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THEMATIC2GREEN

# ENVIRONMENTAL QUALITY MANAGEMENT IN TOURISM SECTOR

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## Legal framework on national, regional and local level

Serbia has established a comprehensive legal framework for environmental protection, aligned with international standards and EU regulations (as it is a candidate country for EU accession). Below is an overview of the key legal instruments at the national level and their application in the Nišava District (which includes the city of Niš and surrounding municipalities).

National Legal Framework for Environmental Protection in Serbia is regulated through Constitutional Provisions - The Constitution of the Republic of Serbia (2006) guarantees the right to a healthy environment (Article 74) and imposes obligations on the state to protect natural resources.

Key Laws addressing this matter:

- Environmental Protection Law (2004, amended in 2016, 2021) - The foundational law governing environmental policies, including principles like "polluter pays," sustainable development, and public participation. - Establishes the Environmental Protection Agency (SEPA).
- Law on Environmental Impact Assessment (EIA) (2004, amended in 2021) - Requires EIA studies for projects with potential environmental harm (e.g., infrastructure, industry).
- Law on Strategic Environmental Assessment (SEA) (2004, amended in 2018) - Applies to plans and programs (e.g., spatial plans, energy strategies).
- Law on Air Protection (2021) - Sets air quality standards and emission limits, relevant for industrial cities like Niš.
- Law on Waste Management (2021) - Regulates waste disposal, recycling, and extended producer responsibility.
- Law on Waters (2010, amended in 2022) - Protects water resources, including the Nišava River.
- Law on Nature Protection (2009, amended in 2021) - Protects biodiversity, national parks, and protected areas (e.g., Sicevačka Gorge near Niš).
- Law on Climate Change (2021) - Aligns Serbia with the Paris Agreement, promoting GHG reduction strategies.

Serbia is, also, harmonizing its laws with the EU acquis (Chapter 27 – Environment) and ratified conventions:

- Aarhus Convention (public access to environmental information).
- Espoo Convention (EIA in transboundary contexts).
- Bern Convention (biodiversity protection).

The Cadastre of Polluters in Serbia is an official register that records and monitors entities whose activities have a significant environmental impact. It is managed by the Environmental Protection Agency of the Republic of Serbia (SEPA) (Agencija za zaštitu životne sredine Republike Srbije). The purposes of the Cadastre are:

- Tracks industrial and other facilities that emit pollutants into the air, water, and soil.
- Ensures compliance with environmental regulations.
- Provides transparency and public access to pollution data.

It is governed the Law on Environmental Protection (Zakon o zaštiti životne sredine) and related regulations, which aligns with EU directives (e.g., Industrial Emissions Directive (IED) and Pollutant Release and Transfer Register (PRTR)).

The main types of pollutants which are recorded are:

- Greenhouse gases (CO<sub>2</sub>, methane, etc.)
- Air pollutants (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, etc.)
- Water pollutants (heavy metals, organic compounds, etc.)
- Waste generation and hazardous substances

The Law on Environmental Impact Assessment (EIA) in Serbia regulates the process of assessing the potential environmental effects of proposed projects before they are approved. It is a key legal instrument for sustainable development and environmental protection, aligning with EU Directive 2011/92/EU (as amended by 2014/52/EU) and the Espoo Convention on transboundary environmental impacts.

The environmental impact assessment is carried out for projects in the fields of industry, mining, energy, transport, tourism, agriculture, forestry, water management, waste management and communal activities, as well as for projects that are planned on a protected natural asset and in the protected environment of an immovable cultural asset.

The purposes are to identify, predict, and mitigate negative environmental impacts of planned projects; to ensure public participation in decision-making; to integrate environmental considerations into development planning etc..

The Law on Waste Management recognizes:

- municipal waste (household waste) as well as other waste that, due to its nature or composition, is similar to household waste;
- commercial waste, waste generated in companies, institutions and other institutions that are wholly or partially engaged in trade, services, office work, sports, recreation or entertainment, except for household waste and industrial waste;
- industrial waste, waste from any industry or from the location where the industry is located, except tailings and accompanying mineral raw materials from mines and quarries

On the regional level the monitoring and regulation is the responsibility of the Nišava District Administration which coordinates environmental policies with municipalities (Niš, Aleksinac, etc.). For instance, the City of Niš adopted Local Environmental Action Plans (LEAPs) addressing:

- Air pollution (from traffic and industry).
- Waste management (landfills, recycling).
- Water protection (Nišava River pollution control).

The key environmental issues in Nišava District are

- Air pollution (Niš has faced winter smog due to heating and traffic).
- Waste management (landfills like "Crveni Krst" require modernization).
- Water pollution (industrial and municipal discharges into the Nišava River).
- Protected areas (e.g., Sićevačka Gorge, a natural monument).

