

Attitudes and Behaviours Regarding the Sorting of Used Packaging

in the Intermunicipal Community of the Leiria Region





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Technical Details

Title:

Attitudes and Behaviours Regarding the Sorting of Used Packaging in the Intermunicipal Community of the Leiria Region

Authors:

Maria Eduarda Fernandes
CARME, ESTG, Polytechnic Institute of Leiria
ORCID: 0000-0001-6584-0412

Carlos Gomes da Silva
ESTG, Polytechnic Institute of Leiria and INESC Coimbra
ORCID: 0000-0002-7405-9502

Alcina Gaspar Ferreira
CARME, ESTG, Polytechnic Institute of Leiria
ORCID: 0000-0002-5119-5827

Lígia Febra
ESTG, Polytechnic Institute of Leiria
ORCID: 0000-0002-4643-6980

João Maurício C.
CARME, ESTG, Polytechnic Institute of Leiria
ORCID: 0000-0002-5895-4240

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ESCOLA SUPERIOR
DE TECNOLOGIA
E GESTÃO

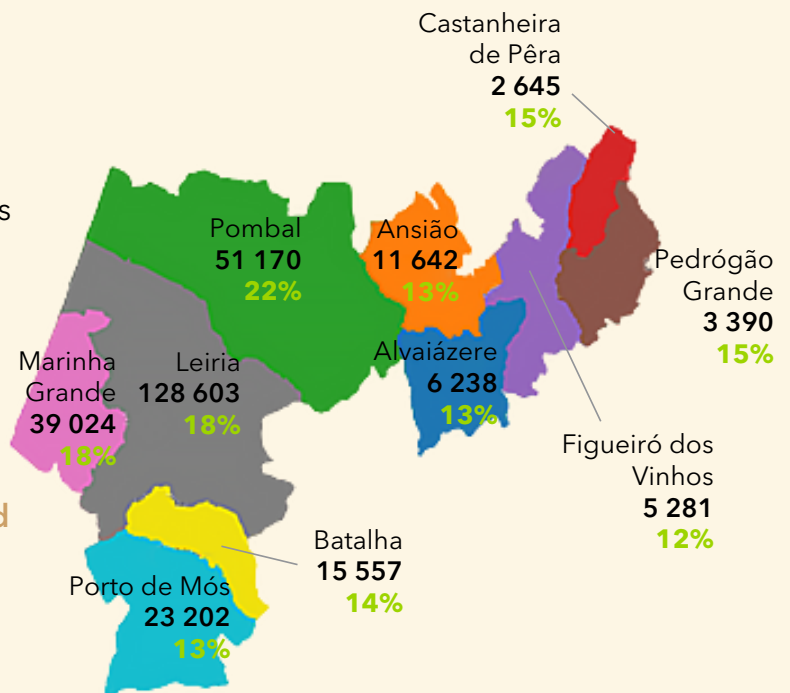
Summary

The Intermunicipal Community of the Leiria Region (CIMRL) – Portugal – is composed of 10 municipalities, with around 287 000 inhabitants (INE, 2022), and annually collects 123 022 tonnes of municipal solid waste, of which only 17% is collected selectively (INE, 2025). Within this context, and framed by the Embalagem do Futuro® Project (PPS08), it is important to gain a deeper understanding of the behaviours and attitudes of CIMRL households regarding the sorting of used packaging (**plastic**, **metal/aluminium**, **glass**, **paper/cardboard** and **coffee capsules**).

Based on the Theory of Planned Behaviour, one of the main theoretical frameworks used to understand the complexity of human social behaviour, along with moral norms and pro-environmental values, an online survey was conducted among households in CIMRL.

The results obtained, from the analysis of 1 113 validated responses, indicate that almost all households hold a very positive attitude towards sorting used packaging, feel some social pressure to sort it, and consider the separation of used packaging to be easy, stating that they have the knowledge to carry out this separation correctly. Results also show that they feel a moral obligation and responsibility to sort used packaging and possess strong pro-environmental values.

Households report sorting all or almost all of their **plastic** packaging (83%), **metal/aluminium** (78%), **glass** (90%), **paper/cardboard** (84%) and **coffee capsules** (36%). The most commonly used recycling disposal site is the municipal



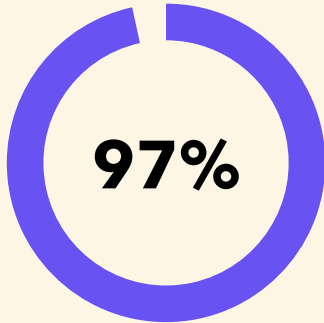
Number of inhabitants as of 2021 and **selective collection rate** by municipality of CIMRL as of 2023 (INE, 2022, 2025)

recycling bin located in public spaces, except for coffee capsules, which are mostly deposited in recycling bins located in commercial areas. Reverse vending machines are devices that allow for more selective waste collection; however, most households are still not familiar with them. Nevertheless, respondents express a strong intention to use them in the future and to recommend them to friends and relatives. Donations to institutions, money, and discounts at local shops are the most valued incentives. The most convenient locations indicated for installing these machines are public spaces, large supermarkets, and parish councils.

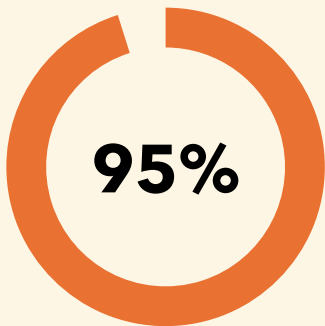
Used Packaging Sorting



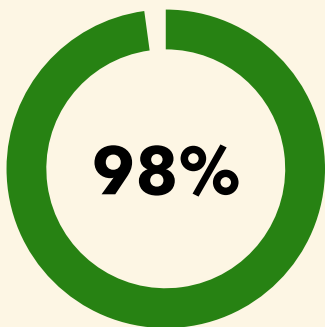
Attitudes



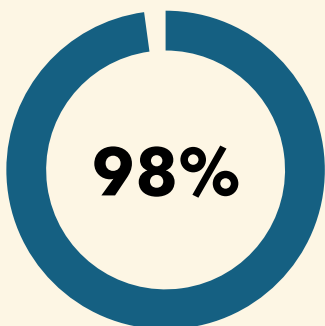
Show **interest** in sorting used packaging



Consider sorting the used packaging **useful**



Recognise that it is **wise** to sort used packaging



State that sorting used packaging is **beneficial for the environment**





“ ... *perceived social pressure to perform or not to perform the behavior.*”

(Ajzen, 1991: 188)

What I think others expect me to do regarding the sorting of used packaging

My **family** believes that I should sort them **77%**

My **friends** think that sorting them is a good practice **80%**

My **colleagues** believe that I should sort them **66%**

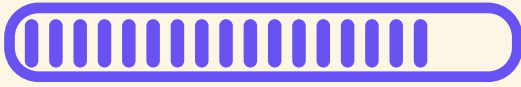
The **community** I belong to expects me to sort them **66%**



“... perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles.”

(Ajzen, 1991: 188)

Ease



87%

Finds it **easy**

How to sort?



95%

Knows how
to sort

Which ones to sort?



92%

Knows which
packaging
can be sorted

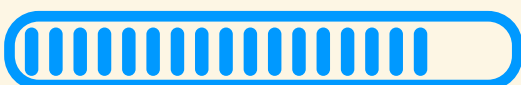
Local



95%

Knows where
to place them
after sorting

Time



85%

Considers that it
does not take
much time



“...feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behaviour.”

(Ajzen, 1991: 199)



70%

Feel ashamed if they do not sort used packaging, even if no one knows about their action



74%

Feel guilty when they do not sort used packaging



77%

Feel guilty if they do not place used packaging in the correct containers



65%

Expect to be seen as people who sort



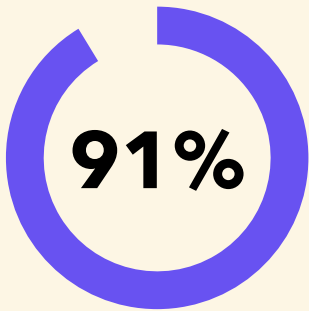
82%

Claim that not sorting used packaging is against their principles



“...tendency to express the value of environmental protection through one's purchases and consumption behaviors.”

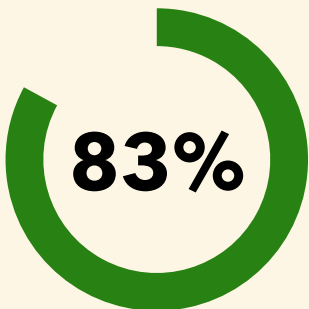
(Haws et al. 2014: 1)



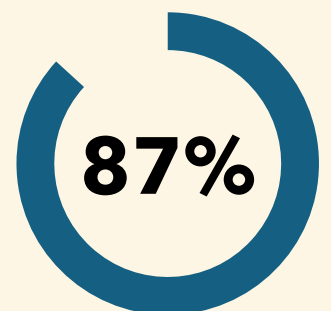
Consider the potential **environmental impact** of their actions when making many of their decisions.



