



Council of the
European Union

Brussels, 2 February 2015
(OR. en)

5413/15
ADD 1

ENV 17

COVER NOTE

From:	European Commission
To:	General Secretariat of the Council
No. Cion doc.:	D034884/04 ANNEX 1
Subject:	ANNEX to the Commission Decision on reference document on best environmental management practice, sector environmental performance indicators and benchmarks of excellence for the retail trade 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 D034884/04 ANNEX 1.

Encl.: D034884/04 ANNEX 1



EUROPEAN
COMMISSION

Brussels, **XXX**
D034884/04
[...] (2014) **XXX** draft

ANNEX 1

ANNEX

to the

Commission Decision

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

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TABLE OF CONTENTS

ANNEX.....	4
1. INTRODUCTION	4
2. SCOPE	6
3. Best Environmental Management Practices, Sector Environmental performance indicators and Benchmarks of excellence for the Retail Trade Sector	8
3.1. Energy performance including refrigerants management	8
3.1.1. Design and retrofitting the building envelope for optimal energy performance.....	8
3.1.2. Design premises for existing and new Heating, Ventilation and Air Conditioning systems	10
3.1.3. Use of integrated design concepts for buildings	10
3.1.4. Integration of refrigeration and HVAC.....	11
3.1.5. Monitoring the energy performance of stores.....	13
3.1.6. Efficient refrigeration, including refrigerants use.....	13
3.1.7. Efficient lighting	14
3.1.8. Secondary measures for improving energy performance.....	15
3.1.9. Use of alternative energy sources	15
3.2. Retail supply chain.....	16
3.2.1. Integrate supply chain environmental sustainability into business strategy and operations	16
3.2.2. Assess core product supply chains to identify priority products, suppliers and improvement options and identify effective product supply chain improvement mechanisms	17
3.2.3. Choice editing and green procurement of priority product groups based on third party certification	20
3.2.4. Enforce environmental requirements for suppliers of priority product groups.....	21
3.2.5. Drive supplier performance improvement through benchmarking and best practice dissemination	22
3.2.6. Collaborative research and development to drive widespread supply chain improvement and innovation	23
3.2.7. Promote front-runner ecological products	23
3.3. Transport and logistics	24
3.3.1. Green procurement and environmental requirements for transport providers.....	24

3.3.2.	Efficiency monitoring and reporting for all transport and logistics operations	24
3.3.3.	Integrate transport efficiency into sourcing decisions and packaging design.....	25
3.3.4.	Shift towards more efficient transport modes	26
3.3.5.	Optimise the distribution network.....	27
3.3.6.	Optimise route planning, use of telematics and driver training	27
3.3.7.	Minimise the environmental impact of road vehicles through purchasing decisions and retrofit modifications	28
3.4.	Waste management	29
3.4.1.	Food waste minimization	29
3.4.2.	Integration of waste management in retailers activities	29
3.4.3.	Return systems for PET and PE bottles and for used products.....	30
3.5.	Use of less and certified/recycled paper for publications	31
3.6.	Rainwater collection and reuse	31
3.7.	Prevention of single-use plastic bags or other measures to influence consumer behaviour.....	31
4.	Recommended sector specific key environmental indicators	33

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to the

Commission Decision

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1. INTRODUCTION

This document is the first Sectoral Reference Document (SRD) according to Article 46 of Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS). With a view to facilitating the understanding of this SRD, this introduction provides an outline of its legal background and its use.

The SRD is based on a detailed scientific and policy report¹ developed by the Institute for Prospective Technological Studies (IPTS), one of the seven institutes of 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 1836/93². Subsequently, EMAS has undergone two major revisions:

- Regulation (EC) No 761/2001 of the European Parliament and of the Council³;
- Regulation (EC) No 1221/2009 of the European Parliament and Council.

An important new element of the latest revision, which came into force on 11 January 2010, is the development of sectoral reference documents (SRDs) reflecting best environmental management practice for specific sectors, introduced by Article 46 of Regulation (EC) No 1221/2009. They include best environmental management practices (BEMPs), environmental

¹ The scientific and policy report is publicly available on the JRC/IPTS website at the following address: <http://susproc.jrc.ec.europa.eu/activities/emas/documents/RetailTradeSector.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).

performance indicators for specific sectors and, where appropriate, benchmarks of excellence and rating systems identifying performance levels.

How to understand and to use this document

The Eco-Management and Audit Scheme (EMAS) is a scheme for voluntary participation by organisations which commit to continuous environmental improvement. Within this framework, the present Sectoral Reference Document (SRD) provides sector-specific guidance to the retail trade sector and points out a number of options for improvement and best practices. The SRD is aimed at helping and supporting all organisations which intend to improve their environmental performance by providing ideas and inspiration as well as practical and technical guidance.

The SRD primarily addresses organisations that are already EMAS-registered, secondly organisations that consider registering with EMAS in the future, and thirdly also those which have implemented another environmental management system or those without a formal environmental management system wishing to learn more about best environmental management practices in order to improve their environmental performance. Consequently, the objective of this document is to support all organisations and actors in the retail trade sector to focus on relevant environmental aspects, both direct and indirect, and to find information on best practices, as well as appropriate sector specific environmental performance indicators to measure their environmental performance, and benchmarks of excellence.

According to Regulation (EC) 1221/2009, EMAS-registered organisations are required to prepare an environmental statement (Article 4(1)(d)). When assessing the environmental performance, the relevant SRD shall be taken into account. Commission Decision 2013/131/EU⁴ establishing the user's guide setting out the steps needed to participate in EMAS (the 'EMAS User's Guide') also refers to the legal character of the EMAS Sectoral Reference Documents. Both the EMAS User's Guide and this decision state that it is an obligation for an EMAS registered organisation to clarify in the environmental statement how the SRD, when available, was taken into account; i.e. how the SRD has been used to identify measures and actions, and possibly to set priorities, to (further) improve the environmental performance. In addition, this decision also states that meeting the identified benchmarks of excellence is not mandatory because the voluntary character of EMAS leaves the assessment of the feasibility of the benchmarks, in terms of costs and benefits, to the organisations themselves.

The information in this document is based on the direct data supplied by stakeholders themselves followed by a subsequent analysis of the European Commission's Joint Research Centre. A Technical Working Group, comprising experts and stakeholders of the sector, applied their expert judgement together with the European Commission's Joint Research Centre and ultimately agreed and approved the described benchmarks. This means that the information provided on the appropriate sector specific environmental performance indicators and the benchmarks of excellence in this document correspond to the levels of environmental performance that can be achieved by the best performing organisations from the sector. With respect to the environmental statement, Article 4(1)(d) of Regulation (EC) No 1221/2009

⁴ Commission Decision of 4 March 2013 establishing the user's guide setting out the steps needed to participate in EMAS, under Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) (OJ L 76, 19.3.2013, p. 1).

refers to ANNEX IV to that Regulation, where it is stated that the environmental statement shall also contain reporting on the core indicators and on other relevant existing environmental performance indicators. The so-called "other relevant existing environmental performance indicators" (ANNEX IV(C)(3)) relate to the more specific environmental aspects as identified in the environmental statement and shall be reported in addition to the core indicators. For this purpose, the SRD shall be taken into account also (ANNEX IV(C)(3)). Where justified on technical grounds, an organisation may conclude that one or more of the EMAS core indicators and one or more of the sector-specific indicators presented in the SRD are not relevant for them and may not report on them. For instance, for a non-food retailer, it is not necessary to report on energy efficiency indicators for commercial food refrigeration as this is not relevant for them. When choosing the relevant indicators, it should be considered that some indicators are closely linked to the implementation of certain best practices. Therefore, their applicability is limited to organisations implementing such best environmental management practices. However, if a best environmental management practice is suitable to an organisation, even if not applied, it is recommendable that the organisation report on the associated indicator, at least, to establish a comparable baseline.

The indicators presented were selected as those most commonly used by exemplary organisations within the sector. Organisations may check which of the selected environmental performance indicators (or appropriate alternatives) are the most suitable in each case.

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). This means that when undertaking their activities, accredited environmental verifiers will need evidence from the organisation on how the SRD has been 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 proper voluntary measures that the organisation can implement to improve its environmental performance.

EMAS registration is an on-going process. This means that every time an organisation plans to improve its environmental performance (and reviews its environmental performance) it shall consult the SRD on specific topics to provide inspiration about which issues to tackle next in a step-wise approach.

Structure of the Sectoral Reference Document

This document consists of 4 chapters. Chapter 1 introduces the 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) together with information on their applicability, mainly with respect to new and existing installations and/or new and existing stores as well as to SMEs. For each BEMP, the suitable environmental performance indicators and the related benchmarks of excellence are also given. For each of the different measures and techniques outlined, more than one environmental performance indicator is mentioned to reflect the fact that different indicators are used in practice.

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

2. SCOPE

This SRD addresses the environmental management of retail trade sector organisations. This sector is characterised within the statistical classification of economic activities established by Regulation (EC) No 1893/2006⁵ with NACE code 47 (NACE Rev. 2): 'retail trade, except of motor vehicles and motorcycles'. Retailing of services, e.g. restaurants, hairdressers, travel agents are excluded.

It covers the whole value chain for the products sold in retail stores, as described in the following input/output scheme.

