Council of the
European Union

Brussels, 23 January 2018
(OR. en)

5520/18
ADD 1

ENV 41

COVER NOTE

From:	European Commission
To:	General Secretariat of the Council
No. Cion doc.:	D054598/01 - Annex 1
Subject:	ANNEX to the Commission Decision On the sectoral reference document on best environmental management practices, sector environmental performance indicators and benchmarks of excellence for the public administration sector under Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)

Delegations will find attached document D054598/01 - Annex 1.

Encl.: D054598/01 - Annex 1

EUROPEAN
COMMISSION

Brussels, XXX
D054598/01
[…](2017) XXX draft

ANNEX 1

ANNEX

to the

Commission Decision

On the sectoral reference document on best environmental management practices, sector environmental performance indicators and benchmarks of excellence for the public administration sector under Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)

ANNEX

TABLE OF CONTENTS

1. INTRODUCTION

This Sectoral Reference Document (SRD) is based on a detailed scientific and policy report[1] ("Best Practice Report") developed by the European Commission's Joint Research Centre (JRC).

Relevant legal background

The Community eco-management and audit scheme (EMAS) was introduced in 1993, for voluntary participation by organisations, by Council Regulation (EEC) No 1836/93[2]. Subsequently, EMAS has undergone two major revisions:

- Regulation (EC) No 761/2001 of the European Parliament and of the Council[3];
- Regulation (EC) No 1221/2009 of the European Parliament and of the Council.

An important new element of the latest revision, which came into force on 11 January 2010, is Article 46 on the development of SRDs. The SRDs have to include best environmental management practices (BEMPs), environmental performance indicators for the specific sectors and, where appropriate, benchmarks of excellence and rating systems identifying performance levels.

How to understand and use this document

The eco-management and audit scheme (EMAS) is a scheme for voluntary participation by organisations committed to continuous environmental improvement. Within this framework, this SRD provides sector-specific guidance to the public administration sector and points out a number of options for improvement as well as best practices.

The document was written by the European Commission using input from stakeholders. A Technical Working Group, comprising experts and stakeholders of the sector, led by the JRC, discussed and ultimately agreed on the best environmental management practices, sector-specific environmental performance indicators and benchmarks of excellence described in this document; these benchmarks in particular were deemed to be representative of the levels of environmental performance that are achieved by the best performing organisations in the sector.

The SRD aims to help and support all organisations that intend to improve their environmental performance by providing ideas and inspiration as well as practical and technical guidance.

The SRD is primarily addressed to organisations that are already registered with EMAS; secondly to organisations that are considering registering with EMAS in the future; and thirdly to all organisations that wish to learn more about best environmental management practices in order to improve their environmental performance. Consequently, the objective of

---

1 The scientific and policy report is publicly available on the JRC website at the following address: http://susproc.jrc.ec.europa.eu/activities/emas/documents/PublicAdminBEMP.pdf. The conclusions on best environmental management practices and their applicability as well as the identified specific environmental performance indicators and the benchmarks of excellence contained in this Sectoral Reference Document are based on the findings documented in the scientific and policy report. All the background information and technical details can be found there.

2 Council Regulation (EEC) No 1836/93 of 29 June 1993 allowing voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme (OJ L *168, 10.7.1993, p. 1).*

3 Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001 allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) (*OJ L 114, 24.4.2001, p. 1).*

this document is to support all organisations in the public administration sector to focus on relevant environmental aspects, both direct and indirect, and to find information on best environmental management practices, as well as appropriate sector-specific environmental performance indicators to measure their environmental performance, and benchmarks of excellence.

How SRDs should be taken into account by EMAS-registered organisations:

Pursuant to Regulation (EC) No 1221/2009, EMAS-registered organisations are to take SRDs into account at two different levels:

1. When developing and implementing their environmental management system in light of the environmental reviews *(Article 4(1)(b)):*

   Organisations should use relevant elements of the SRD when defining and reviewing their environmental targets and objectives in accordance with the relevant environmental aspects identified in the environmental review and policy, as well as when deciding on the actions to implement to improve their environmental performance.

2. When preparing the environmental statement *(Article 4(1)(d) and Article 4(4)):*

(a) Organisations should consider the relevant sector-specific environmental performance indicators in the SRD when choosing the indicators[4] to use for their reporting of environmental performance.

   When choosing the set of indicators for reporting, they should take into account the indicators proposed in the corresponding SRD and their relevance with regards to the significant environmental aspects identified by the organisation in its environmental review. Indicators need only be taken into account where relevant to those environmental aspects that are judged as being most significant in the environmental review.

(b) When reporting on environmental performance and on other factors regarding environmental performance, organisations should mention in the environmental statement how the relevant best environmental management practices and, if available, benchmarks of excellence have been taken into account.

   They should describe how relevant best environmental management practices and benchmarks of excellence (which provide an indication of the environmental performance level that is achieved by best performers) were used to identify measures and actions, and possibly to set priorities, to (further) improve their environmental performance. However, implementing best environmental management practices or meeting the identified benchmarks of excellence is not mandatory, because the voluntary character of EMAS leaves the assessment of the feasibility of the benchmarks and of the implementation of the best practices, in

[4] According to Annex IV (B.e.) of the EMAS Regulation, the environmental statement shall contain "*a summary of the data available on the performance of the organisation against its environmental objectives and targets with respect to its significant environmental impacts. Reporting shall be on the core indicators and on other relevant existing environmental performance indicators as set out in Section C"*. Annex IV - Section C states that "*each organisation shall also report annually on its performance relating to the more specific environmental aspects as identified in its environmental statement and, where available, take account of sectoral reference documents as referred to in Article 46.*"

terms of costs and benefits, to the organisations themselves. This feasibility assessment is also necessary for public administrations, which are frequently requested to lead by example.

Similarly to environmental performance indicators, the relevance and applicability of the best environmental management practices and benchmarks of excellence should be assessed by the organisation according to the significant environmental aspects identified by the organisation in its environmental review, as well as technical and financial aspects.

Elements of SRDs (indicators, BEMPs or benchmarks of excellence) not considered relevant with regards to the significant environmental aspects identified by the organisation in its environmental review should not be reported or described in the environmental statement.

EMAS participation is an ongoing process. Every time an organisation plans to improve its environmental performance (and reviews its environmental performance) it shall consult the SRD on specific topics to find inspiration about which issues to tackle next in a step-wise approach.

EMAS environmental verifiers shall check if and how the SRD was taken into account by the organisation when preparing its environmental statement (Article 18(5)(d) of Regulation (EC) No 1221/2009).

When undertaking an audit, accredited environmental verifiers will need evidence from the organisation of how the relevant elements of the SRD have been selected in light of the environmental review and taken into account. They shall not check compliance with the described benchmarks of excellence, but they shall verify evidence on how the SRD was used as a guide to identify indicators and proper voluntary measures that the organisation can implement to improve its environmental performance.

Given the voluntary nature of EMAS and SRD, no disproportionate burdens should be put on the organisations to provide such evidence. In particular, verifiers shall not require an individual justification for each of the best practices, sector-specific environmental performance indicators and benchmarks of excellence which are mentioned in the SRD and not considered relevant by the organisation in light of its environmental review. Nevertheless, they could suggest relevant additional elements for the organisation to take into account in the future as further evidence of its commitment to continuous performance improvement.

Structure of the Sectoral Reference Document

This document consists of four chapters. Chapter 1 introduces EMAS' legal background and describes how to use this document, while Chapter 2 defines the scope of this SRD. Chapter 3 briefly describes the different best environmental management practices (BEMPs)[5] together with information on their applicability. When specific environmental performance indicators and benchmarks of excellence could be formulated for a particular BEMP, these are also given. However, defining benchmarks of excellence was not possible for all BEMPs because in some areas either there was limited data available or the specific conditions (local climate, local economy, local society, responsibilities of the public administration, etc.) vary to such an extent that a benchmark of excellence would not be meaningful. Some of the indicators and benchmarks are relevant for more than one BEMP and are thus repeated whenever

[5] A detailed description of each of the best practices, with practical guidance on how to implement them, is available in the "Best Practice Report" published by the JRC and available on-line at: http://susproc.jrc.ec.europa.eu/activities/emas/documents/PublicAdminBEMP.pdf. Organisations are invited to consult it if interested in learning more about some of the best practices described in this SRD.

appropriate. Finally, Chapter 4 presents a comprehensive table with a selection of the most relevant environmental performance indicators, associated explanations and related benchmarks of excellence.

2. SCOPE

This SRD addresses the environmental performance of the activities of the public administration sector. In this document, the public administration sector includes organisations belonging mainly to the following NACE code division (according to the statistical classification of economic activities established by Regulation (EC) No 1893/2006 of the European Parliament and of the Council[6]):

– NACE code 84: Public administration and defence; compulsory social security.

Organisations registered under this NACE code are the target group of this document.

In addition, the best environmental management practices identified in this SRD can be of inspiration also for other organisations, such as public owned companies or private companies delivering services on behalf of public administrations. These may belong, among others, to the following NACE code divisions:

– NACE code 2: Forestry, logging;

– NACE code 36: Water collection, treatment and supply;

– NACE code 37: Sewerage;

– NACE code 38: Waste collection, treatment and disposal activities; materials recovery;

– NACE code 39: Remediation activities and other waste management services;

– NACE code 41.2: Construction of residential and non-residential buildings;

– NACE code 49.3.1: Urban and suburban passenger land transport.

This SRD targets a number of aspects which are relevant for all types of public administrations, such as the environmental performance of offices, the energy efficiency of public buildings and green public procurement (i.e. Sections 3.1, 3.2.5, 3.2.7, 3.2.8, 3.2.10 and 3.11). All public administrations at local, regional, national and international level are invited to consult these sections of the document.

However, effective environmental management for a public administration needs also to address its core business, where the largest environmental benefits can be achieved. This document aims at easing this task for local authorities and municipalities[7] focusing on best practices that are relevant for their role and the services they provide directly or indirectly to their inhabitants (e.g. waste water treatment, local public transport). Local authorities are specifically targeted because they make up the highest share of public administrations in the EU and it is at the local level that there is the highest potential for replicability and learning from best practices.

---

6 Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC regulations on specific statistical domains (OJ L 393, 30.12.2006, p. 1).

7 In this EMAS SRD, the terms 'local authorities' and 'municipalities' are considered synonyms and refer to the public bodies governing and providing services to citizens at local level.

The main environmental aspects, the associated environmental pressures and the corresponding relevant sections of the document are presented in the table below (Table 2.1). The environmental aspects listed were selected as the most relevant in the sector. However, the environmental aspects to be managed by each specific public administration should be assessed on a case-by-case basis. No distinction is made in the table below between direct and indirect environmental aspects, because the operations that are carried out in-house and those that are outsourced vary from case to case. Moreover, many environmental aspects can be considered both direct and indirect, since they refer directly to the activities of the public administration but also to all the activities of residents, companies and organisations in the territory administered or served by the public administration.

Table 2.1: The most relevant environmental aspects and pressures for public administrations and how these are addressed in this document

Environmental aspect	**Related main environmental pressure**	**Relevant sections of the SRD**
Operate offices	Solid waste generation Water consumption Energy consumption, GHG emissions (CO_2) Emissions to air (CO, SO_2, NO_x, particulate matter, etc.) Resource depletion	Section 3.1
Steer energy use in the territory administered and manage own energy use	Energy consumption, GHG emissions (CO_2)	Section 3.2
Manage mobility and/or public transport	Emissions to air (CO, SO_2, NO_x, particulate matter, etc.) Energy consumption, GHG emissions (CO_2)	Section 3.3
Plan land use and manage green urban areas	Land use Biodiversity loss	Sections 3.4 and 3.5
Manage ambient air quality and noise	Emissions to air (CO, SO_2, NO_x, particulate matter, etc.) Noise generation	Sections 3.6 and 3.7
Waste management	Solid waste generation	Section 3.8
Supply of potable water	Water consumption	Section 3.9

Manage waste water treatment	Emissions to water (BOD, COD, micropollutants, etc.) Energy consumption, GHG emissions (CO_2)	Section 3.10
Procure goods and services	Solid waste generation Water consumption Energy consumption, GHG emissions (CO_2) Emissions to air (CO, SO_2, NO_x, particulate matter, etc.) Resource depletion	Section 3.11
Promote environmental behaviour of residents and businesses	Solid waste generation Water consumption Energy consumption, GHG emissions (CO_2) Emissions to air (CO, SO_2, NO_x, particulate matter, etc.) Emissions to water (COD, BOD, micropollutants, etc.) Resource depletion	Section 3.12

The best environmental management practices (BEMPs) described in chapter 3 were identified as the most relevant techniques, actions and measures that public administrations can implement to improve their environmental performance for each of the environmental aspects listed in Table 2.1. In their identification, the specific challenges and opportunities of public bodies, compared to private companies were taken into account. These include, among others:

- more rigid procurement procedures;
- strict funding rules;
- need of longer time periods to implement decisions;
- legacy infrastructure;
- limited budget;

but also:

- the possibility to accept longer term paybacks;
- the possibility to give priority to choices that result in societal benefits rather than financial paybacks;
- stability of staff;

– the opportunities for economies of scale in case of cooperation among different public administration at local, regional or national level.

