Sufficiency 2023

The Repair Café Initiative

A basic qualitative impact analysis including an emission savings quantification for Germany

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Abstract

The suitability of the Repair Café Initiative (RCI) as a sufficiency measure and solution to overconsumption and the carbon footprint is analyzed. This study examines qualitative and quantitative effects of the RCI in Germany. It provides answers, whether the RCI has a positive mitigation effect and if it is a viable example for sufficiency in practice.

Qualitative impacts of the RCI encompass mindset transformation, empowerment, and community cultivation. A shift from a disposable consumer mindset to a more sustainable and mindful approach is nurtured. Participants acquire repair skills, providing a sense of empowerment and enabling DIY repair projects. The Repair Cafes' role in fostering community interactions and building networks offers an avenue for long-term sustainable behavioral change.

On average, Repair Cafés save 8.8 kg of CO_2eq emissions per kg of repaired devices. Precise repair data are limited and subject to further research and tracking efforts. Calculations prove savings of emissions and resources by extending the lifespan of devices and prevention of premature scrapping. 1,500 Cafés in Germany mitigate up to 1,280 tons of CO_2eq emissions each year.

The quantitative impact appears neglectable against annual German emissions from electronic waste. Qualitative effects on mindset, skill development, and community cohesion serve as crucial steppingstones towards a sustainable society. The RCI emerges as a promising model for further integrating sufficiency into practice. It bridges qualitative transformations with measurable emission and waste reduction.
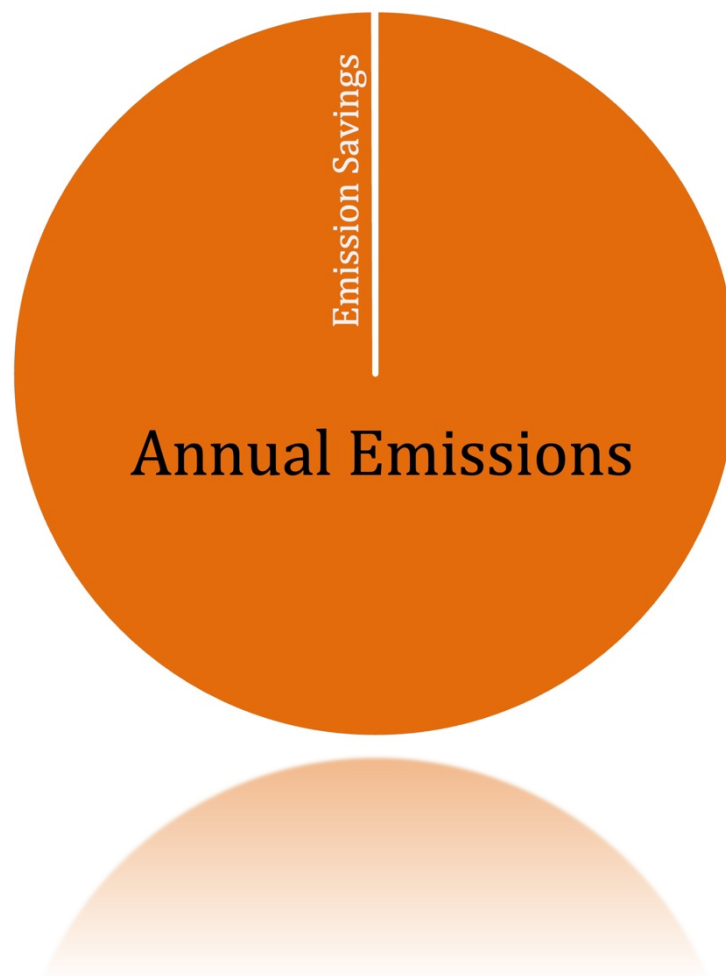
Introduction

Currently, the society is in the change driven by social media, trends and the urgent need of a transformation towards more sustainability, away from an excessive supply of goods and overconsumption (Zukunftsinstitut, 2023). But still, the average carbon footprint per person in Germany is 10.5 tons of CO_2eq per year. 27 % are caused by consumption of daily goods like clothing, smartphones and other devices (UBA, 2023). Additionally, devices are exchanged and renewed more frequently compared to earlier not exclusively but also due to shorter lifetimes caused by various design decisions and market influences (Prakash & Schoßig, 2023).

This report delves into the question, whether the Repair Café Initiative (RCI) is a suitable sufficiency measure and solution to the beforementioned problems. Therefore, qualitative impacts are assessed and a quantification is done for Germany based on literature research.