Are concerned about the **waste** of our planet's **resources**



Describe themselves as **environmentally responsible**



Are willing to **make sacrifices** to adopt behaviours that are more environmentally friendly



Plastic Packaging



Sorting



0,1 %

Do not use /
Not applicable

3,4 %

Do not sort

2,3 %

Rarely sort

2,1 %

Sort less
than half

3,3 %

Sort about half

5,6 %

Sort more
than half

35,0 %

Sort nearly all

48,2 %

Sort all



*...prevents
them from
becoming
waste in
landfills,
invading the
oceans, or
contaminating
our planet.*

Recycling Disposal Sites



96,8 %

Municipal recycling bin (public space)

2,3 %

Others



0,9 %

Recycling bins (commercial areas)

Distribution by municipalities



Municipality	Most common behaviour towards sorting *	Municipal recycling bin (public space)**	Recycling bins (commercial areas)**	Others**
Alvaiázere	Sort all (29,1%)	89,6%	3,0%	7,5%
Ansião	Sort all (46,2%)	100,0%	0,0%	0,0%
Batalha	Sort all (41,7%)	93,6%	4,3%	2,1%
Castanheira de Pêra	Sort all (40,0%)	100,0%	0,0%	0,0%
Figueiró dos Vinhos	Sort nearly all (100,0%)	100,0%	0,0%	0,0%
Leiria	Sort all (51,4%)	97,6%	0,5%	1,9%
Marinha Grande	Sort all (49,1%)	92,7%	0,0%	7,3%
Pedrógão Grande	Sort nearly all (35,7%)	100,0%	0,0%	0,0%
Pombal	Sort all (45,5%)	97,7%	2,3%	0,0%
Porto de Mós	Sort nearly all (48,8%)	100,0%	0,0%	0,0%

* Sample; ** Of those who sort

Frequency of Disposal

Every day

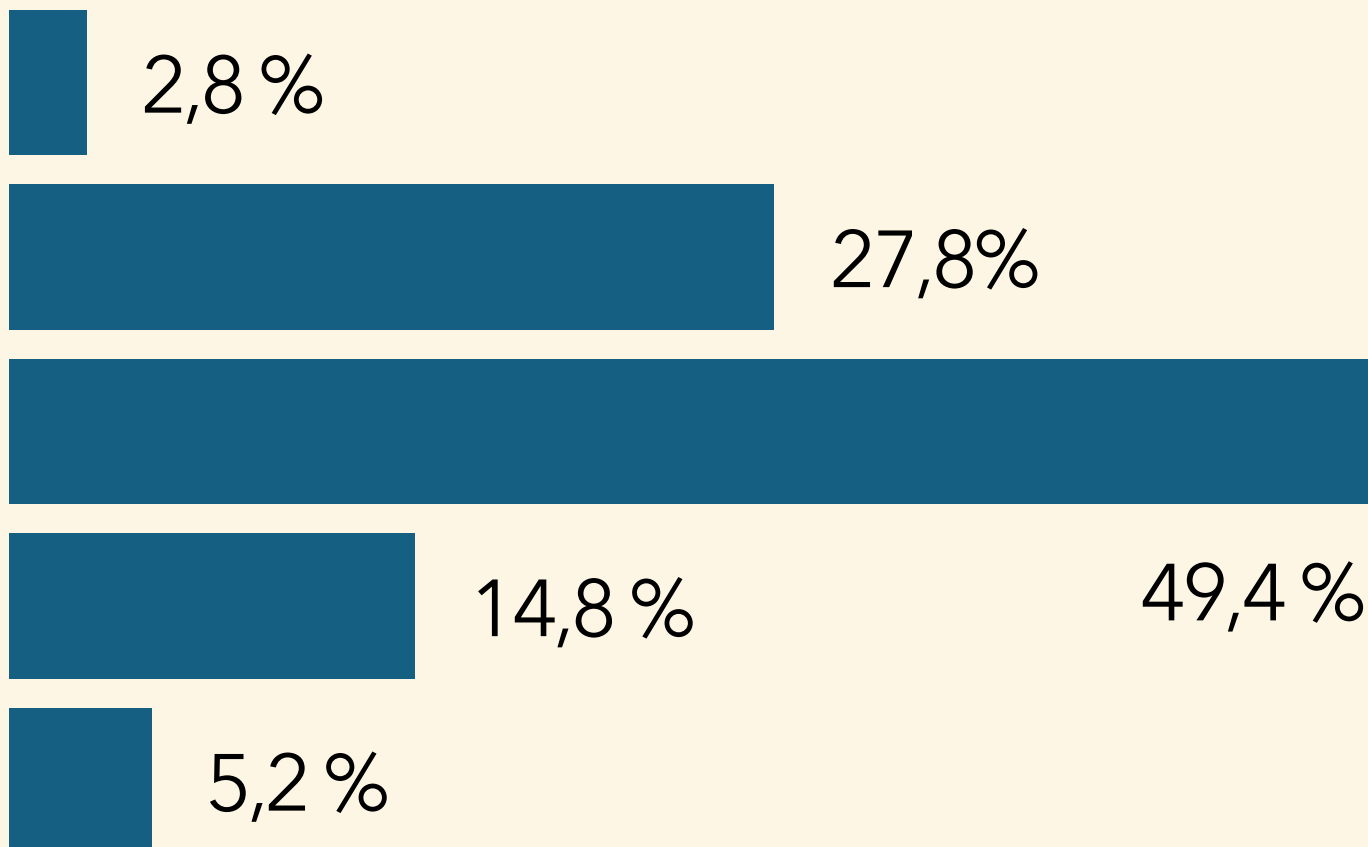
2 to 3 times per week

Once a week

2 to 3 times per month

Less than once a month





Answers from respondents who reported going to packaging collection points.

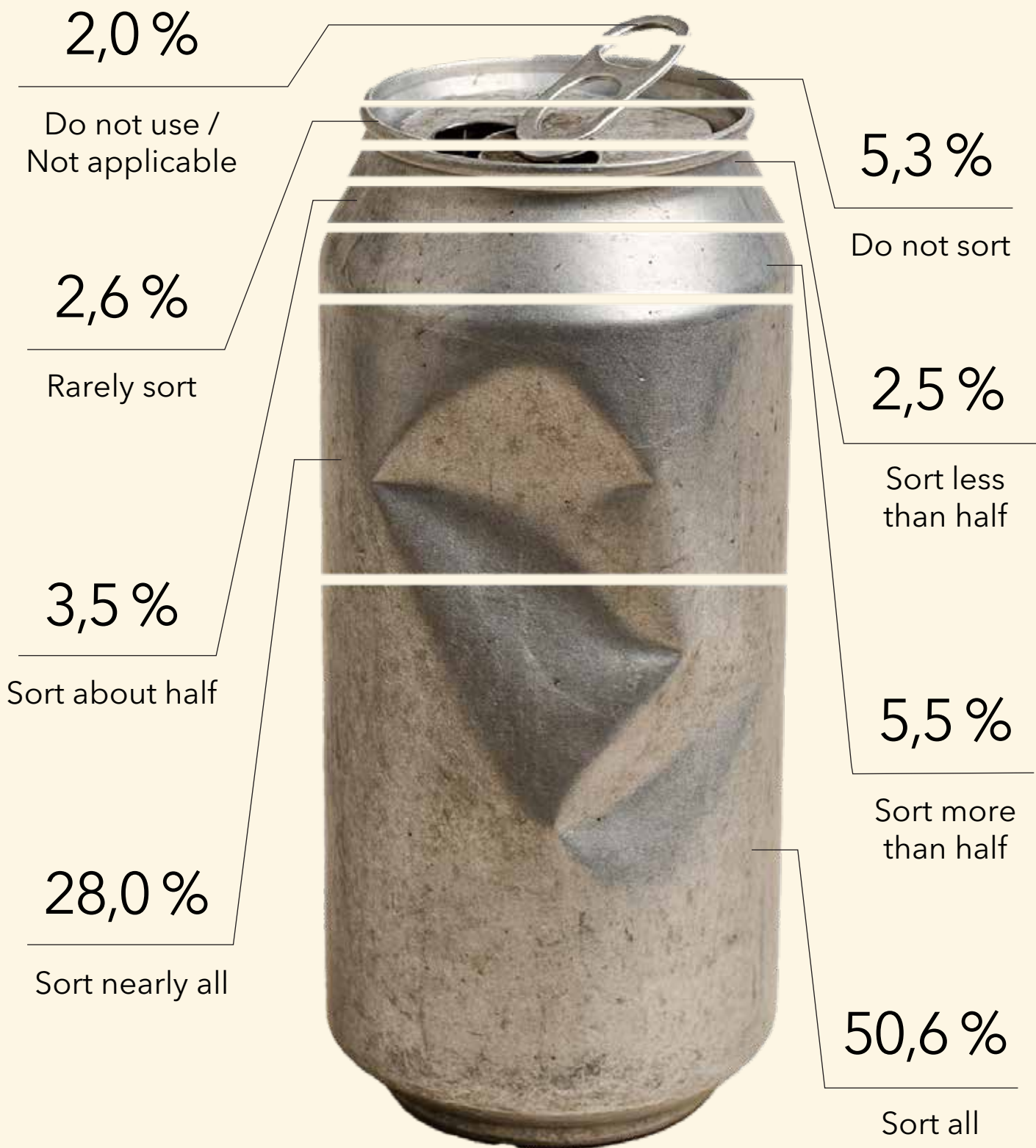




Metal/Aluminium Packaging



Sorting



*... avoids
unnecessary
extraction and
saves energy.*

Recycling disposal sites



93,7 %

Municipal recycling bin (public space)