Law enforcement is responsibility of the Nišava District Administration and is achieved through various inspectorates like environmental, mining, construction etc. responsible for monitor compliance with national, regional and local level regulations. Also, public participation is encouraged through NGOs but their influence is limited because of lack of equipment, funding and volunteers.

Generally, Serbia has a solid legal framework for environmental protection, but implementation varies. In the Nišava District, key concerns include air and water pollution, requiring stricter enforcement and investment in green infrastructure. EU integration is pushing reforms, but local authorities need more resources for effective environmental governance.

Within the Key environmental problems in the Nišava district, in the air pollution section, add:

- emission of polluting substances that are produced as a product of fuel combustion (SO<sub>2</sub>, NO<sub>x</sub>, CO, soot, suspended particles - settling and floating),
- the emission of polluting substances resulting from the preparation of food on the grill in catering establishments, as well as the emission of toxic products resulting from the burning of oil used for food preparation and the emission of unpleasant odors,
- the emission of polluting substances emitted by the combustion of propellant, with the consideration of the production of polluting substances during cold and hot engine operation,
- the emission of unpleasant odours into the external ambient air from the waste disposal area from catering.

## Tourism and environment

The tourism sector faces several environmental management challenges due to its reliance on natural resources, infrastructure development, and high visitor numbers. Key challenges include:

1. Overcrowding & Resource Depletion
  - Over-tourism strains local ecosystems, water supplies, and energy resources.
  - Excessive waste generation and pollution (plastic, sewage, etc.).
  - Overuse of fragile environments (e.g., coral reefs, forests, and wildlife habitats).
2. Habitat Destruction & Biodiversity Loss
  - Unsustainable construction (resorts, roads) leading to deforestation and coastal erosion.
  - Disturbance to wildlife (e.g., safari tourism, marine activities affecting marine life).
  - Introduction of invasive species through tourism activities.
3. Pollution & Waste Management
  - Air pollution from transportation (flights, cruises, vehicles).
  - Water pollution from hotels, resorts, and recreational activities.
  - Solid waste (plastic, food waste) overwhelming local disposal systems.
4. Water Scarcity & Overuse
  - High water consumption by hotels, and pools in arid regions.
  - Depletion of freshwater sources, affecting local communities.
5. Energy consumption & monitoring
  - Heating, ventilation, air-conditioning (HVAC), lighting,
  - Cooking, washing, water heating,
  - Pools and spa processes.
6. Lack of Sustainable Practices & Regulations
  - Weak enforcement of environmental policies in some destinations.
  - Greenwashing (false sustainability claims by businesses).
  - Limited adoption of renewable energy and circular economy practices.
7. Climate Change Impacts

- Tourism contributes 8% of global CO<sub>2</sub> emissions (mainly from transport).
  - Rising temperatures and extreme weather affect destinations (e.g., ski resorts, beaches).
8. Cultural & Social Impacts
- Displacement of local communities due to tourism development.
  - Loss of traditional practices and over-commercialization.

Effective environmental management in tourism requires government policies, industry collaboration, and traveller responsibility to balance economic benefits with ecological preservation.

Improving environmental quality certification for both public and private actors in the tourism sector requires a combination of regulation, incentives, stakeholder collaboration, and transparency. Here's a structured approach:

1. Strengthening Certification Standards
  - Adopt globally recognized frameworks (e.g., GSTC Criteria, ISO 14001, EarthCheck, Green Key) to ensure credibility.
  - Localize standards to address regional environmental challenges (e.g., water scarcity in arid regions, marine protection in coastal areas).
  - Regularly update criteria to reflect new sustainability trends (e.g., carbon neutrality, circular economy).
2. Enhancing Compliance & Enforcement
  - Mandatory certification for high-impact sectors (e.g., hotels, tour operators, transport providers) through government policies.
  - Third-party audits to prevent greenwashing and ensure accountability.
  - Penalties for non-compliance (e.g., fines, loss of licenses) and rewards for high performers (tax breaks, marketing benefits).
3. Incentivizing Participation
  - Financial incentives: Subsidies, tax reductions, or grants for certified businesses.
  - Market advantages: Promote certified businesses in tourism campaigns (e.g., eco-labels on booking platforms like Booking.com's "Travel Sustainable" badge).
  - Public recognition: Awards for top-performing sustainable tourism actors.
4. Capacity Building & Education
  - Training programs for tourism businesses on sustainability best practices.
  - Workshops for auditors to ensure consistent and fair certification processes.
  - Awareness campaigns targeting tourists to choose certified options.
5. Digital Tools & Transparency
  - Blockchain for traceability (e.g., verifying carbon offset claims).
  - Public dashboards displaying certification status and environmental performance (e.g., energy/water use, waste reduction).
  - QR codes on certifications allowing tourists to verify legitimacy instantly.
6. Public-Private Partnerships (PPPs)
  - Governments collaborating with NGOs & businesses to fund certification programs.
  - Industry alliances (e.g., WTTC's Hotel Sustainability Basics) to set baseline standards.
  - Destination-wide certifications (e.g., Biosphere Responsible Tourism for entire cities).
7. Consumer Demand & Behavior Influence
  - Eco-labeling on travel platforms (Expedia, Airbnb, TripAdvisor) to guide choices.

