

Best Environmental Management Practice in **THE TOURISM SECTOR**

9.5 Campsite waste minimisation



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9.5 Campsite waste minimisation

Description

In contrast to energy and water consumption, waste generation on campsites is often higher than for built accommodations such as hotels. Figure 9.25 shows that median unsorted waste generation per guest-night for 99 campsites in the Ecocamping network is slightly higher than median unsorted waste generation per guest-night for 141 hotels in a mid-range chain (0.54 versus 0.46 kg). The top ten-percentile of campsites (in terms of waste minimisation) also produce more waste than the top ten-percentile of hotels (0.20 versus 0.16 kg per guest-night). This reflects the fact that campers are more likely to eat on site, to prepare their own meals, and to undertake various activities during the day on site, compared with hotel guests, resulting in higher waste generation (e.g. food and packaging waste) than for hotels.

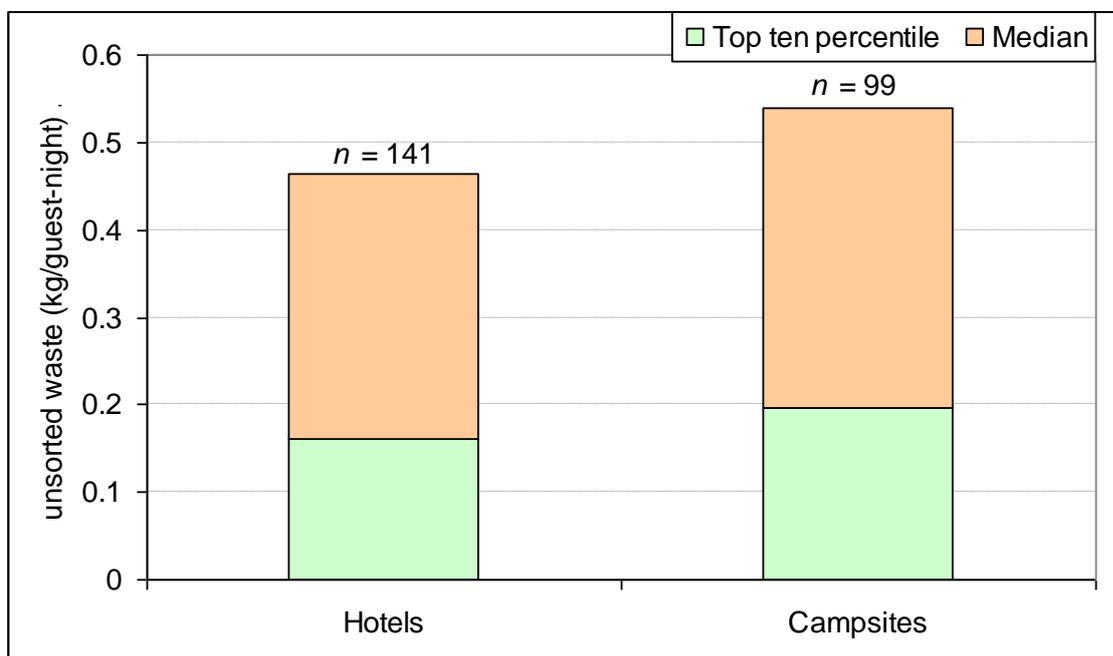


Figure 9.25: Median and top ten-percentile unsorted waste generation for good performing mid-range hotels and Ecocamping campsites

As described in section 6, waste minimisation requires implementation of a comprehensive waste management plan based on priorities defined in the waste management hierarchy (Figure 6.3 in section 6), summarised below.

- 1. Reduce:** Avoid producing waste in the first place – implement green procurement, do not over order, select products with little packaging or returnable packaging.
- 2. Reuse:** Consider where certain items can be reused, sold or donated to others that can use them.
- 3. 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.
- 4. Recycle:** Send sorted waste for recycling.

Table 9.21 lists best practice measures applicable to campsites that are described in other sections of this document targeted at built accommodations and kitchens. In the first instance, waste generation can be minimised by considering packaging and waste generation as criteria for green procurement of food and consumable products (appropriately weighted against other lifecycle environmental performance factors for products, and food perishability). A waste management programme that includes all areas and staff is essential. Readers may cross-refer to relevant sections specified in Table 9.21 for more detailed information on the implementation of waste minimisation measures.

