

The Best Environmental Management Practices for Waste Management and the upcoming Green Best Practice Community

Learning from frontrunners – helping organisations improve waste management performance

Paolo Canfora – European Commission, Joint Research Centre
Treviso, 22/03/2018 – Public conference of the COLLECTORS project



The Best Environmental Management Practices for Waste Management and the upcoming Green Best Practice Community

Content of this presentation

Who we are and what we do

Best Environmental Management Practices (BEMPs)

BEMP examples on Waste Management

The Green Best Practice Community

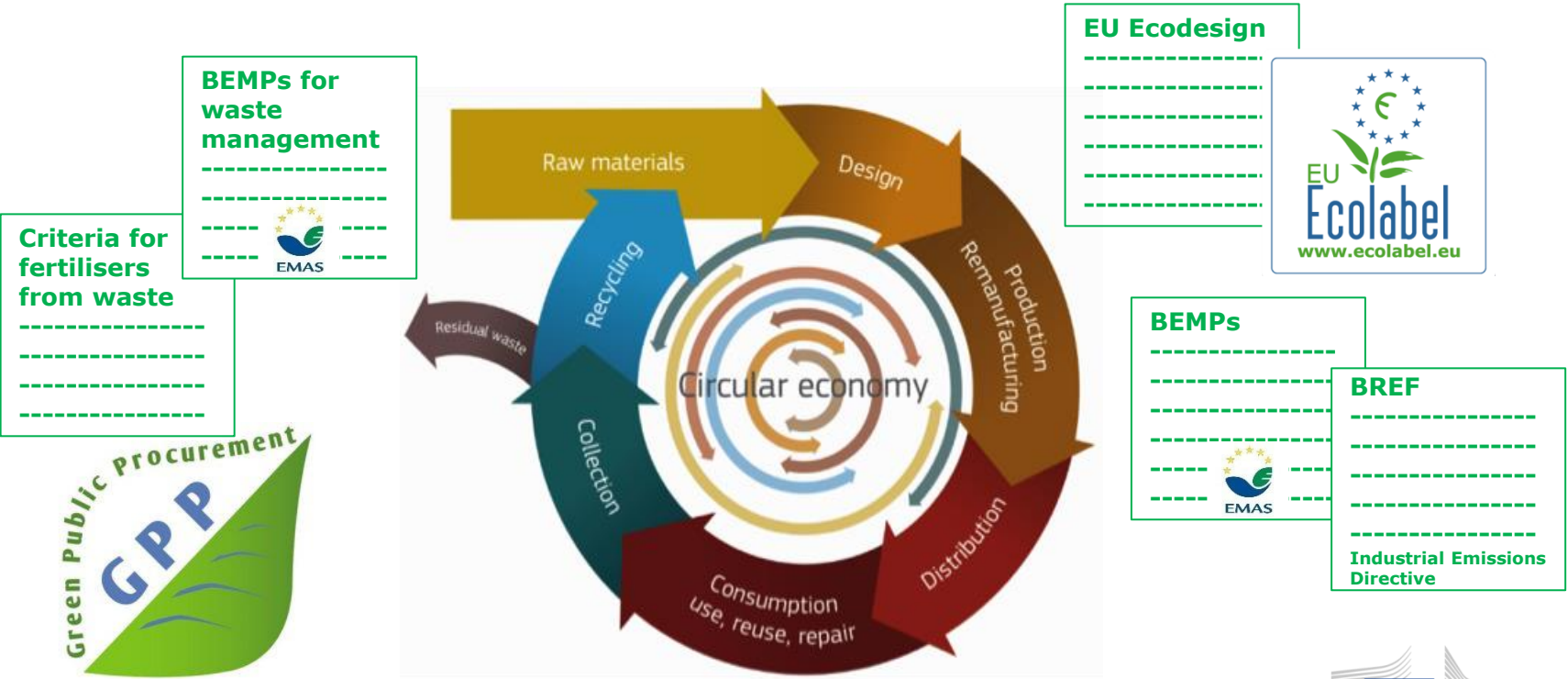
The Joint Research Centre (DG JRC)

- *We are the science and knowledge service of the European Commission*
- *Our mission is supporting EU policies with independent evidence throughout the whole policy cycle*
- *We work on nearly all science and policy areas*
- *We are policy neutral*