- Sustainability ratings (like Michelin stars for eco-friendly hotels).
- Gamification (e.g., loyalty points for choosing green-certified services).

#### 8. Monitoring & Continuous Improvement

- Annual sustainability reporting for certified entities.
- Feedback loops from tourists and locals to improve standards.
- Benchmarking against global best practices.

By combining regulation, incentives, technology, and consumer awareness, the tourism sector can improve certification credibility and drive real environmental improvements. Public actors (governments, municipalities) must lead policy changes, while private actors (hotels, tour operators) should adopt and innovate beyond minimum standards.

## Local environment

Tourists visits steadily increase in Serbia (4.2 million arrivals and 10 mil. overnights in 2023). Majority of accommodation capacities make up hotels 25% (16.900 hotels and 3.380 Garni hotels) and apartments 17% (12.800), while the rest is almost evenly distributed on overnight stays, rooms, hostels, lodgings, houses, camp sites etc.

The City of Nis had 157 thousand arrivals and 336 thousand overnights in 2023, with significant increase especially after COVID-19. Medijana municipality, as the central and the largest municipality of the City of Nis, had 67,5 thousand arrivals and 153 thousand overnight stays. Niš, as one of Serbia's key cultural and historical destinations, has significant tourism potential supported by excellent road connections and local airport. However, sustainable tourism development requires strong environmental certification systems for hotels, restaurants, tour operators, and public services.

Total area covered by forests in the territory of the City of Niš is 23890 hectares but there are no forests on the territory of the Medijana municipality.

The total amount of water extracted in the territory of the City off Nis are 5,824 mil. m<sup>3</sup>, delivered drinking water are 18 mil. m<sup>3</sup>, discharged wastewater is 17,6 mil. m<sup>3</sup>, wastewater discharged into wastewater systems are 14,29 mil. m<sup>3</sup>. Number of households connected to the water supply network are 99 thousand while number of households connected to the sewerage network are 35,5 thousand.

## Best Environmental Management Practice (BEMP) in the Tourism Sector

The tourism sector is highly interlinked both directly and indirectly with other industrial sectors. It has complex supply chains, services necessary for operation, support provided by other business actors.

For the purpose of this analysis the direct tourism actors can be roughly divided in sectors as food and drink services; accommodation services; tour operators; and destination managers. Supply chain for tourism sector includes agriculture, manufacture of food, drink, textile, various products, even a necessary construction service. Sectors that are directly linked to the tourism are transport and activities management. Services that are

necessary for tourism sector operation are supply of water, electricity, gas, steam, air-conditioning, sewage, waste management etc.

All previously indicated segments have its own or interlinked influence on environment. Hence, improvement of the environmental quality of the tourism sector should be achieved through incremental improvements in all aspects and operations linked to tourism. Some of segments are cross-cutting and apply to all tourism actors while some segments are mostly applicable to specific tourism actors.

The tourism services within the sectors – accommodation, food and beverage and tour operators and travel agents – involve a wide range of activities that give rise to various environmental pressures, and, ultimately, impacts. Direct environmental aspects are elements of an organisation's activities, products or services over which the organisation has full management control, and can thus influence directly. Indirect environmental aspects are elements of an organisation's activities, products or services over which the organisation does not have full management control, and thus cannot influence directly. These may include aspects related to products used, transportation, and other factors in the supply chain. Although these aspects may not be within direct control of the accommodation facility operators, they can still have significant implications for the environmental impacts of the services, seen from a lifecycle perspective. Tourist behaviour, including customer choice, is an important indirect aspect over which tourism actors may have some control (e.g. through provision of information, incentives, facilities, etc.). Indirect aspects can be addressed via dialogue with the responsible actors.

## Driving forces for implementation

A range of factors encourage tourism organisations to implement an Environment Management System (EMS). Objectives of EMS implementation, certified or not, include:

- identify and implement opportunities to improve operational efficiency (e.g. reduce energy and water consumption, reduced waste generation)
- manage environment-related risks and liabilities
- demonstrate environmental commitment to customers and other stakeholders
- increase access to business with customers requiring environmental management or information standards
- demonstrate a commitment to achieving legal and regulatory compliance to regulators and government.

