



## **Trial of lockable waste sorting bins (yellow) on the coastline of Brest Métropole**

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## II. GENERAL

Background to the trial	The Preventing Plastic Pollution project
Management	Waste and sanitation
Departments	Resources, User relations//Waste collection
Units involved	Bins, tags and bulky waste items/Delivery of bins
Cost	€45,000
PPP support	€31,000
Deployment period	7 to 25 February + catch-up from 28 February 2022

As part of the Interreg France (Channel) England's Preventing Plastic Pollution project, Brest Métropole has launched a trial involving new waste sorting bins (latch closure) in order to combat the phenomena of overturning bins and fly-away waste, particularly plastic, in strong winds and storms.

### Background

As part of its involvement in the Preventing Plastic Pollution project, a European cooperative initiative, Brest Métropole has drawn up an action plan to:

- ✓ Promote behavioural change through preventive actions to reduce plastic waste at source;
- ✓ Trial new measures allowing for better management of post-production plastic waste.

During the project, Brest Métropole carried out market research to identify suppliers offering a lockable collection device for door-to-door collections. SULO, the current contract holder for the procurement of bins and containers for the waste collection service, supplied the new lockable bins in the end.

These bins:

- ✓ Open fully to facilitate sorting;
- ✓ Are equipped with a closing mechanism (keyless latch type), to prevent the loss of keys and simplify use;
- ✓ Require no additional effort by refuse collectors, thereby not adding to their workload.

Other neighbouring communities have chosen to distribute elasticated systems to be installed on their existing bins. The provision of these systems was accompanied by a message encouraging users to apply the elasticated closure only in strong winds. The success of this system has been mixed:

- ✓ Positive aspects: the elastic bands prevent toppling; it is an inexpensive system, does not require a refuse collector for installation and is fitted by the user;
- ✓ Negative aspects: As the opening system is not automated, refuse collectors need to make an additional repetitive movement which lengthens their round time and creates new risks of musculoskeletal disorders. Users use the elasticated closures systematically and not on an occasional basis as recommended.

For this trial, and following the extension of the sorting instructions in place for the Brest Métropole region since July 2021, the Metropolitan Council has chosen to replace all 140-litre bins with 240-litre bins. Bins of other volumes (240 and 360 litres) have been replaced by lockable bins of equivalent volumes.

This trial will be supplemented by an evaluation of the use of the new device as well as its effectiveness in limiting the risks of overflow and fly-away packaging.

### III. TRIAL AREA

The trial area was mapped on the basis of proximity to the coast. This is because it is considered that the bins located closer to the coastline represent a higher risk, as any spilled waste reaches the sea more quickly.

Type of GIS data used	Source	Reference
Coastline	Naval Hydrographic and Oceanographic Service (Service Hydrographique et Océanographique de la Marine – SHOM)	Histolitt® coastline (Trait de Côte Histolitt – TCH)
Addresses	Brest Métropole	J:\Données SIG\Référentiels (plan ville, photo, cadastre, ...)\Voies et adresses (BD SIG Brest métropole)
Selective bins	Brest Métropole	J:\Données SIG\Espace public\Déchets Propreté\Bacs Poubelles individuels (BD SIG Brest métropole)

Thanks to this data, approximately 420 addresses were identified for this trial phase:

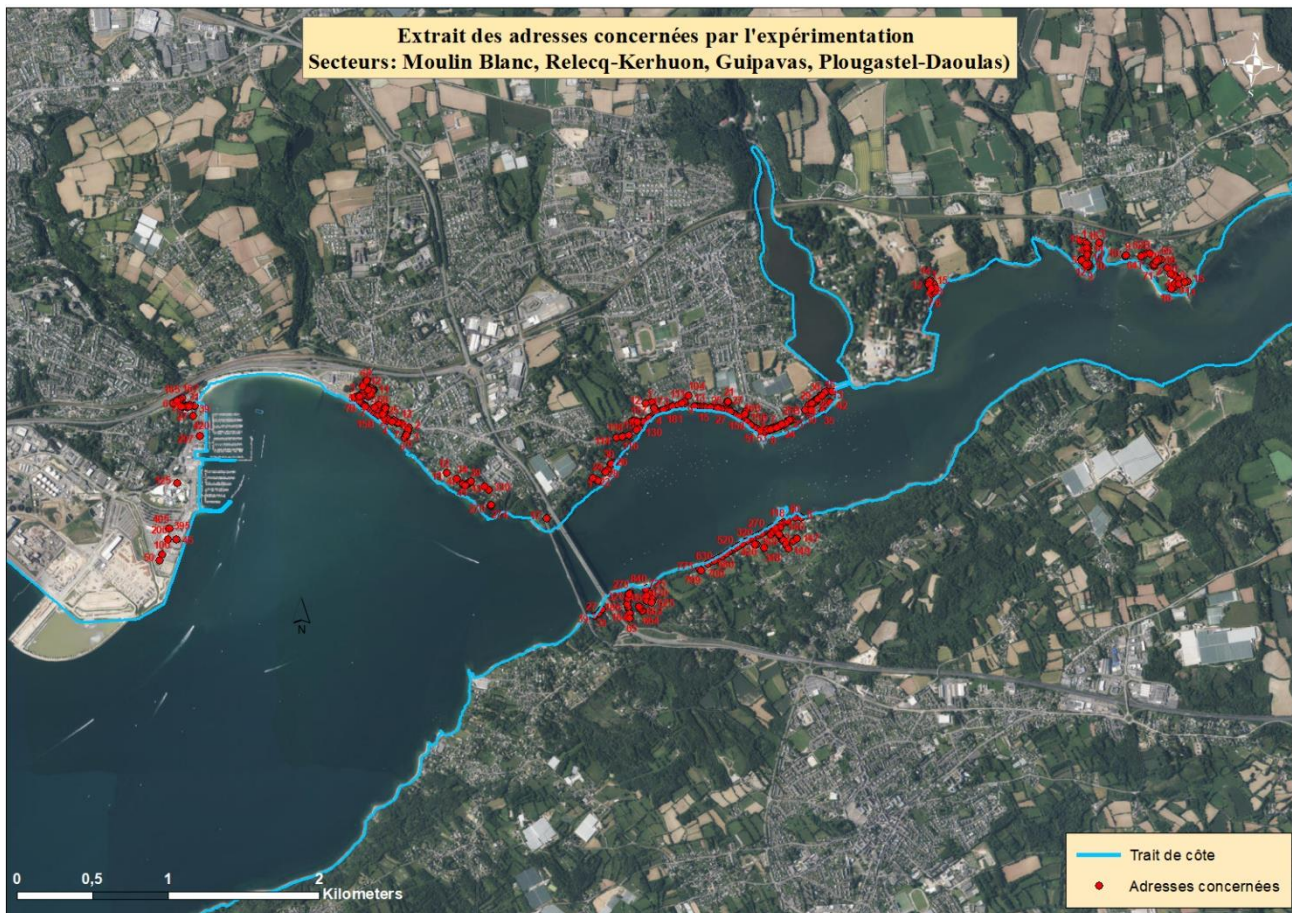


Figure 1: Data retrieval of the mapped addresses involved in the trial

The first map-based data retrieval was fully automated to capture a range of addresses located 50 and then 100 metres from the coastline.

In order to avoid possible fieldwork inconsistencies, some adjustments were made beforehand. Notably the inclusion of entire streets in cases where a few dwellings on the same street would have been excluded because they are located more than 100 metres from the coastline.

Note that during deployment, more adjustments were required, see **DELIVERY AND COLLECTIONS**.

#### IV. DEPLOYMENT METHOD

##### III. 1 Deployment schedule

In order to ensure the effectiveness of the deployment campaign, it was necessary to collaborate with the collection service to complete the reverse schedule that would enable the new bins to be changed over efficiently and within a reasonable timeframe.

It was therefore agreed to make the changeover at a rate of approximately **150 bins per week**.

This reverse schedule aimed to spread the deployment of all new bins over a period of 3 weeks.

### III. 2 Information letter

A letter was sent to all residents included in the trial two weeks in advance of the changeover of their sorting bin. This letter summarised the trial objective, the date of deployment as well as a call for input from the residents involved in order to evaluate the new collection system.

