stage of their product and do not think about using recyclable materials. EPR is a solution for that. However, the implementation of EPR in Europe is very scattered. Each country does what it wants. Currently 10% of the cost of waste management is paid by the producers and 90% is still paid by the citizens. There is a need to implement EPR for a lot more waste

streams. It is not logical that non-recyclable products don't have to pay for waste management while recyclable products do because they are covered by EPR schemes.

Mr. Jentoft stated that EPR is one of the most important instrument or waste management of the last years. It can contribute to the circular economy but it is not a clear round-about. There is a need for legal requirements for EPR in the new directive.

Mr. Herczog stressed that for separate collection there is not one solution that fits all. What can work should be decided at the local level. It is very important to set clear responsibilities as to what is the task of the authorities and what is the task of producers. Cities with high recycling rates all have introduced separate collection of bio-waste. Communication is extremely important.

Mr. Quoden mentioned that communication has been neglected in a number of Member States. In Germany 80% of the people don't care about separate collection. EPR can help making the change. He also stressed that quality recycling requires good materials in sufficient quantities. Manual sorting will not deliver that and mechanical sorting plants are a must. To implement EPR there need to be minimum requirements in legislation and the authorities should enforce the rules. EPR can be a solution for a large number of waste streams but on bio-waste this may not be needed.

Mr. LEN mentioned that EPR in its current form is not the best tool for stimulating reuse. The current initiatives for reuse mainly depend on good will of the producers. It would help to have reuse targets. The fees for the EPR schemes should also take into account the possibilities to promote repair. Introducing a 0% VAT on repair and reused products would also help. Reuse is often done in the social economy. Introducing social clauses in tendering procedures could also stimulate reuse.

Ms. Janssens expressed that the packaging supply chain has been very active in implementing EPR. However, producers cannot solve the problem on their own. They also need the citizens, the authorities and the waste management sector to do their bit.

It is very important that the European legislation sets minimum requirements for EPR. This provides for clarity and for a level playing field. It remains to be clarified what the provision in the law on full cost coverage by the producers would imply. In particular it needs to be clear where the producer responsibility would start and where it would stop.

4. Question and answer session

During the debate after these opening statements the following issues were raised.

One of the **shortcomings of the current EPR systems** is that they do not provide for incentives on product design. It is cheaper for producers to simply pay the fee rather than to redesign the product to improve recyclability. Regarding to packaging the environmental footprint of the packed product is more important than that of the packaging. EPR does not address that. It is clear that there are limits to what one can

expect from EPR in this context. It is also questionable how far the EU should go in prescribing universal requirements that are to be applied all over the EU.

EPR could contribute to reducing **marine litter** of plastic. If the waste collection system works well littering is reduced. EPR schemes should also contribute financially to measure against littering.

EPR is also important to get **economy of scale** in particular for waste streams where collection and recycling is problematic. The principles of proximity and self sufficiency should be applied with caution, because there is a need to find recycling markets.

A point of attention is the EU is already doing a lot to introduce EPR. It could be time to ensure that the **neighboring countries** would also start and it may also become an important instrument for developing countries where there is a permanent lack of financial means with the authorities to organize waste management.

Some participants raised the issue that for **products that cannot be recycled** measure to prohibit access to the market might be envisaged.

Closing remarks

Mr. Gulio Garcia Burgués, Head of the Unit Waste Management and Recycling of DG Environment of the European Commission made the closing statement in which he summarized a number of the findings of the conference.

1. Separate collection is essential

The first conclusion is that if Member States want to move towards high recycling targets and contribute to the circular economy the way to success goes via a system of separate collection.

2. It is perfectly doable

The most important arguments forwarded by opponents to the idea of introducing separate collection are proven to be wrong. Some claim separate collection is costly. This is wrong. If waste is sorted there will be revenues from sales of recyclables. Others claim it is socially unacceptable and not favored by the public. This is also wrong. If one gives the right incentives e.g. via economic instruments and if one gives the right information to citizens they will accept the system and cooperate. Finally some indicate that it may work in villages and small cities, but does not work in big cities. The examples of a number of large cities in the membership of EUROCITIES and the study on the practice in capital cities show that also in big cities separate collection can work, even for bio-waste, and provide good results.

3. Separate collection is a flexible tool

It can be adapted to local situations and local needs. It can be operated effectively in big and small cities. Local authorities are the best positioned to make this happen.

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