3000 staff, 30+ nationalities, 6 locations

The Joint Research Centre and the circular economy – some examples

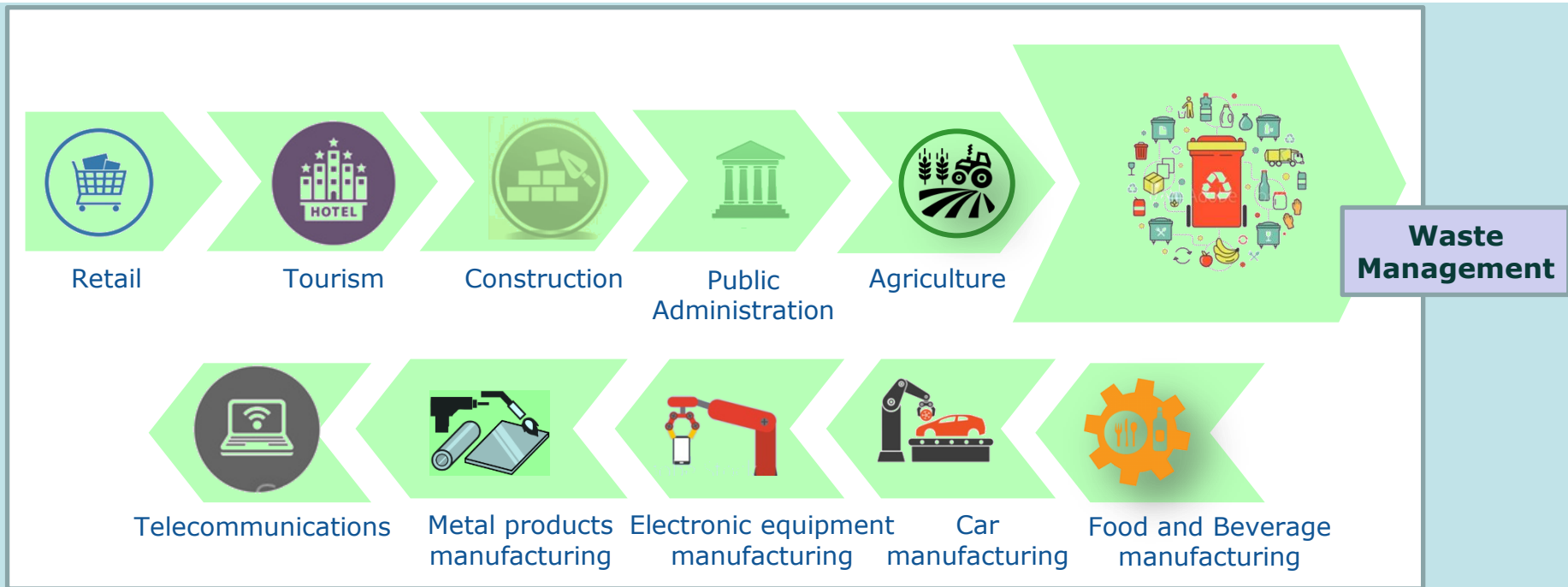


Sectoral Reference Documents on Best Environmental Management Practice (BEMP)

- Legal basis: **EMAS Regulation** (EC) No 1221/2009
- BEMPs support **all businesses and other organisations** to improve environmental performance, not only EMAS registered organisations