3,5 %

Others



2,8 %

Recycling bins (commercial areas)

Distribution by municipalities



Municipality	Most common behaviour towards sorting *	Municipal recycling bin (public space)**	Recycling bins (commercial areas)**	Others**
Alvaiázere	Sort all (35,4%)	82,3%	4,8%	12,9%
Ansião	Sort all (38,5%)	100,0%	0,0%	0,0%
Batalha	Sort all (41,7%)	92,9%	4,8%	2,4%
Castanheira de Pêra	Sort nearly all (80,0%)	800,0%	0,0%	20,0%
Figueiró dos Vinhos	Do not use / Not applicable (100,0%)	0,0%	0,0%	0,0%
Leiria	Sort all (53,5%)	94,9%	2,6%	2,6%
Marinha Grande	Sort all (48,2%)	92,3%	1,9%	5,8%
Pedrógão Grande	Sort nearly all (28,6%)	100,0%	0,0%	0,0%
Pombal	Sort all (47,7%)	94,7%	5,3%	0,0%
Porto de Mós	Sort nearly all (43,9%)	88,9%	2,8%	8,3%

* Sample; ** Of those who sort

Frequency of disposal

Every day

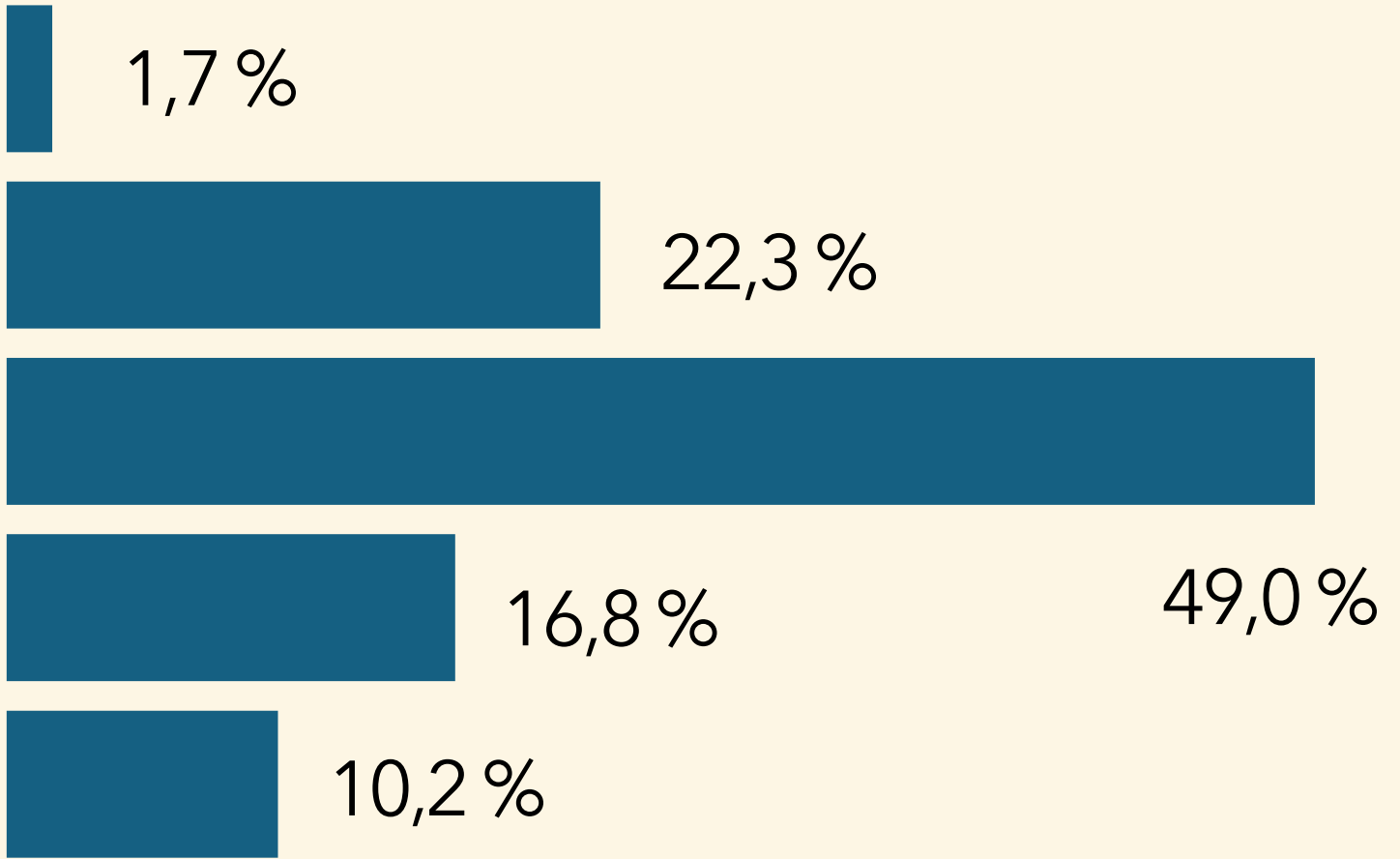
2 to 3 times per week

Once a week

2 to 3 times per month

Less than once a month





Answers from respondents who reported going to packaging collection points.

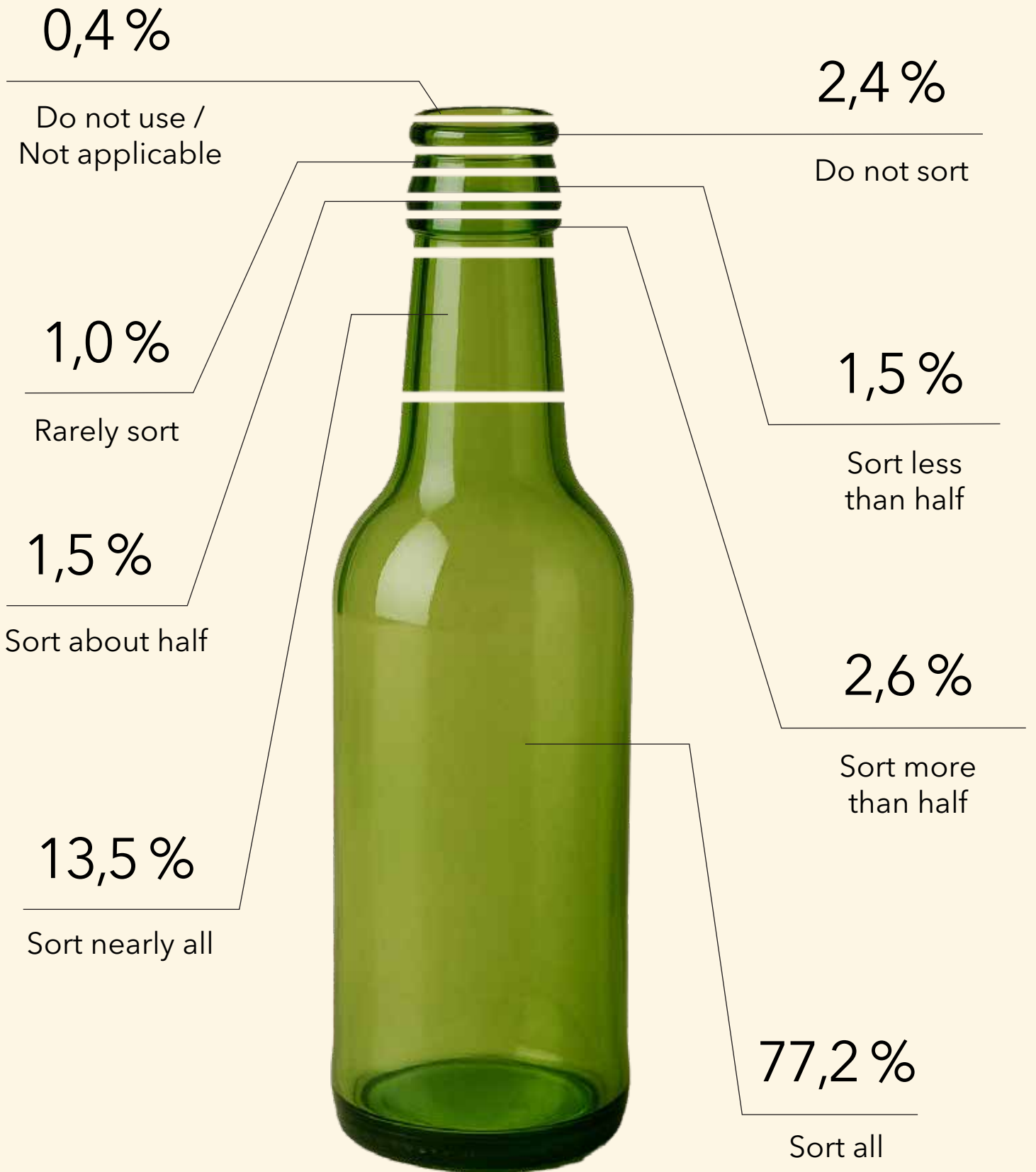




Glass Packaging



Sorting



... *it is making
use of a
resource for a
new cycle.*

Recycling disposal sites



95,1 %

Municipal recycling bin (public space)