When considering the implementation of any of the BEMPs presented in this document, local authorities need to consider their specific challenges and how to take advantage of the specific opportunities available[8].

[8] The specific challenges and opportunities related to the different BEMPs are addressed either directly in this document or within the practical guidance on how to implement the BEMPs available in the "Best Practice Report" published by the JRC and available on-line at: http://susproc.jrc.ec.europa.eu/activities/emas/documents/PublicAdminBEMP.pdf. Organisations are invited to consult it for a better understanding of the best practices described in this SRD.

3. BEST ENVIRONMENTAL MANAGEMENT PRACTICES, ENVIRONMENTAL PERFORMANCE INDICATORS AND BENCHMARKS OF EXCELLENCE FOR THE PUBLIC ADMINISTRATION SECTOR

3.1. Best environmental management practices for sustainable offices

This section is targeted to all public administrations having office-based operations.

3.1.1. Managing and minimising energy use

It is BEMP to implement energy management according to the principles of the 'plan, do, check, act' cycle in offices owned or managed by the public administration by:

- collecting frequently or monitoring constantly energy use data; data can be collected at building level, per building area (e.g. lobby, offices, canteen/bar), per type of energy source (e.g. gas, electricity) and per end-use category (e.g. lighting, space heating);
- analysing the data, setting targets, identifying benchmarks and using them for comparing actual energy use performance;
- defining a strategy and action plan for the improvement of the energy performance of the office building (see Sections 3.2.5, 3.2.7, 3.2.8).

Applicability

This BEMP is broadly applicable to office buildings owned or managed by public administrations. However, actions that may arise from implementing this BEMP may be more limited in rented buildings.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i1) Total annual energy use per unit of floor area[9], expressed as final energy (kWh/m^2/year). If available, this can also be broken down into: - space heating (kWh/m^2/year) - space cooling (kWh/m^2/year) - lighting (kWh/m^2/year) - other electricity uses (kWh/m^2/year) (i2) Total annual energy use per full time equivalent (FTE) employee, expressed as final energy (kWh/FTE/year). If available, this can also be broken down into: - space heating (kWh/FTE/year) - space cooling (kWh/FTE/year) - lighting (kWh/FTE/year) - other electricity uses (kWh/FTE/year)	-

[9] Floor area can be calculated taking into account the useful surface area of the building, for example, the surface used in the energy performance certificates.

(i3) Total annual primary energy use per floor area or full time equivalent (FTE) employee (kWh/m^2/year, kWh/FTE/year) (i4) Total annual greenhouse gas emissions per floor area or full time equivalent (FTE) employee (kg CO_2eq/m^2/year, kg CO_2eq/FTE/year)	

3.1.2. Managing and minimising water use

It is BEMP to implement water management according to the principles of the 'plan, do, check, act' cycle in offices owned or managed by the public administration by:

- collecting frequently or monitoring constantly water use data; data can be collected at building level, per relevant building area where water is used (e.g. lobby, offices, canteen/bar), and per end-use category (e.g. restrooms, kitchens);
- analysing the data, setting targets, identifying benchmarks and using them for comparison with actual water use;
- defining a strategy and action plan for the reduction of water use (e.g. installing water efficient taps, showers and pressure reducing valves, regularly maintaining them, installing rainwater harvesting systems).

Applicability

This BEMP is broadly applicable to office buildings owned or managed by public administrations, provided that costs for installation and maintenance of systems for monitoring and collecting water use data are paid back by the expected water savings achievable. In rented buildings, actions that may arise from implementing this BEMP may be more limited.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i5) Total annual water use per full time equivalent (FTE) employee (m^3/FTE/year), split into (if relevant): - mains water use (m^3/FTE/year) - harvested rainwater use (m^3/FTE/year) - recycled greywater use (m^3/FTE/year) (i6) Total annual water use per internal floor space (m^3/m^2/year), split into (if relevant): - mains water use (m^3/m^2/year) - harvested rainwater use (m^3/m^2/year) - recycled greywater use (m^3/m^2/year)	(b1) Total water use in office buildings is lower than 6.4 m^3/full time equivalent employee/year

3.1.3. Managing and minimising waste production

It is BEMP to implement advanced waste management in offices owned or managed by public administrations, based on:

- prevention: establish paperless procedures and archives, ensure durability of equipment and consumables (e.g. via green public procurement, see Section

3.11), enable reuse of office furniture and equipment (e.g. setup of an online inventory of available equipment, furniture and stationery that are no longer needed and ensuring that all services and staff look there before purchasing new items; providing professional cleaning, repair and maintenance to extend lifetime); incentivize staff to use reusable cups instead of single use plastics; provide water fountains (without plastic cups) instead of plastic bottles in meetings or public spaces;

– segregation: easy access to recycling bins for all the most common waste types and establishment of recycling points for all other waste types, in order to minimise residual waste generation; purchase equipment and consumables made with recyclable materials;

– monitoring: regular accounting of quantities of waste generated by waste type, covering all types of waste (e.g. separately collected fractions, residual waste, hazardous waste); this can be achieved thanks to appropriate strategies and the involvement of staff from different services.

Applicability

This BEMP is applicable to all public administrations, and specific to office activity. The specific measure implemented (e.g. the different fractions into which waste is segregated) should reflect the specific conditions (e.g. types of waste generated, local availability of recycling services for particular waste types, local legislation and waste management costs).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i7) Total annual office waste generation per full time equivalent (FTE) employee (kg/FTE/year) (i8) Total annual amount of furniture, equipment and stationery that is reused (kg/FTE/year, EUR of avoided purchase/FTE/year) (i9) Office waste sent for recycling as % of total waste by weight (%) (i10) Residual office waste[10] as % of total waste by weight (%)	(b2) Zero waste generated in the office buildings is sent to landfill (b3) Total waste generation in office buildings is lower than 200 kg/full time equivalent employee/year

3.1.4. Minimising the consumption of office paper and consumables

It is BEMP to:

– implement and promote internal procedures (e.g. paperless procedures such as electronic workflows, e-signatures and electronic archives, no printing of documents for meetings, no printing of newsletters/reports, double-side printing as default option) that help employees and the public to avoid the use of office paper (i.e. copier/printer paper) and consumables (i.e. all material such as pens, pencils, highlighters, notebooks used in offices), thereby reducing demand;

[10] Residual waste is the waste fraction that is not sent for re-use, recycling, composting or anaerobic digestion.

– use green public procurement (see Section 3.11) to drive lower impact choices, e.g. low-grammage office paper, longer lasting, refillable products and alternatives with a low environmental impact or low toxicity.

Applicability

This BEMP is broadly applicable to all public administrations.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i11) Daily number of sheets[11] of office paper used per full time equivalent (FTE) employee (sheets of paper/FTE/working day) (i12) Share of environmentally friendly certified office paper purchased in the total purchased office paper (%) (i13) Annual cost of office consumables purchased per full time equivalent (FTE) employee (EUR/FTE/year)	(b4) Office paper consumption is lower than 15 A4 sheets/full time equivalent employee/working day (b5) Office paper used is 100 % recycled or certified according to an ISO Type I ecolabel[12] (e.g. EU Ecolabel)

3.1.5. Minimising the environmental impact of commuting and business travel

It is BEMP to minimise the environmental impact of commuting and business travel by:

– staff engagement and behavioural change towards more sustainable commuting (e.g. campaigns through digital tools, economic incentives/disincentives, use of social games or reward based incentives);

– drawing up of organisation-wide staff travel plans which encourage sustainable modes of commuting and business travel (e.g. agreement with local public transport providers to adapt routes to the needs of commuters; carbon budgeting for business travel);

– including stringent sustainability criteria in the procurement of transport services (e.g. use of train rather than flights for short journeys; preference for direct flights or multimodal journeys over connecting flights);

– reducing commuting by car where public transport exists and encouraging efficient car use (e.g. reducing single passenger car journeys by promoting car-pooling among employees);

– enabling agile working for employees, thus reducing transport needs overall (e.g. introducing remote and home working, installing virtual meeting facilities).

Applicability

[11] The number of different sizes (e.g. A4, A3) of paper sheets can be converted to an equivalent number of A4 sheets (e.g. one A3 sheet is equivalent to two A4 sheets).

[12] As part of the ISO 14000 series of environmental standards, the International Standards Organisation (ISO) has drawn up a subseries (ISO 14020) specific to environmental labelling, which covers three types of labelling schemes. In this context, a "Type I" ecolabel is a multi-criteria label developed by a third party. Examples are, at EU level, the "EU Ecolabel" or, at national or multilateral level, the "Blaue Engel", the "Austrian Ecolabel" and the "Nordic Swan".

This BEMP is applicable across all types and scales of public administrations. However, the specific measures to be implemented vary depending on local conditions, such as geographical setting and availability of public transport.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i14) Implementation of tools for promoting sustainable commuting (y/n) (i15) Percentage of staff commuting by car on a daily basis as single passenger (%) (i16) Percentage of staff commuting by walking, cycling or public transport at least 3 times per week (%) (i17) Annual total CO_2eq emissions from business travel (tonnes CO_2eq/year) (i18) Annual total CO_2eq emissions from business travel per full time equivalent (FTE) employee (kg CO_2eq/FTE/year) (i19) Implementation of carbon budgeting for all business travel (y/n) (i20) Availability of videoconferencing facilities to all staff and monitoring and promotion of their use (y/n)	(b6) Tools for promoting sustainable commuting for employees are implemented and promoted (b7) Carbon budgeting is implemented for all business travel (b8) Videoconferencing facilities are available to all staff and their use is monitored and promoted

3.1.6. Minimising the environmental impact of canteens and coffee bars

It is BEMP to:

- procure canteen or coffee bar services, or the food and beverages for canteens and coffee bars managed in-house, introducing sustainability requirements such as seasonal, organic food, ensuring availability of vegetarian/vegan options and avoiding (where possible) offering products in single use plastic packaging; choose service providers who can offer services without the use of single use plastic items such as cups, dishes and cutlery (see also Section 3.11);
- conduct staff engagement campaigns promoting sustainable food choices;
- drive behaviour change in canteens and coffee bars by choice of architecture (i.e. changing how options are presented which can make a particular choice the natural or default preference) and pricing policy (i.e. lower price for more sustainable food options);
- implement a reduction of food waste policy by implementing reduced food portions, offer of different sized portions, careful forward planning of menus, etc.

Applicability

This BEMP is applicable across all types and scales of public administration offices that have internal canteen or coffee bar facilities.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i21) Percentage of low-impact food options served (e.g. seasonal, organic) (% of low-impact food out of the total purchase volume)	
(i22) Amount of food waste generated per meal served (g/meal)	-
(i23) Percentage of food waste sent for anaerobic digestion (% sent for anaerobic digestion out of the total tonnes of food waste)	

3.1.7. Minimising the environmental impact of the organisation of meetings and events

It is BEMP to:

- introduce a sustainable event management system; the management system may be implemented by the public administration itself, and/or contractors/suppliers should be sought who have a management system in place; suppliers and hotels can also have an environmental management system (e.g. EMAS);
- communicate to all stakeholders (from suppliers, to delegates and the wider community) and engage with those involved with and/or attending an event on measures they can undertake to reduce the environmental impact of attending the event (e.g. using correct segregated bins, choosing tap water and reusable water bottles, choose sustainable means of transport);
- select the venue of the event or meeting considering environmental criteria (e.g. well-connected by public transport, building with reduced environmental impact, venue with an environmental management system in place);
- choose products and services needed for the organisation of meetings and events implementing green public procurement (see Section 3.11) and limit gadgets and the content of conference packs (e.g. leaflets, pen drives, badges);
- procure catering services, or the food and beverages from catering services managed in-house, introducing sustainability requirements such as seasonal, organic food, ensuring availability of vegetarian/vegan options and avoiding (where possible) offering products in single use plastic packaging; choose service providers who can offer services without the use of single use plastic dishes, cups and cutlery, and make water fountains available instead of water bottles (see also Sections 3.1.6 and 3.11).

