



BEST ENVIRONMENTAL MANAGEMENT PRACTICE FOR THE WASTE MANAGEMENT SECTOR

The European Commission's Joint Research Centre (JRC) is developing a sectoral reference document (SRD) on best environmental management practice for the waste management sector. Waste management is a key sector in terms of resource efficiency where best practice, going well beyond regulatory requirements, can be of great benefit. This activity is part of the JRC's work on [identification of best environmental management practice and development of EMAS Sectoral Reference Documents for different sectors](#). This brief introduction outlines the proposed scope and priorities of the project and provides a provisional list of proposed Best Practices for the sector.

Waste streams

- Municipal solid waste (MSW): household waste and assimilated (including organic, plastic, metal, paper, glass, bulky items, batteries, exhaust oils/lubricants, light bulbs, etc.).
- Construction and demolition waste (CDW).
- Medical waste (MW).

Target group

- Waste management companies (public and private), including companies implementing producer responsibility schemes.
- Waste authorities (public administrations in charge of waste management, mainly at local level).

The study will not cover organisations which generate waste and do not belong to the waste management sector (i.e. most organisations). In fact these other organisations would be addressed in the SRDs for their respective sectors.

Waste management phases

Best environmental practices in several areas of waste management are already set out in European legislation and other European reference documents, such as:

- The Best Available Techniques Reference Documents (**BREFs**) for **waste incineration** and **waste treatment** developed under the IPPC and then IED Directives.
- The EU **landfill directive** (99/31/EC) which aims to prevent and reduce negative effects on the environment from the landfilling of waste.
- End-of-waste criteria (developed under the **Waste Framework Directive**) which specify when certain waste ceases to be considered waste and obtains a status of a product (or a secondary raw material).

This project will cover the phases where best environmental practices are not already covered by other existing EU legislation and reference documents. More specifically, the study will cover the following phases:

- Establishing a **waste management strategy** (i.e. which options are best for each waste stream under which conditions; which kind of collection; how many fractions; which treatments; which final disposal; etc.).
- **Waste prevention** (i.e. reducing the amount of waste generated, for instance reducing the food waste generated at household level thanks to information campaigns and courses; measures aimed at influencing consumers to ask for more environmentally friendly products and less packaging; etc.).
- **Waste collection** (vehicles used, choice of routes, schedule of the collection, etc.).
- **Waste re-use** (e.g. schemes promoting repairing and reselling of end-of-life electronic equipment and furniture).
- **Waste treatment facilities** not covered in the waste treatment BREF such as facilities performing treatments outside the scope of the IED (e.g. sorting facilities with the aim to recycle plastics).

For other phases (i.e. other waste treatment and disposal facilities, recycling and recovery operations) reference will be made to the relevant reference documents, legislation, or criteria. The figure below illustrates the waste management phases in relation to the project: in green the ones aimed to be covered, in yellow the one partially covered and in red the one not addressed.





Outlines of proposals for Best Environmental Management Practices (BEMPs) for the Waste Management Sector (to be discussed at the Technical Working Group meeting)

Best environmental management practices or "BEMPs" are those techniques, measures or actions that allow organisations in a given sector to minimise their impact on the environment related to all the aspects under their direct control (direct aspects), or on which they have a considerable influence (indirect aspects). BEMPs can be of a technical or technological nature, such as improving the energy efficiency of a certain process; or of a more management or organisational type, such as providing training to employees or engaging in environmental improvement actions with suppliers.

The concept of BEMP is linked to two key criteria: the best practice is already fully implemented by a number of organisations in the sector or at least by one organisation if replicable/applicable by others; and the best practice is technically feasible and economically viable.

The list below illustrates the current proposals which will be fully developed into BEMPs in the sectoral reference document (SRD) for the waste management sector, where typically the description will also include Environmental Performance Indicators to monitor progress in implementing the BEMP and Benchmarks of Excellence describing the performance of top achievers.

CROSS-CUTTING ISSUES

- Based on mass-flow and life cycle thinking, **define a short-term and long-term strategy for all the different waste streams** in order to increase prevention, recycling rates for the different recyclables and to minimise residual waste quantity by means of an appropriate mix of different approaches, including technical, economic and socio-psychological aspects.
- Apply **life cycle thinking** throughout waste management strategy design and implementation, informed by relevant published studies of comparable systems, and/or undertaking (or commissioning) bespoke life cycle assessment studies, where necessary, to identify the optimum strategy for a particular waste stream.

