

Life BioBest Webinar –

How to best collect bio-waste in high density areas?

Presentation of the results of the Lübeck neighbourhood case study on food waste collection

Steffen Walk – European Compost Network



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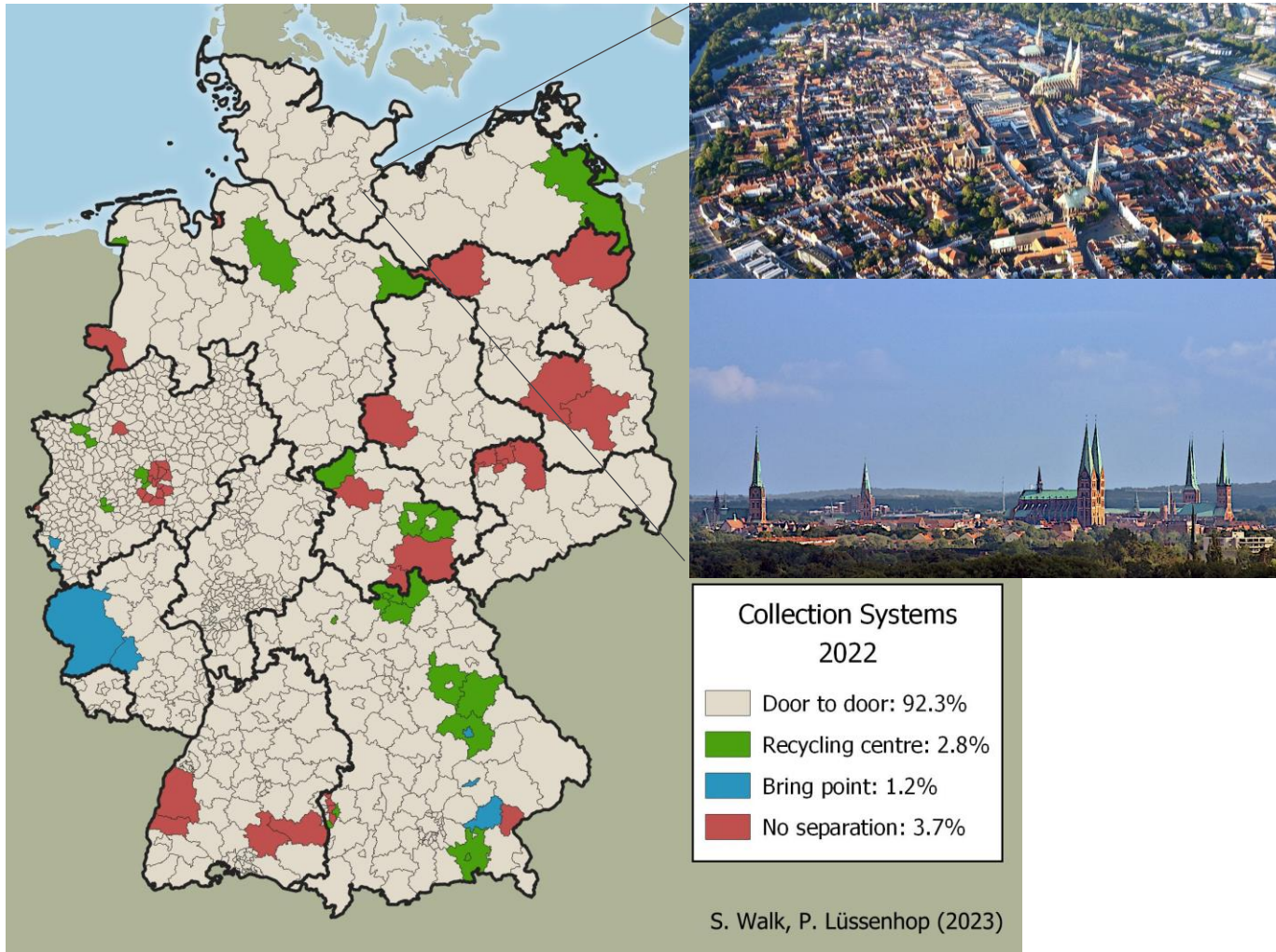
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Agenda



The city of Lübeck, Germany



- Hanseatic city on the Baltic Sea in the federal state of Schleswig-Holstein
- “City of the 7 towers”
(Old town - UNESCO heritage site)
- Inhabitants: 218.000 (1018 inh./km²)
- Lots of green areas, touristic at coast