Applicability

This BEMP is applicable across all types and scales of public administrations organising meetings and events.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i24) Share of suppliers with a recognised sustainable events management system (e.g. ISO20121) or	-

environmental management system (e.g. EMAS) (%) (i25) Share of event-related tenders including in the criteria a reference to a recognised events management system (e.g. ISO20121) or environmental management system (e.g. EMAS) (%)	

3.2. Best environmental management practices for sustainable energy and climate change

This section is targeted to local authorities, both in their capacity as administration and service providers with a wide range of energy-using direct operations, and in their guiding role for the territory they are responsible for. The BEMPs in this section are divided into four groups:

- policy BEMPs, related to the policy measures that a local authority can put in place to drive sustainable energy, both in-house and in the territory administered, as well as climate change mitigation and adaptation;
- BEMPs regarding direct operations, on how local authorities can reduce energy use and switch to renewable energy in their own buildings and infrastructures;
- BEMPs regarding the regulatory and planning role of municipalities;
- BEMPs on the influence of municipalities on their territory, on the exemplary role that the public sector can play and how local authorities can trigger actions by residents and organisations.

Policy BEMPs

3.2.1. Establishing an inventory of energy use and emissions of the territory of the municipality

It is BEMP to:

- systematically collect energy use and emission data from the territory of the municipality; the scope of the inventory includes energy consumption and emissions across the territory from all sectors, encompassing industry, commerce/services, agriculture, construction, housing and transport;
- publicly report the data collected and use them to identify actions to reduce greenhouse gas emissions in the territory (see Section 3.2.2).

Applicability

This BEMP is applicable to all local authorities.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i26) Total annual carbon emissions of the territory of the municipality: absolute (t CO_2eq) and per inhabitant (kg CO_2eq/inhabitant) (i27) Annual energy use of the territory of the municipality per inhabitant, expressed as final energy (kWh/inhabitant)	-

3.2.2. Establishing and implementing a municipal energy and climate action plan

It is BEMP to establish a municipal energy and climate action plan based on the inventory of energy use and emissions (see Section 3.2.1). The action plan includes science and evidence based short- and long-term targets which can be reached by implementing a number of defined actions (e.g. reduce the energy use of private buildings and businesses, reduce the energy use of municipal buildings and local public services, improve public transport).

Applicability

This BEMP is applicable to all local authorities.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i28) A municipal energy and climate action plan, including targets and actions, is in place (y/n) (i26) Total annual carbon emissions of the territory of the municipality: absolute (t CO_2eq) and per inhabitant (kg CO_2eq/inhabitant) (i27) Annual energy use of the territory of the municipality per inhabitant, expressed as final energy (kWh/inhabitant)	(b9) A municipal energy and climate action plan, including targets and actions and based on the inventory of energy use and emissions, is in place

3.2.3. Establishing and implementing a strategy for climate change adaptation within the territory of the municipality

It is BEMP to establish a holistic climate change adaptation strategy for the territory of the municipality that allows protecting the built and natural environment against the adverse effects and impacts of climate change (e.g. floods, heat waves, droughts). The climate change adaptation strategy can build on other local and regional adaptation strategies and should ensure that they are linked together. The strategy needs to be coherent with and taken into account by other relevant policies and strategies (e.g. watercourse management plans).

Applicability

This BEMP is applicable to all local authorities. The scope of the adaption strategy should be developed in relation to the specific context of the public administration. The measures contained in the strategy need to respond to the projected climate change impacts on the territory.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i29) A holistic climate change adaptation strategy for the territory of the municipality is in place (y/n) (i30) Percentage of homes and businesses protected as a result of the strategy (%)	(b10) A holistic climate change adaptation strategy for the territory of the municipality is in place

BEMPs regarding direct operations

3.2.4. Implementing energy-efficient street lighting

It BEMP to:

- carry out an audit of the street lighting system;
- improve the luminaires to avoid upward lighting and intrusive lighting and maximise useful lighting;
- reduce lighting levels to actual needs (i.e. avoid overlighting);
- replace lamps selecting highly energy-efficient technologies (e.g. LED) taking into account durability, colour rendering index[13] and colour temperature of the light[14];
- implement night dimming (i.e. reduced lighting late at night);
- introduce intelligent street lighting (e.g. using sensors to temporarily increase the lighting levels when the presence of people is detected).

Applicability

This BEMP is applicable to all public administrations directly or indirectly (through a public or private company) managing the provision of street lighting. The investments required to implement the measures listed may, in some instances, be a limitation and affect the choice of specific measures to implement, but are generally outweighed by the energy savings and result in reasonable payback times.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i31) Annual energy use for street lighting per inhabitant (kWh/inhabitant/year) (i32) Annual energy use for street lighting per kilometre of street lit (MWh/km/year)	(b11) Street lighting energy use per kilometre is lower than 6 MWh/km/year

3.2.5. Improving the energy efficiency of public buildings

It is BEMP to maximise the energy efficiency of public buildings and minimise their energy use. This can be achieved by improving the energy performance and integrity of the building envelope (walls, roof and glazing) and increasing the airtightness, as well as installing energy efficient equipment and commissioning the energy systems.

Both new and existing public buildings can achieve better energy performance than the minimum standards set in the national building codes[15] and be designed or renovated as nearly zero-energy buildings (NZEB) ahead of the EU obligation[16].

---

13 The colour rendering index of a light bulb specifies the ability for the human eye to distinguish colours under such kind of light. A high colour rendering index is needed in locations where recognising colours well is important.

14 Light bulbs with a strong white/cold component can have relevant negative impacts on local fauna.

15 Directive 2010/31/EU (Energy Performance of Buildings Directive, EPBD) requires Member States to set minimum energy performance standards for buildings, which need to be reflected in the national building codes. The Directive introduced a benchmarking system to gradually increase the level of ambition of these energy efficiency requirements, keeping them under regular review.

When defining the measures to improve the energy efficiency of the buildings, not only the energy performance to be achieved, but also the overall environmental impacts over the whole life cycle of the buildings need to be considered[17]. These can be minimised by, among others, selecting sustainable and low embodied primary energy construction materials, ensuring, at the design phase, easy adaptability to support future re-use of the building and easy renovation (e.g. flexible floor plans) as well as the possibility to deconstruct for re-use and recycling of building materials and elements.

Applicability

This BEMP is applicable to all public administrations provided that they can commit the required financial resources for improving the energy efficiency of public buildings. This BEMP may be more difficult to implement in rented properties. Additionally, the level of energy performance that can be achieved in each specific case will be affected by the characteristics of the building (e.g. old building).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i1) Total annual energy use per unit of floor area, expressed as final energy (kWh/m^2/year) (i33) Total annual primary energy use per unit of floor area (kWh/m^2/year)	(b12) For newbuilds, the building is designed with a total primary energy use (including all uses) lower than 60 kWh/m^2/year (b13) For existing buildings undergoing renovation, the building is designed with a total primary energy use (including all uses) lower than 100 kWh/m^2/year

3.2.6. Improving the energy efficiency of social housing

It is BEMP to improve the energy efficiency of social housing, both for existing buildings undergoing renovation and new buildings, as described above for public buildings (see Section 3.2.5). For social housing, it is BEMP to involve local residents in the process of planning the renovation or designing the new building, in order to take into account their needs and engage them in the benefits of nearly zero energy buildings and how to use them.

Applicability

This BEMP is applicable to public administrations that manage social housing. The amount of investment needed may prove a relevant barrier to its implementation. However, the relevant social benefits (improved welfare, reduced fuel poverty) and financial benefits (energy savings if energy costs are centrally paid, or a higher proportion of tenants paying their rent if they are responsible for their own energy costs) outweigh the investments.

Associated environmental performance indicators and benchmarks of excellence

---

16 The EPBD requires that all new buildings consume very low or nearly zero energy ('nearly zero energy buildings') by 2020 or by 2018 if occupied and owned by public authorities.

17 The European Commission is currently piloting a voluntary reporting framework, Level(s), for measuring the overall sustainability performance of buildings throughout their life cycle. More info available at: http://ec.europa.eu/environment/eussd/buildings.htm

Environmental performance indicators	Benchmarks of excellence
(i1) Total annual energy use per unit of floor area, expressed as final energy (kWh/m^2/year) (i33) Total annual primary energy use per unit of floor area (kWh/m^2/year)	(b12) For newbuilds, the building is designed with a total primary energy use (including all uses) lower than 60 kWh/m^2/year (b13) For existing buildings undergoing renovation, the building is designed with a total primary energy use (including all uses) lower than 100 kWh/m^2/year

3.2.7. Achieving energy efficiency in public buildings through energy performance contracts

It is BEMP to implement energy performance contracts for public buildings. The public administration appoints an energy service company (ESCo) in order to identify appropriate energy efficiency improvements for public buildings, develop them, put them in place, provide a guarantee that a set level of energy savings will be achieved, take responsibility for the risk of the investment and, in many cases, arrange financing to pay for the projects. This allows public administrations to improve energy efficiency in public buildings without the need to fund the investment costs upfront.

Two types of energy performance contracts exist:

- shared-savings contracts, where the ESCo and the public administration share the cost savings at a predetermined percentage for a fixed number of years;
- guaranteed-savings contracts, where the ESCo guarantees a certain level of energy savings for the public administration, which receives a cheaper energy bill. However, the real savings are higher than the guaranteed ones and the ESCo earns the difference.

Applicability

All public administrations can apply energy performance contracting for introducing improvements to energy efficiency in their buildings. This is specifically relevant for public administrations and/or projects where otherwise it would be difficult to make the necessary investment because of lack of financial capacity or energy efficiency technical and management capacity.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i34) Percentage of the total energy use of the public administration covered by energy performance contracts (%)	-

3.2.8. Improving the energy performance of existing public buildings through monitoring, energy management and fostering of behavioural change

It is BEMP to:

– train key staff with direct responsibility for building and energy management in energy efficiency; the training needs to include theoretical and practical sessions supported by proper manuals and guides;

– engage all staff in actions that influence energy use (e.g. switch off lights, set a correct room temperature), focusing specifically on well-respected and influential members of staff (e.g. behaviour change champions);

– plan and run behaviour change campaigns to drive energy efficiency across the public administration; firstly, the target audience of each campaign needs to be identified and then specific energy-efficient actions can be properly promoted among the targeted staff;

– adopt Energy Performance Certificates and Display Energy Certificates, which rate the energy performance of a building, in order to display them prominently in the building or to use them as an engagement tool in specific awareness-raising campaigns.

Applicability

This BEMP is applicable to all public administrations.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i1) Total annual energy use per unit of floor area, expressed as final energy (kWh/m^2/year) (i35) Percentage of staff engaged and who continue to be engaged one year after the launch of an awareness campaign (%) (i36) Hours of environment-specific training provided per full time equivalent (FTE) employee and year (hours/FTE/year)	-

3.2.9. Implementing district heating and/or district cooling networks

It is BEMP to implement district heating networks and/or district cooling networks to provide public buildings and/or households with, respectively, space heating and hot water or space cooling. By generating them in central units, the heating and/or cooling provided to the network can be sourced from combined heat and power systems or tri-generation plants. When possible, further environmental benefits can be obtained by running these systems on renewable biomass or by employing geothermal energy or waste heat from industrial plants.