Users were invited to place their yellow bin on the pavement throughout the deployment week assigned to their specific area.

The letters were distributed via a letterbox campaign carried out by civic service volunteers (sorting/prevention unit).

### III. 3 Update on the “BACS” database and label printing

Each bin is systematically identified by a number and assigned to an address. For this reason, each lockable bin to be deployed requires an identification label containing its number and the allotted address.

An update was therefore given prior to the deployment of the lockable bins. For each address, the number and the volume of the bin to be deployed were entered on the “BACS” internal bin management software.

This work was carried out by the **Bins, tags and bulky waste items** unit.

The bin numbers to be exchanged could be identified from the retrieval data of the addresses involved in the trial.

The time spent on this preparatory phase was extended for two main reasons:

- The absence of addresses on the “BACS” software for certain assigned bins, which made it difficult to identify them;
- The absence of certain addresses in the data retrieval (retrieval carried out from the GIS data mentioned above), which required the addition of certain addresses concerned but not referenced.

Once the database had been updated, service job sheets were created for each address, in order to guide the collector responsible for the exchange in the field.

At the same time, labels were printed for each lockable bin, allowing for its identification.

## V. DELIVERY AND COLLECTIONS

The exchange of yellow bins for lockable bins was scheduled for Tuesday to Thursday of each week, for a 3-week period.

This was organised so as to devote Fridays to catching up on exchanges that could not be made.

Deliveries were made by the **waste collection service**, with a collector mobilised during the 3 weeks of deployment.

In the field, the collector responsible for the exchanges found some inconsistencies between the mapped addresses and the field. Therefore, adjustments were, again, necessary for several reasons, including the following:

- Addresses concerned but not listed on the management database;
- Addresses not found by GIS mapping but existing in the field;
- Incorrect or misaligned street numbers compared to those retrieved from the community database.

## IV. 1 Difficulties encountered

Aside from the inconsistencies listed above, a few logistical difficulties were encountered during the deployment, the most frequent of which were:

- Bins not put out, requiring a second or even a third pass in some cases;
- Bins put out, but containing waste, which did not allow the removed bins to be stacked, thereby reducing the capacity of the vehicle.

## VI. ASSESSMENT AND EVALUATION

### V.1 Assessment

**Of the 420 addresses identified, 396 have received new bins.**

For all of the addresses where the bins were not put out, a second pass was made. Follow-up rounds were also organised.

The fact that 24 bins were not put out can be explained by the fact that they are second homes or unoccupied houses.

Below is the breakdown of lockable bins deployed by municipality:

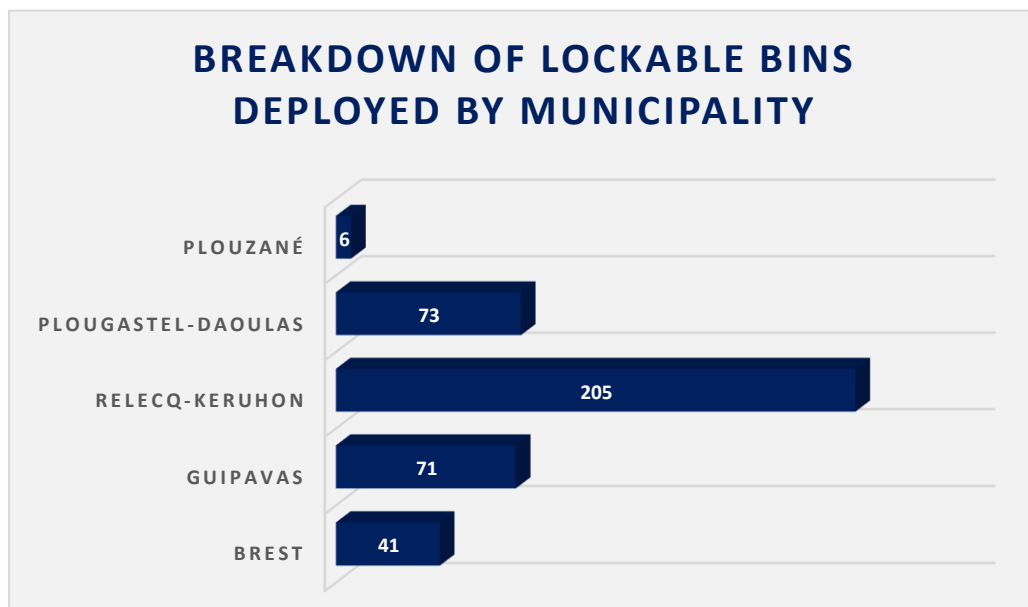


Figure 2: Breakdown of the 396 lockable bins in service by municipality

More than half of the lockable bins were deployed in the municipality of Relecq-Kerhuon during this trial phase. This amounts to 205 lockable bins in service to date.

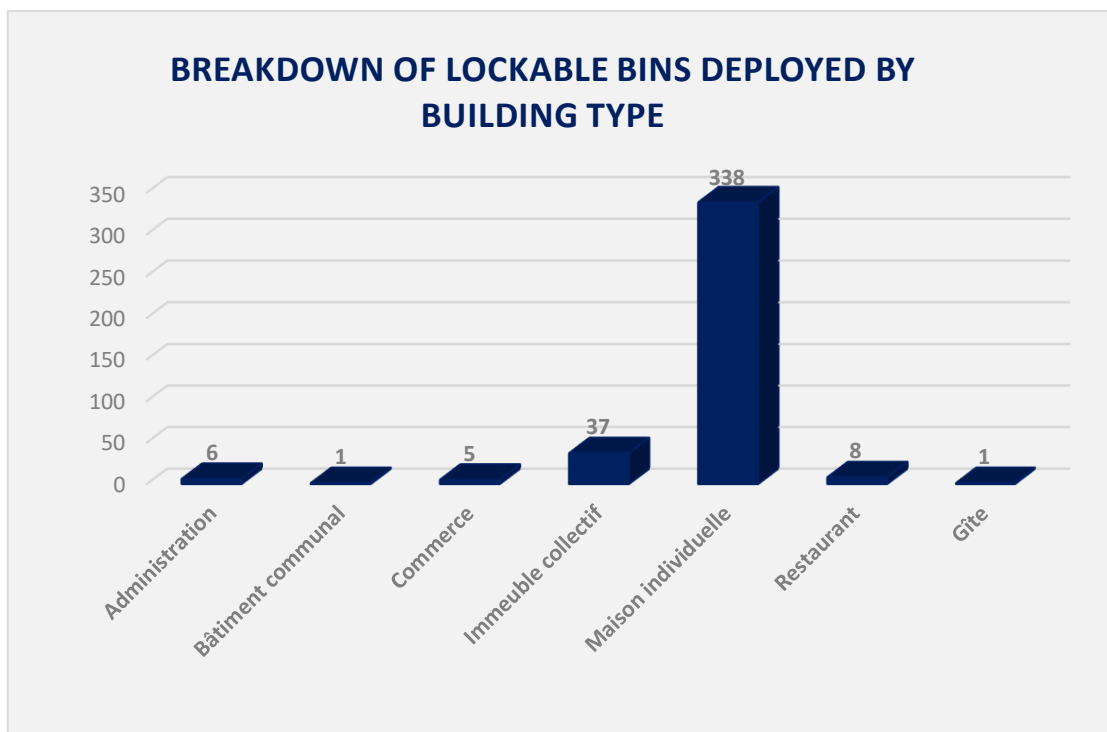


Figure 3: Breakdown of addresses included by building type

The majority of users concerned by the trial of lockable bins live in detached houses. The trial includes 338 detached houses and 37 apartment buildings.