Waste management in Lübeck

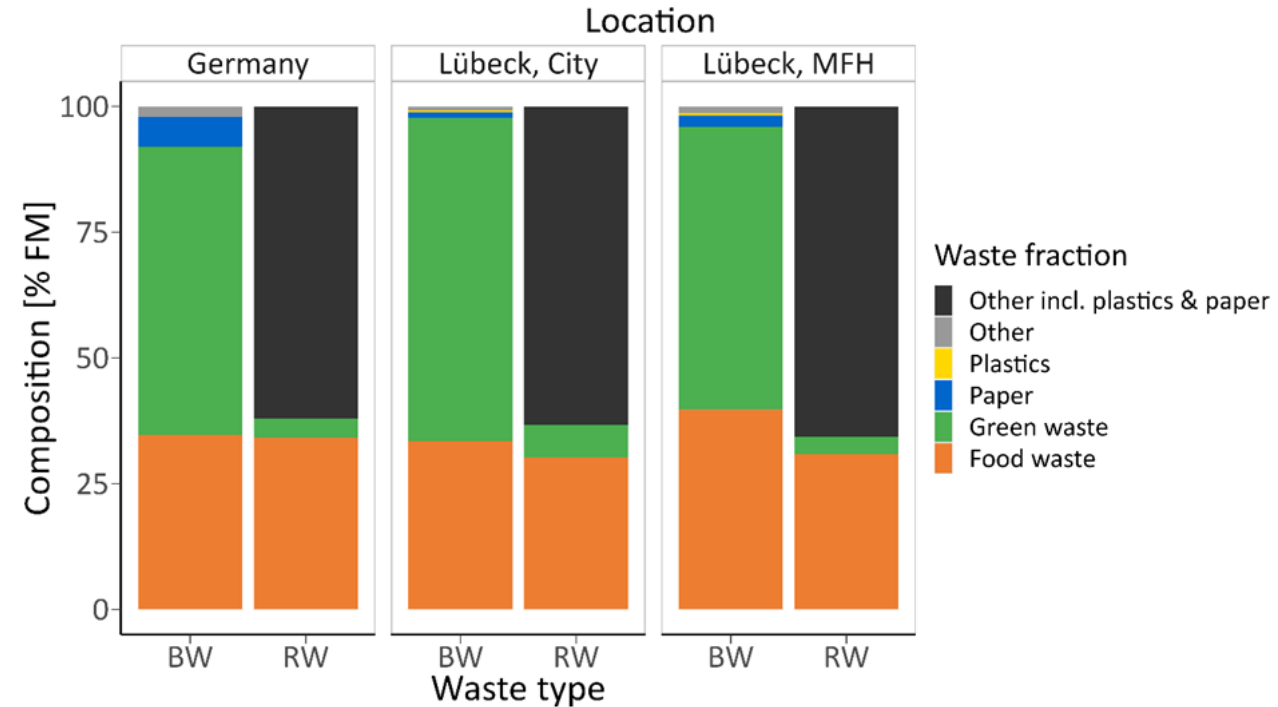
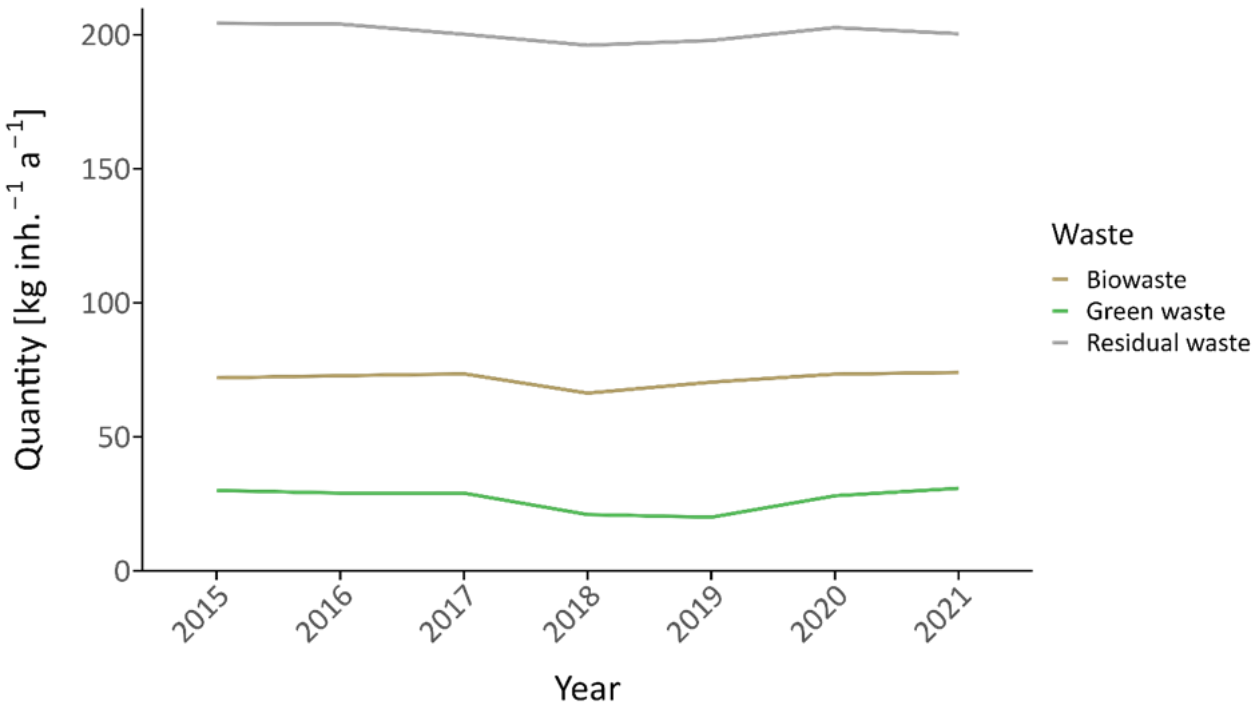
- Entsorgungsbetriebe Lübeck (EBL, public entity since 1995)
- Responsible for wastewater management and waste collection
- DtD collection of biowaste (mixed food and green), dry recyclables, paper and residual waste