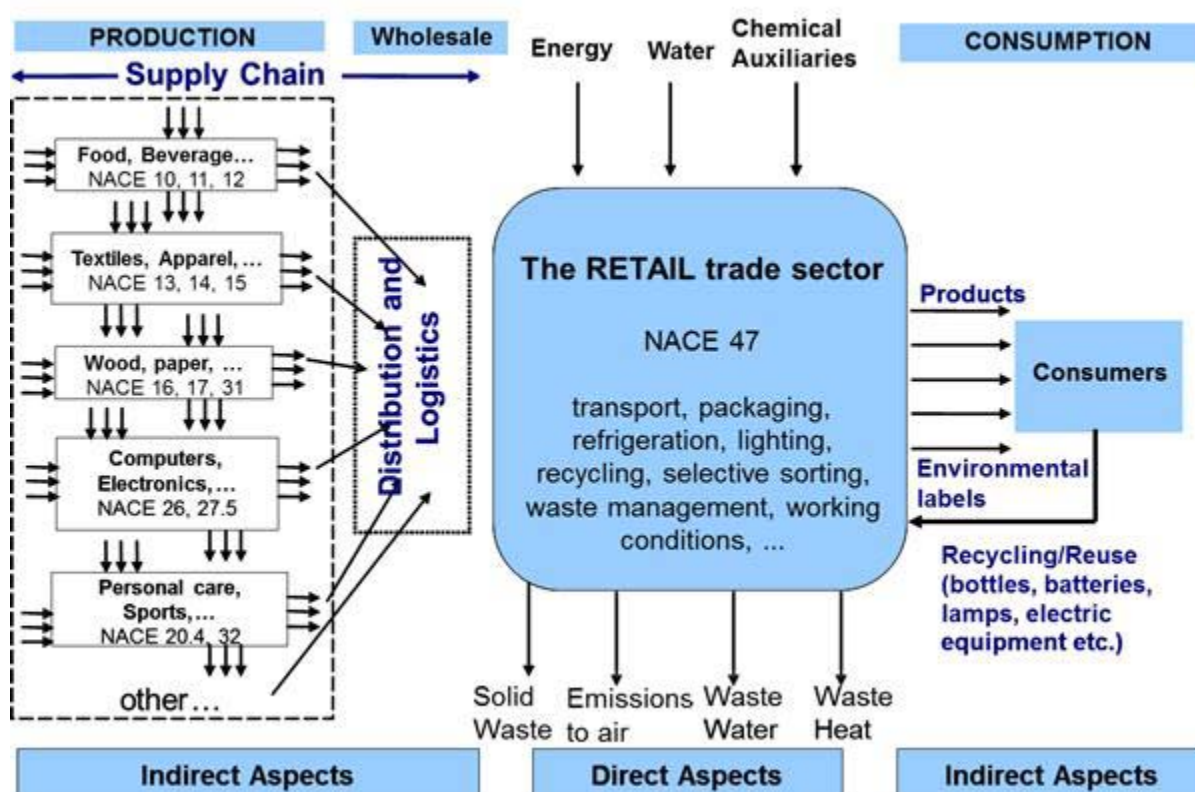


Figure 2.1. Overview of inputs and outputs of the Retail Trade sector

The main environmental aspects to be managed by the organisations belonging to the retail trade sector are set out in Table 2.1.

For each category, the table shows the aspects covered in this SRD. These environmental aspects were selected as the most relevant for retailers. However, the environmental aspects to be managed by specific retailers should be assessed on a case by case basis. Environmental aspects, such as waste water, hazardous waste, biodiversity or materials for other areas than those listed could also be relevant.

⁵ 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).

Table 2.1. Main environmental aspects covered in this document

Category	Character ⁶	Aspects covered in this document
Energy performance	Direct	Building, Heating, Ventilation and Air Conditioning system (HVAC), refrigeration, lighting, appliances, renewable energy, energy monitoring
Air Emissions	Direct	Refrigerants
Supply Chain	Indirect	Business strategies, product prioritisation, improvement mechanisms, choice editing, environmental criteria, information and dissemination, environmental-labelling (including own-brand products ⁷)
Transport and logistics	Direct/Indirect	Monitoring, procurement, decision-making, transport modes, distribution network, planning, packaging design
Waste	Direct	Food waste, packaging, return systems
Materials and resources	Direct	Paper consumption
Water	Direct	Rainwater collection and treatment
Influence on consumers	Indirect	Environmental aspects associated with consumption, e.g. plastic bags

Consequently, the 'Best Environmental Management Practices (BEMPs)' presented are grouped as follows:

- BEMPs to improve the energy performance, including refrigerants management
- BEMPs to improve the environmental sustainability of retail supply chains
- BEMPs to improve transport and logistics operations
- BEMPs concerning waste
- other BEMPs (reduced consumption and use of more environmentally-friendly paper for commercial publications, rainwater collection and reuse, and influencing consumer environmental behaviour).

The BEMPs cover the most significant environmental aspects of the sector.

⁶ This is an approximate classification of the nature of environmental aspects according to the definitions given in Regulation (EC) No 1221/2009. The direct or indirect nature of each environmental aspect should be assessed for each specific case.

⁷ Those products manufactured by a company which are sold under another company's (e.g. a retailer's) brand. Own-brand products are also called private labels.

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

3.1. Energy performance including refrigerants management

3.1.1. Design and retrofitting the building envelope for optimal energy performance

BEMP is to improve the envelope of existing retailers' buildings to minimise energy losses to an acceptable and feasible level, through the application of several techniques, such as those shown in Table 3.1. Moreover, BEMP is to optimise the building envelope design in order to fulfil demanding standards going beyond existing regulations, especially for new buildings.

Table 3.1. Building envelope elements and associated techniques

Envelope element	Technique
Wall/façade/roof/floor – cellar ceiling	Change insulation materials
	Techniques to increase the insulation thickness
Windows / glazing	Change to more efficient glazing
	Change to more efficient sashes and frames
Shading	Use of external and internal shading devices
Air tightness	Improvement of doors
	Fast acting doors
	Sealing
	Introduce buffer sections
Overall envelope	Orientation
	Maintenance

Applicability

Technically, it is feasible for every new and existing building or building unit. Tenants may implement mechanisms to influence owners and should be aware of the importance of the building envelope in their environmental performance. Building envelope retrofitting requires significant investment. Generally, this BEMP produces cost savings, but with long payback times and, therefore, it is recommendable to apply this BEMP along with other major renovations of the store (e.g. store layout, lighting, safety, structural, extensions, etc.) in order to reduce its cost.

The applicability of this BEMP to **small enterprises**⁸ is usually quite limited, due to the high investment needed and the lack of influence on the building characteristics.

Associated environmental performance indicators and benchmark of excellence

⁸ A small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million (Commission Recommendation 2003/361/EC).

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² (sales area) and year. (i2) Specific energy use of the store per m ² (sales area) and year in terms of primary energy.	(b1) Specific energy use per m ² of sales area for heating, cooling and air conditioning lower or equal to 0 kWh/m ² yr if waste heat from refrigeration can be recovered. Otherwise, lower or equal to 40 kWh/m ² yr for new buildings and 55 kWh/m ² yr for existing buildings ⁹ .

3.1.2. Design premises for existing and new Heating, Ventilation and Air Conditioning systems

BEMP is to retrofit existing HVAC (Heating, Ventilation and Air Conditioning) systems in order to reduce energy consumption and improve indoor air quality. BEMP is to optimise the design of HVAC systems in new buildings, using innovative systems to reduce primary energy demand and to increase efficiency.

The application of best design practices should allow best integration within the building envelope, avoiding oversizing and using the orientation of the building as a way of minimising overall energy consumption. In particular, for new stores, the following may be relevant: the use of glazing, waste heat from refrigeration, renewable energy, heat pumps, and other innovative systems. Indoor air quality monitoring and energy management systems are considered best practices regarding HVAC maintenance.

Applicability

This BEMP is fully applicable to new buildings. In any existing building, the HVAC system can be retrofitted in order to reduce energy consumption, although building characteristics would have an influence on the impact of retrofitting the HVAC system. The climatic influence is very relevant in order to select what techniques can be implemented. The application of new HVAC systems in an existing building, e.g. the installation of cogeneration plants, heat recovery systems and integrated design concepts, such as the Passive House standard, can be applied partially with acceptable economic performance. The store layout has a strong influence on the performance of HVAC, especially those design specifications related to the refrigeration process, where a huge amount of waste heat can be recovered.

For small enterprises, the degree of influence on the HVAC design can be negligible, although they should participate in the implementation and recommendation of the described BEMP.

Associated environmental performance indicators and benchmark of excellence

⁹ This benchmark can also be seen in the light of the Directive 2010/31/EU on the energy performance of buildings and the national definitions of nearly zero energy buildings (NZEB). An illustration/example of this is a threshold 20 kWh/m²yr (<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0483>).

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² (sales area) and year. (i2) Specific energy use of the store per m ² (sales area) and year in terms of primary energy.	(b1) Specific energy use per m ² of sales area for heating, cooling and air conditioning lower or equal to 0 kWh/m ² yr if waste heat from refrigeration can be recovered. Otherwise, lower or equal to 40 kWh/m ² yr for new buildings and 55 kWh/m ² yr for existing buildings.

3.1.3. Use of integrated design concepts for buildings

BEMP is to use integrated design concepts for the whole building or for parts of it to reduce the energy demand of the store. Integrated concepts minimise the energy use and associated costs of a building, while achieving good thermal comfort conditions for the occupants. Some exemplary requirements are shown in Table 3.2.