Table 9.21: Best practice measures to minimise waste on campsites

Department	Measure	Description	Section
All (management led)	Develop waste inventory	Survey of all areas and processes to identify types and sources of on-site waste generation.	6.1, 6.2
	Monitoring and reporting	Continuously monitor and periodically report waste generation and collection by fraction.	
	Back of house operations	Provide separate bins and train staff to separate waste arising from public areas, maintenance of outdoor and indoor facilities, and other back-of-house areas into appropriate fractions for recycling and correct disposal.	6.2
Procurement (on-site restaurant, shop and cleaning)	Efficient ordering and storage	Order perishable products frequently in quantities required. Store perishable products in appropriate conditions (e.g. correctly adjusted refrigeration units). Order non-perishable products in bulk.	6.1, 8.1, 8.4
	Local sourcing and packaging return	Source food locally where appropriate, and return packaging for reuse.	8.1
	Select low-packaging products	Select products with less or recyclable packaging where possible and consistent with other green procurement criteria – e.g. purchase chemicals in concentrate form.	2.2, 5.3, 6.2
On-site restaurant	Tap water on table	Provide guests with tap water in restaurant.	6.1
	Efficient breakfast provision	Avoid single-portion servings as much as possible within hygiene constraints, and cook to order.	6.1, 8.1
	Organic waste management	Separate waste fractions in the kitchen. Where possible, send oil for biofuel production and send organic waste for anaerobic digestion or composting.	8.2
Reception	Efficient document management	Print documents only when absolutely necessary, double-sided in small font. Use electronic billing.	6.1

This section focuses on the description of an additional measure that is of particular and unique importance to campsites: provision of a conveniently located and user-friendly waste sorting station where campers can place their waste into relevant collection bins for recycling.

Achieved environmental benefit

Mass of waste avoided

According to data from Ecocamping campsites in 2009, best practice in waste management represented by the lowest ten-percentile unsorted waste generation per guest-night equates to 0.34 kg waste per guest-night lower than median performance. For a very large campsite with an average of 500 guests over a six month season, this would equate to a saving of over 31 tonnes of waste per year. For a smaller campsite with an average of 50 guests over six months, this would still equate to over 3 tonnes of avoided waste (landfill or incineration) per year.

Environmental benefits

Waste prevention through measures such as careful purchasing results in environmental benefits through two major pathways: avoided production and avoided disposal. Recycling avoids waste disposal impacts, but incurs (re)processing impacts that may somewhat offset avoided production impacts (section 6.2). Environmental benefits of waste prevention and recycling include:

- avoided/reduced resource depletion
- avoided/reduced land occupation
- avoided/reduced soil contamination
- avoided/reduced water pollution
- avoided/reduced air pollution
- avoided/reduced GHG emissions.

Table 9.22 quantifies the reductions in GHG emissions attributable to the prevention and recycling, respectively, of various waste fractions. In addition, each kg of organic waste sent to anaerobic digestion with energy recovery avoids 0.35 kg CO₂ eq. from waste management and displaced energy generation. Avoided upstream emissions depend strongly on the type of organic waste (section 8.1): one kg of beef, for example, may be associated with over 20 kg CO₂ eq. upstream emissions.

Table 9.22: GHG emissions avoided through the prevention and recycling of different waste fractions

Material	Glass	Board	Wrapping paper	Dense plastic	Plastic film
	kg CO ₂				
Prevention	0.92	1.60	1.51	3.32	2.63
Recycling	0.39	1.08	0.99	1.20	1.08

Source: WRAP (2011).

Best practice GHG avoidance

Figure 9.26 indicates the magnitude of annual GHG avoidance achievable through best practice in waste management at a medium-sized campsite with an average of 100 guests over 6 months of the year. These savings are based on reducing unsorted waste generation from 0.54 to 0.2 kg per guest-night, and equate to 23 t CO₂ eq. per year if the reduction is achieved solely through recycling to 59 t CO₂ eq. if the reduction is achieved solely through waste prevention. On campsites, most waste originates from guests, and waste management programmes should focus on increasing the rate of

recycling by guests. However, significant waste prevention is also possible through good management of on-site restaurant, shop, cleaning and reception services.