All types of organisation can implement an EMS, the most influence will have tour operators, destination managers (national, regional and local governments), accommodation providers, food and drink providers, laundry service providers. Also, implementation of an EMS leads to the identification of efficiency savings leading to best practice techniques and increased profit.

## Tourism influence on biodiversity

Tourism is concentrated in areas of high nature value, such as national parks, coastal zones and mountain regions that support rich or unique biodiversity.

Yet there are many examples of poorly managed tourism development leading to negative impacts on biodiversity via the following mechanisms:

- infrastructure-related development, mainly financed and managed at the governmental level, including roads, railways, airports, trails, water sourcing and treatment facilities, energy production and distribution, and waste management;
- construction of tourism facilities, such as accommodation and meeting structures, catering, shopping centres, and administrative facilities;
- indirect developments from tourism, such as urban development for employee housing; secondary real estate, such as tourist homes; and urban sprawl;
- indirect influences on economic trade, such as changes in trade flows and economic activity, changes in management practices, changes in conservation-related investments.

On the other hand, by generating an income from non-destructive use of natural resources, tourism can, when well-managed, contribute to the conservation of biodiversity – especially in less economically developed parts of the world where low value destructive uses would otherwise be profitable. To achieve this goal, it is necessary to elaborate ecological assessment.

The purpose of the ecological assessment is to identify key ecological features of the site, assess its current ecological value, and propose feasible, site-specific measures to enhance biodiversity and environmental quality. The first activity is ecological survey which objective is to evaluate the ecological characteristics of the site and its immediate surroundings in accordance with the appropriate Ecological Assessment methodology and relevant local environmental regulations.

The following ecological recommendations are proposed as voluntary guidelines to support the preservation and enhancement of the destination's ecological value. These suggestions are informed by the ecological assessment, which identified the site as an anthropogenic habitat with structured green elements and a moderate level of biodiversity. The site's ecological characteristics are largely influenced by plantings, urban/outdoor greenery and fauna. Recommended actions may include:

- Preserving existing green areas and exploring ways to optimize their ecological functionality;
- Considering the introduction of native plant species to gradually increase biodiversity and habitat value;
- Encouraging habitat diversity by incorporating varied vegetation layers and pollinator-attracting flowering species;
- Avoiding invasive plant species and ensuring consistent but low-impact maintenance of landscaped features;
- Where appropriate, adding simple biodiversity enhancements such as bird nesting boxes or insect refuges;
- Maintaining awareness of wildlife presence and supporting humane, sustainable management approaches.

## **Tourism induced water stress**

Water consumption is concentrated in tourism destinations that may be vulnerable to water stress. For example, the mountain ski region has low renewable freshwater resources per capita, but is a popular tourism area, and therefore water-stress hotspot. Tourism hotspots are also vulnerable to other environmental impacts that may arise from

e.g. infrastructure being overwhelmed, including water stress, water pollution, biodiversity loss, etc. Peak tourism demand often occurs during summer when water availability is at its lowest, and tourist water consumption is often considerably higher, per capita, than resident water consumption. Furthermore, tourism demand for water is projected to increase considerably over the coming decades, while climate change will reduce the availability of freshwater in this region and increase the frequency of severe droughts.

Some water applications in buildings, such as toilet flushing and irrigation, do not require the use of potable water. These applications can be responsible for a large share of total water use. Thus, the use of water recycled from on-site rainwater or grey water collection systems can considerably reduce demand for potable water from the mains supply.

Rainwater collection systems divert rainfall water into storage tanks. Run-off systems can be installed on roofs and other impervious surfaces. The harvested water can be used for non-potable demand such as toilet flushing, washing machines, irrigation, cooling towers or general cleaning purposes.

## Waste and wastewater disposal

Waste management is also a challenge for hotspot tourist destinations, owing to the concentrated generation of waste in a small area during peak season. Similarly, wastewater generation can increase by multiples during peak tourism seasons in popular destinations with smaller indigenous populations. Unfortunately, the level of wastewater treatment is rare in this area.

Tourists may generate up to twice as much solid waste per capita as local residents. Waste from accommodation has similar characteristics to mixed household waste, being composed of a diverse mix of materials, including organic and hazardous materials, that can give rise to significant environmental impacts upon disposal (especially through GHG emissions and leaching of toxic materials). Accommodation and restaurants are major contributors to packaging waste, including plastics and metals with high embodied energy that are responsible for significant resource depletion upon disposal. Furthermore, tourism waste often varies seasonally, and is generated in areas sensitive to littering, potentially putting pressure on waste management facilities during peak season and damaging high nature value resources. Plastic waste in the oceans poses a threat to whales, dolphins, sea turtles and birds.