Applicability

This BEMP is applicable to all local authorities. It is specifically relevant for newly built areas and major renovations of public building complexes or other public infrastructures (e.g. swimming pools). There are some limitations for low-density populated areas and where heating and cooling demand fluctuates considerably.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i37) Annual CO_2 emissions of the system providing heating or cooling, before and after the implementation of district heating/cooling as an absolute figure or per unit of floor area of the buildings heated or cooled (t CO_2eq, kg CO_2eq/m^2)	-

3.2.10. Implementing on-site renewables and mini-combined heat and power (CHP) systems in public buildings and social housing

It is BEMP to provide public buildings and social housing with low-carbon technologies to meet the energy demand. These can include solar thermal systems for heat generation, on-site photovoltaic panels for electricity generation, or, in case of sufficient heat demand, small-scale combined heat and power (mini-CHP) systems to jointly generate the heat and the electricity at a higher overall efficiency. Mini-CHP systems can run on gas, or have additional environmental benefits if run on biomass where a local source of sustainable biomass is available.

Applicability

This BEMP is applicable to all public administrations. However, the possibility to implement specific solutions may be limited by the local availability of renewable energy sources and the financial investment required.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i38) On-site renewable energy generation per unit of floor area (kWh/m^2 year) (i39) Share of total energy use met by on-site renewables (%) (i40) Share of total energy use met by on-site generation of low-carbon energy (%) (i41) Share of total electricity use met by on-site generation of renewable electricity (%) (i42) Percentage of hot water demand met by on-site renewable heat generation (%)	(b14) 100 % of the electricity used in a public building is met by on-site generation of renewable electricity (b15) 100 % of the hot water demand in a public building/social housing building is met by on-site renewable heat generation

BEMPs regarding the regulatory and planning role of municipalities

3.2.11. Setting higher energy efficiency standards and renewable energy requirements in land use planning for newbuilds and buildings undergoing major renovations through local building regulations, urban planning and building permits

It is BEMP to introduce in the local planning system the provision that newbuilds and renovations within the territory are carried out to exemplary energy standards (i.e. high energy efficiency and integration of renewable energy generation). Local autonomy enables most municipalities to go beyond the energy standards and renewable energy requirements set by national legislation and implement positive changes at the local level. The requirements introduced in the local planning system can be regularly updated following the developments of the construction industry and new national targets.

It is also BEMP to consider energy performance and integration of renewables in urban planning and building permits to require and/or encourage organisations and residents to adopt sustainable energy solutions.

Applicability

This BEMP is applicable to all local authorities with a role in setting the local building code and/or in providing building permits. However, national legislation may pose limitations on what they can require.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i43) Establishment of regulations setting higher energy efficiency standards and renewable energy requirements (y/n) (i44) Level of energy performance required by the local building code (kWh/m²/year) (i45) Systematic consideration of energy performance and integration of renewables in the processing of building permits (y/n)	-

BEMPs on the influence of municipalities on their territory

3.2.12. Exemplary role of the public sector

It is BEMP to:

- show ambition by exceeding existing national or international targets for the local authority's own energy use and for the energy use of its territory, with a firm commitment from the highest levels of the municipality and the engagement of the other relevant stakeholders;
- lead by example: the municipality can implement exemplary measures and achieve exemplary energy performance levels, both to demonstrate that it is possible and to foster the local market for sustainable energy solutions; the municipality can also deliver flagship projects to showcase the public authority’s commitment to sustainability;
- communicate effectively to the general public: the public administration needs to be seen to be delivering the ambition in order to encourage other stakeholders to follow suit;

– support the creation of incentives schemes: create local schemes to finance residents in their actions to reduce their environmental impact;

– help overcome institutional barriers for the adoption of sustainable energy solutions.

Applicability

This BEMP is applicable to all local public administrations.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i46) Delivery of flagship and demonstration projects (y/n) (i47) Achievement of an ambitious level of energy performance across all buildings and activities of the public administration (y/n)	-

3.2.13. Information and advice services on energy efficiency and renewable energy for citizens and businesses and set up of public-private partnerships

It is BEMP to:

– adopt strategic partnerships to involve the wider community in the development and delivery of carbon reduction schemes;

– establish information and advice services to help residents and businesses reduce their energy use;

– set up and join public-private energy-related projects: public administrations can partner with private organisations with specialised knowledge in energy efficiency and renewable energy projects;

– support low-carbon pilot projects: pilot projects can help bring to the market energy efficiency and renewable energy solutions with the potential to be replicated by organisations and citizens in their territory.

Applicability

This BEMP is applicable to all public administrations with a role in promoting energy efficiency and/or renewable energy for residents and businesses.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i48) The public administration delivers information and advice services on energy efficiency and renewable energy (y/n) (i49) The public administration supports low-carbon pilot projects, e.g. through public-private partnerships (y/n)	-

3.2.14. Thermographic surveying of the built environment in the territory of the municipality

It is BEMP to use thermography to collect data at various scales and to provide visual information on heat radiation, in order to understand where energy efficiency solutions need to be deployed as a priority and to engage residents and local organisations on the energy efficiency of buildings. A thermographic survey of a large area can be carried out by aerial thermography.

Applicability

This BEMP is applicable to local authorities. The thermographic survey needs to be performed under specific conditions in terms of climate (i.e. temperature, wind), period of the year (i.e. winter) and time of the day (i.e. early morning).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i50) Percentage of the built area of the territory of the municipality covered by thermographic surveying (%) (i51) Potential energy savings identified thanks to the analysis of the thermographic survey (kWh/year, EUR/year)	(b16) Recent (<5 years) high-resolution (<50cm) thermographic data is available for 100 % of the built area in the territory of the municipality

3.3. Best environmental management practices for mobility

This section is targeted to public administrations responsible for mobility and/or public transport in their territory.

3.3.1. Enacting a sustainable urban mobility plan

It is BEMP to adopt a Sustainable Urban Mobility Plan (SUMP) in order to provide an integrated approach to all modes of transport while taking into account planning for the surrounding environment. The SUMP aims to improve safety and security, reduce air and noise pollution, lower emissions and energy consumption, improve the efficiency and cost-effectiveness of transportation and enhance the attractiveness and quality of the urban environment and urban design. The following sections (3.3.2 to 3.3.9) describe measures that can be included in a SUMP.

Applicability

This BEMP is applicable to all public administrations responsible for mobility and/or public transport. Local and contextual factors may influence the specific measures that can be included in the SUMP and their applicability.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i52) Modal share of journeys (% of journeys made by car, motorbike, public transport, cycling and walking) (i53) Accessibility of public transport (share of inhabitants living within 300 metres of an urban	-

public transport stop with a minimum frequency of 15-20 minutes) (%)	

3.3.2. Fostering cycling and walking through cycling infrastructure, bike-sharing schemes and promotion of walking

It is BEMP to:

- adopt policy measures and strategies to foster cycling and walking; cycling and walking need to be well recognised as separate modes of transport in policy and planning documents and strategic plans of the city, with specific measures for each of them;
- establish an efficient infrastructure; walking and cycling infrastructures are needed in order to make walking and cycling safe, fast and attractive;
- apply methodological tools in order to systematically collect data on walking and cycling; following the development of walking and cycling and evaluating the effect of the measures implemented can support further decision making and choices to promote sustainable transport;
- develop effective and targeted communication tools promoting walking and cycling among residents and commuters.

Applicability

This BEMP is applicable to all public administrations responsible for mobility. However, some local and contextual factors (e.g. topography) may limit the applicability of specific measures supporting and promoting walking and cycling.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i52) Modal share of journeys (% of journeys made by car, motorbike, public transport, cycling and walking) (i54) Length of cycling infrastructure (cycle lanes, cycle tracks), in total (km) and in relation to the length of the total road network for vehicles (km of cycle lanes/km of roads) (i55) The city has a dedicated policy or plan for investment in walking/cycling infrastructure and measurable goals to increase walking/cycling that are politically adopted (y/n)	(b17) The city has a modal split for cycling of 20 % or higher OR the city has increased its modal split for cycling by at least 50 % during the last five years. (b18) At least 10 % of the city's investment in transport infrastructure and maintenance is dedicated to cycling infrastructure.

3.3.3. Implementing a large-scale car-sharing scheme

It is BEMP to support and encourage the creation of a large car-sharing scheme in the territory of the municipality. Car-sharing services are not generally run by the city in which they operate; however, the municipality can set up supportive infrastructure, establish appropriate policy and legislation to integrate car sharing into the city fabric and with public transport. The public administration can also become a business customer of the local car-sharing service, create public awareness, promote the service and establish standards that car-sharing operators must meet in order to be able take advantage of the city's supportive

infrastructure (e.g. preferential lanes, low-traffic zones). Cities may also decide to subsidise a car-sharing operator to expand or accelerate the rate of growth.

Applicability

This BEMP is particularly relevant for local authorities with an urban territory with more than 200 000 inhabitants. Local authorities of territories with a lower population may encounter limitations in the applicability of the BEMP due to the limited number of customers of the car-sharing scheme, higher costs, less-developed public transport network, etc.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i56) Number of car-sharing users per 10 000 inhabitants (number/10 000 inhabitants) (i57) Number of registered users per car-share vehicle (number of users/number of vehicles) (i58) Number of inhabitants per shared car available (number of inhabitants/number of vehicles) (i59) Mileage driven annually by car-sharing users (km/user/year) (i60) Number of privately owned cars replaced by each vehicle in a car-sharing operator's fleet (number of privately owned cars replaced/number of car-shared vehicles)	(b19) At least 8 privately owned cars were replaced by each vehicle in the car-sharing operator's fleet (b20) At least 1 shared car available per 2,500 inhabitants

3.3.4. Integrated ticketing for public transport

It is BEMP to introduce integrated ticketing in the form of a smart system with the capability of identifying and charging for trips which use multiple modes of transport. If the public administration acts as a public transport operator (e.g. through a city-owned subsidiary company) it can implement the integrated ticketing itself. In cases where the municipality awards public transport services to private companies, the integrated ticketing solutions can be required in the tender.

Applicability

This BEMP is applicable to all public administrations responsible for public transport. However, below a certain critical mass of users and annual transactions, it can be challenging to recoup the initial investments in terms of the time and finances needed to implement a smart integrated ticketing system.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i61) Percentage of trips paid for by the integrated ticket (%) (i62) Number of public transport users who would have used private motorised transportation in the absence of an integrated ticketing system	(b21) At least 75 % of trips are paid for by the integrated ticket

(normalised by total population in the catchment area)	

3.3.5. Improving the uptake of electric vehicles in urban areas

It is BEMP to purchase electric vehicles (i.e. electric cars, mopeds and bikes) for the public administration's own fleet. Additionally, schemes that support the purchase of electric vehicles by residents can also be put in place, devoting some budget or reaching agreements with local banks for reduced interest rates. Moreover, public administration can support the uptake of electric vehicles by allowing their circulation in restricted traffic areas or in preferential lanes, creating or increasing the number of public charging points, reducing electric vehicles' taxation, introducing or supporting electric vehicle car-sharing schemes and advertising to residents the support measures for electric vehicles.

Applicability

This BEMP is applicable to all local authorities and particularly relevant in cities (with a large share of short driving distances) and areas with problems of traffic congestion and air pollution.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i63) Percentage of electric vehicles (per type, e.g. e-cars, e-bikes) on the road compared to total vehicles (%) (i64) Percentage of electric public vehicles (per type, e.g. e-cars, e-bikes) within the total public vehicle fleet (%) (i65) Number of public charging points per inhabitants (number/inhabitants)	-

3.3.6. Fostering passenger intermodality

It is BEMP to encourage the development of convenient, safe, fast and seamless connections among sustainable modes of transport. Intermodal transport systems link together the infrastructure and services for public transport (buses, trams/light rail and commuter rail), walking, biking, bike sharing, and car sharing. Public administrations can foster passenger intermodality by cooperating with various public transport operators and bike- and car-sharing companies.

Applicability

This BEMP is applicable to all local authorities but particularly relevant for cities with complex transport networks and an extended territory.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i52) Modal share of journeys (% of journeys made by car, motorbike, public transport, cycling and walking)	(b22) The share of sustainable modes of transport used in the city (e.g. walking, cycling, bus, tram,

(i66) Average number of bicycle park spaces at public transport stops per average daily passenger throughput (number of bicycle park spaces/number of passengers) (i67) Percentage of public transport users who combine it with walking/cycling out of the public transport users who live within a reasonable radius (800 m for walking and 3 km for cycling) of high-frequency (at least twice per hour during morning and evening rush hours) public transport stops (%) (i68) Intermodal journey-planning software available to the inhabitants includes walkable and cycleable journey legs (y/n)	train) is 60 % or higher

3.3.7. Implementing a congestion charge

It is BEMP to implement a congestion charge in city areas with high traffic congestion. The congestion charge is an economic disincentive (fee) to the use of congested roads at the busiest times of the day. In order to be successful, the congestion charge needs to be implemented as part of a package of transport measures (see previous BEMPs in Section 3.3) that provide a valid alternative to the use of a car.

