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PRINCIPLES FOR GOOD BOTTLE BANK COLLECTION OF GLASS PACKAGING

April 2026

INTRODUCTION

Closed loop recycling of glass packaging is a cornerstone of the circular economy in Europe.

Glass can be recycled infinitely without loss of quality, provided that the collected material remains clean and properly sorted. When recycled glass, or “cullet”, is used in container glass manufacturing, it reduces energy consumption, prevents waste generation, and minimises the need for virgin raw materials.

In the *Performance of Packaging Glass Recycling in Europe* report, it is estimated that close to **90% of all collected glass is sourced from municipal waste**, as glass packaging is a primary packaging typically found in households or in household-like settings such as hospitality establishments (HORECA - hotels, cafés, restaurants, bars or other catering venues).

Cullet is therefore a raw material **directly sourced from municipal waste**. As a result, municipal waste management practices have a major impact on the success of closed loop recycling for glass packaging: from establishing a collection system, through collection logistics, transportation, and storage practices, up to the delivery to Glass Cullet Recycling Facilities where the material is further processed before being used in container glass manufacturing. To safeguard the high quality of the material, **minimal contamination and breakage** should be ensured at every step.

This document sets out the main principles for good collection of glass packaging based on the predominant collection system used in Europe: the monomaterial municipal bring-back system, otherwise known as the “bottle bank”. Its purpose is to **provide practical, evidence-based guidance on how to handle glass packaging effectively between the bottle bank and the Glass Cullet Recycling Facility**, ensuring that every step contributes to the achievement of a fully circular, high-quality glass recycling system in Europe.

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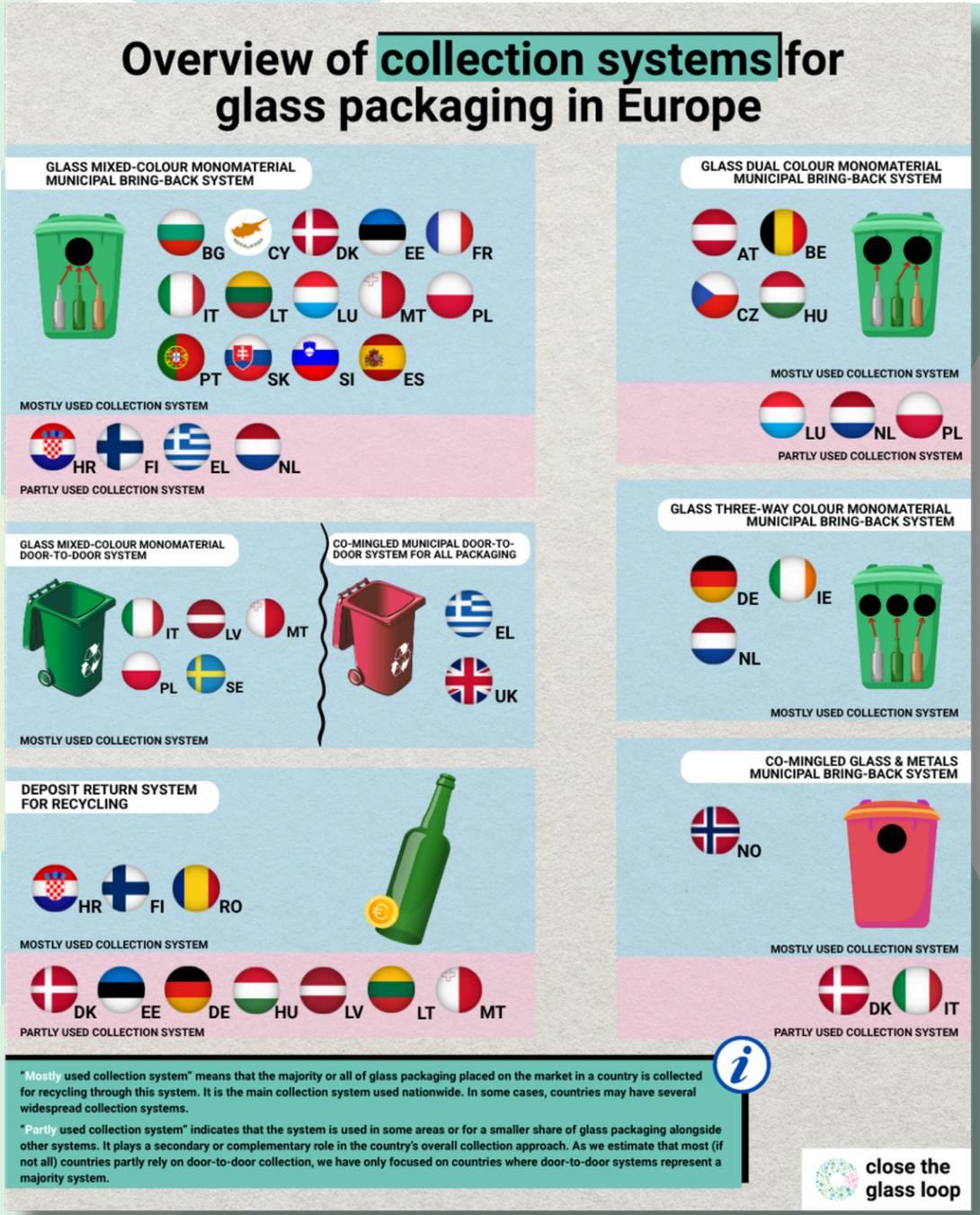