A large portion of accommodation waste can be readily eliminated from the waste stream through prevention measures and recycling. An effective waste management program can usually reduce the volume of waste sent to landfill or incineration by more than 50%, and at the same time save money by improving the use of materials and resources, and by lowering waste disposal costs.

Priority actions relevant to accommodation managers are:

- Reduce: Create as little waste as possible by not producing it to begin with – implement green procurement, do not over-order, select products with little packaging or returnable packaging.
- Reuse: Consider where certain items can be reused, sold or donated to others that can use them.
- Sort: Have a system in place for sorting everyday waste items such as bottles, cans, cardboard and paper for recycling. Consider what else might be recycled, taking into account local disposal possibilities.
- Recycle: Send sorted waste for recycling.



## Supply chain in tourism sector

All tourism organisations depend on external suppliers to provide materials and services. The environmental impacts arising from the production and delivery of these materials and services can be substantial compared with environmental impacts directly arising from activities occurring within, or directly managed by, tourism organisations. There is potential for all tourism organisations to significantly reduce the total – direct and indirect – environmental impact arising from their operations through the selection of buildings, equipment, consumables and services associated with better environmental performance.

For instance:

- the quantity of meat (farm production GHG) in the offer may be reduced, and sourced from a known local or certified responsible supplier,
- imported (especially air-freighted) fruit and vegetables can be avoided through seasonal menu offers,
- genuine renewable electricity can be purchased or locally produced,
- efficient gas cookers with pot sensors, or electric-induction cookers, can be used,
- contractors that bring organic waste for anaerobic digestion may be contracted, etc.

## Events

A significant portion of tourism in many destinations is attracted by large (annual) events that can be particular hotspots for environmental pressures. Such events are seen as making an important contribution to the rural economy, and also to the cultural and heritage appeal, of the county. Events may be managed directly by destination managers, or by third parties operating within the destination.

Some of the environmental management helpful practices are:

- promote the use of public transport to the event
- coordinate additional transport services to events
- use environment-certified products and services
- avoid disposable items where possible
- avoid excess packaging of goods
- provide convenient waste recycling facilities
- implement energy- and water- efficiency plans

## Energy management

Energy monitoring and management itself can typically lead to immediate energy savings in the region of 10 %, through the identification of basic corrective actions. Using monitoring to reduce daily imbalances in demand (i.e. increasing the proportion of electricity used at night) can reduce peak electricity demand and facilitate electricity suppliers to maximize use of efficient baseload generating capacity (including renewables).

To reduce unnecessary energy use, the buildings has to implement several automation and control features:

- combination of heat pumps and air handling units (AHUs),
- HVAC sensors in common areas controlled by a centralized Building Management System;
- Smart thermostats with occupancy sensors in guest rooms for adaptive climate control;
- Motion-activated lighting in hallways and public restrooms, and daylight-responsive exterior lighting;
- Sensor-activated faucets in public restrooms to reduce water and indirect energy use.

## Green food and drink management

In the first instance, collaboration amongst chefs, procurement and marketing personnel is recommended to develop a responsible menu offer that includes environmentally-driven objectives such as:

- appropriate portion sizing (also to reduce waste)
- high proportion of fruit, vegetables, cereals and pulses
- judicious portioning of meat and dairy products
- emphasis on seasonal produce (seasonal menus)
- local sourcing of fresh produce.

It is important to base green procurement decisions on the appropriate environmental indicators. For example, the environmental impact of fresh fruit and vegetables can be dominated by long distance transport, especially air freight, so that local sourcing is an appropriate green procurement criterion for fresh fruit and vegetables. For many products,

the better environmental performance is most reliably assured by third-party certification with environmental standards.

## Environmental pressures in tourism sector

Table 1: Activities in tourism enterprises (hotels, restaurants and tour operators) and associated environmental aspects and pressures