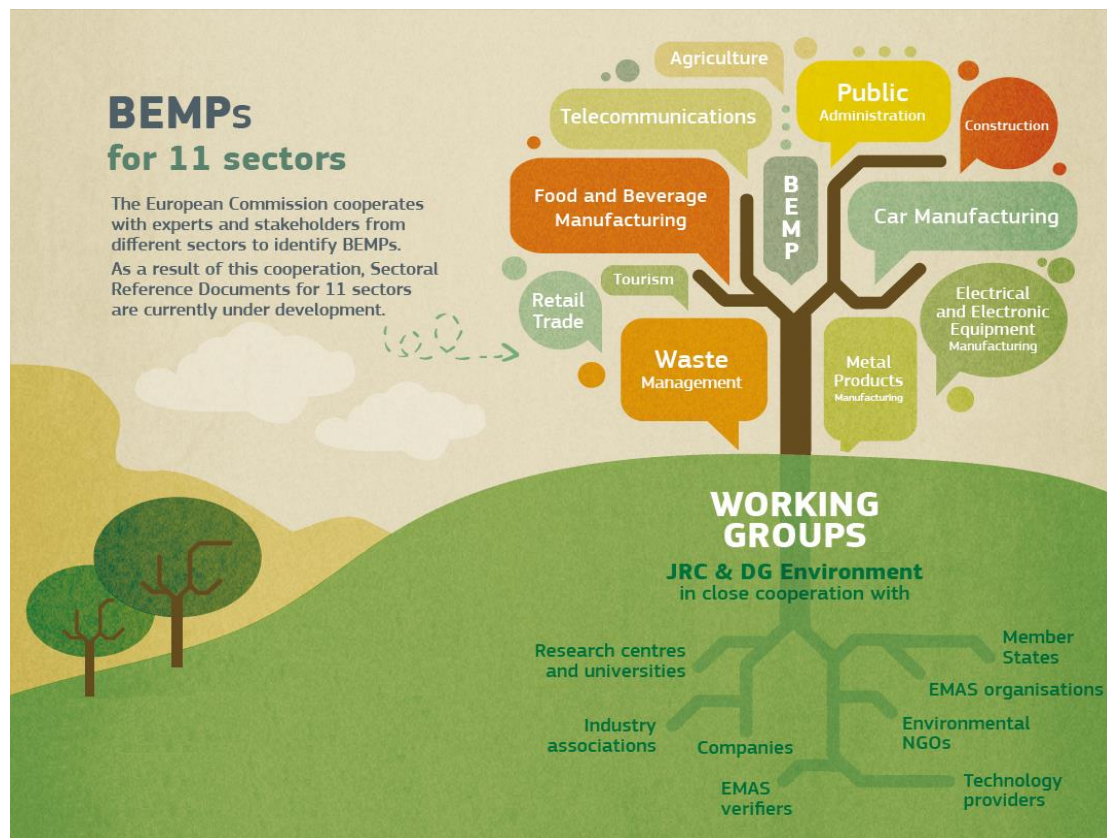
11 Sectors



We identify BEMPs...



...working together with stakeholders





A development process based on stakeholder involvement

Three phases:

- **Desk research** (background collection of information from literature, frontrunner organisations and experts)
- **Information exchange** within the forum of a **Technical Working Group** comprising sector experts to identify and validate the best practices identified, the indicators and the benchmarks of excellence
- **Adoption process** (European Commission, member state representatives in the EMAS Committee, public consultation)

Best Environmental Management Practices for the Waste Management sector

The scope

Municipal solid waste

Construction and demolition waste

Healthcare waste

Waste management companies

Waste authorities (local authorities)