Applicability

This BEMP is applicable to local authorities in urban areas with high traffic congestion and air pollution.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i52) Modal share of journeys (% of journeys made by car, motorbike, public transport, cycling and walking) (i69) Percentage of reduction in air pollutants (particulate matters - PM_{10}, ammonia and nitrogen oxide) within the congestion charge area, compared to the situation before the introduction of the congestion charge (%) (i70) Percentage of reduction in vehicular access of non-exempt vehicles to the congestion charge area compared to the situation before the introduction of the congestion charge (%) (i71) Percentage of increased average speed and punctuality of public transport vehicles in the congestion charge area compared to the situation before the introduction of the congestion charge (%)	(b23) The concentration of air pollutants (PM_{10}, ammonia and nitrogen oxide) is reduced by 10 % (on average) within the congestion charge area, compared to the situation before the introduction of the congestion charge (b24) Vehicular access of non-exempt vehicles to the congestion charge area is reduced by 20 % compared to the situation before the introduction of the congestion charge (b25) The speed and punctuality of public transport services are improved by 5 % compared to the situation before the introduction of the congestion charge

3.3.8. Limiting free parking spaces in cities

It is BEMP to limit on-street free parking spaces (i.e. free of charge) in urban areas and remove minimum parking requirements (for on-street parking and underground garages) in new building developments. Additionally, a formal policy to incrementally remove any previous parking requirements (for on-street parking and underground garages) from existing developments can also be adopted. Limiting on-street free parking spaces is a disincentive to privately owned cars. These measures are most effective when accompanied by measures to improve the availability and reliability of valid alternatives to the use of a car, such as public transport, cycling and walking.

Applicability

This BEMP is applicable to all local authorities and specifically relevant for cities with high traffic congestion and air pollution or underused public transport.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i52) Modal share of journeys (% of journeys made by car, motorbike, public transport, cycling and walking) (i72) Percentage of available parking spaces during business hours (%) (i73) Existence of minimum parking requirements (for on-street parking and underground garages) for new developments (y/n)	(b26) On-street parking spaces are between 80 % and 90 % occupied during 90 % of business hours (b27) The city has no minimum parking requirements (for on-street parking and underground garages) for new developments and has a formal policy to incrementally remove any previous parking requirements from existing developments

3.3.9. Implementation of logistics service centres

It is BEMP to involve the relevant stakeholders and support the implementation of a logistics service centre in the territory of the municipality. The logistics service centre can be situated in relatively close proximity to the geographical area that it serves, to allow consolidated deliveries to be carried out within that area.

Applicability

This BEMP is applicable to all local authorities responsible for mobility and specifically relevant for cities which receive a high volume of deliveries of goods and/or are subject to high traffic congestion and air pollution.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i74) Emissions of CO_2 from delivery vehicles over a specific timespan (e.g. yearly, monthly) in the area served by the logistics service centre (kg CO_2eq/year or kg CO_2eq/month) (i75) Number of delivery trips per day in the	(b28) 40 % reduction in CO_2 emissions from delivery vehicles in the service area compared to the situation before the implementation of the logistics service centre (b29) 75 % reduction in the number

service area (number/day)	of delivery trips per day to the service area compared to the situation before the implementation of the logistics service centre

3.4. Best environmental management practices for land use

This section is targeted to local authorities responsible for land use planning.

3.4.1. Limiting urban sprawl into green spaces and agricultural land

It is BEMP to limit and control urban sprawl by regulatory measures (e.g. spatial land use planning, restriction on specific land use), economic intervention (e.g. trading in building permits) and institutional change and management (e.g. special agencies for urban revitalisation). Examples of measures to limit urban sprawl are encouraging building on brownfield land, minimising sealed space between buildings, renovating unused buildings, and promoting vertical development.

Applicability

This BEMP is applicable to all local authorities responsible for land use planning.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i76) Percentage of manmade impermeable surfaces (i.e. any kind of impermeable built area: buildings, roads, any part with no vegetation or water) in the territory of the municipality (km^2 manmade impermeable surface/km^2 total surface) (i77) Percentage of new built area in a specific time span (e.g. 1, 5, 10 years) out of the total built area in the territory of the municipality at the beginning of the period considered (%)	-

3.4.2. Reducing the urban heat island effect

It is BEMP to mitigate the urban heat island effect through the implementation of a combination of measures, such as green areas, green roofs, the use of reflective materials, increasing the efficiency of the insulation of hot pipes and avoiding the dissipation of waste heat by its reuse.

Applicability

This BEMP is applicable to all local authorities responsible for land use planning in large urban areas. Small municipalities are less affected by the urban heat island effect.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i78) Implementation of measures to mitigate the urban heat island effect, such as green areas, green roofs or use of reflective materials (y/n)	-

3.4.3. Requiring low-impact water drainage in sealed soils

It is BEMP to require low-impact drainage measures in the construction of new developments (including major redevelopments of existing built areas) to prevent and control flooding, soil erosion and pollution, and groundwater pollution. Low-impact drainage measures adopting the 'Sustainable Drainage Systems' (SUDS) philosophy are considered best practice, as SUDS follow outstanding principles which:

- seek the improvement of water run-off quality, reduce surface run-off, contribute to biodiversity and create amenity value;
- try to replicate, as closely as possible, the natural drainage before development;
- have an integrated management hierarchy of prevention, source control and site control.

Applicability

This BEMP is applicable to all local authorities responsible for land use planning. The specific measures to improve water drainage are site-specific.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i79) Existence of requirements for low-impact drainage measures for the construction of new developments and for major redevelopments (y/n)	-

3.5. Best environmental management practices for green urban areas

This section is targeted to public administrations responsible for the management of green urban areas.

3.5.1. Establishing and implementing a local biodiversity strategy and action plan

It is BEMP to introduce a local biodiversity strategy and action plan whose goals and objectives can be defined thanks to dialogue with experts, stakeholders and residents. The action plan needs to include the measures to be implemented, timelines, budget available, milestones, partnerships for implementation and responsibilities. The results of the action plan can be promoted and disseminated to inhabitants and stakeholders to raise awareness.

Applicability

This BEMP is applicable to all public administrations responsible for the management of green urban areas.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i80) Percentage and number of native species (for different categories of species, e.g. birds, butterflies) in the urban area (%) (i81) Percentage of natural and semi-natural areas in the urban area out of the total urban area (%) (i82) Green space per inhabitant (m^2/inhabitant) –	-

distinguishing between urban, semi-urban and rural areas	

3.5.2. Creating blue-green networks

It is BEMP to develop blue-green networks[18], recreating a nature-oriented water cycle and contributing to the amenity of the city, by bringing water management and green infrastructure together. Blue-green networks can combine and protect the hydrological and ecological values of the urban landscape while providing resilient and adaptive measures to deal with flooding events.

Applicability

This BEMP is applicable to all local authorities.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i83) Percentage of green and blue urban areas in the urban area out of the total urban area (%)	-

3.5.3. Fostering the deployment of green roofs

It is BEMP to develop appropriate policy schemes that support the construction of green roofs in new and existing buildings, both public and private. Green roofs can also host renewable energy systems, such as photovoltaic panels (see Section 3.2.10 for more information on renewable energy generation in public buildings and social housing). Policy schemes that support the deployment of green roofs can incorporate economic incentives, reduced bureaucracy, and specific technical support for inclusion of green roofs in the construction or renovation of buildings.

Applicability

This BEMP is applicable to all local authorities responsible for land use planning.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i84) Percentage of surface covered with green roofs out of the total surface of the urban area ($m^2_{green\ roof}/m^2_{urban\ area}$) (i85) Percentage or number of buildings with green roofs in a given urban area (%)	-

3.5.4. Giving new environmental value to derelict green areas and fringe areas

It is BEMP to adopt a plan to restore derelict green areas and fringe areas in the territory of the municipality in order to remove pollutants from soil and water, improve the habitat for wildlife, reduce the urban heat island effect and protect against soil erosion and floods, while offering recreational green areas for the local residents.

[18] Blue-green networks are natural and semi-natural areas incorporating green spaces (and/or blue if and when aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas.

Applicability

This BEMP is applicable to all local authorities responsible for land use planning.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i86) Adoption of a plan for the restoration and environmental management of the derelict green areas and fringe areas within the urban area (y/n)	-

3.6. Best environmental management practices for local ambient air quality

This section is targeted to public administrations responsible for the management of air quality.

3.6.1. Improving local ambient air quality

It is BEMP to have a structured plan to improve air quality with regularly updated goals, both short-term and long-term, set in advance and going beyond the target and limit values set in the Air Quality Directive (Directive 2008/50/EC). The plan needs to encompass all aspects starting with transport (car use, speed limits, public transport, etc.), industrial installations, energy production, type of heating systems in buildings, energy efficiency of buildings and land use planning and needs to be developed in cooperation with the relevant sectoral authorities and stakeholders. Moreover, where applicable, the effectiveness of the plan can be enhanced by developing it in coordination with higher level public authorities and neighbouring municipalities. The plan to improve air quality can also include dissemination of information to residents about the effects and importance of air quality, by, for instance, promoting the use of sustainable transport options.

Applicability

This BEMP is applicable to all public administrations responsible for the management of air quality in their territory, targeting specific local issues.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i87) Annual average PM_{10} concentration ($\mu g/m^3$) (i88) Annual number of days when the daily average PM_{10} concentration exceeds the value of 50 $\mu g/m^3$ (days/year) (i89) Annual average $PM_{2.5}$ concentrations ($\mu g/m^3$) (i90) Annual number of days when the daily average $PM_{2.5}$ concentration exceeds the value of 25 $\mu g/m^3$ (days/year) (i91) Annual number of days when ozone (O_3) concentration exceeds the value of 120 $\mu g/m^3$ of maximum daily 8-hour mean (days/year) (i92) Annual average nitrogen dioxide (NO_2) concentration ($\mu g/m^3$)	(b30) For all the indicators defined in this BEMP, the results achieve the levels set in the air quality guidelines produced by the World Health Organisation

(i93) Annual number of days when the hourly NO_2 concentration exceeds the value of 200 µg/m^3 (days/year)	

3.7. Best environmental management practices for noise pollution

This section is targeted to public administrations responsible for tackling noise pollution.

3.7.1. Monitoring, mapping and reducing noise pollution

It is BEMP to map noise in the territory of the municipality and to inform the public about the effects of noise pollution and the results of the mapping through an effective communication campaign. Based on the results of the noise mapping, the local authorities need to create noise action plans to reduce local noise levels and maintain environmental noise quality in areas where it is good.

Applicability

This BEMP is applicable to all public administrations responsible for tackling noise pollution.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i94) Percentage of noise level measurements exceeding local limit values out of the total number of measurements (%) (i95) Residents exposed to noise levels exceeding local limit values out of the total population (%) (i96) Residents exposed to night-time noise levels affecting health according to World Health Organisation limits out of the total population (%)	-

3.8. Best environmental management practices for waste management

This section is targeted to public administrations in charge of waste management.

3.8.1. Taking into account the EMAS Sectoral Reference Document for the waste management sector

It is BEMP to consider the Best Environmental Management Practices identified and presented in the EMAS Sectoral Reference Document for the waste management sector[19] and to report on the indicators provided in that document.

Applicability

This BEMP is applicable to all public administrations in charge of waste management.

3.9. Best environmental management practices for water supply

This section is targeted to public administrations responsible for supplying potable water in their territory.

[19] The EMAS Sectoral Reference Document for the waste management sector is currently under development. The intermediate results as well as the final document, once adopted, are available at: http://susproc.jrc.ec.europa.eu/activities/emas/waste_mgmt.html.