2,1 % Others



0,7 %

Recycling bins (commercial areas)

Distribution by municipalities



Municipality	Most common behaviour towards sorting *	Municipal recycling bin (public space)**	Recycling bins (commercial areas)**	Others**
Alvaiázere	Sort all (55,7%)	92,6%	2,9%	4,4%
Ansião	Sort all (61,5%)	100,0%	0,0%	0,0%
Batalha	Sort all (75,0%)	95,7%	2,1%	2,1%
Castanheira de Pêra	Sort all (60,0%)	100,0%	0,0%	0,0%
Figueiró dos Vinhos	Sort all (100,0%)	100,0%	0,0%	0,0%
Leiria	Sort all (79,6%)	98,3%	0,5%	1,2%
Marinha Grande	Sort all (82,1%)	96,5%	0,0%	3,5%
Pedrógão Grande	Sort all (50,0%)	100,0%	0,0%	0,0%
Pombal	Sort all (77,27%)	100,0%	0,0%	0,0%
Porto de Mós	Sort all (70,7%)	100,0%	0,0%	0,0%

* Sample; ** Of those who sort

Frequency of disposal

Every day

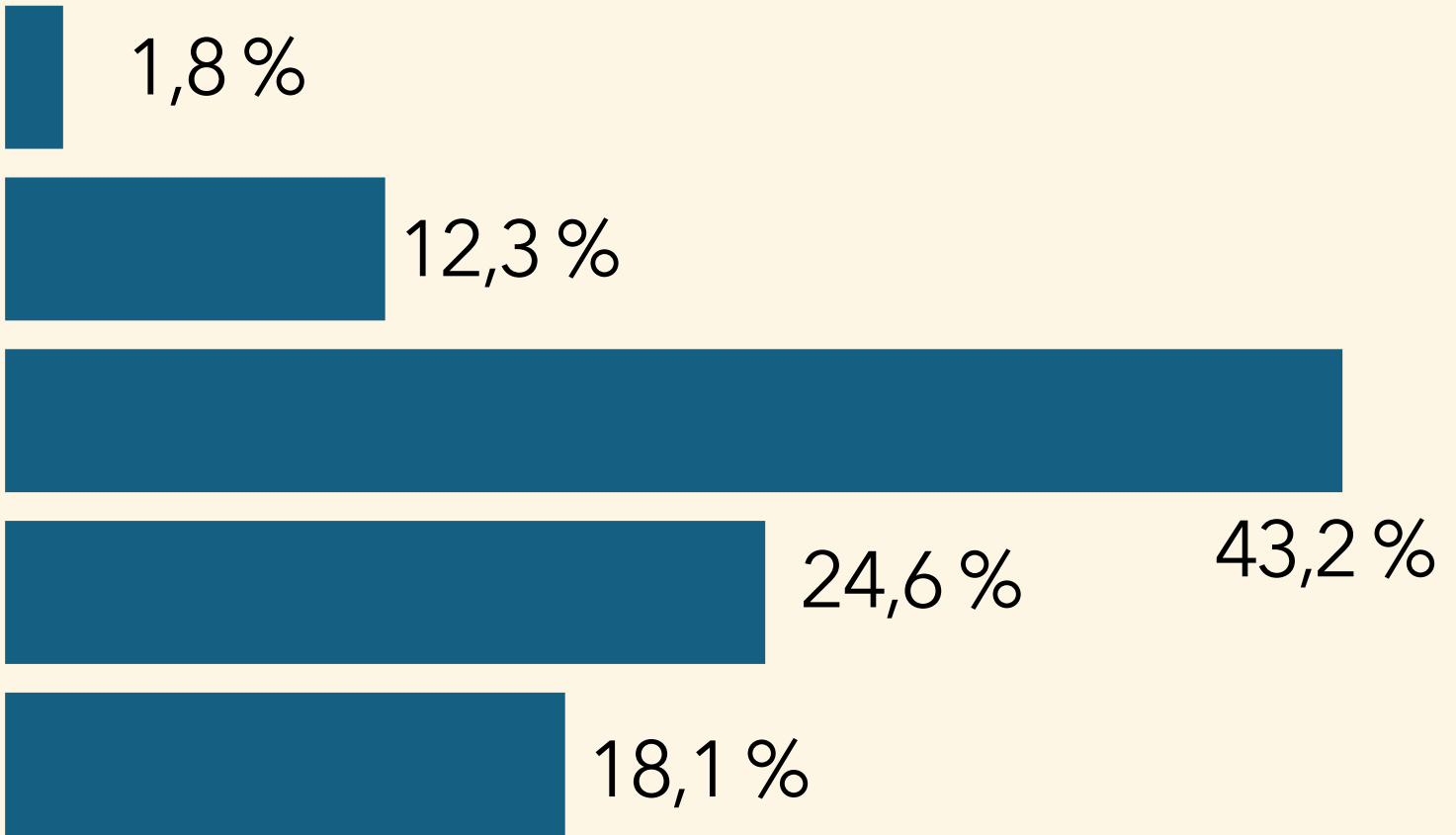
2 to 3 times per week

Once a week

2 to 3 times per month

Less than once a month





Answers from respondents who reported going to packaging collection points.

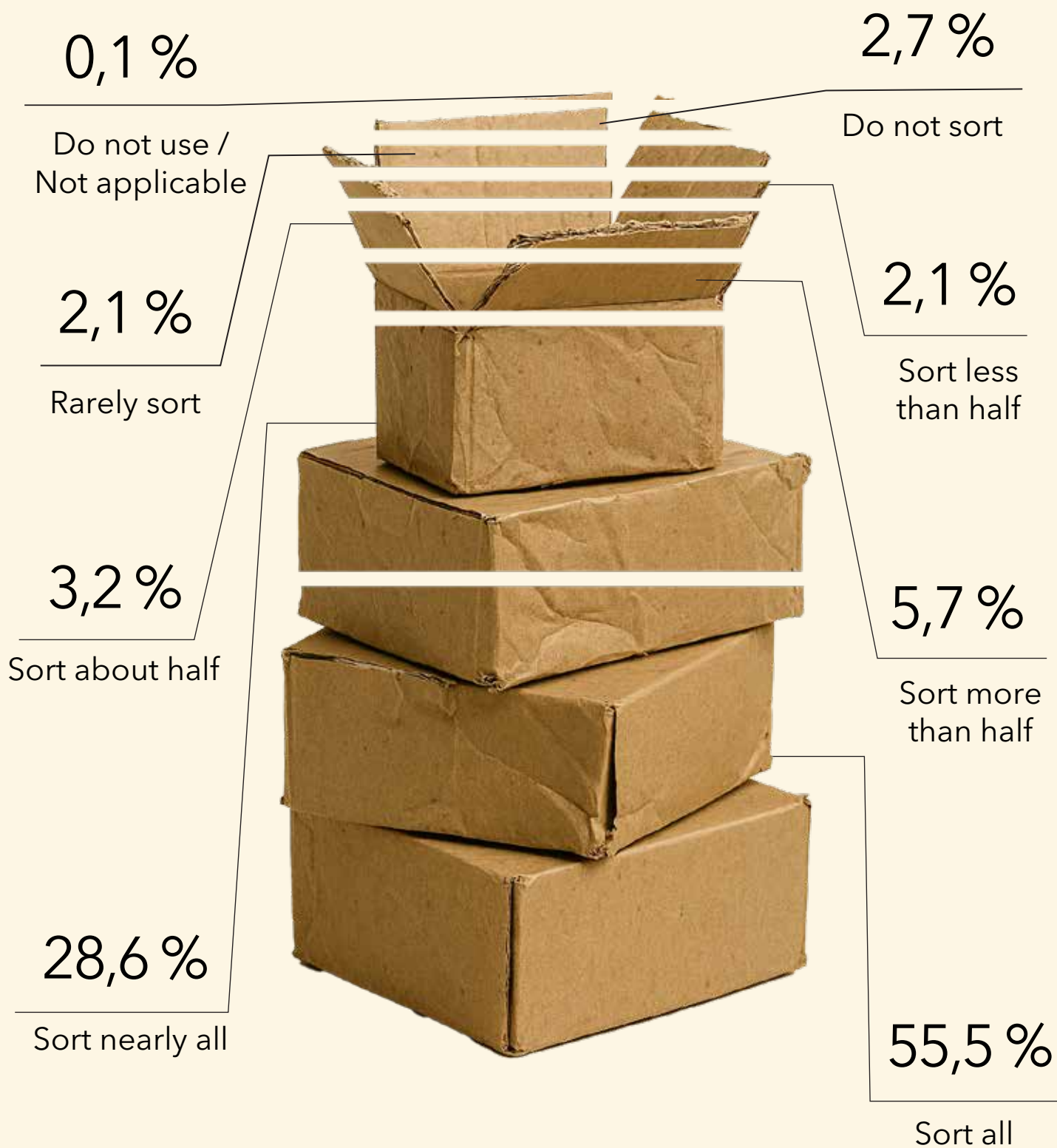




Cardboard/Paper Packaging



Sorting



... *saves trees,
water, and
energy..*

Recycling disposal sites



93,7 %

Municipal recycling bin (public space)