Waste management strategy

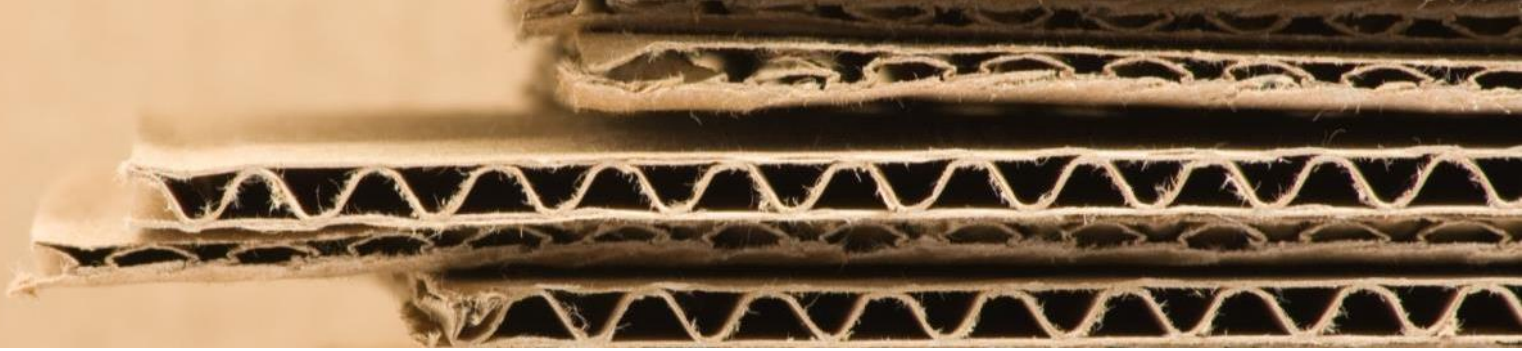
Waste prevention

Waste collection

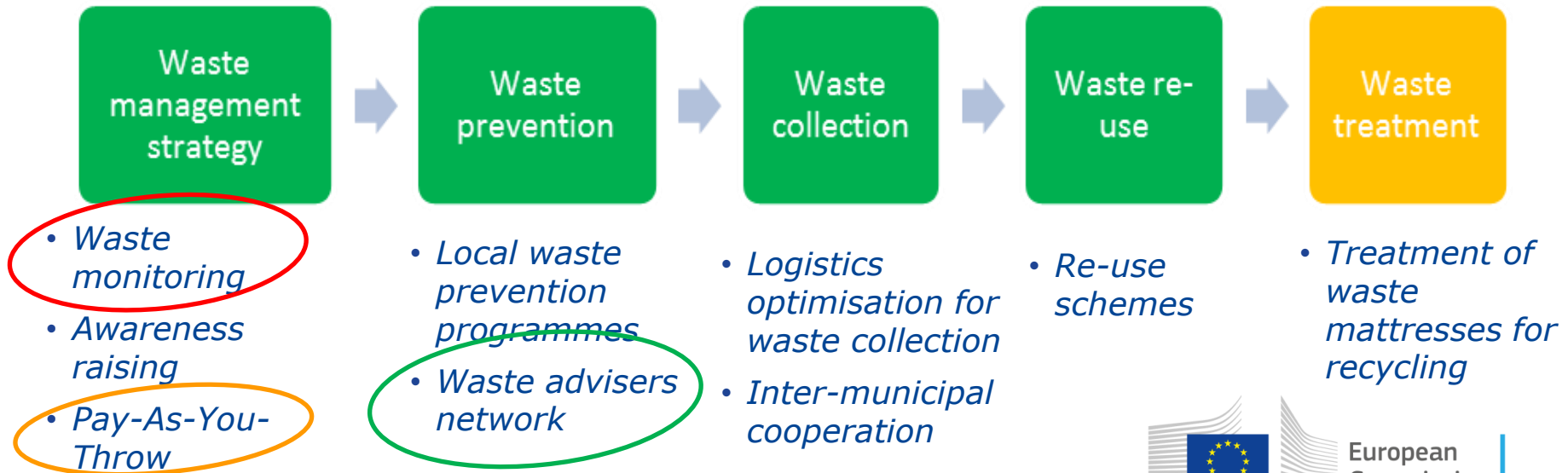
Waste re-use

Waste treatment

Material recycling, energy recovery, waste disposal



A few examples of BEMPs for **municipal solid waste**





Advanced waste monitoring

- Data at **single waste stream level** and for the different waste management phases;
- Track information **along the entire value-chain** of the collected waste;
- Regular **composition analysis** of mixed waste;
- **Timely** availability of data;
- (Internal) **analysis** of data;
- **Web-based tools** for information to residents.

Benchmark of excellence
Composition analysis of mixed waste
is carried out at least 4 times in a year
(during different seasons) **every 3 years**
or after any substantial change of the
waste management system.

Future outlook: advanced waste monitoring + user identification at collection = web-based tool with data for each waste stream at single household level

Example – Advanced waste collection monitoring

ANNO 2016

QUANTITA' RIFIUTI RACCOLTI

Val di Non (IT)