Table 3.2. Examples of requirements for integrated design concepts

Requirements	Examples of measures to achieve them
The building energy need for space heating and cooling must be lower than 15 kWh/m ² yr	Improved insulation. Recommended U-values less than 0.15 W/m ² K
The specific heat load must not exceed 10 W/m ²	Design without thermal bridges
The building must not leak more air than 0.6 times its volume per hour	Windows U-values lower than 0.85 W/m ² K
Total primary energy use cannot be higher than 120 kWh/m ² yr	Air tight. Mechanical ventilation with heating recovery from exhaust air
	Install solar thermal systems or heat pumps (final energy demand excludes the contribution of solar and ambient energy used on site to produce heat)

Applicability

Integrated concepts are usually implemented during the design of new buildings. The concept is partially suitable for existing buildings, as several elements can be integrated without high investment costs. The climatic conditions can also influence the decision to apply this concept. For example, the Passive House standard was mainly developed by German and Swedish researchers, but it may be implemented in warmer climates. The investment costs of a building designed according to exemplary integrated approaches do not exceed 10–15 % of extra cost compared to a conventional construction. The life cycle cost analysis reveals that the passive house building design represents the minimum life cycle cost, as the heating system required is relatively simple and the heating power installed is limited.

For small enterprises, the use of integrated design concepts to minimise energy demand of new buildings can be regarded as a cost-efficient procurement activity, without any specific restriction other than extra initial investment.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² (sales area) and year. (i2) Specific energy use of the store per m ² (sales area) and year in terms of primary energy.	(b1) Specific energy use per m ² of sales area for heating, cooling and air conditioning lower or equal to 0 kWh/m ² yr if waste heat from refrigeration can be recovered. Otherwise, lower or equal to 40 kWh/m ² yr for new buildings and 55 kWh/m ² yr for existing buildings.

3.1.4. Integration of refrigeration and HVAC

BEMP is to recover the waste heat from the refrigeration cycle and to maximise its use. Food retailers are able, under certain circumstances, to produce excess heat even after using the heat for space heating, which can be delivered to other parts of the same building or to other buildings.

Applicability

The measures should be taken into account for new or existing buildings of food retailers and the operation of these systems would have different results depending on different factors:

- **Building size and use:** large retailers' stores are usually not alone in their buildings. Therefore, the 'neighbourhood' (e.g. small shops in a shopping centre) is a potential consumer of the excess heat. As a general rule, a grocery store with a typical refrigeration load and an optimised envelope would recover enough energy to heat twice its own surface.
- **HVAC design and maintenance:** all the elements of the HVAC system should be correctly designed and maintained. Exhaust air heat recovery, on-demand control of ventilation with CO₂ sensors and monitoring of air tightness and indoor air quality are strongly recommended techniques.
- **The refrigeration load:** smaller shops offer more refrigerated goods per square metre of sales area and the efficiency in refrigeration is lower. In addition, the trend to increase the amount of refrigerated goods available is also important. The size of the shop does not influence the technical applicability of integrated approaches, but the cost-efficiency of the whole system is lower for small shops.
- **Climatic conditions:** in cold climates, the load for refrigeration is lower than for warmer regions. At the same time, the heat demand of northern European buildings is high, so the integration would depend on the quality of the building envelope. For the warmest climates, e.g. Mediterranean countries of Europe, the cooling demand can be very significant and the air tightness of the building can make the internal gains increase. An optimised ventilation design is, therefore, necessary. Mechanical cooling at night and variable indoor temperature (e.g. 21–26 °C) are also recommended techniques.
- **Ambient temperature:** in the integration of the refrigeration cycle, there is a limit to ambient temperature, which depends on the system design, where the waste heat generation rate is not enough to keep a comfortable temperature inside the buildings.

An extra heating source may be needed but this, again, depends on the quality of the building envelope.

- Building ownership: many shops are integrated in a residential or commercial building, which belongs to a third party. Better integration of heat recovery, therefore, must involve actual building owners.

This BEMP is applicable to any new and existing refrigeration system to be installed in new or renovated stores, being fully applicable to **small enterprises** (given the conditions above). Nevertheless, small companies may require outsourcing technical assistance.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² (sales area) and year. (i3) Recovered heat from the refrigeration system per m ² (sales area) and year.	(b2) Energy use for space heating of 0 kWh/m ² yr (absence of heating system), if waste heat from refrigeration can be recovered.

3.1.5. Monitoring the energy performance of stores

BEMP is to monitor the energy use of the processes inside a store (at least of the most energy-consuming processes such as heating, refrigeration, lighting, etc.), as well as at store and/or organisation levels. Also, it is BEMP to benchmark the energy consumption (per process) and to implement preventive and corrective measures.

Applicability

A monitoring system can be applied to any sales concept. It requires the allocation of extra resources if there is not an appropriate business management structure. This practice may require extra efforts for existing stores.

Small enterprises managing one or a few stores may require a good business management structure and shared responsibility approaches to establish and maintain an appropriate monitoring system. There may be affordability problems for the application of this BEMP to existing stores.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i4) Implementation of a monitoring system (y/n) (i5) Percentage of stores controlled (i6) Number of controlled processes	(b3) 100 % of stores and processes are monitored and energy use figures are reported on an annual basis (based on the outcome of an annual energy audit) ¹⁰ . (b4) Benchmarking mechanisms implemented.

3.1.6. Efficient refrigeration, including refrigerants use

BEMP is to implement energy-saving measures in the refrigeration system of a grocery store, especially the covering of refrigeration display cases with glass lids, when the energy-saving potential produces relevant environmental benefits.

¹⁰ Note: Under the Energy Efficiency Directive large enterprises have an obligation to undertake energy audits, carried out by qualified experts, every four years, the first by 5 December 2015.

BEMP is to use natural refrigerants in grocery stores, as the environmental impact would be reduced substantially, and to avoid leakages by ensuring that installations are tightly sealed and well maintained.

Applicability

This practice is applicable to food retailers with a significant load of refrigeration. Covering of cabinets can have short payback times (less than three years) when anticipated savings are equal to or higher than 20%. Covering of display cases may also have an impact on the thermal behaviour of the store, as well as on the humidity of the indoor environment. In addition, the application of natural refrigerants, apart from the environmental benefit, may reduce the energy consumption under certain circumstances of food retailer operation.

The applicability to **small enterprises** may be restricted to organisations using commercial refrigeration systems, both plug-in and remote systems.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² (sales area) and year. (i7) Specific (linear) energy use of refrigeration per meter of display case and year. (i8) Percentage of stores using natural refrigerants. (i9) Leakage control (% of refrigerant).	(b5) 100 % covered low temperature cabinets. (b6) 100 % use of walk-in chilled areas (e.g. in cash and carry) or 100 % covering of medium temperature refrigeration where this can lead to energy savings of more than 10 %. (b7) Specific (linear) energy use of refrigeration of 3000 kWh/m yr. (b8) General use of natural refrigerants.

3.1.7. Efficient lighting

BEMP is to design smart lighting strategies with enhanced efficiency and reduced consumption, to use daylight without affecting the sales concept and to use intelligent controls, appropriate system design and the most efficient lighting devices to ensure optimal lighting levels.

Applicability

This technique is applicable to any sales concept. Specific lighting for marketing purposes is also affected. However, the influence of increased glazing, allowing further use of day lighting, on the thermal balance of the store should be carefully considered. The definition of an optimal lighting strategy and using the most efficient devices can lead to savings higher than 50 % compared to current performance.

Use of smart lighting systems and efficient devices is feasible **for small enterprises**.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy use of the store per m ² sales area and year. (i10) Installed lighting power per m ² .	(b9) Installed lighting power lower than 12 W/m ² for supermarkets and 30 W/m ² for specialist shops ¹¹ .

3.1.8. Secondary measures for improving energy performance

BEMP is to implement energy saving measures in distribution centres, to audit energy use periodically within the environmental management system, to train staff regarding energy savings and to communicate the energy saving efforts of the organisation internally and externally.

Applicability

There is no limitation on the size, type or geographical location of the retailer to establish a comprehensive energy management system, taking into account appliances, distribution centres, specific energy uses or communication and training.

For small enterprises, procurement of efficient appliances, staff training and communication are feasible and affordable measures.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i1) Specific energy consumption of the store per m ² (sales area) and year. (i10) Installed lighting and/or appliance power per m ² . (i11) Energy management system ¹² in place to drive continuous improvement (y/n).	(b10) 100 % of distribution centres who exclusively service the retailer are monitored.

3.1.9. Use of alternative energy sources

After minimising the energy demand, BEMP is to integrate renewable energy sources in stores. Meeting the energy demand with renewable energy has substantial environmental benefits. However, it is crucial to first reduce the energy demand and increase the efficiency as explained in 3.1.1 to 3.1.8 and then integrate renewables for the remaining energy demand. The implementation of heat pumps and combined heat and power systems should also be considered.

Applicability

¹¹ This benchmark should also be seen in light of the EU GPP criteria for retail indoor lighting, which is 3.5 W/m²/100 lux (core criteria) or 3.2 W/m²/100 lux (comprehensive criteria). See: http://ec.europa.eu/environment/gpp/pdf/criteria/indoor_lighting.pdf.

¹² The energy management system can be part of EMAS.

In principle, it is applicable to any store format. Important limitations are the availability of renewable sources, accessibility of land or roof installations and stability of demand for combined heat and power systems.

Green purchasing can be a good solution for micro enterprises. For **small enterprises**, the use of renewable energy or other alternative sources is achievable.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i12) Specific on-site or nearby alternative energy generation per m ² of sales area per energy source. (i13) Percentage of renewable energy produced on-site or nearby, as a ratio of the energy use of the store ¹³ .	(b11) To have nearly zero energy buildings (stores or distribution centres) where local conditions allow the production of renewable energy on site or nearby.