Waste management in Lübeck

Parameter	Bio-waste	Residual waste
Connection rate	>90%	100%
Annual collections	26	26/52
Fee system	Non	Fixed
Minimum bin volume [L inh. ⁻¹ w ⁻¹]	Non	20
Bags allowed	Only paper bags	-

General status of bio-waste management



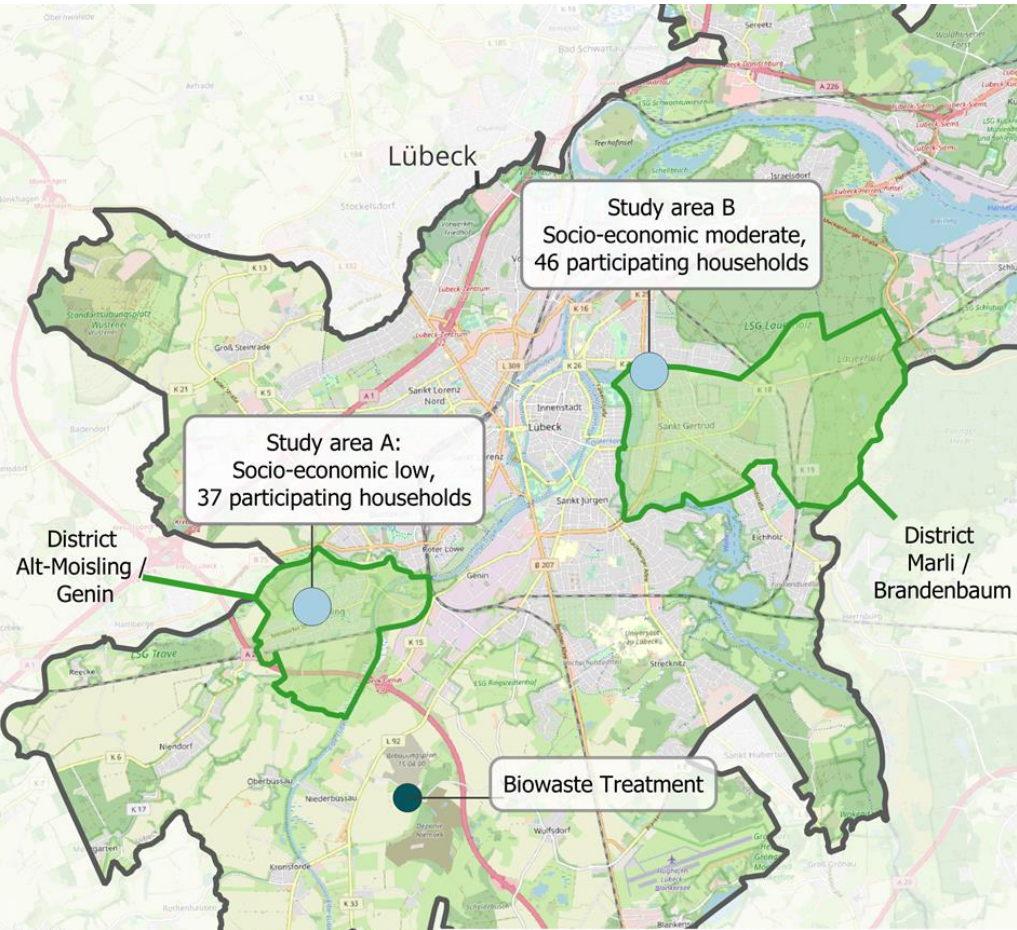
Multi-family houses (MFH) show a 64% higher contamination than Lübeck average (1.2%). Only ca. 27% of food waste sorted correctly. Biowaste bin mainly used for garden waste.