3,1%

Others



0,6%

Recycling bins (commercial areas)

Distribution by municipalities



Municipality	Most common behaviour towards sorting *	Municipal recycling bin (public space)**	Recycling bins (commercial areas)**	Others**
Alvaiázere	Sort all (39,2%)	89,6%	1,5%	9,0%
Ansião	Sort nearly all (46,2%)	100,0%	0,0%	0,0%
Batalha	Sort all (47,9%)	97,9%	2,1%	0,0%
Castanheira de Pêra	Sort all (40,0%)	100,0%	0,0%	0,0%
Figueiró dos Vinhos	Sort less than half (100,0%)	100,0%	0,0%	0,0%
Leiria	Sort all (58,8%)	97,8%	0,4%	1,8%
Marinha Grande	Sort all (57,1%)	94,5%	0,0%	5,5%
Pedrógão Grande	Sort nearly all (35,7%)	100,0%	0,0%	0,0%
Pombal	Sort all (47,7%)	97,7%	2,3%	0,0%
Porto de Mós	Sort all (46,3%)	100,0%	0,0%	0,0%

* Sample; ** Of those who sort

Frequency of disposal

Every day

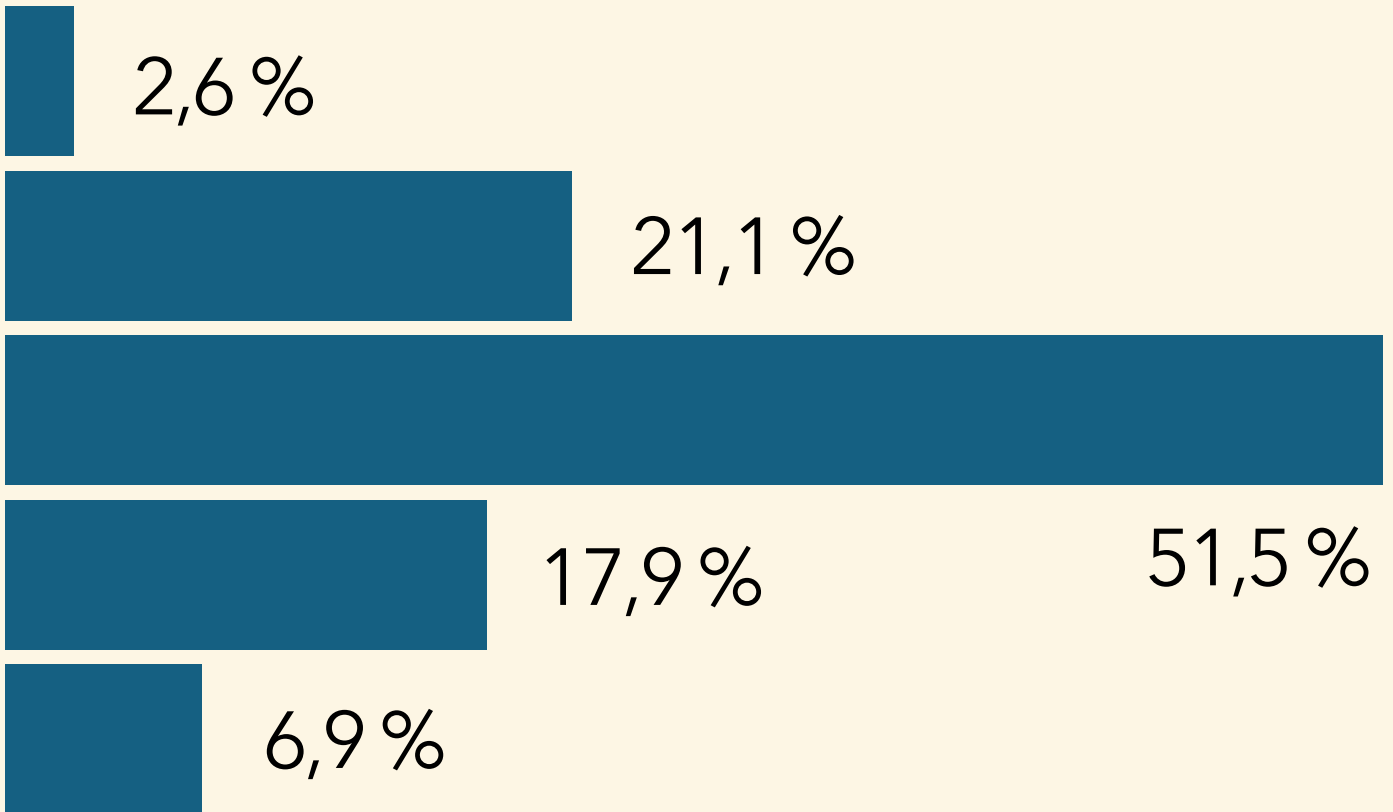
2 to 3 times per week

Once a week

2 to 3 times per month

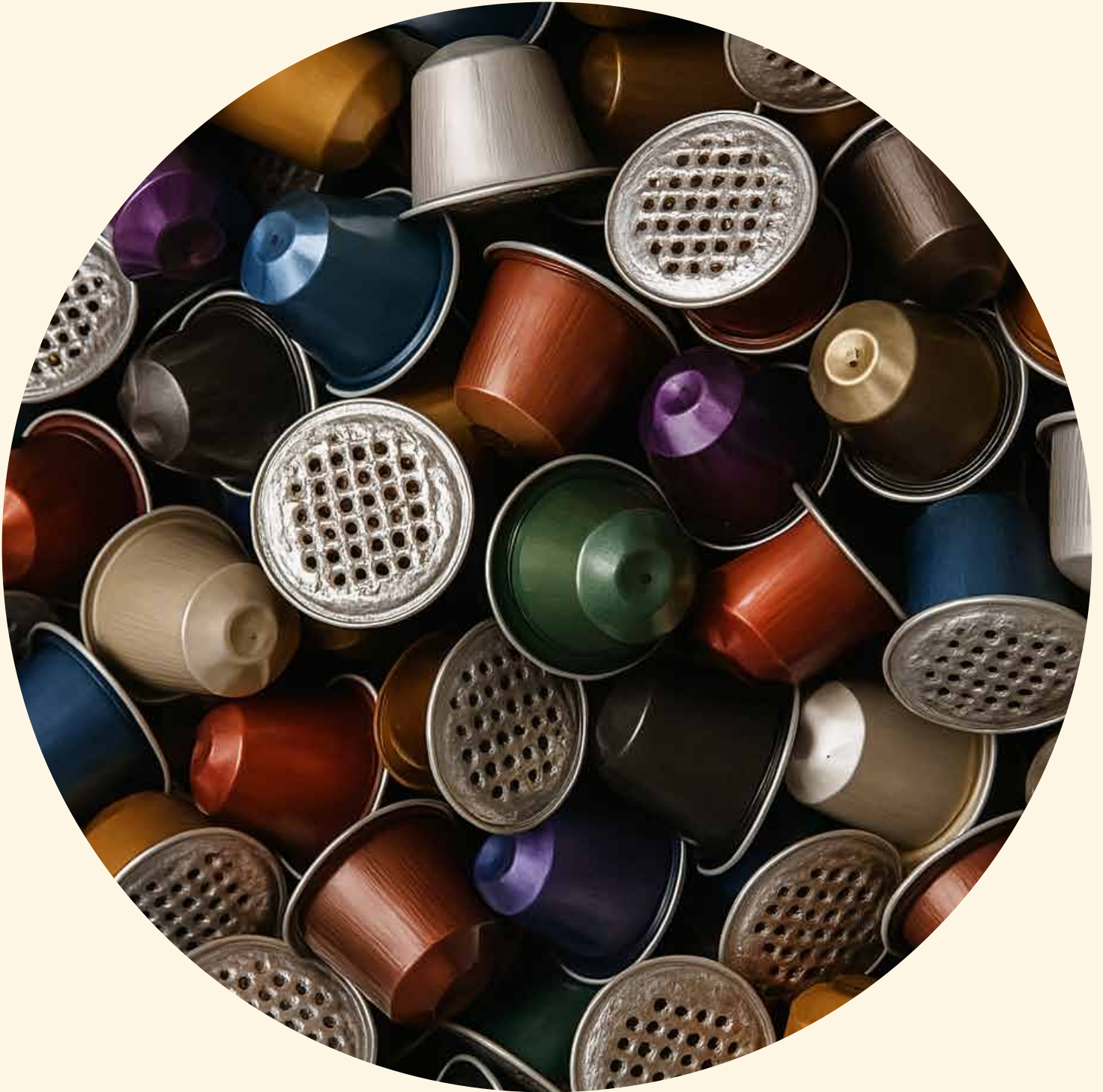
Less than once a month





Answers from respondents who reported going to packaging collection points.