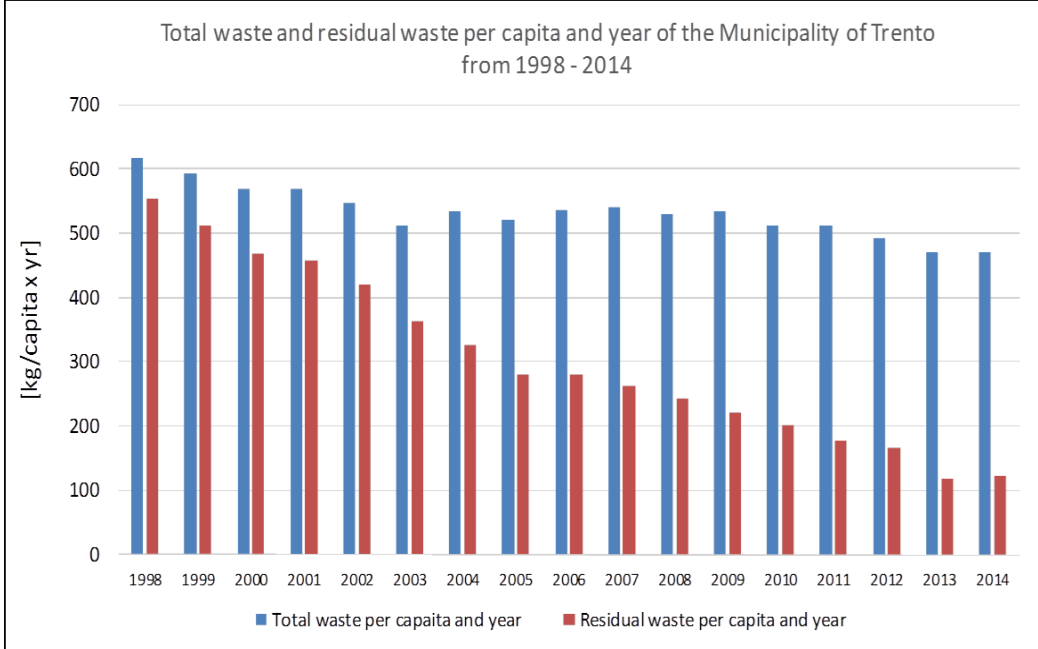
CER	Descrizione	GEN (t)	FEB (t)	MAR (t)	APR (t)	MAG (t)	GIU (t)	LUG (t)	AGO (t)	SET (t)	OTT (t)	NOV (t)	DIC (t)	TOTALE (ton.)	%
Monthly data collection															
Additionaly, composition analysis of mixed waste every 3 months.															
Data for 35 separately collected waste streams															
Advanced waste monitoring is key for the calculation of meaningful indicators															
Totale Rifiuti Urbani differenziata															
Totale Rifiuti Urbani indifferenziati															
TOTALE RACCOLTA RIFIUTI URBANI															
% Racc. Differenziata ANNO 2016															
Totale Rifiuti Urbani indifferenziati															
TOTALE COMPLESSIVO con sabbie															



Benchmark of excellence
A Pay-as-you-throw system is in place, according to which **at least 40% of the cost is charged** to the users of the waste collection system **depending on variable waste collected** factors (e.g. quantity of mixed waste collected).

Pay-as-you-throw

- Introduce a system where citizens **pay per weight** or **per bag** of residual waste generated.
- Ensure that **infrastructure to collect and to process the recyclables** is available and efficient.
- **Organic waste** and **bulky waste** are also weighted.





Establish a network of waste advisers

- Set up a local network of "**waste advisers**" to:
 - raise awareness on waste management;
 - offer a service to residents and entrepreneurs/small businesses;
 - gain a better understanding of what happens on the ground (drivers, reasons).
- Key features:
 - home/community **visits** (+ schools);
 - working **together** to identify possibilities to **reduce** waste generation;
 - improving source separation with practical **what goes where** sessions;
 - **focus on** waste streams that are considered more problematic (**food waste**, WEEE, bulky waste, etc.).

Benchmarks of excellence

- A network of waste advisers is in place with at least **1 waste advisor per 20.000 inhabitants**.
- **Awareness campaigns** are systematically implemented for different types of target groups (e.g. pupils, general public, users of civic amenity sites) and the **annual budget** devoted to awareness raising activities is at least **5€ per resident**.



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Establish a network of waste advisers

Examples of frontrunners

Styria (AT)



Establish a network of waste advisers

Examples of frontrunners

Styria (AT)

Very dense network: an adviser every 20,000 inhabitants

Target: children (including schools and kindergartens), private households and SMEs



Nürnberg (DE)

- *Waste advisers are both employees and volunteers*
- *Multi-lingual awareness raising for foreigners (English, Turkish, Russian, Arabic, Farsi, Amharic, Kurdish...)*
- *Mobile information centre*



Common indicators for Municipal Solid Waste

Generation

Total municipal solid waste generation
[kg/capita/year]

Collection

Amount of mixed waste collected
[kg/capita/year]

Bio-waste in mixed waste
[kg/capita/year]

Capture rate for glass
[%]

Impurity rate for separately collected glass
[%]

Capture rate for paper/cardboard
[%]