3.2. Retail supply chain

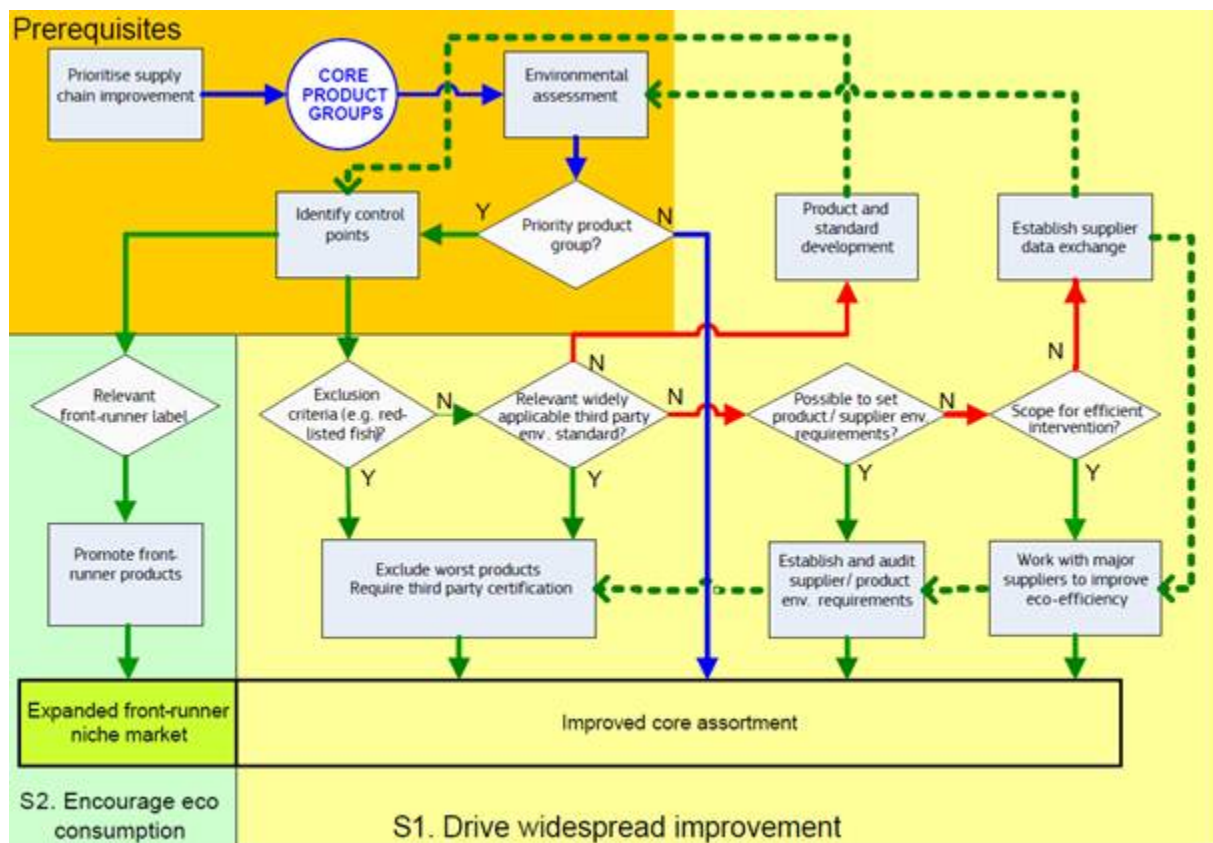


Figure 3.1. Proposed sequence of key questions and actions (shaded rectangular boxes) representing best practice for systematic supply chain improvement, divided into prerequisites and two strategies (S1 and S2) ¹⁴

¹³ Alternatively, on-site or nearby renewable energy ratio according to prEN15603.

3.2.1. Integrate supply chain environmental sustainability into business strategy and operations

BEMP is for top-level management to integrate supply chain environmental sustainability into the business strategy, and for dedicated management personnel (ideally within a dedicated unit) to coordinate implementation of necessary actions across retail operations. Actions should at least be coordinated across individuals or departments responsible for procurement, manufacturing, quality assurance, transport and logistics, and marketing. The establishment of quantitative environmental sustainability targets that are widely communicated and highly weighted in the corporate decision-making process is particularly important, both as an indicator and driver of actions to improve supply chain environmental sustainability. A sequence of best practice actions for systematic improvement of product supply chains, determined according to chronological order and environment effectiveness, is proposed in Figure 3.1. BEMP is the implementation of this sequence of actions (also reflecting BEMPs described subsequently).

Applicability

Integration of an environmentally sustainable supply chain strategy into retail management structure and operations is possible for any retailer. For large retailers, this BEMP is more complex and requires extensive training and re-organisation to establish environmentally sustainable sourcing priorities. Integrating management of supply chain environmental sustainability into retail organisations can improve long-term economic performance, by creating a strong value-added brand identity, and by securing efficient and sustainable product supplies into the future.

For small enterprises, such actions may be relatively straight-forward to implement and may be associated with a change in market positioning to emphasise a more sustainable value-added product assortment.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i14) Public reporting of quantitative corporate targets specifically related to improving the environmental sustainability of priority product supply chains	(b12) Systematic implementation of supply chain improvement programmes across priority product groups
(i15) Presence of a high-level business unit with responsibility for driving and coordinating environmental sustainability actions in the supply chain	
(i16) Quantitative internal performance targets (e.g. for individual employees) specifically related to supply chain environmental sustainability	

¹⁴ Core products refer to high sales volume (by value) products. Priority products, instead, are the ones high in both sales volume (by value) and environmental impact: Once a retailer has identified its core products, an environmental assessment of their foot-print is carried out and only the most relevant are considered.

3.2.2. Assess core product supply chains to identify priority products, suppliers and improvement options and identify effective product supply chain improvement mechanisms

As per the sequence of BEMPs applicable to environmental improvement of retail supply chains (Figure 3.1), retailers should identify priority products, processes and suppliers for improvement through environmental assessment of product supply chains, using existing scientific information, consultation with experts (e.g. NGOs), and lifecycle assessment tools. Then, retailers must identify the relevant improvement options available for priority product groups. One important aspect of this is the identification of relevant widely-recognised third-party environmental standards that may be used to indicate higher levels of supplier and/or product environmental performance. The applicability and level of environmental protection represented by such standards vary considerably.

Some standards are widely applicable (Table 3.4 to Table 3.7) and best practice for them is ensuring that all suppliers/products are certified with them. The Energy Labelling Directive 2010/30/EU created a legal framework that allows consumers but also retailers to concentrate their product portfolio on the highest energy efficiency class. Other standards are not based on criteria that can be widely applied to improve the environmental sustainability of all products and suppliers, but instead seek to identify front-runner products (Table 3.3). For example, the EU Ecolabel is awarded to products that demonstrate lifecycle environmental performance equivalent to the top 10-20 % of products within the relevant category. Best practice for high requirement standards, such as ISO type-I environmental labels¹⁵ and organic standards, is to promote their selection by consumers.

Table 3.3: Illustrative and non-exhaustive examples of front-runner 'environmental product' certification standards and product groups to which they apply

Standard	Product groups
Blue Angel EU Ecolabel Nordic Swan EU Energy Labelling (highest efficiency class)	Non-food products
Organic (as per Commission Regulation (EC) No 889/2008 ¹⁶ and Council Regulation (EC) No 834/2007 ¹⁷). Includes GOTS, KRAV, Soil Association, BioSuisse, etc.	Food and natural fibre products

For widely applicable standards, a simple classification scheme is proposed, using some commonly-used standards as examples. Table 3.4 details proposed criteria that standards would mandate to products and their manufacturing in order for such standards to be considered "basic", "improved" or "exemplary".

¹⁵ Type-I environmental labels: Third Party Certified Environmental Labelling (ISO 14024).

¹⁶ Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control (OJ L 250, 18.9.2008, p.1).

¹⁷ Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (OJ L 189, 20.7.2007, p.1).

Table 3.4: Proposed classification criteria for 'basic', 'improved' and 'exemplary' standards for products sold by retailers

Basic	Improved	Exemplary
<ul style="list-style-type: none"> - compliance with local regulations - record keeping for important environmental aspects - implementation of a general management plan - in some cases, exclusion of most damaging practices or products - in some cases, benchmarks for a minority of important environmental aspects 	<ul style="list-style-type: none"> - specific management practices associated with significant environmental improvement - compliance with quantitative environmental performance benchmarks - demonstrated continuous improvement within a specified framework 	<ul style="list-style-type: none"> - specific requirements that address important environmental aspects sufficiently robustly and completely that certified products may be defined as environmentally sustainable

Examples of basic, improved and exemplary environmental standards, and product groups to which they apply, are listed in Table 3.5, Table 3.6 and Table 3.7, respectively.

The tables 3.5, 3.6, 3.7 and 3.8 contain illustrative and non-exhaustive examples that constitute no official endorsement of 'basic', 'improved' and 'exemplary' standards for product groups.

Table 3.5: Illustrative and non-exhaustive examples of 'basic' environmental standards and product groups to which they apply

Standard	Product groups
GlobalGAP (Good Agricultural Practice) and benchmarked standards	Crops and livestock
Oeko-Tex 1000	Textiles
National/regional production certification (e.g. Red Tractor British origin certification)	All products
Red-listed fish (deselection)	Fish

Table 3.6: Illustrative and non-exhaustive examples of 'improved' environmental standards and initiatives and the product groups to which they apply

Standards and initiatives	Product groups

BCI (Better Cotton Initiative)	Cotton products
BCRSP (Basel Criteria on Responsible Soy Production)	Soy (feed supporting dairy, egg and meat)
BSI (Better Sugarcane Initiative)	Sugar products
4C (Common Code for the Coffee Community Association)	Coffee
Fair-trade	Agricultural products from developing regions
RA (Rainforest Alliance)	Agricultural products from tropics
RSPO (Round Table on Sustainable Palm Oil)	Palm oil products
PEFC (Programme for the Endorsement of Forestry Certification)	Wood and paper
RTRS (Round Table on Responsible Soy)	Soy (feed supporting dairy, egg and meat)
UTZ	Cocoa, coffee, palm oil, tea

Table 3.7: Illustrative and non-exhaustive examples of 'exemplary' environmental standards and initiatives and the product groups to which they apply

Standard	Product groups
FSC (Forest Stewardship Council)	Wood and paper
MSC (Marine Stewardship Council)	Wild-catch seafood

Where widely-applicable environmental standards are not available, retailer best practice is to specify within contractual agreements environmental criteria that address supply chain environmental hotspots, or to intervene to improve supply chain performance through best practice dissemination and environmental performance benchmarking.