METHODOLOGICAL APPROACH

By far the most commonly used collection system for glass packaging is the **monomaterial bring-back system,** where citizens bring back their empty glass packaging to a waste receptacle on the street referred to as the **"bottle bank".** In the European Union, 24 out of 27 EU Member States operate such a system, and it is predominant in 21 EU Member States.

Depending on national practice, the bottle banks may accept:

- mixed-colours (all glass packaging together),
- dual colours (separation between coloured and transparent glass),
- or three-way colours (separation between green, brown and transparent).

That is why this document focuses exclusively on collection, transportation and storage principles for a monomaterial municipal bring-back system.

It is the result of an **extensive consultation** with the 13 national platforms of Close the Glass Loop, operators of Glass Cullet Recycling Facilities, waste management professionals and glass industry experts.

The principles are **non-prescriptive** and will always need to be adapted to a local context. They should serve as a **practical reference framework** that draws upon rich experience, best practices, as well as recurring operational challenges identified by operators across Europe.

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COLLECTION PRINCIPLES

Bottle banks are the **main infrastructure to connect citizens with the overall glass packaging recycling chain**. Being located at various public spaces, bottle banks play a central role in determining both the participation levels of the citizens and the quality of collected material.

For optimal collection, their **proper organisation, accessibility, maintenance, and management are therefore essential to the success of closed-loop glass recycling.**

The following principles set key operational practices that can optimize the bottle bank performance, minimise contamination, and safeguard the quality of the material at the point of collection.

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COLLECTION PRINCIPLES

Accessibility

Ensure a sufficient number of conveniently located bottle banks, proportionate to population density and usual collection volumes, so consumers can easily participate in glass recycling. It is recommended to place one bottle bank for every 300-550 inhabitants in urban areas, with improved provision in lower density zones (at least one per approx. 400 inhabitants in areas with population density < 200 inhabitants/km²) to ensure accessibility and convenience.

Convenient Location

It is vital to place the bottle banks at convenient and easily accessible locations to encourage citizens participation. The locations should be close to residential and commercial areas and avoiding streets with difficult or unsafe pedestrian access and poorly lit zones. It is preferable to place the bottle banks in proximity to other separately collected packaging fractions to avoid mixing with other waste streams.

Clear and Consistent Labelling

Provide durable, weather-resistant, standardized and visible labels on all bottle banks, indicating the correct sorting of glass colours and specifying prohibited items. The message should be accompanied by clear visual pictograms compliant with national and European legislation.

Specified Prohibited Items

Clearly indicate which materials must not be deposited in glass packaging waste receptacles. It is recommended to display this information directly on bottle banks using simple visual symbols. The list should explicitly include non-glass contaminants such as ceramics or porcelain, as well as non-packaging glass items such as glass tableware, glass cookware, mirrors, crystal glass or light bulbs.

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COLLECTION PRINCIPLES

Safe Adaptable Bottle Bank Opening

The opening of the bottle bank should prevent the deposit of items other than glass packaging but still be adapted to both household and HORECA users. Ensure the openings are designed for safety (for example featuring rubber-lined, appropriately shaped, and secure apertures for glass) and within reach of all users, including children and those with limited mobility, adhering to height and size requirements. For the hospitality sector, a service hatch with key can be installed in the bottle bank to facilitate the ease of use by the HORECA staff.