Trial on improving food waste collection in dense areas

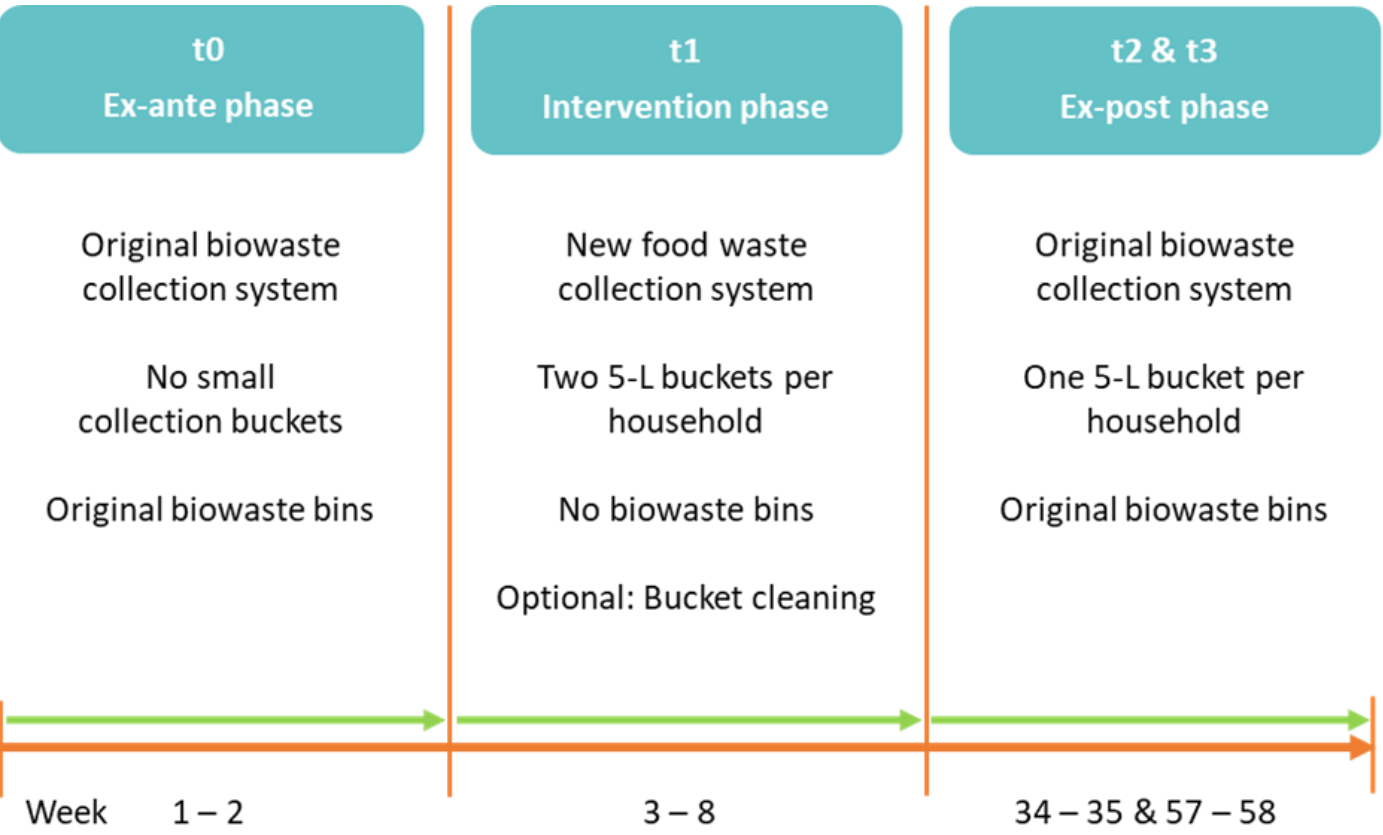


- Decoupling of food waste and green waste collection → removal of biowaste bin
- Provision of 5L-collection buckets
- Food waste collection 3/week
- Accompanying information and communication campaign

