Urban Research to Practice: Science for Policy Hackathon
Climate Action Challenge

Problem Statement

Food for thought - A new life for leftovers
Empowering and educating residents of the City of Vienna to waste less food.

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1. Problem Statement

In Vienna, households are the primary contributors to food waste, largely due to a knowledge–action gap driven by limited awareness of food-waste initiatives, low engagement and interest, exclusion from planning processes, and social inequalities that lead to avoidable waste.

Core Problem

When food is over-bought, wrongly stored or prepared, it is thrown away unnecessarily. This wastes resources that had environmental production and transport costs and can cause further emissions when disposed of (Stadt Wien, 2025).

Context of the Problem

Vienna has identified food waste as a significant issue. Educational material encourages residents to choose more sustainable food products and practises through education schemes (eg. die Umweltberatung et al. 2020, 18, 24-30) and online resources (Stadt Wien et al. 2022; Wiener Umweltschutzabteilung MA 22 et al. 2019). Food waste is important to Austrian households, 74% affirmed that food waste matters to them (Obersteiner et al. 2020, 16). Simultaneously, they might be part of a wider trend, where individuals lack the relevant knowledge and competencies (Aloysius et al. 2023, 6, 3.3.3, 3.3.5).

Figure 1 shows that 10-11% of survey respondents found lack of knowledge and the related competency, not having enough creative ideas to cook with (24%) to be common barriers to avoiding food waste. Lack of time (55%), and storage (25-26%) were the leading barriers. The problem is not only the individuals and household's information and interest, but choice and action.

Root Causes

Amongst other reasons this dissonance stems from limited and varying awareness and communication of existing schemes across social groups, and the perception that individual contributions do not lead to systemic or widespread impact.

Many households perceive a lack of time or resources for action or are driven by personal concerns such as financial loss, reinforcing guilt or reducing motivation (Aschemann-Witzel et al., 2015). Furthermore, Vienna's top-down governance model, in which citizens are often only perceived beneficiaries of policies, makes it difficult to engage the public in the city's initiatives, since it relies on either infrastructural modifications or the willingness to participate.

The Effects of the Problem

Household food waste creates economic loss, ethical concerns, and ecological harm, requiring better consumer habits. The effective reduction of food waste is a core goal in Vienna's zero waste and circular economy strategy. Vienna's Smart Climate City Strategy (2022) sets targets: "Food waste is cut by 50% by 2030 and reduced to a permanent minimum by 2050" (p. 43) through policies such as "awareness-raising activities". In this regard, the city administration also published the Vienna Food Action Plan "Wien ist G.U.T", which introduces the "Wiener Genussbox".

Key Stakeholders

Citizens have the highest interest but limited power, as initiatives steered by public authorities (Stadt Wien, Mosor, & David-Freihsl, 2022). At city level, household food-waste reduction sits primarily within MA48 (waste management) and MA22 (environmental protection), with the climate affairs office coordinating across departments (Stadt Wien, 2022). These public actors hold the highest power through agenda setting, budgets, data rules, and implementation mandates. Grassroots initiatives often mediate between the city and households and mobilise participation (e.g. "Wiener Drehscheibe", managed by "Die Tafel" in cooperation with the city and citizens). City-managed kitchens contribute through education and daily practice but operate under municipal mandates, giving them moderate operational influence. Universities contribute knowledge transfer and innovation yet depend on state funding, thus limiting direct impact. Private-sector actors can provide resources and implementation capacity but show moderate to low interest.

Opportunities for Change

Without efforts to bridge the knowledge–action gap, avoidable household food waste will persist, driving emissions and losses of up to ~€300 per household per year (≈ €1 billion per year across Austrian households) (Scherhaufer et al., 2016, pp. 9–10). Because food is a universal daily practice, it provides a pragmatic entry point for climate action. In this field, institutional "choice architecture" for instance, can reduce emissions (Aschemann-Witzel et al., 2015) and reshape how food is perceived, valued and our relationship to it and all the food system. Such shifts can strengthen relationality, enabling citizen-led innovation and more collaborative governance arrangements. European city programmes provide evidence that these approaches are feasible, including TRiFOCAL (London) and FoodWIN (Bruges) demonstrate feasible reductions among households.