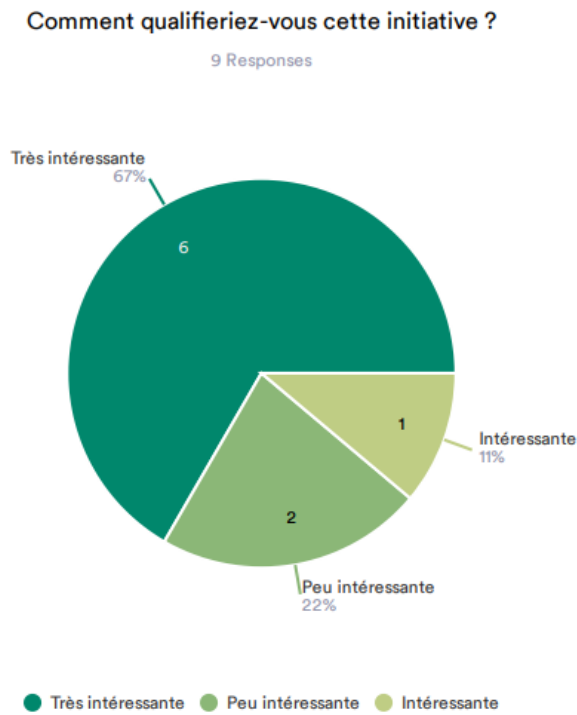


To evaluate this new device, users concerned by this trial were invited to register via an initial form, then to evaluate the new lockable bins via a second form.

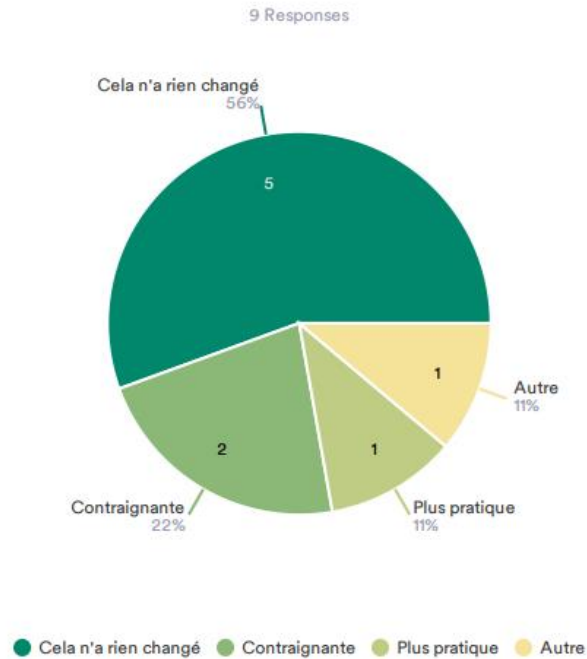
The evaluation form was sent two months after the actual start of the trial, i.e. after the end of the bin exchange period.

Of the 420 addresses concerned, only 24 users responded to the first questionnaire relating to the call for input. Of these users, 20 were happy to be contacted to evaluate the new lockable bins.

After two months of use, an assessment was sent to by email to these 20 volunteers.



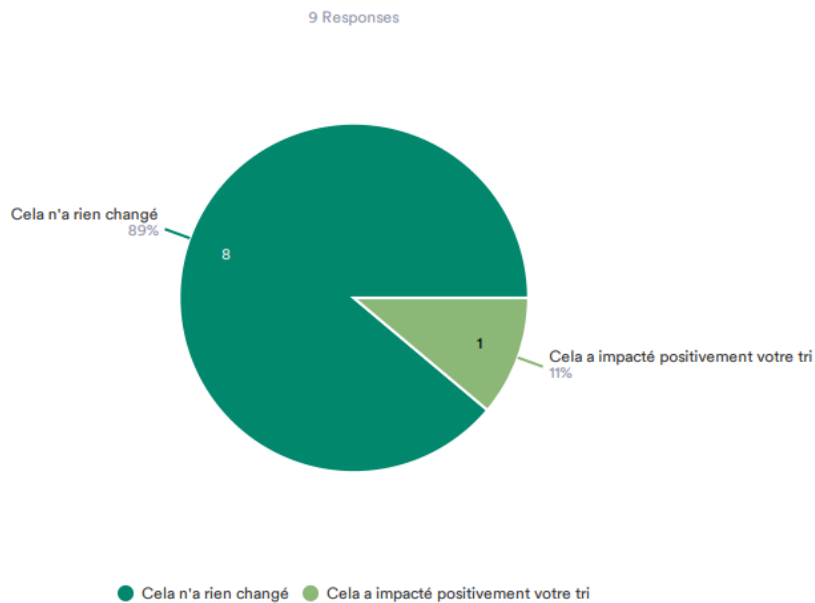
### A l'usage, comment jugez-vous votre nouvelle poubelle de tri comparée à l'ancienne (sans serrure)



For the majority of participants, this new device has not changed anything in terms of practicality. On the other hand, 22% of participants find the system restrictive.