3.9.1. Deploying full water metering at the household/final user level

It is BEMP to install water meters for each residential unit and any other individual final user (industrial plant, commercial building, public building, etc.) in order to base all water bills on actual water consumption. By adopting smart water meters, in particular, it is possible to monitor water use remotely and in a timely manner and, for instance, to analyse the consumption patterns of different customers or identify weaknesses of the water distribution networks. Billing actual water consumption and enabling early identification of abnormal water usage (e.g. leakages) can result in significant water savings.

Applicability

The technique is applicable to any existing water supply network.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i97) Penetration rate of water metering (% of consumers, % of water consumption covered by metering) (i98) Percentage of smart meters out of the total water meters in use (%) (i99) Reduction in water use by final users after installation of water meters and/or smart meters (l/user)	(b31) The penetration rate of water meters at household or final user level is 99 % or higher (b32) In water-scarce areas[20] (at least for part of the year), water meters at household/final user level are smart meters (b33) All new buildings are equipped with water meters (smart meters in water-scarce areas)

3.9.2. Minimising water leakages from the water distribution system

It is BEMP to:

- carry out a detailed water balance of the water distribution system and manage water pressure, avoiding high levels;
- analyse the water distribution network and divide it into adequate district metering areas to detect water leakages by means of manual or automatic acoustic water leakage detectors;
- respond promptly and adequately to the identified faults and leakages of the network;
- establish a database to list and geo-reference all technical installations, the age of pipes, types of pipes, hydraulic data, previous interventions, etc.

Applicability

This BEMP is applicable to new and existing water distribution networks.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence

[20] Water-scarce areas are those where there are insufficient water resources to satisfy long-term average requirements. More info available at: http://ec.europa.eu/environment/water/quantity/about.htm

(i100) Percentage of water loss out of the system input volume (%) (i101) Infrastructure Leakage Index (ILI): calculated as current annual real losses (CARL) / unavoidable annual real losses (UARL)[21]	(b34) The Infrastructure Leakage Index is lower than 1.5

3.10. Best environmental management practices for waste water management

This section is targeted to public administrations responsible for waste water management and urban drainage.

3.10.1. Energy-efficient waste water treatment achieving full nitrifying conditions

It is BEMP to:

- have the installed capacity to treat at least twice the dry weather waste water flow (in case of rain or thawing);
- treat the waste water at nitrifying conditions (food to microorganisms ratio of < 0.15 kg BOD_5/kg MLSS[22] per day), and perform denitrification and phosphorus removal;
- remove suspended solids by means of sand filtration (or by submerged membranes) in the case of sensitive receiving water bodies;
- implement other tertiary treatment to reduce micropollutants (see Section 3.10.2);
- continuous monitoring of organic compounds (total organic carbon), ammonia, nitrate and phosphorus in the case of plant capacities of more than 100 000 population equivalents (p.e.)[23] or of a daily inflow BOD_5 load of more than 6 000 kg;
- stabilise primary and excess sludge in anaerobic digesters (see Section 3.10.3);
- dry the anaerobically stabilised sludge and send it to incineration (see Section 3.10.4);
- adopt energy-efficient technologies, such as energy-efficient fine bubble aeration systems in the biological stage and energy-efficient pumps and screw lifters.

Applicability

This technique is applicable to public administrations responsible for waste water management, both in new and existing waste water treatment plants.

---

21 The current annual real losses (CARL) represent the amount of water that is actually lost from the distribution network (i.e. not delivered to final users). The unavoidable annual real losses (UARL) take into consideration that there will always be some leakage in a water distribution network. The UARL is calculated based on factors such as the length of the network, the number of service connections and the pressure at which the network is operating.

22 The following abbreviations are used in the text of the BEMP: BOD_5: biochemical oxygen demand in 5 days; MLSS: mixed liquor suspended solids (biomass in the activated sludge system); COD: chemical oxygen demand.

23 "Population equivalents", or p.e., term used in the Council Directive 91/271/EEC concerning urban waste water treatment, covers the organic pollution generated by the residents of a city, town or village, and other sources such as non-resident population and agro-food industries.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i102) Concentrations in the discharged final effluent or removal efficiencies of COD, BOD_5, ammonia, total nitrogen and total phosphorus (mg/l, %) (i103) Electricity use of the waste water treatment plant per mass of BOD_5 removed (kWh/kg of BOD_5 removed) (i104) Electricity use of the waste water treatment plant per volume treated (kWh/m^3 of waste water treated) (i105) Annual electricity use of the waste water treatment plant per population equivalents (KWh/population equivalents/year)	(b35) The removal efficiencies achieved are: at least 98 % for BOD_5, at least 90 % for COD, at least 90 % for ammonia, at least 80 % for total organic nitrogen compounds, and at least 90 % for total phosphorus (b36) The electricity use of the waste water treatment plant is: - lower than 18 kWh/population equivalents/year for large municipal waste water treatment plants (with a size of more than 10 000 population equivalents) - lower than 25 kWh/ population equivalents /year for small municipal waste water treatment plants (with a size of less than 10 000 population equivalents)

3.10.2. Minimising waste water emissions with special consideration of micropollutants

It is BEMP to significantly remove micropollutants by implementing tertiary treatment, such as adsorption onto pulverised activated carbon (PAC) or oxidation with chlorine-free oxidising agents (specifically ozone).

Applicability

This BEMP is applicable to public administrations responsible for waste water management, both in new and existing municipal waste water treatment plants; however, for existing plants, there could be space constraints which can be overcome by adapted design of the equipment.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i106) Removal efficiency for micropollutants in the adsorption or ozonation stage in terms of COD or DOC[24] (%) (i107) Percentage of the annual waste water flow undergoing tertiary treatment for micropollutants removal (%)	(b37) The average removal efficiency for micropollutants is higher than 80 % (b38) Micropollutants are removed from at least 90 % of the annual waste water flow

[24] DOC: dissolved organic carbon.

3.10.3. Anaerobic digestion of sludge and optimal energy recovery

It is BEMP to stabilise primary and excess sludge in anaerobic digesters and to employ the produced biogas, using efficient pumps and screw lifters, for on-site efficient electricity generation and for sludge drying.

Applicability

This BEMP is applicable to public administrations responsible for waste water management, in large new and existing waste water treatment plants, with a capacity of more than 100 000 population equivalents or of a daily inflow BOD_5 load of more than 6 000 kg.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i108) Percentage of electricity and heat needs of the waste water treatment plant met by own-generated electricity and heat from biogas on an annual basis (%) (i109) Electrical efficiency of the generator fuelled with biogas (%) (i110) Specific biogas production (Nℓ [25]/kg organic dry matter input)	(b39) Own-generated electricity and heat from biogas cover 100 % of the energy use for municipal waste water treatment plants with a size of more than 100 000 population equivalents without on-site thermal sludge drying, and 50 % in the case of plants with on-site thermal sludge drying

3.10.4. Drying and incineration of sludge

It is BEMP to efficiently mechanically dewater the anaerobically stabilised sludge, e.g. by means of chamber filter presses, and then completely oxidise it in a mono-incineration plant (as detailed in the best available techniques reference documents[26] according to the Industrial Emissions Directive[27]). The phosphorus contained in the ash of the incineration residue can be recovered.

Applicability

The technique is applicable to public administrations responsible for waste water management, both in new and existing waste water treatment plants. In the case of small plants, the mechanically dewatered sludge can be sent to a separate central mono-incineration sludge plant instead of being incinerated on site.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i111) Percentage of the sewage sludge produced in the waste water treatment plant that is mono-incinerated (%)	-

[25] Nℓ: normal litre, i.e. volume of gas measured at standard conditions (pressure: 1.01325 bar; temperature: 0ºC)

[26] The Best Available Techniques (BAT) Reference Documents (BREFs) according to the Industrial Emissions Directive are available at: http://eippcb.jrc.ec.europa.eu/reference/.

[27] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast).

(i112) Percentage of phosphorus present in the incineration ashes of the waste water treatment plant that is recovered (%)	

3.10.5. Promoting the use of reclaimed water from waste water treatment effluents

It is BEMP to promote the use of reclaimed water from waste water treatment effluents. This can be used for, e.g.:

- irrigation, including non-agricultural irrigation, e.g. parks;
- non-potable urban uses, such as street cleaning, snowmaking for adjacent ski resorts, toilet flushing in public buildings, public fountains;
- industrial uses, e.g. cooling;
- groundwater recharging.

Local public administrations can ensure the possibility to use the reclaimed water in some specific applications by fitting waste water treatment plants with the appropriate tertiary and disinfection treatment systems as needed. In the process, local public administrations need to engage with relevant stakeholders (e.g. local farmers, agricultural cooperatives) that may be interested in making use of the reclaimed water.

Applicability

This BEMP is applicable to all public administrations in charge of waste water treatment. However, water reuse is particularly relevant in water-scarce areas, where it can reduce the impact on water resources and where the extra investments and operational costs are economically feasible.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	**Benchmarks of excellence**
(i113) Amount of reclaimed water produced from waste water treatment in a given time period (m^3/year, m^3/hour) (i114) Percentage of reclaimed water out of the total waste water treated (%)	-

3.10.6. Retention and treatment of overflows from combined sewer systems and of storm water from separate sewer systems

In the case of combined sewers[28], it is BEMP to treat the overflow of the retention tanks, by means of fine screens (4-6 mm) and sediment tanks, and, depending on the water quality of the received water, by soil retention filters or other techniques with a similar suspended solids, COD, heavy metals and organic pollutants removal efficiency.

In the case of separate sewers, it is BEMP to treat the storm water depending on its level of pollution, and directly discharge only storm water with no or low pollution.

[28] In combined sewer systems, waste water and storm water (from storm or rain events) are collected in the same sewer network. In separate sewer systems, waste water and storm water are collected and sent for treatment or discharge via separate sewer networks.

Applicability

This BEMP is applicable to all local authorities responsible for waste water management and urban drainage.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i115) For combined sewer systems, ratio of pollutants (total suspended solids, COD and heavy metals) discharged to water bodies from waste water treatment out of the total emissions (from treated waste water plus storm water overflows) (%) (i116) For separate sewer systems, percentage of contaminated impervious areas from which storm water is adequately treated (%)	-

3.10.7. Sustainable urban drainage system

It is BEMP to reduce the flow of storm water reaching combined and separate sewers by improving water infiltration into soil (e.g. reducing soil sealing). This allows the limiting of overflows to situations of very heavy rainfall and ensuring that all discharges of urban run-off are well managed in order to avoid relevant emissions of pollutants to the receiving water body. Local authorities can promote sustainable urban drainage by including appropriate provisions, based on a holistic approach at the river basin level, in the local policies for land use (see also Section 3.4.3).

Applicability

This BEMP is applicable to all local authorities responsible for urban drainage and land use planning. The sustainable urban drainage measures can be implemented in new and existing developments. However, in existing built areas there may be some constraints (e.g. lack of space available for local infiltration).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i76) Percentage of artificial surfaces (i.e. any kind of impermeable built area: buildings, roads, any part with no vegetation or water) in the territory of the municipality (km^2 of artificial surface/km^2 of total surface) (i117) Annual percentage of estimated rainwater which is retained and infiltrated into the ground locally out of the total estimated rainwater falling on the urban area of the municipality (%)	-

3.11. Best environmental management practices for green public procurement

This section is targeted to all public administrations.

3.11.1. Systematically including environmental criteria in all public procurement

It is BEMP to introduce environmental criteria for the procurement of products (goods, services and works) and to consider most economical, in the tender criteria, the life-cycle cost of a product or service and not only the initial investment for its purchase.

Environmental criteria can be introduced in the technical specifications, selection criteria, award criteria and contract performance clauses of any tender where a relevant potential environmental impact is expected.

Public administrations needing guidance on the formulation of the environmental criteria can:

- introduce the EU Green Public Procurement[29] (EU GPP) comprehensive criteria, when available for the specific product, in the technical specifications, selection criteria, award criteria and contract performance clauses;
- where no EU GPP recommendations exist, refer to the EU Ecolabel, when available for the specific product by using the EU Ecolabel criteria in public procurement[30];
- introduce as an award criterion in public tenders for the procurement of goods, services and works the EMAS registration of the suppliers, providing additional points in the evaluation process of the bids provided that the implementation of an environmental management system is relevant with regards to the substance matter of the contract. In sectors or areas where there is a low number of EMAS registered organisations among the market players and this could restrict the number of bids, reference can be extended to environmental management systems based on international standard (i.e. ISO 14001). However public administrations can reward the higher credibility and reliability of EMAS by providing more point to EMAS registered organisations than to organisations with other environmental management systems that do not present the same guarantees.