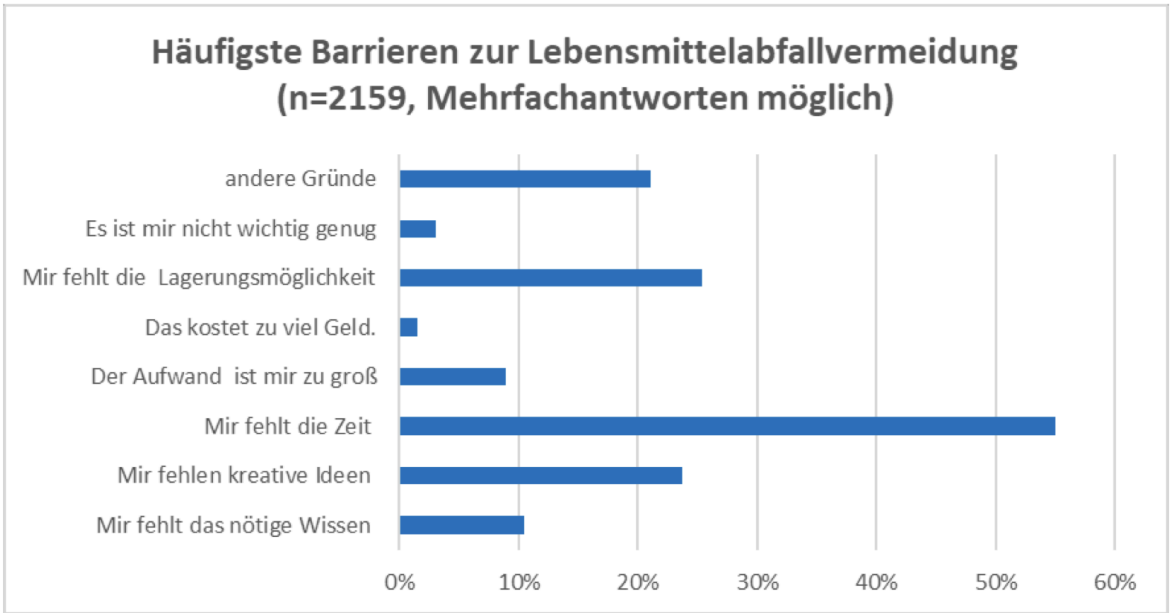


Figure 1: A bar chart showing the most common barriers to avoiding food waste (Obersteiner. G and Luck. S eds. BOKU and WWF Österreich, 2020, Teller Statt Tonne: Lebensmittelabfälle in Österreichischen Haushalten Status Quo, Figure 12, page 17).

2. Appendix

1. References

a. Academic

Aschemann-Witzel, J., de Hooge, I., Amani, P., Bech-Larsen, T., & Oostindjer, M. (2015). Consumer-Related Food Waste: Causes and Potential for Action. *Sustainability, 7*(6), 6457–6477. https://doi.org/10.3390/su7066457

Aloysius, N., Ananda, J., Mitsis, A., & Pearson, D., (2023) Why people are bad at leftover food management? A systematic literature review and a framework to analyze household leftover food waste generation behavior, *Appetite* 186, 106577 (1-15) https://doi.org/10.1016/j.appet.2023.106577

Ferrando, T., Claeys, P., Diesner, D., Vivero-Pol, J. L., & Woods, D. (2021). Commons and commoning for a just agroecological transition: The importance of de-colonising and de-commodifying our food systems. In C. Tornaghi & M. Dehaene (Eds.), *Resourcing an agroecological urbanism: Political, transformational and territorial dimensions* (pp. 61–84). Routledge. https://doi.org/10.4324/9780429433566-4 Routledge+1

Morrow, O. (2019). Community self-organizing and the urban food commons in Berlin and New York. *Sustainability, 11*(13), 3641. https://doi.org/10.3390/su11133641 MDPI

Ribeiro, A. A., Madureira, L., & Carvalho, R. (2024). Citizens' deliberation on solutions to fight urban household food waste and nexus with growing urban gardens: The case of Porto metropolitan area in Portugal. *Cleaner and Responsible Consumption, 13*, 100188. https://doi.org/10.1016/j.clrc.2024.100188 FAO AGRIS

Schäfer, L. J., Anthouli, A., Schmidt, A., Beblek, A., Fruehbeisser, A., Walthall, B., Mingolla, C., Rogozan, C., Petruzzella, D., Wascher, D., Volpe, F., Ruggeri, G., Arciniegas, G., Vicente-Vicente, J. L., Riviou, K., Valta, K., Wenzel, L. M., Labellarte, L., Crivits, M., … Henriksen, C. B. (2024). Transforming European food systems with multi-actor networks and Living Labs through the FoodSHIFT Approach. *Open Research Europe, 4*, 151. https://doi.org/10.12688/openreseurope.17982.2 PubMed

Schanes, K., Dobernig, K., & Gözet, B. (2018). Food waste matters - A systematic review of household food waste practices and their policy implications. *Journal of Cleaner Production, 182*(1), 978–991.