MUNICIPAL SOLID WASTE (MSW): WASTE MANAGEMENT STRATEGY

- Perform **cost-benchmarking** with the help of an independent third-party organisation whereas cost figures for all waste streams (paper/cardboard, glass, plastics including composite packaging, bio waste, green cuttings, scrap metal, non-ferrous metals, hazardous waste, etc.) comprise costs for waste management services, for disposal of certain waste streams as well as revenues gained from marketing of recyclables.
- As indicated in the waste management strategy, the composition and quantities of the different waste streams/fractions need to be known. For this purpose, **monitor the different waste streams** which includes the determination of the quantities and the composition.
- Apply **economic instruments** as important elements of the mix of instruments to be used in order to minimise the quantity of residual waste and to significantly increase the recycling and recovery rates
- **Educate citizens** on waste prevention and management, clearly advertise waste management services, engage staff in best practice.
- **Establish deposit-refund schemes** for the collection of returnable and single-use beverage packaging, and B2B approaches for reusable packaging.

MUNICIPAL SOLID WASTE (MSW): PREVENTION

Here, only waste prevention measures on the local and regional level are considered.

- **Set up and perform or stimulate waste prevention measures** for individuals and families (reduced packaging, my bag and my cup, reusable packaging, repair, refillable products, donation, reduction of food waste, reusable nappies, etc.) as well as for municipalities, cities, counties or private organisations (mobile dishwasher for festivals, lunch boxes, repair shops, pay-as-you-throw system, etc.).
- **Introduce a system where citizens pay per weight or bag** of residual waste generated and where bio waste and bulky waste is also weighted.



MUNICIPAL SOLID WASTE (MSW): RE-USE

- **Collect items for re-use** and distribute to organisations, including charities, for sale or onward distribution, and establish effective information exchanges to advertise the demand for, and market the availability of, re-usable “waste” products.

MUNICIPAL SOLID WASTE (MSW): PRODUCER RESPONSIBILITY

- **Provide the required infrastructure to collect** for recycling and recovery a considerable number of waste streams/fractions. In addition to door-to-door collection, this means the installations of recycling centres where the different wastes are received and kept separate for efficient recycling and, in some cases, for recovery.

MUNICIPAL SOLID WASTE (MSW): WASTE COLLECTION

- **Separate out biological wastes** so that residual waste can be collected less frequently, and to devise a collection strategy that cost-effectively maximises the rate of selective collection.
- **Optimise logistics operations** using Computerised Vehicle Routing and Scheduling (CVRS) technology or equivalent software, and performance is benchmarked using appropriate efficiency indicators.
- **Purchase or lease refuse collection vehicles** that are: (i) fitted with stop-start and idle shut-off technology and electrically operated bodies, (ii) dual-fuelled or fully fuelled with natural gas, biogas where available, or hybrid electric vehicles. Retrofit existing refuse collection vehicles with sufficient remaining planned years of service to justify the cost, to run on natural gas, or biomethane where available.

MUNICIPAL SOLID WASTE: TREATMENT

- **Evaluate the feasibility of anaerobic digestion** of wet organic waste before pursuing a decentralised composting strategy, provide information and equipment to households to support home composting, and establish community-run decentralised composting facilities in urban areas.
- It is one option to **collect and to sort co-mingled packaging waste** to recycle and to recover as much as possible plastic, composite packaging, paper/cardboard, ferrous and non-ferrous metals.

CONSTRUCTION AND DEMOLITION WASTE (CDW)

- **Develop local, supra-local or regional CDW management plans** that involve main stakeholders, prioritise waste prevention and re-use, establish minimum sorting and management requirements, identify and quantify amounts of CDW and treatment needs, drive innovation on recycling opportunities, regulate or standardise the management of hazardous materials.
- **Implement voluntary agreements** between the industrial sector, public administration and relevant stakeholders focused on segregation, use of recycled aggregates and quality assurance implemented at different scales (local, regional, national and European)
- Introduce a best practice **quality assurance scheme** that aims for an increased uptake of recycled aggregates by the industry. For that, the strategy follows a voluntary agreement approach or similar, being highly inclusive. It also encourages waste segregation and diversion from landfill and, at the same time, includes environmental-related criteria e.g. for their leaching characteristics, with the achievement of EoW character or similar to the secondary material produced.
- **Recycle waste plasterboard** and other sources of waste gypsum to the manufacture of new plasterboard, according, if available to a quality assurance scheme or industrial agreement.
- **PCBs-containing wastes are well managed** through the identification of PCB containing materials, removing and separating them, where the public authority is informed about the presence of these substances, and establish standard criteria for its management.

MEDICAL WASTE (MW)

- A BEMP waste collection system for medical waste **is segregating and minimising health-care waste**, segregating food waste and recyclables from the MSW-like fraction, training regularly employees on the safe management of waste and documents on all procedures.
- **Alternative treatments** techniques may constitute Best Environmental Management Practice if safety criteria are met and are able to show a better environmental performance than high-temperature incineration, e.g. by avoiding the emission of certain pollutants, having a better lifecycle environmental performance and/or increasing the rate of recycling from MW.