Sufficiency

Sufficiency, within the context of consumption and resource utilization, embodies the idea of striking a balance between meeting human needs and desires while respecting planetary boundaries. It addresses two fundamental dimensions of "enough" (Fanning et al., 2021). Curbing over-consumption while establishing a foundation for individual and collective well-being. Sufficiency, as a guiding principle, acknowledges that while energy use and consumption of goods is essential to support human well-being, a threshold exists beyond which excessive energy consumption ceases to contribute positively to quality of life. Within the broader landscape of strategies aimed at addressing climate change, sufficiency stands as a less explored but potent approach (Wiese, 2023).

Guiding Question

In tandem with efficiency and renewable energy deployment, sufficiency offers a unique perspective by addressing consumption patterns at their root. The RCI will be examined whether it represents a tangible embodiment of sufficiency in practice, elucidating how localized efforts can contribute to the broader goal of climate mitigation.

To do so, the paper focuses on the qualitative impacts and quantifies the emission and waste reduction effects the RCI has in Germany to analyze how large the impact towards a more sufficient society is. Furthermore, the availability of data is analyzed. The report will be concluded with a discussion about the meaningfulness of the given results and impacts.

The Repair Café Initiative

The Repair Café Initiative (RCI) centers on creating communal spaces where skilled volunteers collaborate with community members to repair a diverse array of items, ranging from electronics to clothing. By extending the lifespan of products, this initiative counteracts the throwaway culture perpetuated by rampant consumerism, aligning seamlessly with sufficiency's underpinning tenets (Hansing et al., 2023).

Principle

The RCI seeks to achieve several goals. These can be divided into social effects and technical impacts:

First and foremost, by repairing items that would otherwise be discarded, Repair Cafés aim to reduce the overall waste generated. A qualitative study summarizes the main goal of the RCI and it's organizers to be the elongation of the lifetime of goods and devices (Kannengießer, 2018). By doing so, resource usage is minimized and the generation of waste is reduced. Also, emissions of production and/or scrapping are mitigated by the elongated lifetime. Thus, the repairs counteract the prevailing throwaway culture and promote sustainability by extending the lifespan of products (Kannengießer, 2018).

Repair Cafes create opportunities to share expertise with others, empowering participants to develop practical repair abilities and fostering a culture of DIY repair. Finally, Repair Cafes aim to provide space for people to come together, fostering social interactions, building connections and reinforcing a sense of local community (Hansing et al., 2023).

To reach the desired effects, skilled volunteer repairers show social and civic engagement by non-monetary drivers like idealistic motives of sustainability or the wish to share knowledge. They offer repair-seekers their time, abilities and knowledge to perform a repair on the device together. By that, individuals are encouraged to adopt more sustainable consumption patterns by valuing repair over replacement. This shall also foster a shift in attitudes and spark a sense of community engagement (Bizer et al., 2019).

A Repair Café is usually offered several times a month depending on the size of the community. It strives to offer an open, productive and welcoming experience to all interested people. The RCI does not have a special target group. Everybody is welcome and supported when seeking advice or support for a repair.

However, Prof. Steffen revealed in an interview, that most of the participants in the Flensburg Repair Café are between 30 and 40 years old (Steffen, 2023). This observation is supported by the findings of the dissertation of Caroline Gigleitner. The fundamental value of goods and meaningfulness of taking care for these is exemplified to the youth lesser and lesser says Gigleitner (2018). Additionally, repairs can be time-intensive and leisure time is usually spent differently by the youth (Paar, 2022). According to Gigleitner (2018), this results in predominantly adults using the opportunity to visit a Repair Café.

While donations are always welcome, the visit and a repair are totally free of charge. Even though there is no charge, the RCI does not offer a free repair service. It is all about the joint experience of the repair which presupposes the motivation and integration of repair-seekers (Hansing et al., 2023).

Repair Cafes take place in locations that offer enough space for several people to meet. To enable productive repairs, lighted workspaces and the availability of at least basic tools is a precondition.

Extent

The RCI is not limited to Germany. Originally, it was founded in the Netherlands in 2009 by the publicist Martine Postman (Hansing et al., 2023). Now, two main actors are responsible for the community and building of a network. In the Netherlands, the foundation "Stichting Repair Cafes" runs "Repair Café.org" which supplements the German website "Netzwerk Reparatur-Initiativen" which was found by the "Anstiftung & Ertomis". Both communities understand themselves not as concurrent players in a market but as partners to support the logic of commons. They jointly aim at making the Repair-Movement more popular and effectful. The official cooperation goes on since 2013 (Hansing, 2014).