Scherhaufer, S., Hrad, M., & Obersteiner, G. (2016). *Datenlage zu Lebensmittelabfallmengen in Österreich: Zusammenfassung von Studien des ABF-BOKU*. Universität für Bodenkultur Wien, Institut für Abfallwirtschaft (ABF).

b. Non-Academic

City of Bruges. (2024). How to prevent food loss: Food Winners manual. City of Bruges.https://www.brugge.be/sites/default/files/2024-04/FoodwinnersHandleidingENG.pdf brugge.be

Die Tafel Österreich. (n.d.). THE EXHIBITION ON Food Waste. Retrieved December 16, 2025, from https://tafel-oesterreich.at/wp-content/uploads/2025/08/DTO_25008_GewissensBiss_Folder_EN_Veranstalter_RZ_1485x210_Ansicht.pdf

Die Umweltberatung, Wiener Volkshochschulen GmbH, Fenz C, Homolka G, Wolbart N, Traer S, Aigner L, Draxler C (March 2020) Schatzsuche am Feld: Leitfaden für den Unterricht in der Volksschule. https://www.umweltberatung.at/download/?id=Schatzsuche-am-Feld-Leitfaden-3125-umweltberatung.pdf

Eurostat. (2024, September 27). Food waste: 132 kg per inhabitant in the EU in 2022. https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240927-2

Food and Agriculture Organization of the United Nations. (2015). Food wastage footprint & climate change [Brochure]. https://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/FWF_and_climate_change.pdf

Gudowsky, N., & Torgersen, H. (2015). Reducing food waste - Institute of Technology Assessment. Austrian Academy of Sciences. https://epub.oeaw.ac.at/0xc1aa5572_0x00324478.pdf

Magistrat der Stadt Wien. (2022, March). Wiener Klimafahrplan: Unser Weg zur klimagerechten Stadt. https://resolver.obvsg.at/urn:nbn:at:AT-WBR-580682

Obersteiner, G., Luck, S., Hrad, M., & Schmied, E. (2019, September). Strategies to reduce and manage foodwaste: 3. Bericht zur Kofinanzierung 09/2019. Institut für Abfallwirtschaft, Universität für Bodenkultur Wien (BOKU).https://www.digital.wienbibliothek.at/wbrup/download/pdf/3936098?originalFilename=true digital.wienbibliothek.at

Obersteiner, G., Luck, S., Institut für Abfallwirtschaft, Universität für Bodenkultur Wien, WWF Österreich (2020, April) Teller Statt Tonne: Lebensmittelabfälle in Österreichischen Haushalten Status Quo. https://www.wwf.at/wp-content/cms_documents/studie_lebensmittelabfaelle-in-oesterreichischen-haushalten---status-quo.pdf

Stadt Wien – Magistratsabteilung 48. (2024). Umweltbericht zur Strategischen Umweltprüfung des Wiener Abfallwirtschaftsplans 2025–2030 und des Wiener Abfallvermeidungsprogramms 2025–2030. https://www.wien.gv.at/pdf/ma48/awp-avp-25-30-umweltbericht.pdf

Stadt Wien, Mosor, T., David-Freihsl, R. (eds) (2022, July) Wien isst G.U.T, gesund, umwelt-, klima-, und tierfair. https://www.wien.gv.at/pdf/ma22/wien-isst-gut.pdf

Stadt Wien Website, (accessed 25.11.25) Klima- und Umweltrelevanz von Lebensmitteln, lebensmittel-klima-relevanz

United Nations Environment Programme. (2024, March). Food Waste Index Report 2024: Think, Eat, Save—Tracking progress to halve global food waste. https://wedocs.unep.org/20.500.11822/45230

Vienna Municipal Administration. (2022). Vienna Smart City Strategy. City of Vienna, Municipal Department for Urban Development and Planning; UIV – Urban Innovation Vienna GmbH. https://smartcity.wien.gv.at/en/projects