It is also important to look into the impact that this new bin has had on the sorting habits of the project participants.

### Comment ce nouveau dispositif a-t-il influencé vos habitudes de tri ?



According to this survey, and for all of the participants, this system had no negative impact on the quality of the participants' usual sorting habits. In fact, it even improved one person's waste-sorting practices.

Users were asked to assess the effectiveness of the system in the face of the risks of fly-away rubbish and overflow, by assigning a score from 1 to 10. The average score awarded is **8/10**.

Table 1: Summary table of feedback from the users who responded to the questionnaire

In your opinion, does this device meet the need to reduce the risk of fly-away waste and bins overturning in the event of strong winds?	Finally, do you have any comments, remarks or suggestions?
10/10	
10/10	<p><b>This locking system does not prevent some local residents piling waste on top of their bins</b>, thus nullifying the point of the lock. Including (or even especially) green bins. Gulls, magpies and other crows are enjoying this.</p> <p>Insufficient education?</p>
10/10	
1/10	<p>Unnecessary decision. It would be better to maintain the seaside path with more vigilance: potholes, winter degradation, flourishing wild grasses, shabby promenade which deserves a little architectural design and structured cutting of the edges, observance by some resistant people of the rules regarding the times the bins should be put out. In terms of maintaining a beautiful environment, is it appropriate for some people to leave their bins on display in permanent outdoor storage from Monday to Sunday? Aren't a little elegance and style part of our responsible use of freedoms and the duties of a citizen?</p>
10/10	<p><b>The lock is a bit hard; it is difficult to manipulate</b> the bin with one hand.</p> <p>Matter of habit.</p>
9/10	<p>Wider areas are affected. A more detailed study would be necessary. Or maybe offer to distribute the secure bins on demand: residents are aware whether their bin is overturning or not, and whether the waste is going into the sea...</p>
10/10	<p>Apart from <b>the lock which is difficult</b> to unlock, it is an excellent initiative</p>
10/10	
3/10	<p><b>Key too small, difficult to open</b> with one hand. You have to put the waste on the ground, open the trash can by jamming your fingers in order to throw the waste into the container.</p>
Average awarded: 8/10	The majority of participants find the lock difficult to manipulate

## VII. CONCLUSION

This trial required, in addition to its upstream preparation, the **strong involvement of the collectors, coordination between the units and great responsiveness to user calls** which multiplied during the deployment phase and following the email. **Available stocks also needed to be maintained** in the face of the daily adjustments that were necessary for the consistency of the trial areas.

Undoubtedly, the latch allowing the locking of the bins is an **effective tool to prevent the risk of fly-away rubbish due to overturning**.

Its effectiveness in the field could be seen following an episode of strong winds on *18/02/2022*.



*Figure 4: An overturned lockable bin, following an episode of strong winds on 18/02/2022*

Moreover, and according to user feedback, this system **does not prevent overflowing bins**. The user would have noticed when their bin was overflowing in the absence of the lockable closure.

The majority of users concerned by this trial find the initiative interesting and relevant, but they all emphasise **the difficulty linked to the latch**, which is visibly difficult to manipulate.

It should be noted that, with the exception of one elderly person (unable to manipulate the lock), **no request for a second exchange** (back to a non-lockable bin) was made.

Considering the main objective of this experiment, namely to limit plastic pollution, **these new lockable bins are effective when put out closed**. Nevertheless, a more user-friendly latch system for manual opening would improve the device and make it easier to use.

To conclude, in coastal areas like that of Brest Métropole, **the extension of such a system would actively help reduce pollution from plastic household packaging**. To address the issue of overflowing bins, it is necessary to prevent this phenomenon:

- By communicating with users;
- By excluding overflowing waste from collections;
- ...