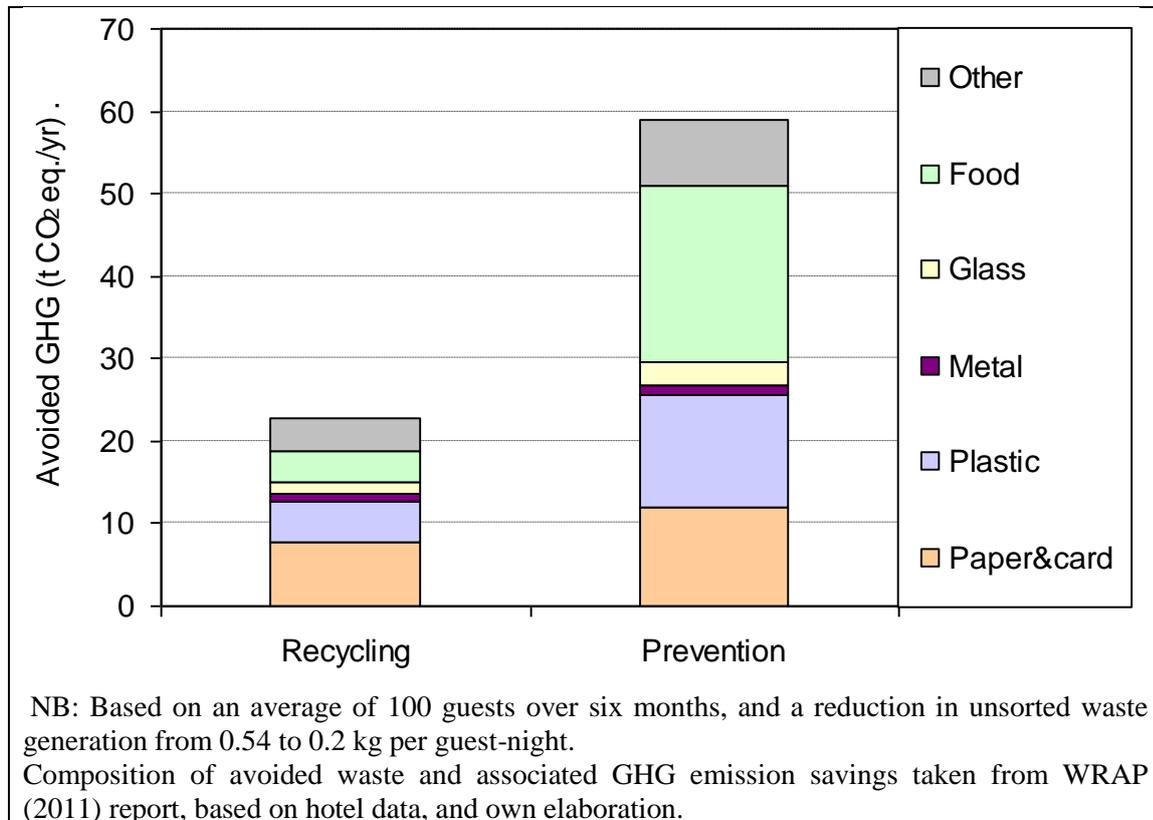


Figure 9.26: An example of annual GHG avoidance achievable for a single campsite achieving best, compared with average, waste management performance through either recycling or prevention

Appropriate environmental indicator

Indicators

As for waste in built accommodation, there are three primary indicators of waste management effectiveness, reflecting waste prevention and waste recycling:

- the total waste generated, sorted and unsorted, expressed as kg per guest-night
- the proportion of waste that is sorted and sent for recycling, expressed as a percentage mass of total waste generated
- the quantity of unsorted residual waste sent for disposal, expressed as kg per guest-night.

Benchmark of excellence

Based on the top teni-percentile performance level for Ecocamping camp sites, the following benchmark of excellence is proposed:

BM: total residual waste sent for disposal of ≤0.2 kg per guest-night.

Cross-media effects

Waste prevention is not associated with any cross-media effects, though care must be taken when selecting products with reduced packaging to ensure that the overall lifecycle environmental burden of these products is lower than alternatives with more packaging, especially for food products.

Recycling is associated with energy consumption and other environmental impacts that arise during collection, transport and recovery operations. However, these impacts are usually considerably smaller than impacts arising from the production from raw materials.

A detailed lifecycle assessment for PET recycling demonstrated that PET recycling is significantly more environmentally-friendly than the incineration of the PET bottles in municipal waste incineration plants with waste heat recovery (Dinkel, 2008).

Operational data

Waste prevention and monitoring

Implementation of a waste management plan requires campsite managers to generate an inventory of all the waste arising on different parts of the campsite, and possible measures to prevent or reduce this waste. The main areas of waste generation over which campsite managers have some influence (i.e. excluding private tents and motor-homes) are: on-site restaurants or take-away facilities, on-site shops, and housekeeping stores. A once-off survey may be performed to generate such an inventory, also identifying sources (e.g. packaging of specific products). Costs associated with excess purchasing resulting in waste should be recorded.