Wiener Umweltschutzabteilung- MA 22, Bereich Nachhaltige Entwicklung; Haratinger, René., MBA (Ökosoziales Forum Wien) (2019 May) Das ist mir es wert: Tipps und Möglichkeiten der Lebensmittelweitergabe in Wien, https://www.wien.gv.at/pdf/ma22/leitfaden-lebensmittelweitergabe.pdf

WRAP; London Waste and Recycling Board (LWARB); & Groundwork London. (2020, January). Transforming city food habits for LIFE: Summary report (Layman's report).WRAP.https://trifocal.eu.com/wp-content/uploads/2020/01/TRiFOCAL-Summary-Report.pdf trifocal.eu.com

Zero Waste Austria. (2020). Food Waste Legislation and Action in Austria. https://www.zerowasteaustria.at/uploads/5/8/6/4/58648241/eng_food_waste_in_austria__11_20_.pdf

2. Further readings

a. On individuals' reasoning behind facing food waste

Schanes, K., Stagl, S. (2019) Food waste fighters: What motivates people to engage in food sharing? Journal of Cleaner Production (211) 1491-1501.

This study includes research on Austrian foodsharers and describes their motivations.

Shao X., Jeong E., Jang S., Xu Y., (2020) Mr. Potato Head fights food waste: The effect of anthropomorphism in promoting ugly food, (89) 102521.

This US study questions which advertising methods encourage consumers to buy misshapen or unusual looking products. They found that anthropomorphising the food produced the strongest promotion.

b. Food waste disposal in Vienna

Abfallwirtschaft, Straßenreinigung und Fuhrpark, Small action, big impact, MA 48 Pocket waste separation guide https://www.wien.gv.at/pdf/ma48/flugblatt-getrennte-sammlung-en.pdf

Stadt Wien: Sammlung von biogenem Abfall, https://www.wien.gv.at/umwelt/sammlung-biogener-abfall

This resource shows that cooked food and animal products cannot be disposed of in Biomüll bin, but only in the Restmüll. Biomüll is fermented to create biomethane then compost, which means that the nutrients are recycled. Types of household food waste and the available methods of disposal impact their environmental impact.

c. Studies on climate action and behavioural change

Constantino, S. M., Sparkman, G., Kraft-Todd, G. T., Bicchieri, C., Centola, D., Shell-Duncan, B., Vogt, S., & Weber, E. U. (2022). Scaling Up Change: A Critical Review and Practical Guide to Harnessing Social Norms for Climate Action. *Psychological Science in the Public Interest*, *23*(2), 50-97. https://doi.org/10.1177/15291006221105279

Masciangelo, L., Lopez Lumbi, S., Rinderhagen, M., Hornberg, C., Liebig-Gonglach, M., & Mc Call, T. (2024). Promising behavior change techniques for climate-friendly behavior change – a systematic review. *Frontiers in Public Health*, *12*. https://doi.org/10.3389/fpubh.2024.1396958

Nisa, C. F., Bélanger, J. J., Schumpe, B. M., & Faller, D. G. (2019). Meta-analysis of randomised controlled trials testing behavioural interventions to promote household action on climate change. *Nature Communications*, *10*(1), 4545. https://doi.org/10.1038/s41467-019-12457-2