Applicability

Any retailer can identify the most effective supply chain improvement mechanisms. For large retailers with own-brand products, all aspects of this BEMP can be implemented.

For small enterprises, this technique is restricted to identification of priority products for choice editing or green procurement based on third-party certification. Implementation of a systematic and targeted approach over time does not entail significant expenditure.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i17) Percentage of total sales represented by products from supply chains that are environmentally improved through use of certification, or retailer standards, or intervention.	(b13) Implementation of systematic assessment (independently or through consortia) of core product supply chains.

(i18) Number of priority product supply chains that have been extensively environmentally improved (improved products represent at least 50 % of sales value within the group) through application of best practice techniques.	
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3.2.3. Choice editing and green procurement of priority product groups based on third party certification

BEMP is to exclude the most unsustainable products (e.g. endangered species), and require widespread (i.e. target of 100 % sales share) certification according to third party environmental standards for products that have been identified as priorities for environmental improvement. Environmental standards apply to products and/or suppliers, and are broadly classified as basic, improved or exemplary according to the rigour and comprehensiveness of environmental requirements (see Table 3.8 for illustrative and non-exhaustive examples). BEMP is to apply the highest level of widely-recognised environmental standard available.

Table 3.8: Illustrative and non-exhaustive examples of best practice underpinning benchmarks of excellence for this BEMP across product groups

Product group	Best practice examples (actual or target sales shares for different standards)
Coffee, tea	100 % Fair-trade; 100 % 4C
Fruit and vegetables	100 % Global GAP
Fats and oils	100 % RSPO; 100 % RTRS
Seafood	100 % MSC
Sugar	100 % Fair-trade
Textiles	100 % BCI
Wood and paper	100 % FSC

Applicability

This BEMP applies to all retailers. The benchmark of excellence is expressed in relation to own-brand products sold by larger retailers.

Small enterprises without own-brand product ranges should avoid the most environmentally-damaging products (e.g. endangered species of fish) and stock branded products that have been certified according to relevant environmental standards (e.g. Table 3.3).

Third-party environmental standards may not cover all relevant environmental aspects and processes along the supply chain, and environmentally-rigorous, widely-applicable standards are not available for all product groups. Product groups not referred to in Table 3.8 may be targeted for supply chain improvement through the enforcement of product/supplier requirements, retailer intervention (e.g. supplier benchmarking) and the promotion of front-runner 'eco products', as described in subsequent BEMPs.

If environmental certification is specified as an 'order qualifying' criteria, compliance and certification costs are borne by suppliers and not passed on to retailers. However, best practice involves retailers providing support to existing suppliers to achieve certification, in which case costs are shared. For suppliers, compliance costs may be regarded as an investment to expand market acceptance of their products and possibly to implement price premiums. For retailers, additional costs associated with this technique may be balanced against supply chain risk reduction and potential pricing and marketing advantages.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i19) Percentage of products sold within a particular product group that are certified according to a particular third party environmental standard, according to sales value	(b14) The retailer demonstrates on-track progress within the context of a detailed plan to achieve 100 % certification with an 'improved' environmental standard (Table 3.6) of own-brand products within certain product groups such as for example, coffee, tea, fats and oils, sugar and textiles.
(i20) The environmental rigour and completeness of the third party standard, as broadly indicated by categorisation according to basic, improved or exemplary	(b15) The retailer demonstrates on-track progress within the context of a detailed plan to achieve 100 % certification with certain 'exemplary' environmental standard (Table 3.7) product groups such as for example: seafood, wood and paper.
(i21) Number of product groups where more than half of sales are certified according to a third party environmental standard	

3.2.4. Enforce environmental requirements for suppliers of priority product groups

BEMP is to establish environmental criteria for priority products and their suppliers, targeting identified environmental hotspots, and to enforce compliance of these criteria through product and supplier auditing.

Applicability

This BEMP is applicable to large retailers and for own-brand priority products. Auditing of supplier environmental performance can be integrated into social auditing and product quality control systems to minimise additional costs. For suppliers, compliance costs may be balanced against improved security of demand and enhanced marketability for their products, and any price premiums they may consequently realise. For retailers, costs may be balanced against reduced reputational and medium-term business supply chain risks associated with unsustainable practices, and against price and marketing premiums they may consequently realise.

This BEMP is not applicable to **small enterprises**.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i22) Percentage of own-brand product sales within a product group compliant with specified environmental requirements.	(b16) 100 % own-brand product sales within a product group comply with particular retailer-defined environmental requirements.

(i23) The environmental performance represented by those requirements.	
(i24) Percentage compliance targets, for product groups where a programme for widespread compliance is being implemented.	
(i25) Number of product groups where more than half of sales are compliant with specific environmental requirements.	

3.2.5. Drive supplier performance improvement through benchmarking and best practice dissemination

BEMP is to drive supplier improvement by establishing information exchange systems that can be used to benchmark suppliers, and by disseminating better management practices. The latter aspect may assist supplier compliance with third party standards and retailer-defined criteria.

Applicability

This BEMP is applicable to large retailers and for own-brand priority products. Retailers may offer suppliers a small price premium to encourage participation in improvement schemes, and pay for data collation and dissemination of better management practice techniques. These costs should be balanced against reduced reputational and medium-term business supply chain risks associated with unsustainable practices, and against price premiums that retailers may consequently implement. The dividends of any identified efficiency improvements may be shared with retailers through contractual agreement.

This BEMP is not applicable to **small enterprises**.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i26) Percentage of own-brand product sales that originate from suppliers participating in retail programmes to improve environmental performance.	(b17) 100 % own-brand product sales within a product group are sourced from suppliers participating in retail programmes to improve environmental performance.
(i27) The level of environmental performance represented by those programmes.	
(i28) Percentage participating suppliers targets, for product groups where a supplier improvement programme is being implemented.	
(i29) Number of product groups where more than half of sales originate from suppliers participating in retail programmes to improve environmental performance.	

3.2.6. Collaborative research and development to drive widespread supply chain improvement and innovation

BEMP is to strategically collaborate with other stakeholders to identify and develop innovative supply chain improvement options, and to develop widely accepted environmental standards.

Applicability

Any large retailer with own-brand supply chains can collaborate with research institutes or consultancies to improve supply chain sustainability. Retailers may want to focus such research and development on product groups for which there are no existing commercially viable and widely applicable improvement options. This practice can be regarded as an investment in securing sustainable and economically competitive supply chains.

This BEMP is not applicable to **small enterprises**.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i30) Expenditure on sustainable supply chain research (expressed in relation to turnover);	-
(i31) Qualitative assessment of whether the research is targeted at innovative, scalable and high-potential improvement options;	
(i32) Specific environmental improvements attributable to implementation of research outputs.	

3.2.7. Promote front-runner ecological products

BEMP is to promote front-runner certified ecological products. Awareness campaigns, sourcing, pricing, in-store positioning and advertising are important components of this technique, which can be effectively implemented through development of own-brand ecological ranges.

Applicability

All retailers can stock and encourage consumption of front-runner ecological products. Large retailers can implement this technique more extensively, through the development of own-brand ecological ranges. Supplier costs associated with front-runner certification may be passed on to retailers. Certified front-runner ecological products are associated with significant price premiums and higher profit margins. Own-brand ecological ranges are also likely to increase a retailer's overall own-brand product sales through a positive 'halo effect'.

This BEMP is applicable to **small enterprises**.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
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(i33) Percentage sales within a product group certified according to front-runner exemplary standards.	(b18) 10 % sales within food product groups certified as organic
(i34) Number of product groups for which front-runner ecological products are offered.	(b19) 50 % cotton sales certified as organic
(i35) Existence of an extensive own-brand ecological product range (y/n).	(b20) 10 % sales within non-food product groups certified according to official third party verified environmental labels, according to the Type-I ISO definition.

3.3. Transport and logistics

3.3.1. Green procurement and environmental requirements for transport providers

BEMP is to integrate environmental performance and reporting criteria into the procurement of transport and logistics services provided by third parties, including requirements for implementation of BEMPs described in this document.

Applicability

All retailers purchase at least part of their transport and logistics operations from third party providers, and can make purchasing decisions according to efficiency or environmental criteria. Nevertheless, improving the efficiency of transport and logistics operations reduces operating costs, and requires effective monitoring and reporting. Efficient third party transport providers may be able to offer lower cost services to retailers.

Small retailers are usually dependent on third party providers.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i36) Percentage of transport providers certified to environment-related standards (includes registration to reporting programmes).	(b21) 100 % of transport and logistics (T&L) providers comply with either: (i) third-party-verified environment-related standards (ii) specific environmental requirements (iii) best environmental management practices described in this document.
(i37) Percentage of transport providers complying with specific environmental requirements or BEMPs described in this document.	

3.3.2. Efficiency monitoring and reporting for all transport and logistics operations

BEMP is to report on the efficiency and environmental performance of all transport and logistics operations between first-tier suppliers, distribution centres, retailers and waste management facilities, based on monitoring of in-house operations and data provided by third party operations.