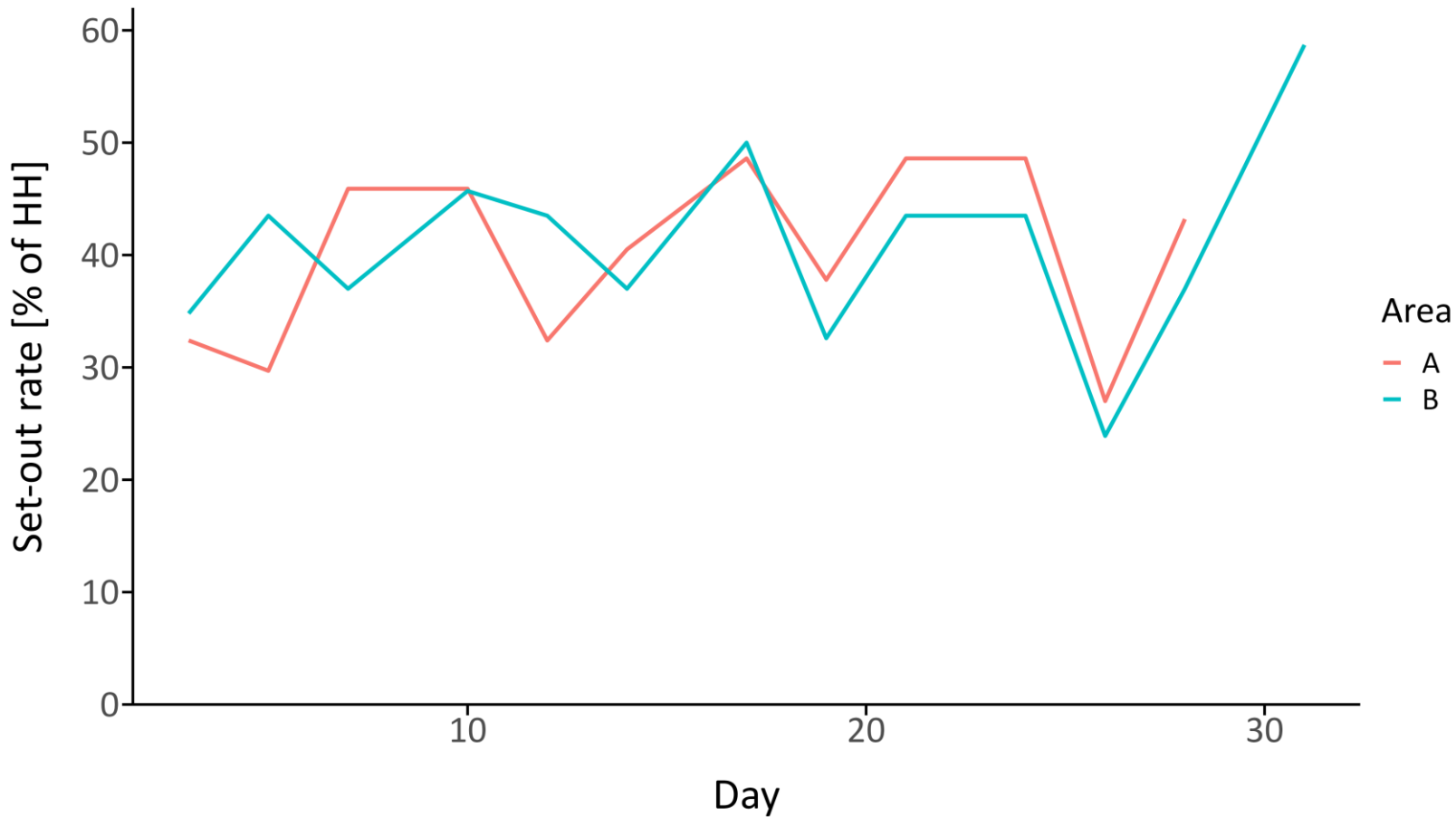
Trial on improving food waste collection in dense areas