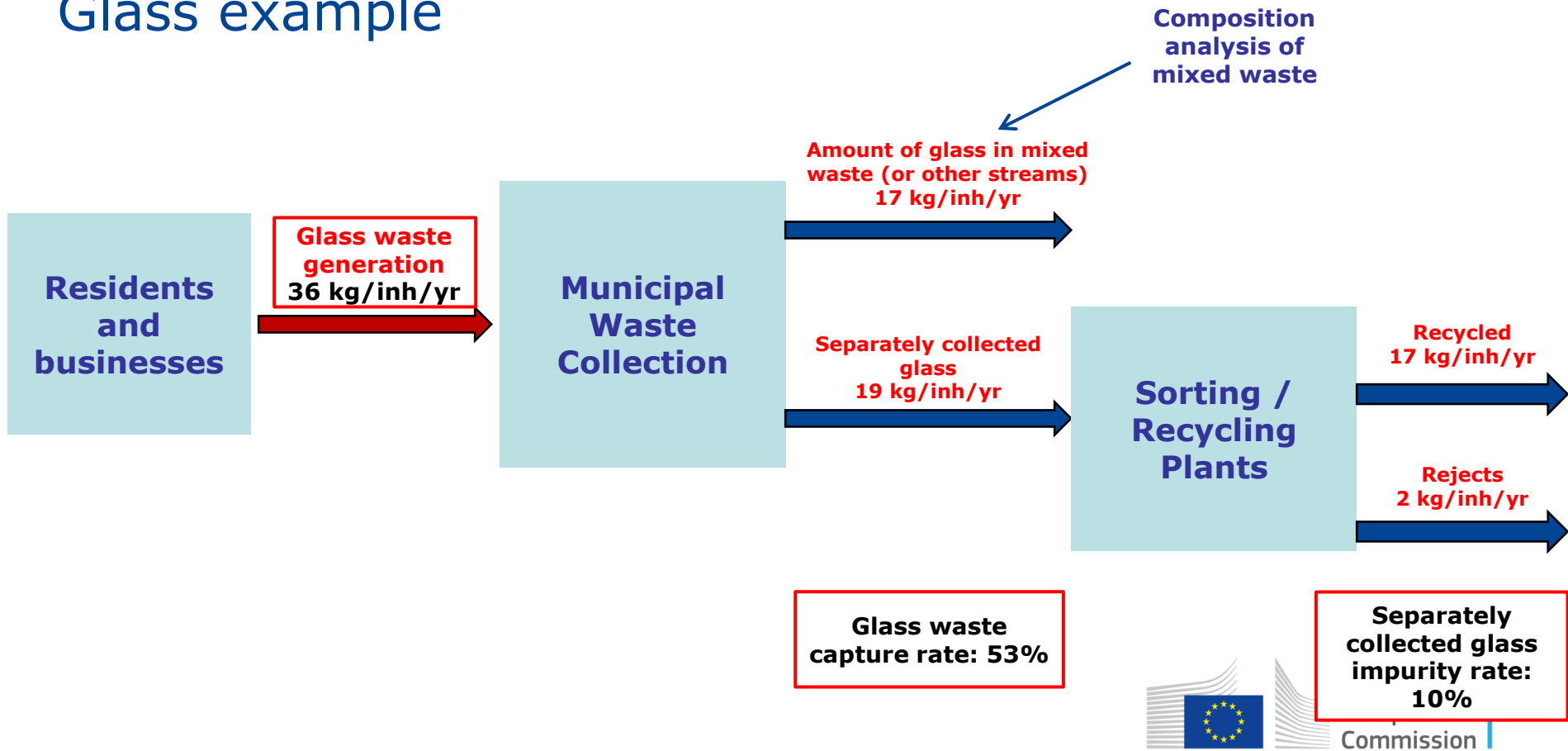
Treatment

Waste sent to energy recovery and/or disposal
[kg/capita/year]

Waste sent to disposal
[kg/capita/year]

Example: use of capture rates and impurity rates

Glass example



Common BoE for MSW



Municipal solid waste (MSW) generation - Benchmark of excellence:

The annual generation of MSW in the territory administered or managed (collected by all different waste collection systems available in the area) is:

- lower than 75% of the national average of municipal waste generation, using the national definition of municipal waste of their own country; **or**
- lower than 360 kg/capita, if calculated only for the following waste fractions: (i) organic/biowaste (e.g. green cuttings, food, kitchen waste), (ii) co-mingled packaging, (iii) paper and cardboard, (iv) glass, (v) plastics, (vi) metals, (vii) bulky, (viii) WEEE and (ix) mixed waste.

Frontrunners: Ljubljana (SI), Bristol (UK), Val di Non (IT)

MSW sent to energy recovery and/or disposal - Benchmark of excellence:

The annual amount of collected mixed MSW sent to energy recovery and/or disposal is:

- lower than 15% of the national average of municipal waste generation; **or**
- lower than 70 kg/capita.