Applicability

This practice is applicable by all retailers. Reporting on in-house transport and logistics operations will only apply to larger retailers. Effective monitoring and reporting requires

small investment in necessary information technology systems and management but can identify options to improve the efficiency of transport and logistics operations.

For small enterprises, basic data on average emission factors for different modes of transport are available to estimate emissions.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
<p>(i38) Tonnes CO₂ eq. per year emitted by transport and logistics operations.</p> <p>(i39) kg CO₂ eq. per m³, or pallet delivered.</p> <p>(i40) Whether the following parameters are reported for all relevant transport and logistics operations:</p> <ul style="list-style-type: none"> (i) number and percentage of km/tonne-kilometre (tkm) by different modes (ii) kg CO₂ eq. per tonne, per m³ or per pallet delivered. <p>(i41) Whether the following indicators are reported for all in-house transport and logistics operations:</p> <ul style="list-style-type: none"> (i) truck load factor (% weight or volume capacity) (ii) kg CO₂ eq. per tkm. 	<p>(b22) For 100 % T&L operations between first-tier suppliers, retail stores and waste management facilities, including those performed by third party transport providers, the following indicators are reported:</p> <ul style="list-style-type: none"> (i) percentage transport by different modes (ii) kg CO₂ eq. per m³ or per pallet delivered. <p>(b23) For all in-house T&L operations between first-tier suppliers, retail stores and waste management facilities the following indicators are reported:</p> <ul style="list-style-type: none"> (i) truck load factor (% weight or volume capacity) (ii) kg CO₂ eq. per tkm

3.3.3. Integrate transport efficiency into sourcing decisions and packaging design

BEMP is to integrate transport efficiency into sourcing decisions and packaging design, based on life cycle assessment of products sourced from different regions, and through designing product packaging to maximise the density of transport units.

Applicability

This practice is applicable to large retailers with own-brand ranges. It is highly dependent on product and source location, related to a multitude of sourcing factors. For packaging, increasing the density of packaged goods can considerably improve transport efficiency and therefore reduce transport costs.

This BEMP is not applicable to **small enterprises**.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i39) kg CO ₂ eq./m ³ (or pallet) delivered.	(b24) Systematic implementation of packaging

(i42) Modal split of transport.	improvements to maximise density and improve T&L efficiency.
(i43) Number of product groups where sourcing or packaging has been modified specifically to reduce T&L and life cycle environmental impact.	
(i44) Systematic implementation of packaging improvements to maximise density and improve T&L efficiency (y/n).	

3.3.4. Shift towards more efficient transport modes

BEMP is to shift towards more efficient transport modes, especially rail, water-based transport and larger trucks, and to minimise air-freight, for as much of the transport distance as possible. The possibility to make such shifts may be limited to primary distribution, from supplier distribution centres (DCs) to retailer DCs, given that the first and final kms often necessitate road transport. Modal shifts therefore require optimisation of distribution networks to accommodate intermodal transfers (e.g. siting distribution centres with access to rail and water networks). Shifting from smaller to larger trucks, including trucks with double-deck trailers, is included in this technique owing to the considerably greater efficiency of large compared with small trucks. Modal shifts may also inform product sourcing decisions where transport represents a significant component of product lifecycle environmental impacts (considering all relevant lifecycle implications).

Table 3.9: Ranking of transport modes in order of environmental preference (highest first)

Ranking	Transport mode
1	Freight train
2	Ocean ship
3	Inland waterway
4	Large truck
5	Medium truck
6	Small truck
7	Air freight

Applicability

All retailers can take action to shift product transport onto less polluting modes, at least based on vehicle size, and most large retailers can shift at least some primary distribution from road to rail or water. However, achieving large-scale shifts in retail goods transport from road to rail and inland waterways will require improvements in national rail and waterway infrastructures and greater cross-border coordination by operating companies. Therefore, national transport infrastructure and policy (e.g. road pricing) can have a significant influence on retailers' scope for improvement and decision-making regarding transport mode.

It is not applicable to **small enterprises**, except where available procurement choices enable selection of more efficient transport modes for particular products.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i45) Percentage of total product transport (tkm), from first-tier suppliers to stores, accounted for by specified more-efficient modes	(b25) Over 50 % of overland transport between first-tier suppliers and retail distribution centres, according to sales value, is by water/rail (where infrastructure allows)
(i46) Percentage of international product transport (tkm) accounted for by specified more-efficient modes	(b26) Over 99 % of overseas transport, according to sales value, is by ship

3.3.5. Optimise the distribution network

BEMP is to optimise the distribution network through the systematic implementation of the most efficient of the following options: (i) strategic centralised hubs to accommodate rail and water-based transport, (ii) consolidated platforms, (iii) and direct routing.

Applicability

This is applicable to large retailers with in-house transport and logistics services and for third party transport providers, especially when products are sourced over longer distances. This practice does not require significant investment. Building new central hubs integrated with rail and water-based transport networks does require significant investment. In both cases, increased loading efficiency and the use of more efficient modes for longer distance routes can significantly reduce operating costs.

It is not applicable to **small enterprises**.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i39) kg CO ₂ eq. per m ³ (or pallet) delivered. (i47) Number of consolidation platforms in use, or number of strategic central hubs in use, or number of direct transport routes in use. (i48) Percentage reduction in T&L GHG emissions through implementation of specified distribution network improvement options. (i49) Outsourcing of T&L operations to a third party provider with an optimised distribution network (y/n). (i50) Systematic optimisation of distribution networks through the implementation of strategic hub locations, consolidated platforms, and direct routing (y/n).	(b27) Systematic optimisation of distribution networks through the implementation of strategic hub locations, consolidated platforms, and direct routing.

3.3.6. Optimise route planning, use of telematics and driver training

BEMP is to optimise operational efficiency through efficient route planning, use of telematics, and driver training. Efficient route planning includes back-loading store delivery vehicles with waste and with supplier deliveries to distribution centres, and making night deliveries to avoid traffic congestion.

Applicability

This is applicable to all products to be supplied to large retailers with in-house transport and logistics services, and for third party transport providers. Driver training usually produces savings of 5% of fuel. Route optimisation may require significant investment in information technology, but can reduce capital investment costs (fewer trucks required) and significantly reduce operating (fuel) costs.

It is applicable to **small enterprises** if they have their own transport vehicles (e.g. delivery vans).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
<p>(i39) kg CO₂ eq. per m³ (or pallet) delivered.</p> <p>(i51) Fleet average percentage load efficiency (volume or mass capacity), or fleet average percentage empty running (truck km), or fleet average g CO₂ eq./tkm.</p> <p>(i52) Percentage of drivers continuously trained in efficient driving.</p> <p>(i53) Implementation of an efficient driving incentive scheme for drivers (y/n).</p> <p>(i54) Percentage reduction in T&L GHG emissions through the implementation of specified options (i.e. back-hauling waste or supplier deliveries, telematics, driver training and incentive schemes, off-hour deliveries).</p> <p>(i55) Systematic optimisation of routing through back-hauling waste and supplier deliveries on store delivery return journeys, use of telematics, and extended delivery windows (y/n).</p>	<p>(b28) 100 % of drivers continuously trained in efficient driving, or implementation of an efficient driving incentive scheme for drivers.</p> <p>(b29) Systematic optimisation of routing through back-hauling waste and supplier deliveries on store-delivery return journeys, use of telematics, and extended delivery windows.</p>

3.3.7. Minimise the environmental impact of road vehicles through purchasing decisions and retrofit modifications

BEMP is to minimise the environmental impact of road vehicles through purchasing choices and retrofit modifications. This includes the purchase of alternatively powered vehicles, efficient and low-pollution vehicles and low-noise vehicles, aerodynamic modifications, and the application of low rolling resistance tyres.

Applicability

This is applicable for all products to be supplied to large retailers with in-house transport and logistics services, and for third party transport providers. For vehicles driven long distances at higher speeds (> 80 km/h), small investments in aerodynamic modifications and larger investments to upgrade to more aerodynamic tractor and trailer units offer payback periods of up to two years. The same payback time periods apply to installing low rolling resistance tyres. Alternatively-powered vehicles require considerably higher investment costs.

It is applicable to **small enterprises** if they have their own transport vehicles (e.g. delivery vans).

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i56) l/100 km (vehicle fuel consumption) or kg CO ₂ eq. per tkm.	(b30) 100 % trucks EURO V ¹⁸ compliant and with HGV fuel consumption of less than 30 l/100 km.
(i57) Percentage vehicles within transport fleet compliant with different EURO classes.	(b31) 100 % trucks, trailers and loading equipment compliant with PIEK noise standards, or equivalent standards that enable night deliveries.
(i58) Percentage of vehicles, trailers and loading equipment compliant with PIEK noise standards, or equivalent standards that enable night deliveries.	(b32) Operation of alternatively fuelled vehicles (natural gas, biogas, electric).
(i59) Percentage of vehicles in transport fleet powered by alternative fuel sources, including natural gas, biogas, or electricity.	(b33) 100 % vehicles fitted with low rolling resistant tyres.
(i60) Percentage of vehicles within transport fleet fitted with low rolling resistance tyres.	(b34) 100 % vehicles and trailers designed or modified to improve aerodynamic performance.
(i61) Percentage of vehicles and trailers within transport fleet designed or modified to improve aerodynamic performance.	

3.4. Waste management

3.4.1. Food waste minimization

BEMP is to integrate environmentally friendly practices to avoid food waste generation, such as monitoring, auditing, prioritising, logistic issues, better preservation mechanisms, in-store temperature and humidity control, distribution centres and delivery trucks, staff training, donation, advice to consumers, etc. and to avoid landfilling or incineration of food waste through fermentation processes.