Map design: P. Lüssenhop (2023); Basemap: OpenStreetMap



Results – Participation

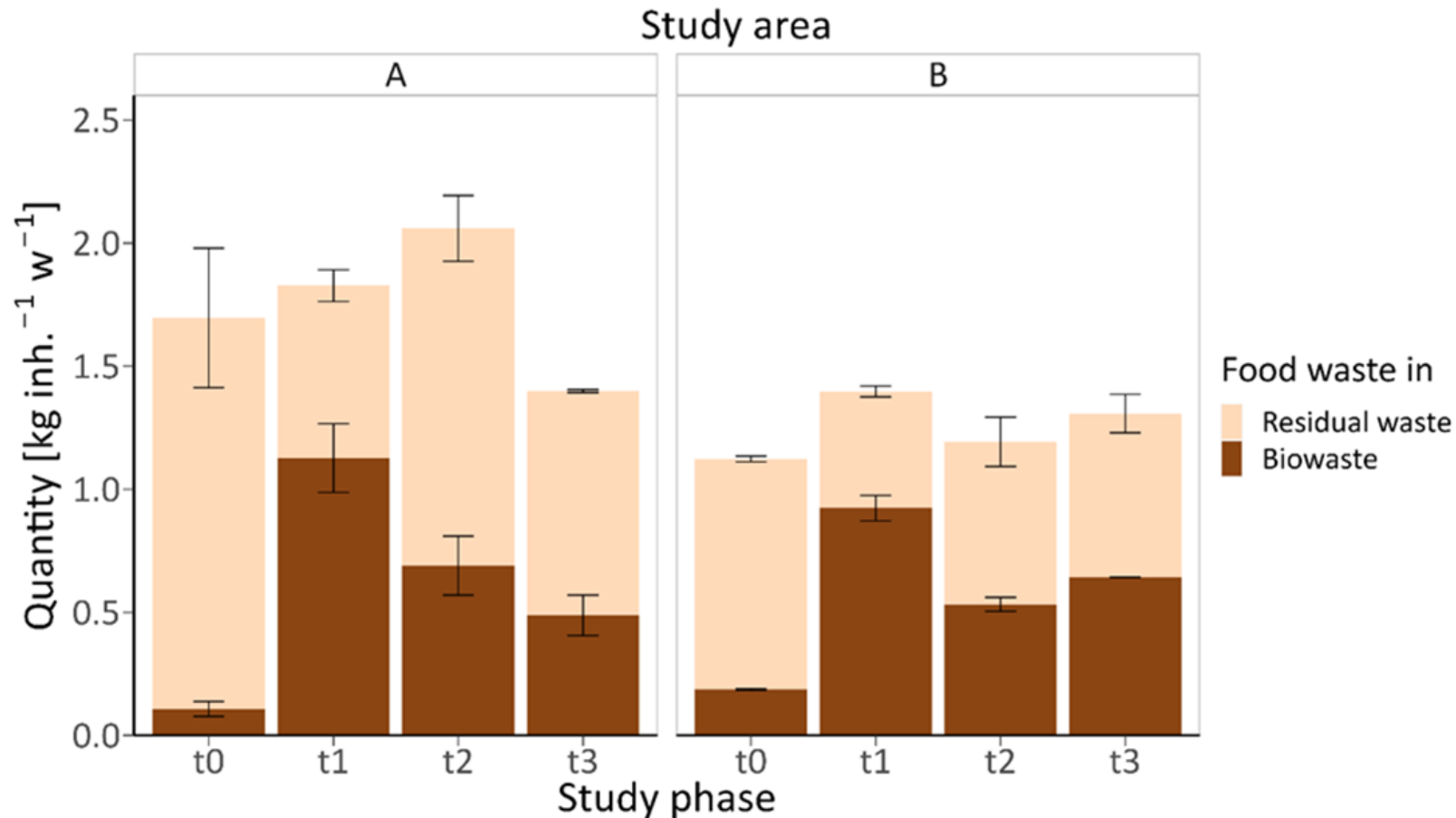


Overall participation
(set-out at least once):