Coffee Capsules



Sorting



22,9 %

Do not use /
Not applicable

26,0 %

Do not sort

7,3 %

Rarely sort

2,6 %

Sort less
than half

2,0 %

Sort
about half

3,1 %

Sort more
than half

9,3 %

Sort nearly all

26,7 %

Sort all

*... prevents
the pleasure of
coffee from
turning into an
environmental
problem.*

Recycling disposal sites



55,3 %

Municipal recycling bin (public space)

23,2 % Others



21,5%

Recycling bins (commercial areas)

Distribution by municipalities



Municipality	Most common behaviour towards sorting *	Municipal recycling bin (public space)**	Recycling bins (commercial areas)**	Others**
Alvaiázere	Do not sort (35,4%)	30,4%	30,4%	39,1%
Ansião	Do not sort (46,5%)	20,0%	40,0%	40,0%
Batalha	Sort all (22,9%)	25,0%	58,3%	16,7%
Castanheira de Pêra	Sort nearly all (40,0%)	33,3%	33,3%	33,3%
Figueiró dos Vinhos	Sort all (100,0%)	100,0%	0,0%	0,0%
Leiria	Sort all (27,2%)	20,8%	58,0%	21,2%
Marinha Grande	Sort all (33,9%)	8,3%	58,3%	33,3%
Pedrógão Grande	Sort all (21,4%)	42,9%	28,6%	28,6%
Pombal	Do not sort (34,1%)	22,2%	50,0%	27,8%
Porto de Mós	Sort all (31,7%)	27,3%	50,0%	22,7%

* Sample; ** Of those who sort

Frequency of disposal

Every day

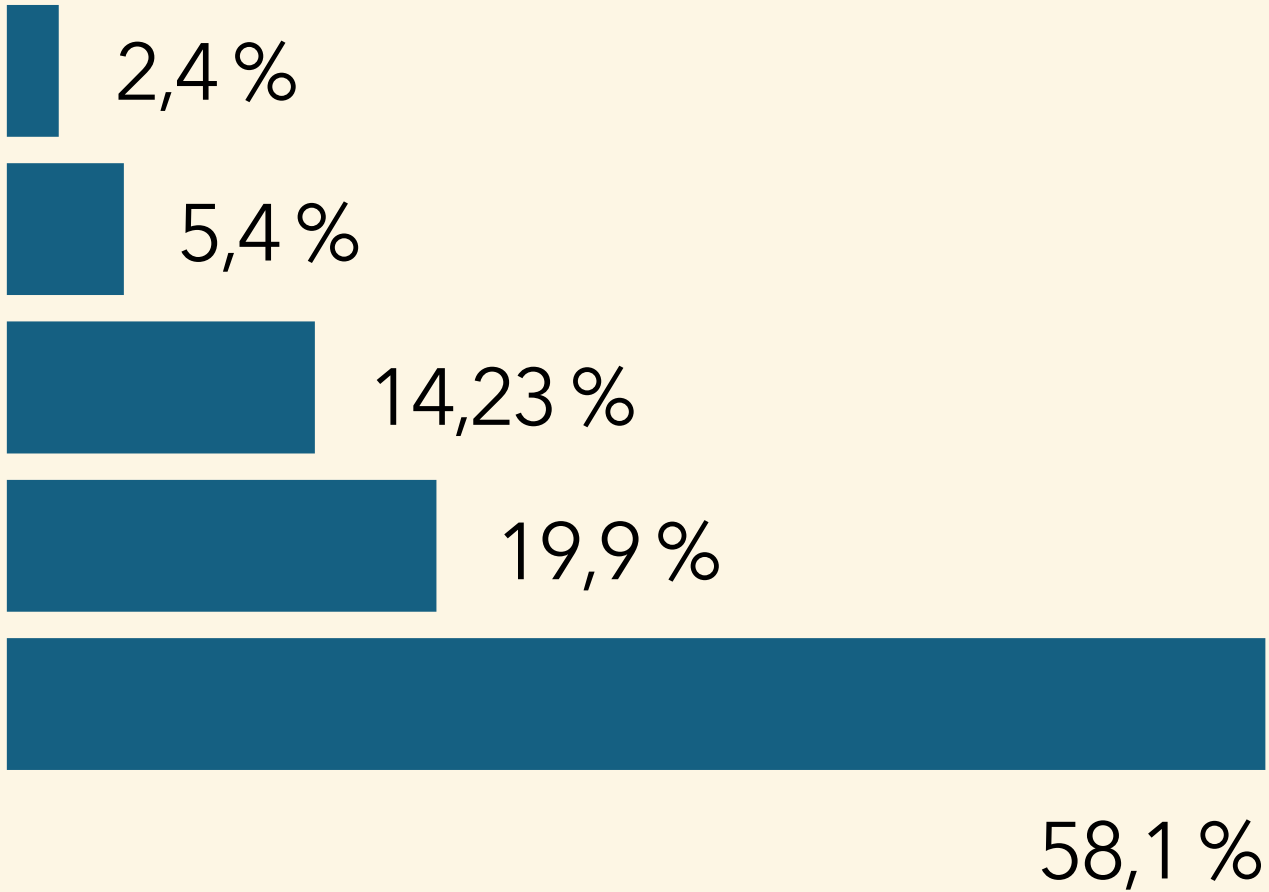
2 to 3 times per week

Once a week

2 to 3 times per month

Less than once a month





Answers from respondents who reported going to packaging collection points.

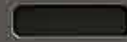




REWARD



INSERT CONTAINERS HERE



Reverse Vending Machines



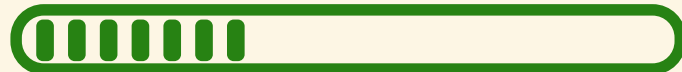
••• *allow used packaging to be deposited in exchange for incentives, promoting the collection of waste with a high degree of purity.*

No, I have never heard



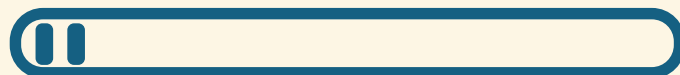
57%

Yes, I have heard of it but never used it



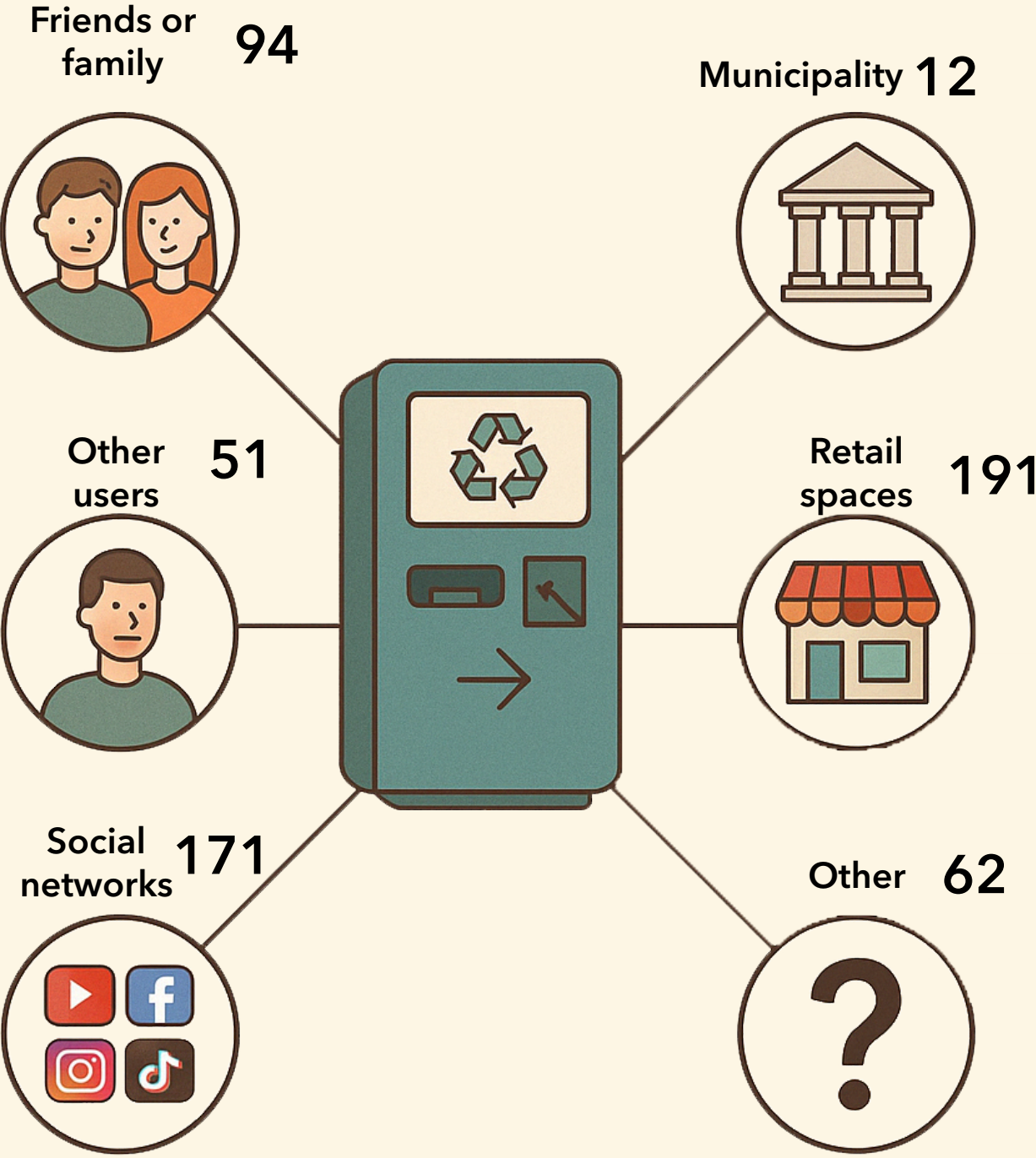
33%

Yes, I have heard of it and have used it



10%

Became aware of these machines through...