Graphics to visualise the environmental impact of food waste

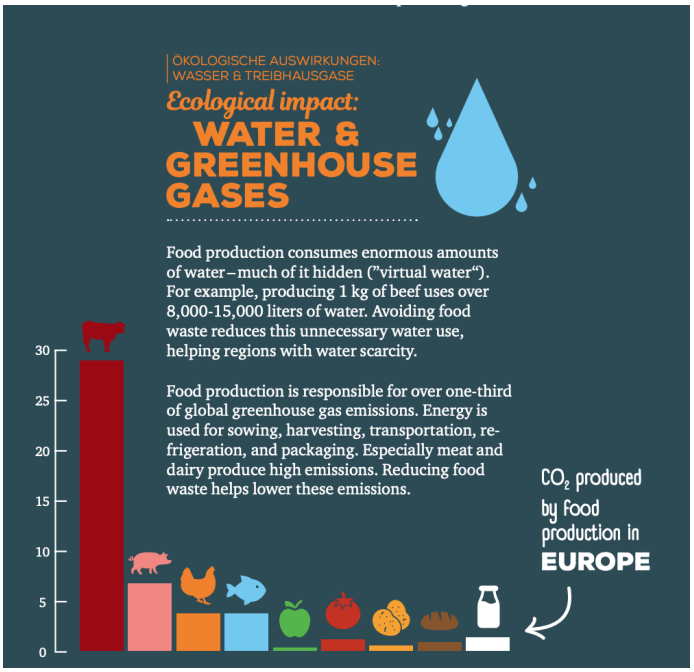


Figure 2: The ecological impact of food production and waste. (Die Tafel Österreich, n.d.)

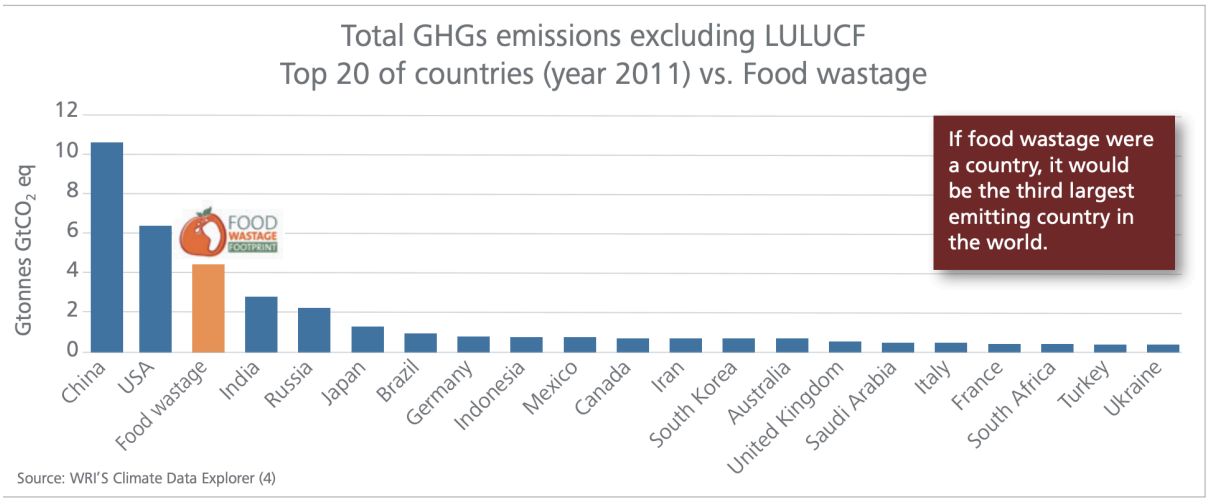


Figure 3: Total Greenhouse emissions if food waste was a country (Food and Agriculture Organization of the United Nations, 2015)

Graphics to visualise the sources of food waste

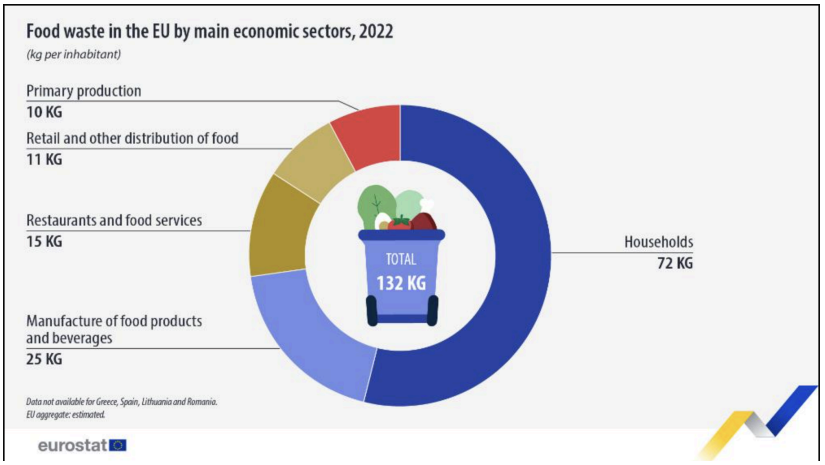
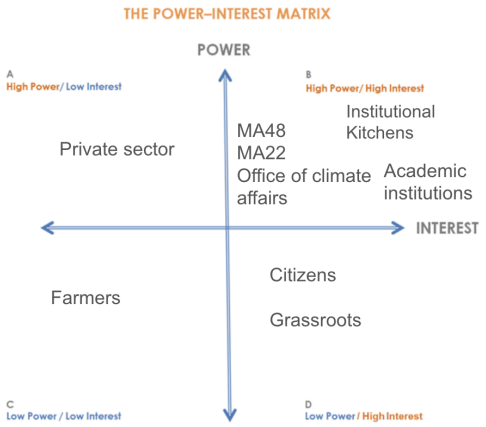
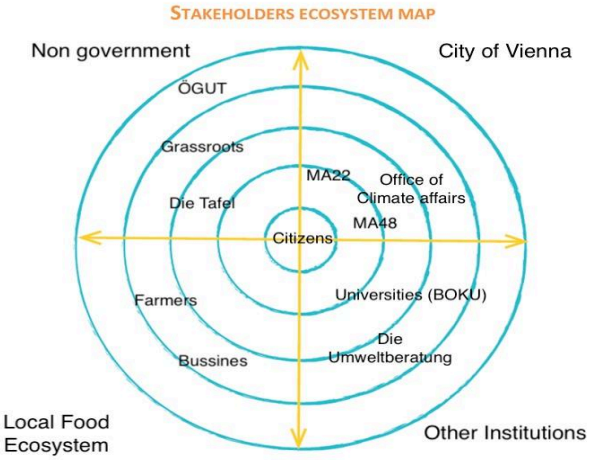