Clean Collection Points

Keep the collection points including bottle banks and surrounding areas tidy to discourage littering, illegal dumping, and contamination with other waste. The outlook of the bottle bank is a key factor for citizens participation in glass collection for recycling and clearly demonstrates the municipal commitment to circularity.

Regular Maintenance of Collection Points

Whenever possible, every time the bottle bank is emptied it is recommended to clean a 5-meter radius of the site. If not, there should be a reporting mechanism in place to notify the competent operators to come and clean the location. All waste directly or indirectly related to glass collection must be removed and the bottle banks must be free of graffiti or posters not related to the glass collection. Any physical faults or damage to the bottle banks must be timely repaired.

Flexible Collection Methods

The bottle bank types and volumes should be adapted to the local context while ensuring separate collection of glass packaging. Different contexts (proximity to commercial or HORECA activities, available space, and accessibility for collection vehicles) may require different solutions, such as small-capacity containers (approx. 1–2 m^3) for residential areas, small commercial zones, or constrained urban settings, standard public bottle banks (typically 2.5–4 m^3), larger capacity or underground or semi-underground collection systems.

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COLLECTION PRINCIPLES

Digitalisation and Smart Collection Technologies

It is recommended to adopt data-driven digital tools (e.g. smart bins, connected trucks, route optimisation tools and smart waste management solutions) to prevent overflow, monitor cleanliness, and improve collection efficiency and glass quality through real-time information and adaptive planning.

Adaptable Emptying Frequency

Adjust collection schedules to seasonal and festive peaks to prevent overflow, which leads to discouraged participation from citizens and HORECA establishments, littering and higher contamination.

Flexible Bottle Bank Network

Manage the bottle bank network as a dynamic system that can be periodically adjusted based on collection performance, population changes, and local conditions. This may involve relocating underused containers, closing unsuitable sites, or introducing new bottle banks in areas with growing demand.

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TRANSPORTATION PRINCIPLES

The golden standard for glass packaging is to “**handle glass as thrown directly by the consumer**”, aiming for minimal interventions from the bottle bank to the Glass Cullet Recycling Facility.

The transportation stage plays a critical role in preserving the quality and recyclability of glass packaging. From the moment the glass leaves the bottle bank until it reaches the glass cullet recycling facility, **every handling step can influence the level of breakage and contamination**.

Well-planned logistics, the appropriate choice and maintenance of vehicles, and the minimisation of transfers are therefore essential to **safeguard the quality of the material and improve the efficiency of the process**.

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TRANSPORTATION PRINCIPLES

Efficient Route Planning

Optimise truck routes by monitoring the fill levels of the bottle banks for minimisation of handling errors either through digital solutions or personnel intelligence. Involving experienced drivers who understand local complexities could support the planning of the collection sequence and frequency.

Skilled and Informed Drivers

Provide training in glass handling, clear route maps, and instructions on standard operating procedures for both regular and substitute drivers to ensure consistent quality in collection.

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TRANSPORTATION PRINCIPLES

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Suitable Collection Vehicles

Employ suitable trucks specifically designed for glass collection to minimise unnecessary breakage. The use of compaction trucks such as rear end loaders should be avoided. If side-loading is chosen, it is advised not to fill the truck more than 75% of its capacity to avoid glass breakage. Consider using specialized smaller vehicles when collecting from areas with more difficult access such as historic city centres.

Clean Loading Areas

Maintain truck compartments clean and free from residues of other transported materials (e.g., metals, minerals, plastic, paper) to avoid contamination. Beware if the internal trailer surfaces are corroded which could lead to serious impurities in the final cullet product.

Controlled Moisture

Ensure all vehicles are drained of rainwater or residual cleaning water before loading and transporting glass packaging waste. Excess moisture increases load weight, promotes contamination, and can lead to handling and storage issues at the reception point.

TRANSPORTATION PRINCIPLES

Minimised Transfers

Reduce unnecessary loading and reloading, as each transfer increases breakage. It also leads to the so-called fines which requires higher recycling efforts and higher losses in regard to colour separation.

Supervise Unloading

Ensure skilled staff oversee unloading at transfer points and recycling plants to prevent errors (e.g., wrong place, mixing colours, excessive breakage). Excessive dumping speed or poor coordination can cause additional crushing and quality loss. It is recommended to unload glass onto glass to reduce the risk of excessive breakage.