- Area A: 76%
- Area B: 78%



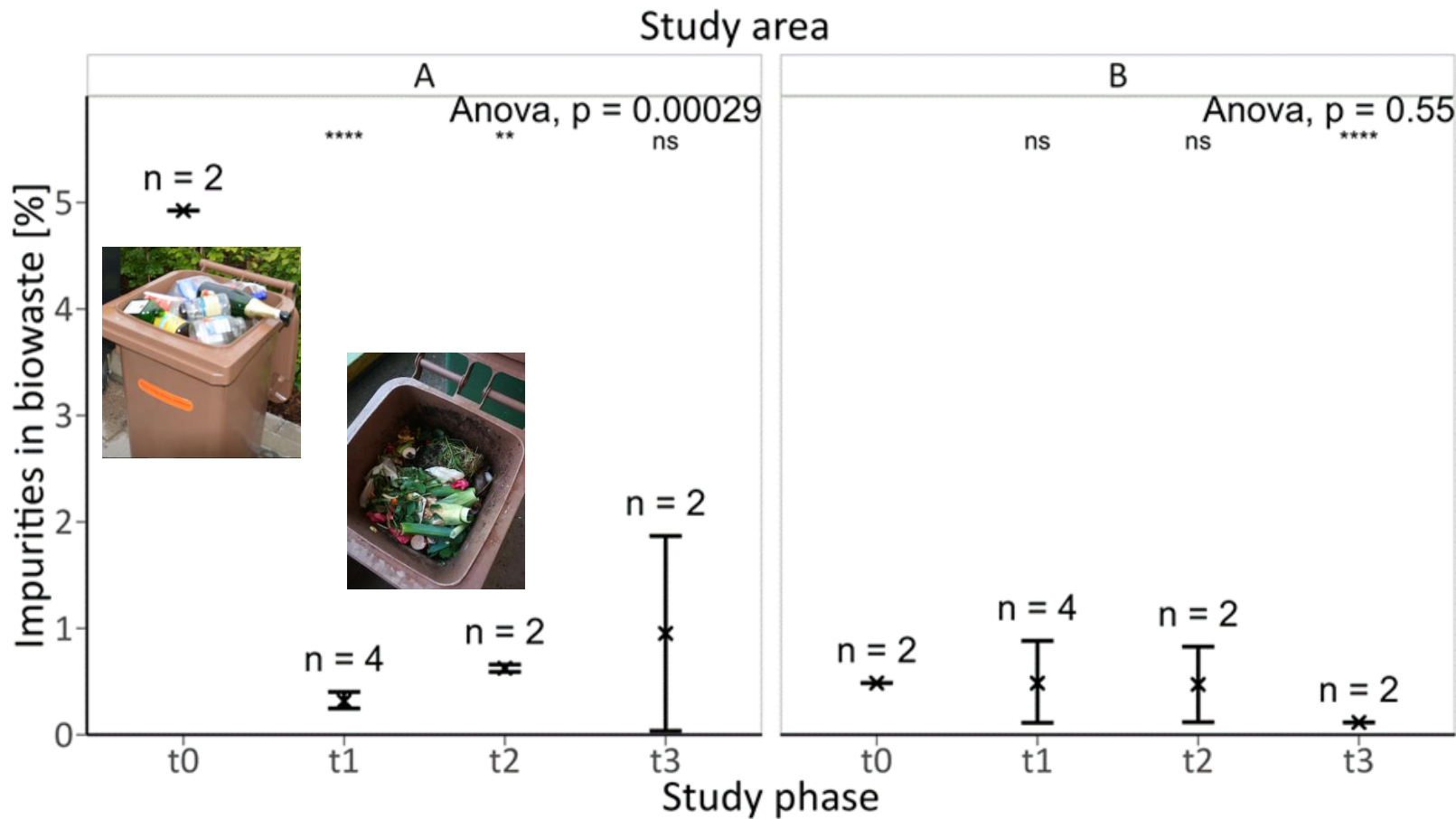
Results – Food waste sorting



Major findings:

- **> 1 kg FW** separately collected per inhabitant and week
- Source-separation rate: **ca. 65% of generated FW**
- Reduction in long-term evaluation after test

Results – Impurities



Major findings:

- Area A: Reduction below 1% (also long-term)
- Area B: Stabilisation despite removal of garden waste

Conclusions

- Densely populated areas require specific concepts for (bio-)waste collection → Individual collection (household specific) is a key to overcome the issue of anonymity
- Focus on food waste is key for improving bio-waste collection → independent collection of FW and GW (latter might be sufficient seasonal)
- High collection frequency (ideally $\geq 2x$ higher than residual waste)
- Clear and repeated measures in communication activities are necessary to keep a high separation rate and low impurities
- Follow-up measures necessary to evaluate a fully elaborated concept from separation to collection to transportation to treatment site