Responses from the 475 respondents who stated that they are aware of these machines

Intention to use

●●● *is a way of giving more value to used packaging while also being rewarded.*

Would like to use

87%

74%

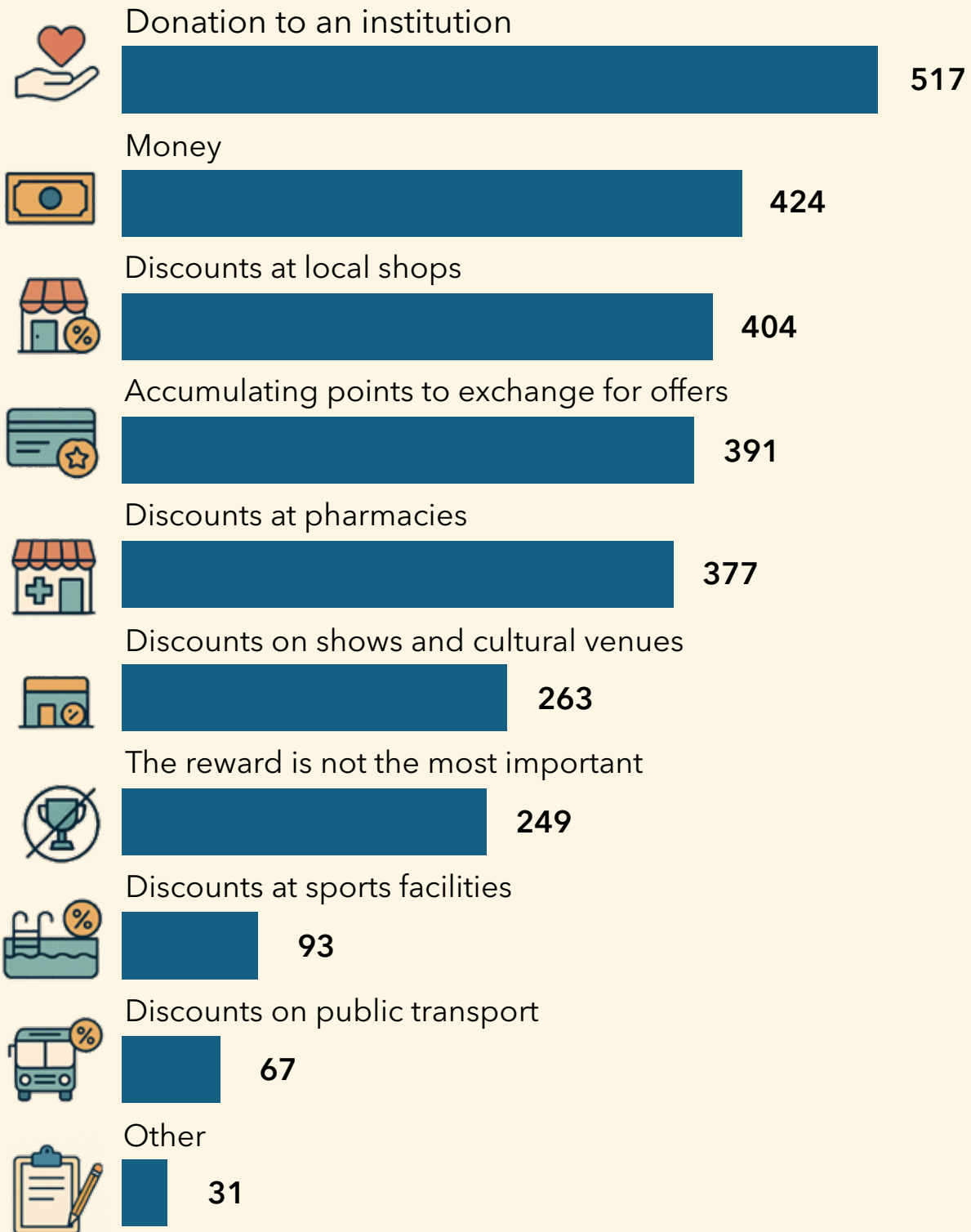
Will give preference

Would recommend to
their friends and family

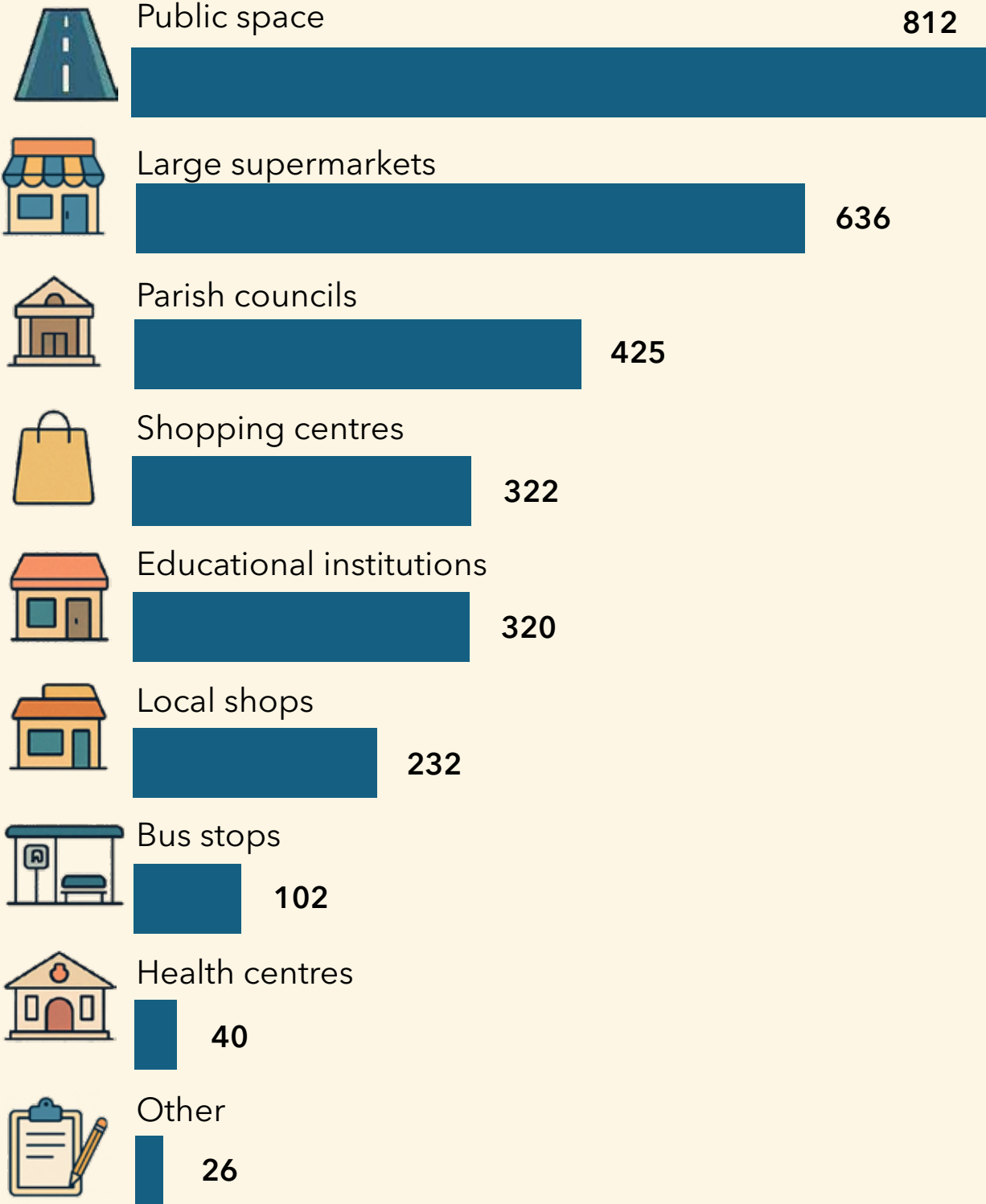
76%



Incentives for use



Locations for installation





Respondents Profile



Municipality of residence



Number of Responses by CIMRL Municipality

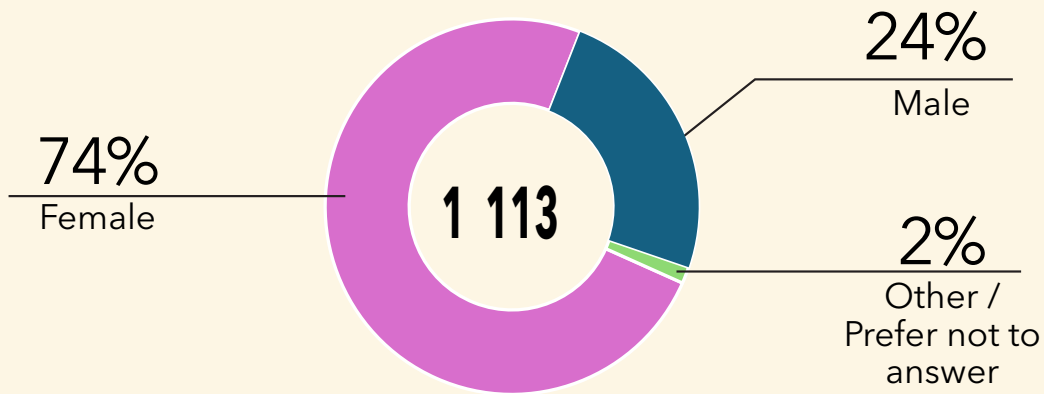
1 113 Participants

10 Municipalities

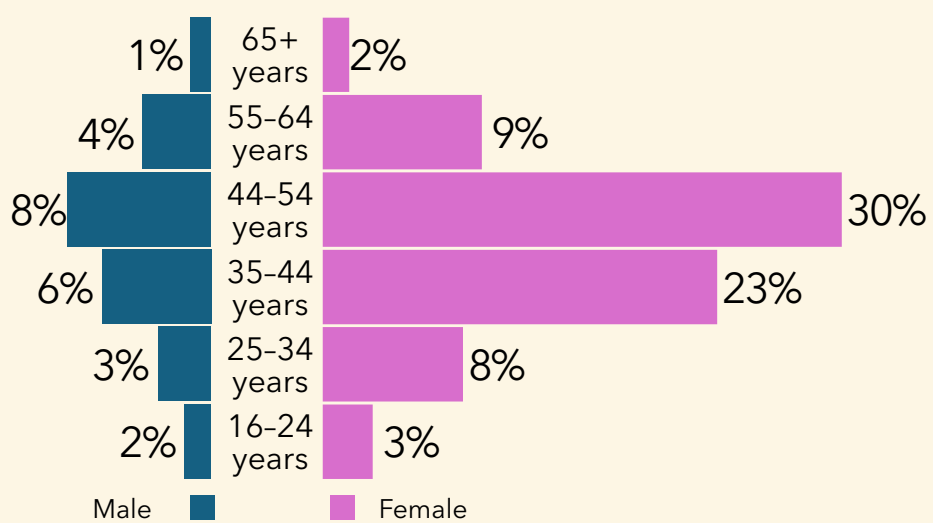
13 Nationalities

97% Portuguese

Gender



Age group



Household Size

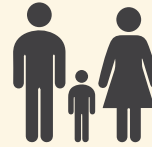
7%



19%



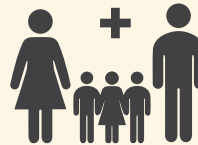
25%



40%



9%



Education Level