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STORAGE PRINCIPLES

At the final stage before recycling, **the collected glass packaging material must be stored under appropriate conditions to preserve its quality and prevent additional breakage or contamination**.

Properly designed and maintained storage facilities are essential to ensure that the glass received from collection retains its integrity and enters the recycling process as high-quality cullet.

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STORAGE PRINCIPLES

Adequate and Properly Sized Bays

Use storage bays that are large enough to avoid overfilling and unnecessary crushing. It is recommended to use a paved/concrete area with a non-contaminating coating that is securely separated from any other storage spaces dedicated to other waste material to avoid mixing and contamination. The dimensions should be sufficient for the required storage and allow the wheel loader to comfortably process the delivered material and avoid pushing up the infeed.

Appropriate Transfer Points

Maintain tidy, abrasion-resistant bay surfaces and walls to prevent contamination and material loss. Dry storage is preferable. Transfer point operators should be well informed of the required conditions.

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STORAGE PRINCIPLES

Careful Handling

As a general rule, loading and unloading of glass packaging waste must be carried out with care in a way that minimizes breakage. It is not recommended to use the shovel or front loader bucket to scrape the waste at ground level, to avoid dislodging stones, dirt, or pieces of concrete/paving that could contaminate the glass. Instead it should hover 5-10 cm above ground. The movement of glass between two bays is not required and should be avoided where possible.

Trained Permanent and Seasonal Operators

Train all collection and storage operators such as wheel loader drivers to handle glass material with care. Temporary replacements and seasonal workers should also receive dedicated training to avoid quality loss and be aware how to avoid contamination when preparing the loads sent for recycling.

Appropriate Equipment

Use wheel loader shovels that match bay and truck sizes, ensuring they are always clean before handling glass, especially if handling different materials. Glass packaging waste should not be loaded with excavators or machines with chains or crawler tracks, but rather with wheeled loaders with rubber tires. In all cases, care should be taken not to introduce contaminants into the collected glass packaging material (especially dirt, stones, and mud).

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HORIZONTAL PRINCIPLES

The success of glass collection systems depends not only on their technical and operational performance, but also on a set of horizontal principles that ensure **effective communication, active citizen mobilisation, and collaboration across the value chain.** These cross-cutting enablers create shared responsibility and strengthen the glass packaging circularity.

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HORIZONTAL PRINCIPLES

Public Awareness and Engagement

Maintain ongoing communication with citizens on correct glass sorting and disposal practices, emphasising the benefits of recycling and providing clear information on what can and cannot be placed in the bottle banks.

Targeted campaigns

Focus on targeted communication addressing households and HORECA establishments fostering active engagement and behaviour change. Citizens communication should favour targeted local campaigns as opposed to general ones with special attention to lower performing areas and deliver specific mobilisation messages based upon local cultural, socio-economic or geographical context. The hospitality sector campaigns should consider each type of establishment and be consistent and frequent.

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HORIZONTAL PRINCIPLES

Communication and Transparency

Maintain clear communication between municipalities, operators, recyclers, and citizens by sharing performance data (collection rates, contamination levels) to build trust and transparency.

Collaboration and Stakeholder Engagement

Foster collaboration among local authorities, collection operators, glass cullet recycling facilities, container glass packaging producers, and civil society to promote public-private and multistakeholder initiatives for improving glass packaging collection for recycling.

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CONCLUSION

From bottle bank collection to transport and storage, every step of the glass packaging collection for recycling must ensure the minimisation of breakage and contamination, while protecting the integrity of glass packaging material to guarantee the high-quality glass cullet and lower recycling losses.

By applying the current Principles for Good Bottle Bank Collection, stakeholders can **optimise the predominant European collection model and strengthen the closed-loop recycling of glass packaging** in support of Close the Glass Loop's goal to improve and increase the glass packaging collection for recycling in Europe.

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Close the Glass Loop is the European action platform for glass packaging collection & recycling. It brings together 15 European associations representing the whole value chain (product sectors, glass manufacturers, glass recyclers, extended producer responsibility organisations, municipalities and the hospitality sector), as well as 13 national platforms around the common goal of achieving 90% glass packaging collection for recycling by 2030 in the European Union.