Service/ Activity	Main environmental aspects	Main environmental pressures
Administration	<ul style="list-style-type: none"> <li><input type="checkbox"/> Office Management</li> <li><input type="checkbox"/> Reception of clients</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy, water and raw materials (mainly paper) consumption</li> <li><input type="checkbox"/> Generation of municipal waste (large amounts of paper) and hazardous waste (e.g. toner cartridges)</li> </ul>
Technical services	<ul style="list-style-type: none"> <li><input type="checkbox"/> Producing of hot water and space heating/cooling</li> <li><input type="checkbox"/> Lighting</li> <li><input type="checkbox"/> Elevators</li> <li><input type="checkbox"/> Swimming pools</li> <li><input type="checkbox"/> Green areas</li> <li><input type="checkbox"/> Pest and rodent control</li> <li><input type="checkbox"/> Repair and maintenance</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy and water consumption</li> <li><input type="checkbox"/> Consumption of a range of hazardous products</li> <li><input type="checkbox"/> In some cases use of CFCs and HCFCs</li> <li><input type="checkbox"/> Air emissions</li> <li><input type="checkbox"/> Generation of a wide range of potentially hazardous waste types such as empty chemical containers</li> <li><input type="checkbox"/> Generation of waste-water</li> </ul>
Restaurant/bar	<ul style="list-style-type: none"> <li><input type="checkbox"/> Breakfast, dinner, lunch</li> <li><input type="checkbox"/> Beverages and snacks</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Supply chain pressures (see 'Purchasing')</li> <li><input type="checkbox"/> Energy, water and raw materials consumption</li> <li><input type="checkbox"/> Generation of municipal waste (especially food waste and packaging waste)</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li><input type="checkbox"/> Food conservation</li> <li><input type="checkbox"/> Food preparation</li> <li><input type="checkbox"/> Dish washing</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Supply chain pressures (see 'Purchasing')</li> <li><input type="checkbox"/> Important consumption of energy and water</li> <li><input type="checkbox"/> Generation of municipal waste (especially food waste and packaging waste)</li> <li><input type="checkbox"/> Generation of vegetable oil waste</li> <li><input type="checkbox"/> Generation of odors</li> </ul>
Room use	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use by guests</li> <li><input type="checkbox"/> Products for guests' use</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy, water and raw materials consumption</li> </ul>

	<ul style="list-style-type: none"> <li><input type="checkbox"/> Housekeeping</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use of a wide range of hazardous products</li> <li><input type="checkbox"/> Generation of waste packaging and small amounts of municipal waste</li> <li><input type="checkbox"/> Generation of wastewater</li> </ul>
Laundry	<ul style="list-style-type: none"> <li><input type="checkbox"/> Washing and ironing of guests' clothes</li> <li><input type="checkbox"/> Washing and ironing of</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Important consumption of energy and water</li> <li><input type="checkbox"/> Use of hazardous products</li> <li><input type="checkbox"/> Generation of waste-water</li> </ul>
Purchasing	<ul style="list-style-type: none"> <li><input type="checkbox"/> Selection of products and suppliers</li> <li><input type="checkbox"/> Storage of products</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Supply chain pressures (land occupation, degradation or destruction of ecosystems, disturbance of wildlife, energy and water consumption, air and water emissions, waste generation)</li> <li><input type="checkbox"/> Generation of packaging waste</li> <li><input type="checkbox"/> Hazardous substance leakages</li> </ul>
Activities	<ul style="list-style-type: none"> <li><input type="checkbox"/> Indoor activities</li> <li><input type="checkbox"/> Outdoor activities</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy, water and raw materials consumption</li> <li><input type="checkbox"/> Local impacts on ecosystems</li> <li><input type="checkbox"/> Noise</li> <li><input type="checkbox"/> Generation of municipal waste</li> <li><input type="checkbox"/> Infrastructure pressures (see 'Building and construction')</li> </ul>
Transport	<ul style="list-style-type: none"> <li><input type="checkbox"/> Transport of guests</li> <li><input type="checkbox"/> Transport of employees</li> <li><input type="checkbox"/> Transport by suppliers</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy (fuel) consumption</li> <li><input type="checkbox"/> Air emissions</li> <li><input type="checkbox"/> Infrastructure pressures (see 'Building and construction')</li> </ul>
Additional services	<ul style="list-style-type: none"> <li><input type="checkbox"/> E.g. medical services, supermarkets, souvenir shops, spa and wellness, hairdresser, etc.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy, water and raw materials consumption</li> <li><input type="checkbox"/> Generation of municipal waste, and some specific hazardous waste types (e.g. sanitary waste)</li> </ul>
Building and construction	<ul style="list-style-type: none"> <li><input type="checkbox"/> Construction of new areas or services</li> <li><input type="checkbox"/> Repair of existing areas or services</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Land occupation</li> <li><input type="checkbox"/> Degradation or destruction of ecosystems</li> <li><input type="checkbox"/> Disturbance of wildlife</li> <li><input type="checkbox"/> Energy and water consumption</li> <li><input type="checkbox"/> Significant consumption of raw materials and hazardous products</li> <li><input type="checkbox"/> Significant generation of construction waste</li> <li><input type="checkbox"/> Generation of hazardous waste</li> </ul>

## Importance of SMEs

SMEs represent a large portion of the tourism sub-sectors, while most of environment practices are highly relevant for SMEs. Practices that require different value-added marketing (e.g. eco-tours), or that are particularly relevant for rural areas, may be better suited to SMEs than large enterprises owing to the greater flexibility and market repositioning opportunities for SMEs.