Primary Education

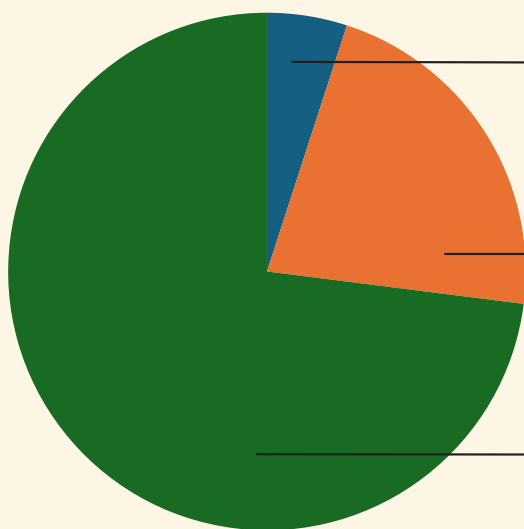
5%

Secondary Education

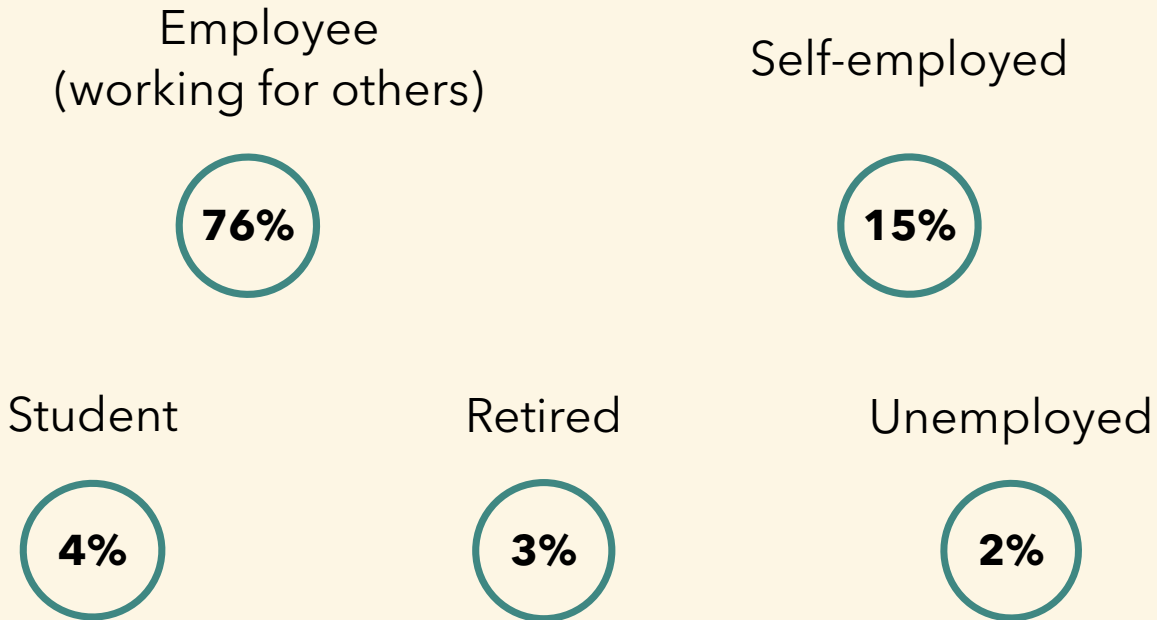
22%

Tertiary Education

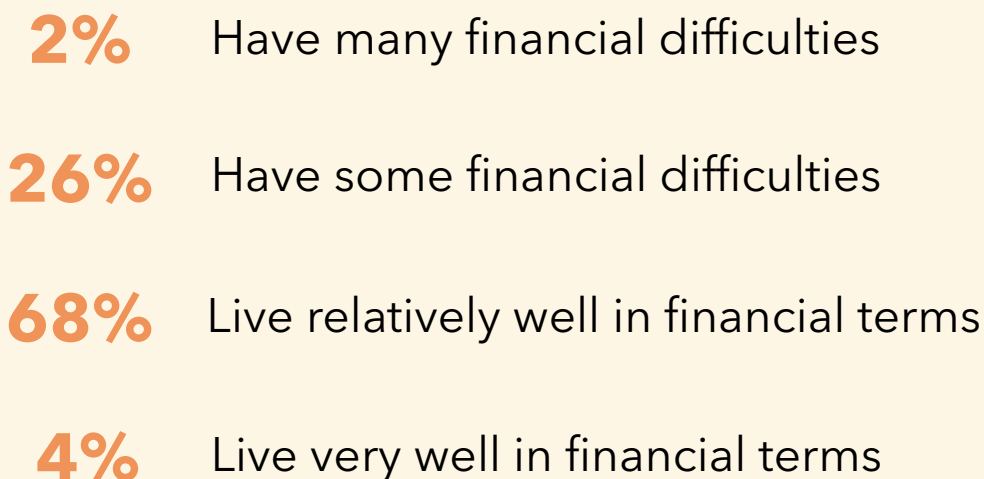
73%



Employment Status



Financial Comfort



Methodological note

Method:

Online questionnaire

Sampling:

Non-probability, convenience sampling

Data collection period:

14th January to 21st March 2025

Sample size:

1 113 residents in the municipalities of CIMRL

Data analysis:

Descriptive statistics

For more information about the study, please contact:
eduarda.fernandes@ipleiria.pt | cgsilva@ipleiria.pt |
alcina.gaspar@ipleiria.pt | ligia.febr@ipleiria.pt |
joao.miguel.costa@ipleiria.pt

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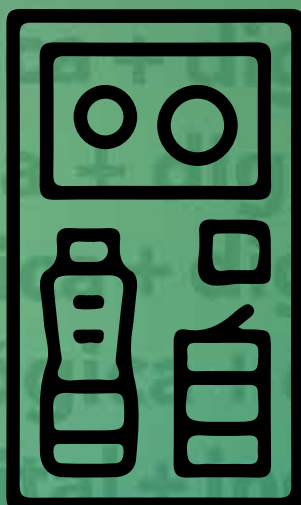
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