Applicability

This BEMP is applicable to all public administrations.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i118) Percentage of tenders including environmental criteria out of the total number of tenders, disaggregated by product category (%)	(b40) 100 % of tenders include environmental criteria that require at least the level of performance set in the EU GPP criteria, for products where EU GPP criteria are available (e.g. office paper, cleaning agents, furniture)

29 For information on the EU Green Public Procurement criteria and the complete list of products covered, please see: http://ec.europa.eu/environment/gpp/index_en.htm.

30 In order to not restrict the number of tenders, in the technical specifications reference can be made to the criteria of the EU Ecolabel for that specific product or service group; for verification, a valid licence of the EU Ecolabel can be required. According to Art. 44 (2) of Directive 2014/24/EU, contracting authorities must also accept other appropriate means of proof.

3.12. Best environmental management practices for environmental education and dissemination of information

This section is targeted to public administrations responsible for the environmental education of citizens and provision of environmental information to businesses.

3.12.1. Environmental education and information for citizens and businesses

It is BEMP to provide environmental education and information to citizens and businesses with the objective of:

- fostering public awareness of environmental problems;
- providing practical information on the everyday contribution that citizens and businesses can make to environmental protection and efficient utilisation of resources;
- creating new patterns of behaviour among different groups within society;
- inspiring citizens to get to know and appreciate the local environment and reconnect with nature;
- stimulating an understanding of the environmental interdependence between urban and surrounding rural and natural areas.

Such objectives can be achieved by organising educational seminars, conferences, workshops for the general public or specific groups of citizens, businesses or professionals on specific subjects (e.g. energy-efficient buildings). Moreover, the local public administration can provide specific information on legal (and other) environment-related aspects and on incentives available (e.g. incentives for energy efficiency). All the activities can be organised with the involvement and cooperation of residents, local organisations and businesses that support the environmental education and information of citizens.

Applicability

This BEMP is applicable to all public administrations with a role in informing the public on environmental matters.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i119) Percentage of citizens reached directly and indirectly by the environmental education actions (i120) Presence of a municipal service or agency for provision of environment-related information to businesses (y/n)	-

4. RECOMMENDED SECTOR-SPECIFIC KEY ENVIRONMENTAL PERFORMANCE INDICATORS

The following table lists **a selection of key environmental performance indicators** for the public administration sector. These are a subset of all the indicators mentioned in Chapter 3. The table is divided according to the structure of this document.

Indicator	**Common unit**	**Main target group**	**Short description**	**Recommended minimum level of monitoring**	**Related core indicator** in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	**Benchmark of excellence**	**Related best environmental management practice**
BEMPs FOR SUSTAINABLE OFFICES							
1. Total annual energy use	kWh/m^2/year kWh/FTE/year	Public administrations owning or managing offices	Total annual energy use divided by the total internal floor area or the number of full time equivalent (FTE) employees. The indicator can also be broken down into: - space heating; - space cooling; - lighting; - other electricity uses.	Building level	Energy efficiency	-	BEMP 3.1.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
2. Total annual greenhouse gas emissions	kg CO_2eq/m^2/year kg CO_2eq/FTE/year	Public administrations owning or managing offices	Total annual greenhouse gas emissions generated from the use of office buildings divided by the total internal floor area or the number of full time equivalent (FTE) employees	Building level	Energy efficiency	-	BEMP 3.1.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
3. Total annual water use	m^3/FTE /year m^3/m^2/year	Public administrations owning or managing offices	Total annual water consumption in office buildings, divided by the total internal floor area or the number of full time equivalent (FTE) employees, broken down into (if relevant): - mains water use; - harvested rainwater use; - recycled greywater use.	Building level	Water	Water use in office buildings is lower than 6.4 m^3/full time equivalent employee/year	BEMP 3.1.2

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
4. Total annual office waste generation	kg/FTE/year	Public administrations owning or managing offices	Total annual office waste generation in office buildings divided by the number of full time equivalent (FTE) employees	Building level	Waste	Total waste generation in office buildings is lower than 200 kg/full time equivalent employee/year	BEMP 3.1.3
5. Total annual office waste recycled	%	Public administrations owning or managing offices	Percentage by weight of the total waste generated in offices which is separately collected for recycling	Building level	Waste	Zero waste generated in the office buildings is sent to landfill	BEMP 3.1.3

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
6. Daily quantity of office paper used per full time equivalent employee	sheets of paper/FTE/ working day	Public administrations owning or managing offices	Total number of sheets of office paper used annually divided by the number of full time equivalent (FTE) employees and the number of working days	Organisation level	Material efficiency	Office paper consumption is lower than 15 A4 sheets/full time equivalent employee/working day	BEMP 3.1.4
7. Share of environmentally friendly certified office paper purchased	%	Public administrations owning or managing offices	Percentage of environmentally friendly certified office paper purchased (number of reams) out of the total purchased office paper (number of reams)	Organisation level	Energy efficiency Material efficiency Water Waste Biodiversity Emissions	Office paper used is 100 % recycled or certified according to an ISO Type I ecolabel (e.g. EU Ecolabel).	BEMP 3.1.4

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
8. Adoption of tools for promoting sustainable commuting for employees	y/n	Public administrations owning or managing offices	Staff are engaged about sustainable commuting thanks to the implementation and promotion of tools driving behaviour change	Organisation level	Emissions	Tools for promoting sustainable commuting for employees are implemented and promoted	BEMP 3.1.5
9. Implementation of carbon budgeting for business travel	y/n	Public administrations owning or managing offices	A total carbon budget for business trips is allocated over a defined period. For each trip, the corresponding carbon emission equivalent is subtracted from the remaining carbon budget.	Organisation level	Emissions	Carbon budgeting is implemented for all business travel	BEMP 3.1.5

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
10. Availability and monitoring of video-conferencing facilities	y/n	Public administrations owning or managing offices	Videoconferencing facilities are promoted within the organisation and the number of hours of use is monitored. All staff can use the videoconferencing facilities.	Organisation level	Emissions	Videoconferencing facilities are available to all staff and their use is monitored and promoted	BEMP 3.1.5
11. Food waste generated	g/meal	Public administrations owning or managing canteens and coffee bars	Amount of food waste generated per meal served in canteens and coffee bars	Organisation level	Waste	-	BEMP 3.1.6
BEMPs FOR SUSTAINABLE ENERGY AND CLIMATE CHANGE							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
12. Carbon emissions of the territory of the municipality	kg CO_2eq/ inhabitant	All local authorities	Total annual carbon emissions (as tonnes of CO_2eq) of the municipality (including housing, industries, agriculture, commerce/services such as construction) divided by the number of inhabitants of the territory	Territory administered	Emissions	-	BEMPs 3.2.1, 3.2.2
13. Existence of a municipal energy and climate action plan	y/n	All local authorities	The municipal energy and climate action plan, with long- and short-term targets and actions, is based on the inventory of energy use and emissions of the territory	Territory administered	Emissions	A municipal energy and climate action plan, including targets and actions and based on the inventory of energy use and emissions, is in place	BEMP 3.2.2

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
14. Adoption of a strategy for climate change adaptation	y/n	All local authorities	A holistic climate change adaptation strategy within the territory of the municipality can build on other local and regional adaptation strategies	Territory administered	-	A holistic climate change adaptation strategy for the territory of the municipality is in place	BEMP 3.2.3
15. Energy use for street lighting	kWh/inhabitant/year MWh/km/year	Public administrations managing directly or indirectly street lighting	Annual energy use for street lighting calculated per inhabitant or per km of street lit	Territory administered	Energy efficiency	Street lighting energy use per kilometre is lower than 6 MWh/km/year	BEMP 3.2.4

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
16. Total annual energy use in public buildings	kWh/m^2/year	Public administrations owning or managing buildings	Total annual energy use in the public building considered (taking into account space heating, space cooling and electricity), expressed as final energy use, divided by the floor area of the building	Building level	Energy efficiency	For newbuilds, the building is designed with a total primary energy use (including all uses) lower than 60 kWh/m^2/year For existing buildings undergoing renovation, the building is designed with a total primary energy use (including all uses) lower than 100 kWh/m^2/year	BEMPs 3.2.5, 3.2.6, 3.2.7, 3.2.8

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
17. Training provided to staff on energy efficiency	hours/FTE/year	Public administration owning or managing buildings	Annual number of hours of environment-specific staff training in order to improve energy efficiency in buildings. The annual number of hours of training is divided by the total number of full time equivalent (FTE) employees	Building level	Energy efficiency	-	BEMP 3.2.8
18. CO_2 emissions from district heating/cooling	t CO_2eq kg CO_2eq/m^2	All local authorities	Amount of CO_2eq emissions of the heating and cooling system before and after the installation of a district heating/cooling network, in total or per unit of floor area of the buildings heated or cooled	District heating/ cooling network	Emissions	-	BEMP 3.2.9

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
19. Share of the energy use met by renewable energy sources	%	Public administration owning or managing buildings	Renewable energy (electricity and heat separately) produced on site/nearby, divided by the energy use (electricity and heat separately) of the public buildings or social housing	Building level	Energy efficiency Emissions	100 % of the electricity used in a public building is met by on-site generation of renewable electricity 100 % of the hot water demand in a public building/social housing building is met by on-site renewable heat generation	BEMP 3.2.10
20. Local planning system in place, imposing higher energy standards and renewable energy generation requirements	y/n	Local authorities setting the local building code and/or providing building permits	The local planning system includes the provision that newbuilds and renovations within the territory are carried out to exemplary energy standards and have a minimum renewable energy generation requirement	Territory administered	Energy efficiency Emissions	-	BEMP 3.2.11

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
21. Delivery of information and advice services	y/n	Public administrations promoting energy efficiency and renewable energy for residents and businesses	The public administration delivers information and advice services on energy efficiency and renewable energy to residents and businesses to reduce their energy consumption	Territory administered	Energy efficiency Emissions	-	BEMP 3.2.13
22. Share of the territory covered with thermography	%	All local authorities	Area of the urban territory of the municipality which has been covered by thermographic surveying divided by the total urban area of the municipality	Territory administered	Energy efficiency Emissions	Recent (<5 years) high-resolution (<50cm) thermographic data is available for 100 % of the built area in the territory of the municipality	BEMP 3.2.14
BEMPs FOR MOBILITY							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
23. Modal share of journeys	%	Public administrations responsible for mobility	Number of journeys, in the territory considered, carried out by different means of transport (e.g. car, bus, bike), divided by the total number of journeys	Territory administered	Emissions	The city has a modal split for cycling of 20 % or higher OR the city has increased its modal split for cycling by at least 50 % during the last five years. The share of sustainable modes of transport used in the city (e.g. walking, cycling, bus, tram, train) is 60 % or higher	BEMP 3.3.1, 3.3.2, 3.3.6, 3.3.7, 3.3.8
24. A dedicated policy for walking/cycling is in place	y/n	Public administrations responsible for mobility	The city has a dedicated policy that is politically adopted and fosters walking/cycling; additionally, goals for improvement and investments in walking/cycling infrastructure are defined	Territory administered	Emissions	At least 10 % of the city's investment in transport infrastructure and maintenance is dedicated to cycling infrastructure	BEMP 3.3.2

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
25. Total length of cycling infrastructure	km km of cycle lanes/ km of roads	Public administrations responsible for mobility	The length of cycling infrastructure (cycling lanes) can be measured in absolute terms (km) or divided by the length of road networks for vehicles	Territory administered	Emissions	-	BEMP 3.3.2
26. Number of car-sharing users	Number of users/10 000 inhabitants Number of users/number of car-share vehicles	Public administrations responsible for mobility	The number of car-sharing users can be calculated as: - the total number of car-sharing users divided by the number of inhabitants, multiplied by 10 000 - the total number of car-sharing users divided by the number of car-share vehicles	Territory administered	Emissions	-	BEMP 3.3.3.