The main drivers of environmental responsibility among SMEs are:

- management of internal aspects;
- some environmental measures pay off in the medium/longer term;
- environment, health and cost-efficiency can be improved;
- branding: SMEs identified as good or best performer at local level;
- external aspects: as better response to existing or new legislation.

The main barriers to improving environmental performance across SMEs are:

- the diversity of SMEs makes it difficult to identify generic solutions;
- the difficulty of disseminating information to SMEs;
- the limited management resources typical of SMEs;
- high perceived costs and relatively high actual investment costs;
- generally, there is lack of awareness, motivation, know-how and know-who;
- reluctance to seek external help.

The main conclusions on mechanisms required to facilitate SMEs with environmental performance improvement include:

- solutions for SMEs should be practical and result oriented;
- education of staff and managers is essential;
- building SMEs clusters to address common problems could reduce costs;
- intermediary organizations with a high level of awareness can facilitate uptake (trade unions, consultants, commerce chambers, etc.);
- advice and financial support from national, regional or local level government is often required.

## Best environment management practice - BEMP

Some organizations/companies in the tourist sector are more successful than other in the similar position. Analysing such examples and finding what they are doing better than others can support environmental improvement efforts of all actors in the tourism sector. Their minimal or positive influence on environment can be used by all organizations and stakeholders of the sector who seek for reliable and proven information to improve their environmental performance. The best environment management practice can be summarized and categorized by organization type and environmental influence of typical activities in tourism.

## Cross-cutting

1. BEMP is to undertake an assessment of the most important direct and indirect environmental aspects associated with the enterprise, and to apply relevant performance indicators and compare with relevant benchmarks of excellence.
2. BEMP is to identify supply chain environmental hotspots, considering the entire value chain, and to identify relevant control points (e.g. product selection, avoidance, green procurement, supplier criteria) that can be used to minimise the environmental impact over the value chain.

## Destination managers

1. BEMP is to establish a unit or organisation responsible for the strategic sustainable development of the destination, that coordinates relevant departments to implement specific actions within the framework of a Destination Plan adopted on the global level.
2. BEMP is to monitor the state of biodiversity within the destination, and to implement a biodiversity conservation and management plan that protects and enhances total biodiversity within the destination through, for example, development restrictions and compensation measures.
3. BEMP is to ensure that environment-related services within the destination, especially water supply, wastewater treatment, waste management (especially recycling measures) and public transport/traffic management, are sufficient to cope with peak demand during tourism high season in a sustainable manner.
4. BEMP is to monitor the environmental impact of large events, and prepare environmental management plans for such events that avoid and mitigate impacts, such as the provision of additional public transport to the event, the provision of good waste management facilities, and the offsetting of carbon and biodiversity impacts.

## Tour operators

1. BEMP involves choice editing of packages offered to avoid unnecessary flights (e.g. Forum Anders Reisen criteria), and to implement energy efficiency measures for transport fleets (owned or supplied), including green procurement of the most efficient vehicles, retrofitting aircraft and coaches/buses with energy saving options such as winglets, and optimisation of operations (e.g. maximise load factors).
2. BEMP is to require or encourage environmental certification of accommodation providers, or to require compliance with specific environmental criteria, or to require environmental performance reporting that can be used to implement benchmarking.
3. BEMP is to work on discreet projects, ideally coordinated through tour operator consortia and involving destination managers, that address environmental hotspots associated with tourism within destinations.

4. BEMP is to develop and promote tourism packages that exclude the most environmentally damaging options, and include environmental front-runner transport, accommodation and activity options.
5. BEMP is to provide information to customers on the environmental impacts of tourism packages, and targeted, positive and engaging messages on actions that can be taken by customers during selection, and guests during holidays, to minimise their environmental impact.
6. BEMP is to minimise the use of resources, especially paper and ink, for advertising and office operations, to select environmentally certified materials and services (e.g. printing services), and to ensure energy and water efficiency across all office and retail operations.