Figure 4: How much food each sector of the food ecosystem wastes in average (Eurostat, 2024)

Figure 5: Contributing actors to food waste in Austria. (Zero Waste Austria, 2020.)

3. Stakeholder Analysis





Citizens are the central stakeholder in household food-waste reduction, but they are not a homogeneous group and should be approached according to different psychographic realities. Understanding these diverse motivations, constraints, and everyday practices is essential for designing measures that feel relevant and for strengthening participation. Government actors hold the highest level of decision-making power and the key resources needed to launch and scale projects. Other institutions—such as academic actors and organisations that support climate action and empowerment—also play an important role and can exert meaningful influence, but they are often constrained by limited resources and by the conditions attached to public mandates and funding. While many non-governmental initiatives rely on government support, they frequently have the most direct, day-to-day access to households and can effectively mobilise and sustain citizen action when well connected to municipal programmes. Finally, actors across the local food ecosystem remain relevant for a comprehensive approach; however, some stakeholders (e.g., farmers) may have lower interest in household-focused measures, and private-sector engagement may depend on whether suitable incentives make participation attractive and feasible.

4. Theory of change

Problem	Context and Assumptions	Policy intervention	Inputs	Actors	Outputs	Impacts
Food waste in households	That food that could be used productively is wasted unnecessarily by individuals and households.	Educating and encouraging organisations to buy and prepare food more efficiently.	Encouraging public interest in wasting less food.	Individuals and households.	Less food is wasted.	Food waste related emissions are reduced.
	Different kinds of food produce different volumes of waste.	education the most sustainable food choices	Encouraging public interest in climate change and acting more sustainably.	State Institutions.		Residents feel empowered and inspired by small climate positive changes in their own lives.
	Different types of waste can be disposed of more	Education/ advertising of the city of		Waste collection stakeholders.	The food that is wasted is disposed of in a	

	and less easily.	Vienna's waste system.			more climate positive way, eg. as Biomüll.	
	There is unclear advice or information about buying and using food which might exacerbate waste. eg best before dates which might encourage a consumer to think that the food should be thrown away.	Education on choosing sustainable food options.		Food producers and sellers.		
	Individuals and households might be constrained by amount of storage space and what type of storage space they have. See figure 1 (Obersteiner et al. 2020), for concern about storage space.					

The problem of food waste is both social and environmental. This theory of change demonstrates that the issue is not only education from policy interventions, but also social engagement and interest. Knowledge of food waste and the city of Vienna's waste disposal system is common in the general population, however there is also potentially unclear information from food producers about how to safely use and store food, and potentially not enough storage space. There are several projects from the city of Vienna, charities and NGOs which practically prevent waste or redistribute food and educate residents about food waste prevention. The output of a successful policy is that less food is wasted and that individuals feel empowered to make a climate positive change in their own lives. The theory of change table is useful for visualising the different aspects of a solutions and several ways that it can be faced without limiting the tools and methods the solution must use.