Frontrunners: Treviso (IT), County of Aschaffenburg (DE), Val di Non (IT)

MSW sent to disposal - Benchmark of excellence:

The annual amount of MSW sent to disposal is:

- lower than 2% of the national average of municipal waste generation; **or**
- lower than 10 kg/capita.

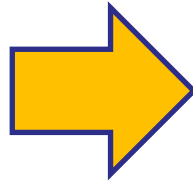
Frontrunners: Vienna (AT), Ljubljana (SI), County of Aschaffenburg (DE)

From BEMP reports to an online tool & community

- *BEMPs for 11 sector*
- *Interest from stakeholders*

But there are improvement opportunities:

- Reports are not the best format for communication
- When does BEMP need update?
- Need to sustain motivation and minimise efforts for stakeholders



Development of the new approach

- *On-line tool to access information*
- *Community*

Features:

- More user friendly outputs
- Systematic monitoring and stakeholder involvement
- More flexible information exchange



TAKE A GREEN STEP

BEMPs made easy: introducing takeagreenstep.eu

The one-stop online place for tips on how to make your **hotel and restaurant** more eco-friendly.

Funnelling readers to the relevant information, takeagreenstep.eu includes:

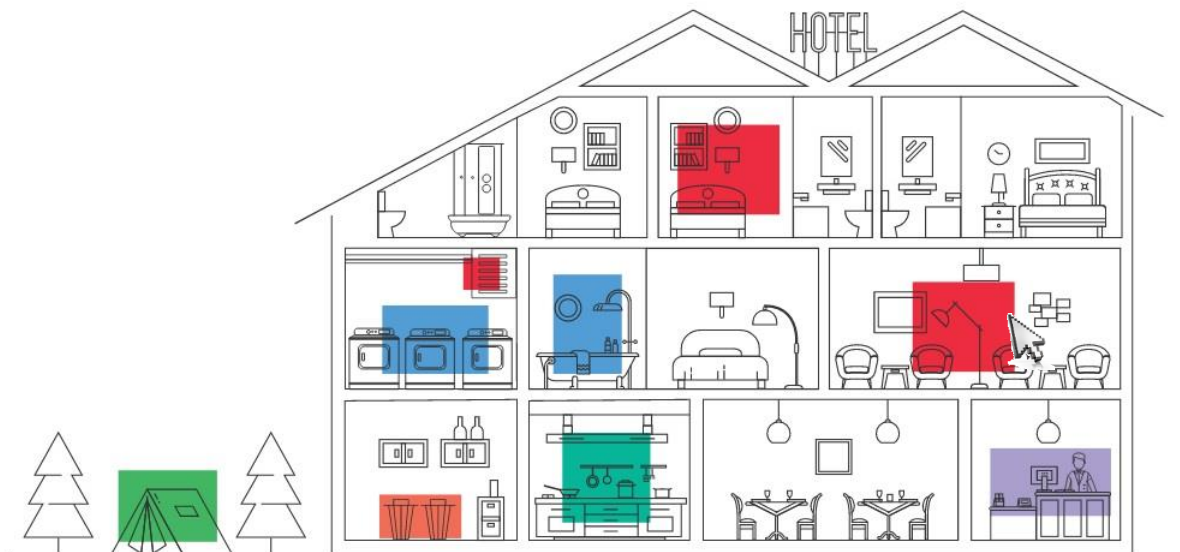
- Introductory **articles** on big and small green steps for your business
- To go further... **Case studies** showing how others have achieved it
- To get the full technical details... References to the **full Best Practices** in an easy-to-read format
- As well as **practical tools** you can use immediately such as signs for guests and checklists for staff

In 5 languages



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The concept for a Green Best Practice Community

Continuous
identification of
BEMPs

Getting the
message out

Broaden
stakeholder
engagement

Are there new best
practices in the
sector?

Are some BEMPs
outdated?

*Let frontrunners and
organisations tell us*

Meet actual needs of
organisations

User friendly format

Partner with relevant
multipliers

Stimulate
contributions

Engage key
sectoral actors

Develop a community



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A very first mock-up



Search

WELCOME

Nunc vestibulum condimentum nisi. Nam erat diam, suscipit vitae nisl eget, tempus tempus eros. Proin vel diam convallis, bibendum mi id, faucibus eros. Donec mi nisl, auctor quis aliquet a, ultricies vel metus. Ut rhoncus nulla augue, in egestas metus fringilla non. Sed sit amet felis dignissim, ornare elit vel, mattis augue. In adipiscing euismod purus id rutrum. Nulla facilisi. Nulla vitae dui lectus.