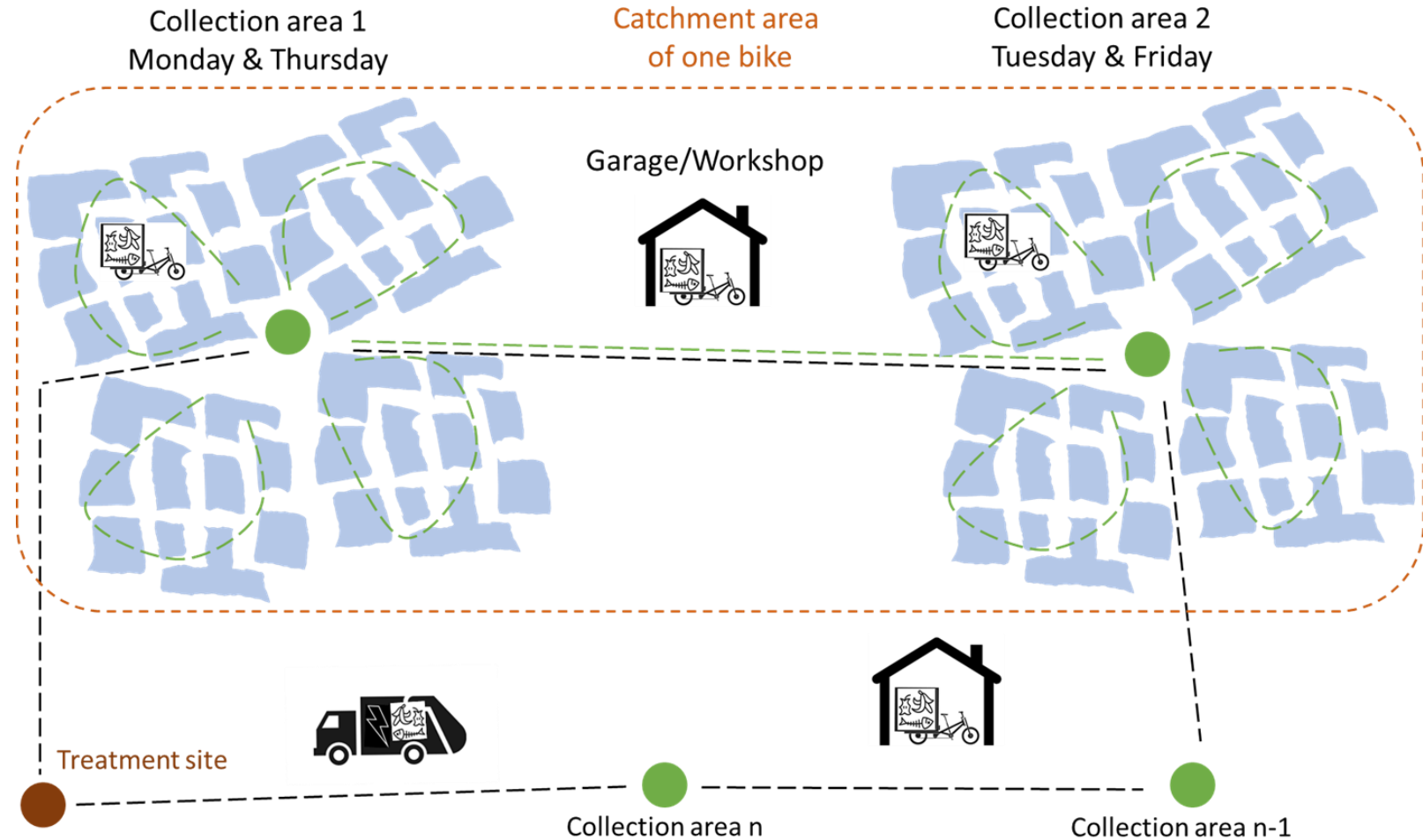
Future Outlook – The KUKOM project

- New project started to evaluate long-term implementation of separate food waste collection in a novel neighbourhood concept
 - High collection frequency (2 w⁻¹)
 - Provision of sorting equipment
 - Low-emission transportation
 - Integration of waste collection in a *neighbourhood caretaker* concept



Future Outlook – The KUKOM project

- 1 e-cargo bike can serve 4000 - 6000 households weekly*
- Collection to intermediate storage facility (e.g. underground container)
- Demand-based pick-up by trucks and transport to treatment site



*depending on population density, collection efficiency, collection frequency, etc.

Thank you!

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