On campsites, the majority of waste originates from guests. It is important to regularly monitor and record the total quantity of waste generated (in communal bins) and the proportion that is separated and sent for recycling. Where separated, the quantity of individual waste fractions generated and sent for recycling or disposal should be monitored, at least: organic, glass, paper and cardboard, plastics, metals, electrical items, hazardous wastes. The cost associated with disposal and recycling of these fractions, based on local rates, can be calculated in order to indicate the achievable cost savings.

Green procurement decisions should include consideration of recyclability, for example to avoid difficult-to-recycle plastics such as polyvinyl chloride (PVC), low-density polyethylene and polystyrene where possible (see Table 6.11 in section 6.2). Packaging minimisation and reuse (without affecting product quality and longevity) is the most straightforward measure to reduce waste from a lifecycle perspective. Campsite managers may request suppliers of preferred products to improve the environmental performance, including recyclability, of their packaging.

Lifecycle impacts of packaging depend on factors such as whether or not recycled material is used in production, different packaging weights associated with alternative materials, manufacturing location and methods, transport distance, energy sources, fate of used products, etc. A study by the Öko-Institut (2008) into different types of cup that could be used at events highlighted the environmental superiority of light-weight reusable plastic cups over disposable cups, and cardboard over polystyrene cups.

Appropriate food storage is an important way to reduce food waste, as described in section 8.4 and the technical report for the retail trade sector (EC, 2011).

Useful guidance on waste prevention has been compiled on a European Commission website dedicated to the subject: <http://ec.europa.eu/environment/waste/prevention/index.htm>.

Separating plastic waste fractions

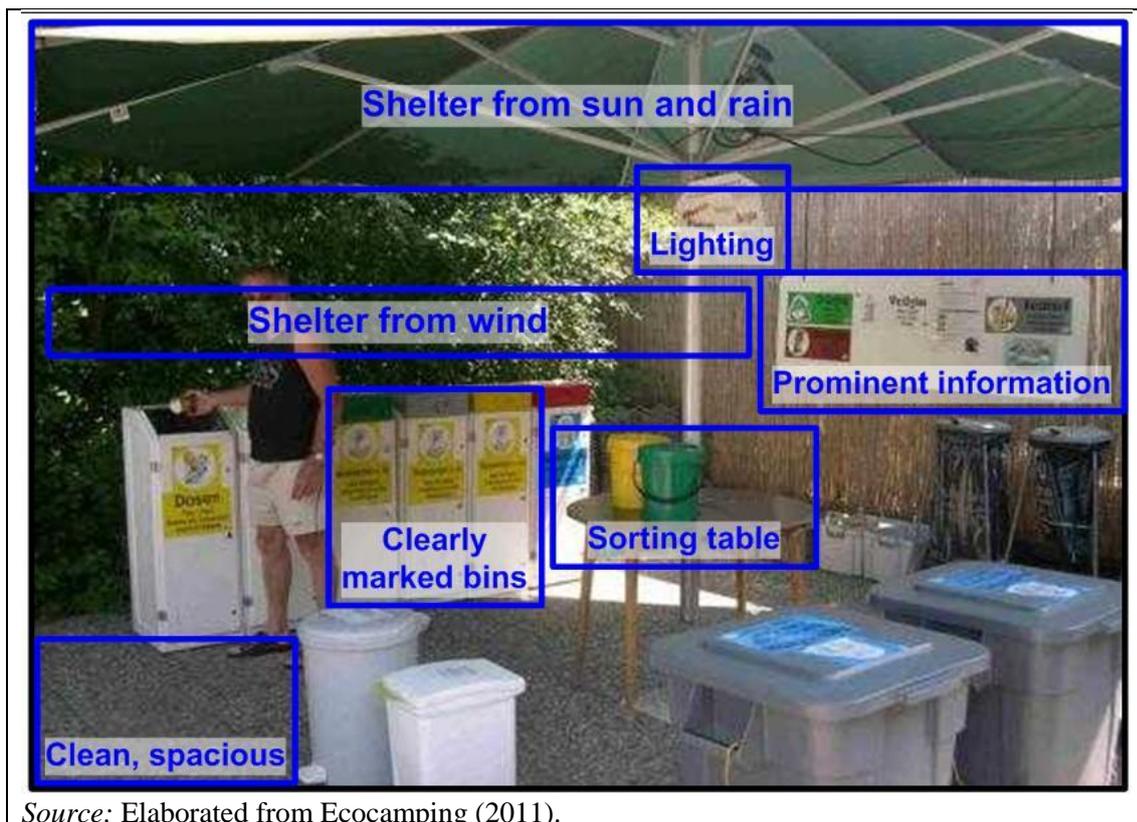
Plastics represent a significant fraction of municipal waste that create environmental problems when sent to landfill owing to their slow decomposition. Many types of plastic are available across a wide range of products, some of which are easier and more likely to be recycled than others (see Table 6.11 in section 6.2). These may be identified by commonly used symbols referred to in the ISO 11469