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
27. Shared cars available	Number of inhabitants/ number of shared cars	Public administrations responsible for mobility	The number of inhabitants in the territory of the municipality is divided by the number of cars available in the fleet of the car-sharing scheme	Territory administered	Emissions	At least 1 shared car available per 2,500 inhabitants	BEMP 3.3.3
28. Privately owned cars replaced	Number of privately owned cars replaced/ number of car-sharing vehicles	Public administrations responsible for mobility	The number of privately owned cars which have been replaced by the car-sharing scheme (owners not needing them anymore) divided by the total number of cars available in the fleet of the car-sharing scheme	Territory administered	Emissions	At least 8 privately owned cars have been replaced by each vehicle in the car-sharing operator's fleet	BEMP 3.3.3

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
29. Share of trips paid for by integrated ticketing	%	Public administrations responsible for public transport	Number of trips carried out by public transport using multiple modes of transport and paid for by integrated ticketing divided by the total number of trips carried out by public transport using multiple modes of transport	Territory administered	Emissions	At least 75 % of trips are paid for by the integrated ticket	BEMP 3.3.4
30. Share of electric vehicles	%	All local authorities	The total number of electric vehicles (per type, e.g. e-cars, e-bikes) on the road divided by the total number of vehicles of that type	Territory administered	Emissions	-	BEMP 3.3.5

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
31. Number of charging points	Number of charging points/inhabitant	All local authorities	The total number of public charging points for electric vehicles divided by the number of inhabitants of the territory considered	Territory administered	Emissions	-	BEMP 3.3.5

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
32. Reduction in the concentration of air pollutants	%	All local authorities	The concentration of air pollutants (PM_{10}, ammonia and nitrogen oxide) is measured regularly in certain areas of the city (e.g. close to schools, parks, residential areas). The reduction in the concentration of air pollutants is calculated as the initial concentration of each air pollutant (before the introduction of the congestion charge) minus the final concentration (after the introduction of the congestion charge) of the air pollutant divided by the initial concentration of air pollutant	Territory administered	Emissions	The concentration of air pollutants (PM_{10}, ammonia and nitrogen oxide) is reduced by 10 % (on average) within the congestion charge area, compared to the situation before the introduction of the congestion charge	BEMP 3.3.7

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
33. Reduction in vehicular access to the congestion charge area	%	All local authorities	Number of private vehicles accessing the congestion charge area divided by the number of private vehicles accessing the same area before the introduction of the congestion charge	Congestion charge area	Emissions	Vehicular access of non-exempt vehicles to the congestion charge area is reduced by 20 % compared to the situation before the introduction of the congestion charge	BEMP 3.3.7

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
34. Increased speed and punctuality of public transport	%	All local authorities	Average speed of public transport after the implementation of a congestion charge divided by the average speed of public transport before the introduction of the congestion charge. The same can be applied to the punctuality of public transport before and after the introduction of a congestion charge	Congestion charge area	Emissions	The speed and punctuality of public transport services are improved by 5 % compared to the situation before the introduction of the congestion charge	BEMP 3.3.7

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
35. Share of available parking spaces during business hours	%	All local authorities	Average number of available parking spaces during business hours divided by the total number of parking spaces	Territory administered	Emissions	On-street parking spaces are between 80 % and 90 % occupied during 90 % of business hours	BEMP 3.3.8
36. Minimum parking requirements	y/n	All local authorities	The public administration can limit free parking spaces (for on-street parking and underground garages) for new developments and can have a formal policy to incrementally remove any previous parking requirements from existing developments	Territory administered	Emissions Biodiversity	The city has no minimum parking requirements (for on-street parking and underground garages) for new developments and has a formal policy to incrementally remove any previous parking requirements from existing developments	BEMP 3.3.8

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
37. CO_2 emissions from delivery vehicles	kg CO_2eq/year kg CO_2eq/month	Public administrations responsible for mobility	Total CO_2 emissions from delivery vehicles over a specific timespan (e.g. yearly, monthly) in the area served by the logistics service centre	Area served by the logistics service centre	Emissions	40 % reduction in CO_2 emissions from delivery vehicles in the service area compared to the situation before the implementation of the logistics service centre	BEMP 3.3.9
38. Daily number of delivery trips in the service area	Number of deliveries/day	Public administrations responsible for mobility	Number of delivery trips per day by delivery vehicles in the area served by the logistics service centre	Area served by the logistics service centre	Emissions	75 % reduction in the number of delivery trips per day to the service area compared to the situation before the implementation of the logistics service centre	BEMP 3.3.9
BEMP FOR LAND USE							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
39. Share of new built areas	%	All local authorities responsible for land use planning	Area of new built area (m^2), considering any kind of impermeable built area (buildings, roads, any part with no vegetation or water) divided by the built area at the beginning of the period considered (e.g. 1, 5, 10 years)	Territory administered	Biodiversity	-	BEMP 3.4.1
40. Measures to mitigate the urban heat island effect are promoted	y/n	All local authorities responsible for land use planning	Measures to mitigate the urban heat island effect (such as green areas, green roofs or use of reflective materials) are promoted in the territory administered both in private and public buildings and areas	Territory administered	Emissions Energy efficiency Biodiversity	-	BEMP 3.4.2

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
41. Low-impact drainage measures are required	y/n	All local authorities responsible for land use planning	There is a requirement for low-impact drainage measures for the construction of new developments, including major redevelopments of existing built areas	Territory administered	Biodiversity	-	BEMP 3.4.3
BEMPs FOR GREEN URBAN AREAS							
42. Share of natural and semi-natural areas	%	Public administrations responsible for the management of green urban areas	Area (km^2) of natural and semi-natural environments in the urban area divided by the total urban area	Territory administered	Biodiversity	-	BEMP 3.5.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
43. Share of green and blue urban areas	%	Public administrations responsible for the management of green urban areas	Area (km^2) of green and blue urban areas (in the urban area) divided by the total urban area	Territory administered	Biodiversity	-	BEMP 3.5.2
44. Share of green roofs	%	All local authorities responsible for land use planning	Number of buildings with green roofs divided by the total number of buildings in the territory of the municipality	Territory administered	Biodiversity	-	BEMP 3.5.3

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
45. Plan regarding derelict green areas and fringe areas	y/n	All local authorities responsible for land use planning	The public administration has a plan regarding the restoration and environmental management of the derelict green areas and fringe areas within the urban area	Territory administered	Biodiversity	-	BEMP 3.5.4
BEMP FOR LOCAL AMBIENT AIR QUALITY							
46. Concentration of air pollutants	$\mu g/m^3$	All public administrations responsible for the management of air quality	Level of air pollutants (PM_{10}, $PM_{2.5}$, NO_2) present (annual average) in the urban area sampled in certain locations (e.g. school, parks, residential areas)	Territory administered	Emissions	For all the indicators defined in this BEMP, the results achieve the levels set in the air quality guidelines produced by the World Health Organisation	3.6.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
BEMP FOR NOISE POLLUTION							
47. Share of noise measurement levels exceeding local limit values	%	Public administrations responsible for tackling noise pollution	Number of measurements of noise levels exceeding the local limit values divided by the total number of noise level measurements	Territory administered	-	-	BEMP 3.7.1
BEMPs FOR WATER SUPPLY							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
48. Penetration rate of water metering	%	Public administrations responsible for potable water supply	Number of consumers with single meters (at single user level) divided by the total number of consumers	Territory administered	Water	The penetration rate of water meters at household or final user level is 99 % or higher	BEMP 3.9.1
49. Share of smart water meters	%	Public administrations responsible for potable water supply	Number of consumers with smart water meters divided by the total number of consumers with water meters	Territory administered	Water	In water-scarce areas (at least for part of the year), water meters at household/final user level are smart meters All new buildings are equipped with water meters (smart meters in water-scarce areas)	BEMP 3.9.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
50. Water Infrastructure Leakage Index (ILI)	%	Public administrations responsible for potable water supply	The ILI is calculated as current annual real losses (CARL) / unavoidable annual real losses (UARL)	Territory administered	Water	The Infrastructure Leakage Index is lower than 1.5	BEMP 3.9.2
BEMPs FOR WASTE WATER MANAGEMENT							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
51.Removal efficiency for water pollutants	%	Public administrations responsible for waste water management	The removal efficiency for each water pollutant (COD, BOD_5, ammonia, total nitrogen and total phosphorus) is calculated as the initial concentration for each water pollutant minus the final concentration of water pollutant divided by the initial concentration of water pollutant	Waste water treatment plant	Water	The removal efficiencies achieved are: at least 98 % for BOD_5, at least 90 % for COD, at least 90 % for ammonia, at least 80 % for total organic nitrogen compounds, and at least 90 % for total phosphorus	BEMP 3.10.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
52. Electricity use of waste water treatment	kWh/population equivalents/year	Public administrations responsible for waste water management	The total annual electricity use of waste water treatment divided by the number of population equivalents the waste water treatment plant is designed/operates for	Waste water treatment plant	Water	The electricity use of the waste water treatment plant is: - lower than 18 kWh/population equivalents/year for large municipal waste water treatment plants (with a size of more than 10 000 population equivalents) - lower than 25 kWh/population equivalents/year for small municipal waste water treatment plants (with a size of less than 10 000 population equivalents)	BEMP 3.10.1

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
53. Removal efficiency for micropollutants	%	Public administrations responsible for waste water management	The removal efficiency is calculated as the initial concentration of micropollutants minus the final concentration of micropollutants divided by the initial concentration of micropollutant	Waste water treatment plant	Water	The average removal efficiency for micropollutants is higher than 80 %	BEMP 3.10.2
54. Share of waste water flow undergoing tertiary treatment for micropollutants removal	%	Public administrations responsible for waste water management	Annual waste water flow which undergoes tertiary treatment for micropollutants removal divided by the total annual waste water flow	Waste water treatment plant	Water	Micropollutants are removed from at least 90 % of the annual waste water flow	BEMP 3.10.2

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
55. Share of own-generated electricity and heat in the waste water treatment plant	%	Public administrations responsible for waste water management	Energy generated (electricity and heat from biogas) on site from anaerobic digestion of sludge and used in the waste water treatment plant divided by the total amount of energy used in the waste water treatment plant	Waste water treatment plant	Water	Own-generated electricity and heat from biogas cover 100 % of the energy use for municipal waste water treatment plants with a size of more than 10 000 population equivalents without on-site thermal sludge drying, and 50 % in the case of plants with on-site thermal sludge drying	BEMP 3.10.3
56. Share of mono-incinerated sewage sludge	%	Public administrations responsible for waste water management	Sewage sludge produced in waste water treatment that is mono-incinerated divided by the total amount of sewage sludge generated from waste water treatment	Waste water treatment plant	Water	-	BEMP 3.10.4

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
57. Share of reclaimed water	%	Public administrations responsible for waste water management	Amount of reclaimed water produced from waste water treatment divided by the total amount of waste water treated	Territory administered	Water	-	BEMP 3.10.5
58. Share of rainwater retained and infiltrated in urban areas	%	Public administrations responsible for urban drainage and land use planning	Annual percentage of estimated rainwater which is retained and infiltrated into the ground locally out of the total estimated rainwater falling on the urban area of the municipality	Territory administered	Water	-	BEMP 3.10.7
BEMP FOR GREEN PUBLIC PROCUREMENT							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
59. Share of tenders with environmental criteria	%	All public administrations	Number of tenders including environmental criteria divided by the total number of tenders (disaggregated by product category)	Organisation level	Energy efficiency Material efficiency Water Waste Biodiversity Emissions	100 % of tenders include environmental criteria that require at least the level of performance set in the EU GPP criteria, for products where EU GPP criteria are available (e.g. office paper, cleaning agents, furniture)	BEMP 3.11.1
BEMP FOR ENVIRONMENTAL EDUCATION AND DISSEMINATION OF INFORMATION							

Indicator	Common unit	Main target group	Short description	Recommended minimum level of monitoring	Related core indicator in accordance with Annex IV to Regulation (EC) No 1221/2009 (Section C.2)	Benchmark of excellence	Related best environmental management practice
60. Share of citizens reached directly and indirectly by the environmental education actions	%	Public administrations	Share of citizens reached directly and indirectly by the environmental education actions	Territory administered	Energy efficiency Material efficiency Water Waste Biodiversity Emissions	-	BEMP 3.12.1