Applicability

¹⁸ EURO VI standard for vehicle emissions entered into force at the end of 2012, therefore it may be considered as benchmark of excellence in the future years

This is a cost-efficient measure, applicable to food retailers of any size and in any Member State. However, policies may be in place to avoid/discourage food donation.

All **small enterprises** can apply preventive measures to avoid food waste generation. Management costs would be compensated by cost savings derived from less product losses and less generated waste.

Associated environmental performance indicators and benchmark of excellence

Environmental performance indicators	Benchmark of excellence
(i62) kg or tonne of food waste, absolute value, per m ² or per EUR millions of turnover. (i63) Percentage of food waste generation referring to total food purchases. (i64) kg or tonne of food exceeding the sell-by date but not the use-by date, donated to charitable institutions. (i65) kg of food waste sent to recovery operations, such as fermentation. (i66) kg of food waste sent to landfill or incineration plants.	(b35) Zero food waste sent to landfills or incineration plants.

3.4.2. Integration of waste management in retailers activities

BEMP is to integrate waste management practices where prevention is prioritised. Best practices include:

- In-house management practices:
 - segregated collection and specific treatment for re-use: compacting, briquetting for paper and plastic wastes, refrigeration of food wastes, etc.
 - monitoring of waste production
 - preparation for re-use of packaging materials, as pallets and plastic boxes for suppliers, distribution centres, showcases in stores and home delivery
 - staff training.
- Organisation management practices:
 - monitoring of waste generated by stores per category and per final destination
 - implementation of reverse logistics for the management of packaging materials (to be re-used or recycled), WEEE and other wastes (such as hazardous wastes) to suppliers, treatment facilities and/or distribution centres

- establishment of local and/or regional partnerships for the management of wastes
- communication to consumers of responsible management of waste at households.

Applicability

The described techniques are applicable to any retailer. Best practices should be suitable to retailers managing a significant number of stores and distribution centres. The allocation of resources to the effective reduction of waste would be economically justified. Bulk transportation back to distribution centres would allow the reduction of the treatment cost if it is compared to the costs negotiated at local or store level.

Small enterprises producing a huge amount of wastes should allocate resources and train staff in good waste management practices.

Associated environmental performance indicator and benchmark of excellence

Environmental performance indicator	Benchmark of excellence
(i67) Recycling and reuse rates.	(b36) A waste management system is integrated in the store and its objective is to recycle or reuse 100% of secondary packaging materials.

3.4.3. Return systems for PET and PE bottles and for used products

BEMP is to implement take-back systems and to integrate them in the company logistics, as, for example, for PET or PE bottles.

Applicability

Food retailers, especially large chains, can implement this BEMP. It needs the allocation of resources, maintenance and equipment. In some countries it is already mandatory (e.g. Netherlands, Sweden and Germany).

For **small enterprises**, it requires extra resources for the daily operation of the return system.

Associated environmental performance indicator and benchmark of excellence

Environmental performance indicator	Benchmark of excellence
(i68) Percentage recycling rate from consumers defined per sales of returnable bottle.	(b37) Consumer return of 80% without deposit or 95% with deposit.

3.5. Use of less and certified/recycled paper for publications

BEMP is to reduce the impact through a decrease in the consumption of materials, such as paper optimisation for commercial publications, or the use of more environmentally friendly paper.

Applicability

All retailers, especially large chains producing huge amounts of printed commercial publications, can benefit from the implementation of this BEMP. A well implemented practice to reduce paper consumption can lead to cost savings.

This BEMP is applicable to **small enterprises**.

Associated environmental performance indicators and benchmarks of excellence

Environmental performance indicators	Benchmarks of excellence
(i69) Percentage of paper used that is certified	(b38) 100 % certified/recycled paper.
(i70) Grammage of paper used	(b39) Grammage less than 49 gr/m ² .
(i71) Percentage of coated paper	(b40) Less than 10 % coated paper.
(i72) Percentage of printing shops certified EMAS or ISO 14001	(b41) 100 % print shops EMAS/ISO 14001 certified.

3.6. Rainwater collection and reuse

BEMP is to collect and reuse and/or infiltrate on site rainwater from roofs and parking areas.

Applicability

Retailers owning their own buildings and/or parking areas and in sites with the right conditions can implement this practice. Climatic conditions and standard rainwater collection system in the municipality can affect the application of this technique. It is a cost intensive measure.

This BEMP is applicable to **small enterprises**.

Associated environmental performance indicator and benchmark of excellence

Environmental performance indicator	Benchmark of excellence
(i73) Rainwater collection and/or infiltration on site are integrated in the water management system (y/n).	(b42) Rainwater collection and/or infiltration on site are integrated in the water management system.

3.7. Prevention of single-use plastic bags or other measures to influence consumer behaviour

BEMP is to influence consumers to reduce their environmental impact, through campaigns, such as the removal of plastic bags, responsible advertising and providing best guidance information to consumers.

Applicability

All retailers can implement this practice. Usually, regulations are the main drivers for their implementation.

This BEMP is applicable to **small enterprises**.

Associated environmental performance indicator and benchmark of excellence

Environmental performance indicator	Benchmark of excellence
(i74) Number of available single-use bags at check-outs	(b43) Zero single-use bags available at checkouts.

4. RECOMMENDED SECTOR SPECIFIC KEY ENVIRONMENTAL INDICATORS

Indicator	Common Units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
ENERGY PERFORMANCE					
1. Specific energy use	kWh/m ² yr	<p>Energy use (electricity, heat, other fuels) per unit of sales area and year.</p> <p>Indications:</p> <p>Renewable energy use should not be subtracted.</p> <p>Correction factors can be used to determine sales area (in function of height and other technical parameters). 'Sales area' should be defined by the retailer.</p> <p>No correction on opening hours is recommended. Annual energy use figures should be reported.</p>	<p>Per store (site), distribution centre or other and at the organisational level (aggregated value)</p> <p>Per main energy-consuming processes: heat, electricity for refrigeration (where applicable) and electricity for all other uses</p>	Energy efficiency	<p>Specific energy use per m² of sales area for heating, cooling and air conditioning lower or equal to 0 kWh/m²yr if waste heat from refrigeration can be integrated. Otherwise, lower or equal to 40 kWh/m²yr for new buildings and 55 kWh/m²yr for existing buildings.</p> <p>(see BEMPs: 3.1.1, 3.1.2, 3.1.3, 3.1.4)</p>
2. Specific (linear) energy use for refrigeration	kWh/m yr	<p>Energy use of the refrigeration system per linear metre of display case and year.</p> <p>Indications:</p> <p>Not applicable to shops without refrigeration cabinets, such as non-food retailers.</p>	Per store (site)	Energy efficiency	<p>Specific (linear) consumption of centralised refrigeration of 3000 kWh/m yr.</p> <p>(see BEMP: 3.1.6)</p>

Indicator	Common Units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
3. Lighting Power Density	W/m ²	<p>Installed lighting power to meet illumination needs (basic and for product presentation purposes) per unit of sales area and year.</p> <p>Indications:</p> <p>It is an indicator related to the design and sales concept, applicable to all sizes and types of retailers.</p> <p>Correction factors can be used to determine sales area (in function of height and other technical parameters). 'Sales area' should be defined by the retailer.</p> <p>Lumens per m² is a good technical indicator, but the environmental performance should be measured in terms of W/m².</p> <p>It can vary within the store (per zone) and during the day (per period).</p>	<p>Per store (site), distribution centre or other</p> <p>Per store area and per day period, where appropriate</p>	<p>according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)</p> <p>Energy efficiency</p>	<p>and related best environmental management practice</p> <p>Installed lighting power lower than 12 W/m² for supermarkets and lower than 30 W/m² for specialist shops.</p> <p>(see BEMP: 3.1.7)</p>
4. Energy monitoring	%	<p>Percentage of stores monitored in the energy management system.</p> <p>Indications:</p> <p>The monitoring should include all stores and the most relevant processes.</p> <p>Information should be provided about benchmarking mechanisms if implemented</p>	<p>Per store (site)</p> <p>Per process</p>	<p>Energy efficiency</p>	<p>100% of stores and processes monitored.</p> <p>Benchmarking mechanisms implemented.</p> <p>(see BEMPs: 3.1.5, 3.1.8)</p>