## Accommodation water consumption

1. BEMP is to undertake a water consumption audit and monitor water consumption across key water-consuming processes and areas (i.e. sub-metering) in order to identify efficiency improvement options, and to ensure that all equipment is maintained through appropriate periodic inspection, including during housekeeping.
2. BEMP is to install efficient water-fittings, including low-flow spray taps and low-flow thermostatic-controlled showers, low- and dual-flush WCs, and waterless urinals. In the interim, aerators may be retro-fitted to existing fittings.
3. BEMP is to minimise laundry requirements through green procurement of bedclothes and towels (in terms of size, density, colour, material), and by requesting or encouraging guests to reuse bedclothes and towels. Best practice is also to train staff on the implementation of water- and chemical-efficient cleaning methods, and to procure environmentally certified consumables for bedrooms and bathrooms.
4. BEMP is to procure the most water- (and thus energy-) efficient washing extractors and the most energy efficient driers (e.g. heat-pump driers) and ironers, to reuse rinse water and, in high-water-stress areas, main wash water following micro-filtration. Best practice is also to recover heat from waste water and exhaust ventilation air.
5. BEMP is to select an efficient laundry service provider that is certified by an ISO Type-1 ecolabel or that complies with criteria in such labels (e.g. Nordic Ecolabelling, 2009), or to ensure that on-site large-scale laundry operations comply with such criteria.
6. BEMP is to optimise the frequency and timing of backwashing based on pressure drop rather than fixed schedules, to use ozonation or UV treatment and careful dosing control to minimise chlorination, and to recover heat from exhaust ventilation air.
7. BEMP is to install a grey water recovery system that recovers grey water for use in indoor processes (e.g. toilet flushing) following treatment or exterior processes (e.g. irrigation), or a rainwater collection system that uses rainwater for indoor purposes.

## Waste management

1. BEMP is to prevent waste generation through green procurement of products, considering product lifecycle impacts – for example by avoiding single-use items (food,

soaps, shampoos) and by buying cleaning agents in concentrated and bulk form – and by careful management of procurement volumes.

2. BEMP is to provide separated waste collection facilities throughout the establishment, to ensure that there is a clear procedure for staff waste separation, and to contract relevant recycling services at least for glass, paper and cardboard, plastics, metals and organic waste.

3. BEMP where wastewater is not sent to a centralised wastewater treatment plant is to install an on-site wastewater treatment system that treats wastewater at least to secondary, and preferably to tertiary, level.

## Accommodation energy

1. BEMP is to undertake an energy audit and monitor energy consumption across key energy-consuming processes and areas (i.e. sub-metering) in order to identify efficiency improvement options, and to ensure that all equipment is maintained through appropriate periodic inspection.

2. BEMP is to ensure that new buildings are compliant with the highest achievable energy ratings, as indicated by conformance with PassiveHouse and Minergie P standards, and that existing buildings are retrofitted to minimise heating and cooling energy requirements.

3. BEMP is to minimise energy consumption from HVAC systems by installing zoned temperature control and controlled ventilation with heat recovery (ideally controlled by CO<sub>2</sub> sensors), energy-efficient components (e.g. variable-speed fans), and to optimise HVAC in relation to building-envelope and energy source characteristics.

4. BEMP is to install efficient (e.g. ecolabelled) heat pumps for heating and cooling, or where possible ground water cooling..

5. BEMP is to install zoned and appropriately sized compact fluorescent and LED lighting with intelligent control based on motion, natural-light and time.

6. BEMP is to install on-site geothermal, solar or wind energy generation where appropriate, and to procure electricity from a genuine (verifiable additional) renewable electricity supplier.

## Kitchens

1. BEMP is assess food and drink supply chains to identify environmental hotspots and key control points, including choice editing of menus to avoid particularly damaging ingredients (e.g. some out-of-season fruit), and selection of environmentally-certified products.

2. BEMP is to minimise avoidable food waste by careful menu development and portion sizing, and to ensure that all organic waste is separated and sent for anaerobic digestion where available, or alternatively incineration with energy recovery or local/on-site composting.

3. BEMP is to select efficient washing equipment, including trigger-operated low-flow pre-rinse spray valves, efficient dishwashers and connectionless steamers, and to monitor and benchmark water consumption in kitchen/restaurant areas.
4. BEMP is to select efficient cooking equipment, including induction-hob or pot-sensor-controlled gas ovens, efficient refrigeration equipment that uses a natural refrigerant such as ammonia or carbon dioxide, and to control ventilation according to demand.

## Campsites

1. BEMP is to provide guests with interactive on-site education of environmental issues, including courses, nature-trails, or equipment such as low-carbon transport (bicycles, electric bicycles).
2. BEMP is to maximise on-site biodiversity through planting of native species, installation of green or brown roofs and walls, and to minimise water consumption for irrigation and light pollution arising from outdoor lighting (e.g. through use of correctly-angled low-pressure sodium lamps).
3. BEMP is to minimise energy consumption for water-heating, HVAC and lighting through installation of low-flow fittings, good building insulation, and fluorescent or LED lighting, and also to install on-site renewable energy generating capacity (e.g. solar water heating).
4. BEMP is to minimise water consumption through the installation of low-flow taps and showers, shower-timer controls, and low- and dual-flush WCs.
5. BEMP is to minimise residual waste generation by implementing waste prevention, by providing convenient on-site waste sorting facilities, and by contracting water recycling services.
6. BEMP is the installation of, or conversion of an existing pool to, a natural pool.

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