standard relating to the generic identification and marking of plastics products (see Table 6.11 in section 6.2). Depending on the area and service provider, mixed plastics may be collected for subsequent separation of recyclable fractions, or it may be necessary to separate specific recyclable fractions on site (i.e. in the recycling station).

Waste-sorting facilities

Figure 9.27 depicts a good campsite waste collection and recycling station, highlighting various features of best practice. The most important aspects of best practice are to provide:

- shelter from wind, rain, and sun
- adequate lighting
- a raised surface (e.g. table) for convenient waste sorting
- clearly labelled separate bins for the main waste fractions (at least hazardous materials, electrical and electronic materials, glass, paper and card, plastics, metals, organic)
- bins that are adequately sized (also apertures) for each waste fraction
- prominent information on use of the facility
- a clean, spacious and orderly area.



Source: Elaborated from Ecocamping (2011).

Figure 9.27: Important features of a user-friendly campsite recycling station

In relation to the above points, Ecocamping guidelines recommend use of standardised stickers and signage for bins and recycling stations across campsites in the network, to facilitate guest recognition and recycling efforts (Table 9.23). Collection and recycling centres should be tidied every morning – this may involve checking and (re)sorting bins to ensure correct content and encourage correct usage

by guests (Table 9.23), as performed on the Uhlenköper Campsite in Germany. Other facilities and features may be integrated to encourage use of the recycling centre – e.g. music, magazine and book exchange, etc. Where organic waste is collected separately, collection bins need to be emptied frequently in warm conditions.

Table 9.23: Signage and performance in a campsite recycling station

	
<p>A correctly filled paper and card bin</p>	<p>A standard Ecocamping recycling station sign</p>
<p><i>Source:</i> Uhlenköper Campsite (2011).</p>	

Applicability

All types and sizes of campsite can implement a waste management programme involving prevention and recycling. However, local waste recycling options may be restricted in some, especially rural, locations. In areas where the municipality or private companies do not collect separated materials for recycling, accommodation managers can request the municipality to prioritise the provision of such services and seek alternative solutions, as required in such situations by ecolabel criteria for the EU Ecolabel. For example, campsite managers can cooperate with other local stakeholders to arrange shared waste collection, or to send organic waste to local farmers for composting or biogas production. On campsites, there is usually sufficient space and on-site demand for soil improver to justify on-site composting of the important organic waste fraction (section 8.2).

Economics

Waste prevention is closely related to resource efficiency and cost reductions. Avoiding excess products and packaging can reduce purchasing costs and disposal costs. The cost of waste disposal has increased sharply in most European countries over the past decade, and is likely to continue increasing owing to escalating landfill and incineration taxes.

The economy involved in sorting and recycling of waste fractions is dependent on the relevant collection charges applied to different fractions. These vary considerably across and within countries. Collection of residual, organic and hazardous waste usually incurs a cost, whilst collection of separated paper, plastic and metal for recycling is often free of charge (though this varies across municipalities). For example, as referred to in section 6.2, The Savoy pays approximately EUR 110 per tonne for mixed waste collection, compared with free collection for separated recyclable materials, and receives payment of EUR 0.30 per litre for waste cooking oil collected every month by a private company to produce biodiesel.

Driving force for implementation

Legislation is an important driver for preventing and managing waste. Relevant legislation is listed in section 6, and on the European Commission's waste prevention website: <http://ec.europa.eu/environment/waste/prevention/index.htm>. In particular, the Waste Framework Directive (2008/98/EC) is an important driving force. The main driving forces to minimise waste are:

- environmental responsibility
- legislation
- waste disposal costs
- waste handling costs
- unused product costs (partially used products and unnecessary packaging)
- voluntary EMS or ecolabel criteria
- environmental marketing – waste management is a visible demonstration of environmental commitment.

Reference companies

The Uhlenköper Campsite in Germany and other members of the Ecocamping network provide examples of best practice.

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