Indicator	Common Units	Short description	Recommended minimum level of monitoring	Related core indicator according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)	Benchmark of excellence and related best environmental management practice
5. Percentage of refrigerant leakages	%	<p>Loss of refrigerants in relation to total refrigerant load of the installation.</p> <p>Indications:</p> <p>Appropriate for food refrigeration at large installations (centralised systems)</p> <p>It is recommended to calculate it from annual refrigerant purchases.</p> <p>It is not environmentally relevant for installations using natural refrigerants.</p>	<p>Per store (site), distribution centre or other and at the organisational level (aggregated value)</p> <p>Per type of refrigerant</p>	Emissions	<p>-</p> <p>(see BEMP: 3.1.6)</p>
6. Percentage of stores using natural refrigerants	%	<p>Percentage of stores using natural refrigerants out of the total number of stores with refrigeration cabinets.</p> <p>Indications:</p> <p>Appropriate for food retailers with refrigeration cabinets.</p>	Organisation level	Emissions	<p>General use of natural refrigerants.</p> <p>(see BEMP: 3.1.6)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
SUPPLY CHAIN PERFORMANCE					
7. Systematic implementation of supply chain improvement programmes across priority product groups	(y/n)	<p>This indicator states whether supply chain improvement programmes are implemented systematically for priority product groups.</p> <p>Indications:</p> <p style="padding-left: 40px;">Applicable for retailers of all sizes.</p> <p style="padding-left: 40px;">For small enterprises, this refers to the application of green procurement and to encouraging environmentally friendly consumption.</p> <p style="padding-left: 40px;">For large retailers selling private label products, a higher level of integration of supply chain sustainability into the business strategy is possible.</p>	Organisation level, per product supply chain	<p>Supply chain environmental performance improvements cover:</p> <p>Energy efficiency</p> <p>Material efficiency</p> <p>Water</p> <p>Waste</p> <p>Biodiversity</p> <p>Emissions</p>	<p>and related best environmental management practice</p> <p>Systematic implementation of supply chain improvement programmes across priority product groups.</p> <p>(see BEMP: 3.2.1)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
<p>8. Implementation of systematic assessment (independently or through consortia) of core product supply chains</p>	<p>(y/n)</p>	<p>This indicator refers to the assessment of supply chain environmental impacts and to the identification of effective product supply chain improvement mechanisms.</p> <p>Indications:</p> <p>If available, data on the lifecycle environmental loadings (CO₂ eq., kg SO_x eq., kg VOC eq., kg 1,4-DCB eq., kg Sb eq., m³ water, kg PO₄ eq.), biodiversity pressures, location-specific water pressures, expressed per product mass or, where more accurate, per functional unit, for the assessed products could be reported.</p> <p>High sales products should be considered core products and be prioritised for the assessment.</p>	<p>Organisation level, per product supply chain</p>	<p>according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)</p> <p>Supply chain environmental performance improvements cover:</p> <p>Energy efficiency</p> <p>Material efficiency</p> <p>Water</p> <p>Waste</p> <p>Biodiversity</p> <p>Emissions</p>	<p>and related best environmental management practice</p> <p>Implementation of systematic assessment (independently or through consortia) of core product supply chains.</p> <p>(see BEMP: 3.2.2)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
<p>9. Product improvement rate</p>	<p>Percentage sales of products certified to specified environmental performance level</p>	<p>The following rates should be considered. Percentage sales of:</p> <ul style="list-style-type: none"> products with third party environmental certification; private labels products complying with retailer-defined environmental requirements; food products certified as organic; cotton certified as organic; non-food products with eco-labels. 	<p>Organisation level, per product group</p>	<p>according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)</p> <p>The environmental standards address:</p> <ul style="list-style-type: none"> Energy efficiency Material efficiency Water Waste Biodiversity Emissions 	<p>and related best environmental management practice</p> <p>100% certification, within a product group, according to third party environmental standards.</p> <p>100% private label sales, within a product group, complying with retailer-defined environmental standards.</p> <p>10% sales within food product groups certified as organic.</p> <p>50% cotton sales certified as organic.</p> <p>10% sales within non-food product groups certified according to official (ISO Type-I) ecolabels.</p> <p>(see BEMPs: 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
TRANSPORT AND LOGISTICS PERFORMANCE					
10. Specific transport energy consumption	MJ/tkm	<p>Direct fuel energy consumption per tonne kilometre transported, for total transport and by mode to compare modal options.</p> <p>Indications:</p> <p>Based on fuel energy contents.</p> <p>For electric power, based on primary energy for electricity generation (e.g. multiply by 2.7).</p>	<p>Organisation level</p> <p>Per transport mode and major route</p>	<p>Energy efficiency</p> <p>Material efficiency</p>	<p>-</p> <p>(see BEMPs: 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7)</p>
11. Specific transport GHG emissions (per product quantity and distance)	kg CO ₂ eq./tkm	<p>Provides an indication of the environmental efficiency of transport operations.</p> <p>Indications:</p> <p>For fossil fuels, based on direct combustion plus indirect extraction and processing emissions.</p> <p>For electricity, based on national average specific GHG emissions of electricity generation.</p> <p>For biofuels, based on lifecycle assessment of GHG emissions for relevant fuel source.</p>	<p>Organisation level</p> <p>Per transport mode and major route</p> <p>Per fuel type</p>	<p>Material efficiency</p> <p>Emissions</p>	<p>-</p> <p>(see BEMPs: 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
12. Specific transport GHG emissions (per product quantity)	kg CO ₂ eq. / m ³ (or pallet) delivered kg CO ₂ eq. / per tonne product delivered	<p>Provides an indication of the final environmental impact of transport operations.</p> <p>This indicator reflects the distance the products are transported over. It is lower if the products are sourced locally/regionally.</p> <p>Indications:</p> <ul style="list-style-type: none"> For fossil fuels, based on direct combustion plus indirect extraction and processing emissions. For electricity, based on national average specific GHG emissions of electricity generation. For biofuels, based on lifecycle assessment of GHG emissions for relevant fuel source. 	Organisation level Per transport mode and major route Per product group	according to Annex IV to Regulation (EC) 1221/2009 (Section C.2) Material efficiency Emissions	and related best environmental management practice - (see BEMPs: 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7)

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
13. Percentage of water/rail transport between first-tier suppliers and retailer distribution centres	%	<p>This indicator shows the share of more efficient transport modes out of the total transport activities of the retailer.</p> <p>Indications:</p> <p>The percentage of transport by mode can be calculated based on tkm or sales value.</p> <p>Retailers should distinguish between transport over land (road, rail, inland waterways) and overseas (maritime, air) transport.</p> <p>This indicator is applicable to products sourced over longer distances.</p>	<p>Organisation level</p> <p>Per major route or at least distinguishing between transport over land and overseas transport</p>	<p>according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)</p> <p>Energy efficiency</p> <p>Material efficiency</p>	<p>and related best environmental management practice</p> <p>Over 50% of transport over land between first-tier suppliers and retail distribution centres (tkm or sales value) is by inland water/rail (where infrastructure allows).</p> <p>Over 99% of overseas transport, according to sales value, is by ship.</p> <p>(see BEMP: 3.3.4)</p>
14. Systematic optimisation of route planning	(y/n)	<p>This indicator reflects whether the retailer has implemented a systematic optimisation of its distribution networks through the implementation of strategic hub locations, consolidated platforms, and direct routing.</p> <p>This includes back-hauling waste and supplier deliveries on store deliveries return journeys, use of telematics, and extended delivery windows.</p>	<p>Organisation level</p>	<p>Energy efficiency</p> <p>Material efficiency</p>	<p>Systematic optimisation of route planning.</p> <p>(see BEMP: 3.3.5, 3.3.6)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
15. Percentage of vehicles meeting EURO V standards	%	<p>Indications:</p> <p>Applicable to large retailers with in-house transport and logistics services, third party transport providers.</p> <p>If possible, also vehicle fuel economy (l/100 km) should be monitored.</p>	Organisation level	Emissions	<p>and related best environmental management practice</p> <p>100% trucks comply with the EURO V standards.</p> <p>(see BEMP: 3.3.7)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
WASTE MANAGEMENT					
16. Generation of waste	kg/yr tonnes/yr kg/m ² yr	Weight of produced waste per year. Indications: It can be expressed per unit of sales area. It should be monitored separately for different types of waste.	Organisation level Per type of waste: e.g. food waste, plastic, paper and cardboard, wood, metal, hazardous materials, etc. Per destination: reuse, external recycling, fermentation, donation, etc.	Waste	- (see BEMP: 3.4.1, 3.4.2)
17. Percentage of food waste sent to landfill or incineration	%	Percentage of food waste that is not sent to recovery operations, such as fermentation, out of the total food waste generated.	Organisation level	Waste	0% food waste sent to landfill or incineration. (see BEMP: 3.4.1)
18. Recycling rate of secondary packaging	%	Weight of recycled materials divided by total amount of waste. Indications: Some retailers include the amount of reused materials. A clear indication thereof should be provided when reporting this indicator.	Organisation level	Material efficiency Waste	A waste management system is integrated in the store and its objective is to recycle or reuse 100% of secondary packaging materials. (see BEMP: 3.4.2)

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
19. Return rate of packaging and used products	%	<p>Consumer return rate of product packaging, such as plastic bottles, and used products, such as batteries and electronic equipments, out of the total sales of such products.</p> <p>Indications: For PET and PE bottles return systems, the rate of take-back should be measured per returnable bottles sold.</p>	Per type of returnable packaging/product	<p>according to Annex IV to Regulation (EC) 1221/2009 (Section C.2)</p> <p>Material efficiency</p> <p>Waste</p>	<p>and related best environmental management practice</p> <p>Consumer return of 80% without deposit.</p> <p>Consumer return of 95% with deposit.</p> <p>(see BEMP: 3.4.3)</p>

Indicator	Common units	Short description	Recommended minimum level of monitoring	Related core indicator	Benchmark of excellence
MATERIALS CONSUMPTION EXCLUDING REFRIGERANTS					
20. Certified or recycled paper for commercial publications	%	Percentage of certified paper (e.g. FSC) or recycled paper used for commercial publications	-	Material Efficiency Waste	100% certified or recycled paper. (see BEMP: 3.5)
WATER MANAGEMENT					
21. Stores with rainwater collection	%	Percentage of stores with a system of rainwater collection and/or rainwater infiltration systems	-	Water	Rainwater collection and/or on-site infiltration are integrated in the water management system. (see BEMP: 3.6)
CONSUMER BEHAVIOUR					
22. Number of bags	#	Number of plastic bags given or sold at checkout counters. Indications: The number of free one-use plastic bags should be controlled but, as well, sold or given with promotional purposes or the number of reusable plastic bags sold It can be reported per customer or per 1000 customers or per turnover unit.	Free one-use plastic bags, free one-use biodegradable plastic bags, sold one-use plastic bags, sold re-usable bags	Material Efficiency Wastes	Zero single-use bags available at check-outs. (see BEMP: 3.7)