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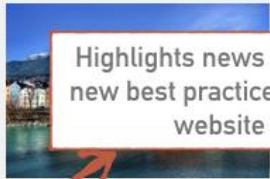
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Highlights news such as new best practices on the website

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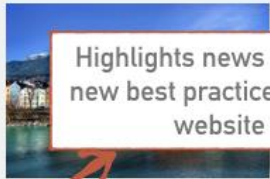
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Periodical newsletter providing relevant best practices in "pills"

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SUBMIT

Municipal solid waste

Construction and demolition waste

Healthcare waste

Waste management companies

Waste authorities (local)



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WASTE MANAGEMENT

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Municipal solid waste

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Articles summarising the content of one or some best practices (e.g. tips on the first steps to improve environmental performance)

Waste collection

Waste re-use

Waste treatment

Material recycling, energy recovery, waste disposal

ARTICLES

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Forum online where organisations can exchange experiences with JRC team and among each other

Waste treatment

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Municipal solid waste

Construction and demolition waste

Waste management companies

authorities (local)

Helpdesk where organisations can write about their situation to be pointed to the relevant best practices and to relevant frontrunners

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WASTE MANAGEMENT

SUBMIT

Municipal solid waste

Construction and

Healthcare waste

Waste

Waste management strategy

1. Cost benchmarking
2. Advanced waste monitoring
3. Pay-As-You-Throw
4. Performance-based waste management contracting
5. Awareness raising
6. Establish a network of waste advisers
7. Home and community composting

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BEMP: ESTABLISH A NETWORK OF WASTE ADVISERS

Set up a local network of “waste advisers” to:

- raise awareness on waste management;
- offer a service to residents and entrepreneurs/small businesses;
- gain a better understanding of what happens on the ground (drivers, reasons).

Key features:

- home/community visits (+ schools);
- working together to identify possibilities to reduce waste generation;
- improving source separation with practical what goes where sessions;
- focus on waste streams that are considered more problematic (food waste, WEEE, bulky waste, etc.).

COMMENT

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INDICATORS

- Share of population in the waste management catchment area having contact with waste advisers over a given period of time (e.g. % population per month)
- Number of waste advisers per 100,000 inhabitants

BENCHMARKS

- A network of waste advisers is in place with at least 1 waste advisor per 20,000 inhabitants

CASE STUDIES

STYRIA 

- Very dense network: an adviser every 20,000 inhabitants
- Target: children (including schools and kindergartens), private households and SMEs



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Possibility to propose a BEMP, indicator, benchmark or case study (if your organisation is implementing a best practice and you would like to be featured in the website)

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BEMP: ESTABLISH

Set up a local network

- raise awareness of
- offer a service to
- gain a better unde

Key features:

- home/community
- working together
- improving source
- focus on waste s
- WEEE, bulky wast

COMMENT

CASE STUDIES

STYRIA

- Very dens
- Target: children (including schools and kindergartens), private households and SMEs

SUBMIT:

BEMP
Indicator
Benchmark
Case study

Information:

<insert data>

Include:

+ Indicator
+ Benchmark
+ Case study

Associate to:

+ BEMP
+ Indicator
+ Benchmark
+ Case study

SUBMIT

INDICATORS

- Share of population in the waste management catchment area having contact with waste advisers over a given period of time (e.g. % population per month)
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BENCHMARKS

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JRC SCIENCE FOR POLICY REPORT

Best Environmental Management Practices for the Waste Management Sector

Learning from frontrunners

Dri M., Canfora P., Antonopoulos I. S., Gaudillat P.

March 2018



Download the BEMPs for waste management:
<http://susproc.jrc.ec.europa.eu/activities/emas/documents/WasteManagementBEMP.pdf>

Get in touch with us at
jrc-emas-srd@ec.europa.eu
to be involved in the Green
Best Practice Community

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Thanks

Any questions? Interested to stay in touch?

You can reach me at



[@PaoloCanfora](https://twitter.com/PaoloCanfora)



paolo.canfora@ec.europa.eu



- <http://susproc.jrc.ec.europa.eu/bemp>
- <https://ec.europa.eu/jrc/en/research-topic/best-environmental-management-practice>



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