Globally, there are more than 2,820 registered Repair Cafes with more than 42,300 volunteers (RepairCafe.org, 2023). According to "Netzwerk Reparatur-Initiativen", in Germany, there are roughly 1,500 Cafes with more being in the process of establishment (Hansing et al., 2023). Unfortunately, there seems to be several missing registrations that leads to uncertainty of results, e.g., the Flensburg Repair Café on Campus is not yet official partner and not listed (Steffen, 2023). Even though the RCI understands themselves as global movement, Repair Cafes don't aim to be an urban phenomenon but to counteract consumerism wherever a community builds (Kannengießer, 2018 in Hepp et al.).

Impact Analysis

To evaluate the RCI's impact, qualitative effects are researched in existing studies and the interview from the site visit in Flensburg. This section is backed up with a quantification by a basic calculation of emission and waste reduction that is derived from researched data and existing study results.

Qualitative Impacts

Qualitative assessment delves into the experiential dimensions, exploring how engagement with the initiative shapes participants' attitudes towards consumption. The effects of the RCI can span various aspects, contributing to both **individual and community-level transformations** towards a more resilient society. These effects are often less tangible but equally significant in reshaping mindsets, fostering social connections, and promoting sustainable behaviors in the long-term (Baier et al., 2016).

Engaging with a Repair Café can **cultivate a shift in participants' mindsets** from a disposable consumer culture to a more sustainable and mindful approach. Repairing and extending the life of products can encourage people to value durability, reducing the allure of constant consumption and disposability. In addition, awareness for the repairability of goods and products helps to prevent additional waste in the future. This effect is highly valued by the organizers. "In many cases, customers don't even know, how their vacuum or coffee machine work" says Prof. Steffen (2023). Here, Repair Cafes are not only community spaces but also serve as **educational platforms** where individuals can learn about the environmental impact of consumerism, planned obsolescence, and the importance of repairing items. This increased awareness can extend beyond the events, influencing participants' purchasing decisions and behavior in various contexts (Paar, 2022).

By showing them the functioning, customers are sensitized which has two prevalent positive effects: First, the importance of maintenance is conveyed to reduce preliminary defects by neglect. Secondly, customers get a feeling for the repairability of a product. This can help to decide for future products, that can be repaired more easily in the case of failure to prevent premature scrapping. As people experience the satisfaction of repairing items, they become more conscious of their consumption habits (Steffen, 2023).

Besides the created awareness, the RCI **empowers individuals** by offering them the opportunity to learn practical repair skills. Participants gain a sense of accomplishment as they mend items that they otherwise would have discarded. This empowerment can extend beyond the Repair Café setting, encouraging participants to take on DIY repair projects at home (Bizer et al., 2019).

Furthermore, repair cafes **foster a sense of community** by providing a physical space where people can come together, share knowledge, and collaborate on repairs. This sense of belonging can lead to **stronger social ties**, increased neighborly interaction, and the creation of support networks. As a result, repairs might take place more often in the future to strengthen the positive outcomes. In addition, sharing the positive experience motivates more people to visit future Repair Cafes which also has a positive influence on the longevity of the effects to create long-term sustainability (Kannengießer, 2018 in Hepp et al.).

Quantitative Impacts

Next to qualitative effects, the influence can be gauged by analyzing concrete metrics such as the tonnage of waste diverted from landfills, reductions in carbon emissions through extended product life cycles, and potential energy savings. The main hindering is the availability of precise repair data, as the interest in research indeed starts to increase but has not reached a broad base of statistics and studies to cite from yet (Moalem & Mosgaard, 2021). Conducted calculation approaches are researched and summarized to calculate the estimated quantitative impact in Germany. Here, the focus is set on mitigated equivalent carbon dioxide emissions.

Data Availability & Methodology

Unfortunately, there is a severe lack of documentation regarding the exact number and success of repairs resulting from inconsistent tracking (Netzwerk Reparatur-Initiativen, 2023). Likewise, there are no repair data available from Flensburg Repair Café. Sadly, registration data or the number of repair-seekers could not be supplied either (Albers, 2023).

However, the efforts of the two founding institutions begin to show effect. The following resources are available which vary in quality and extent:

1. Statistik by Netzwerk Reparatur-Initiativen (Germany)
   - 83 Repair Cafés, 10,219 successful repairs, ten-year time span
2. RepairMonitor FactSheet by RepairCafe.org (Netherlands)
   - 2018 until 2022, yearly reports, global scale → See Annex B
3. Masterthesis by Stephen Privett (UK)
   - 13 Repair Cafés with 2,852 analyzed repairs + questionnaire, LCA data

On a global scale, Repair Cafe.org gathers data in the "RepairMonitor", a website where Repair Cafés can easily register their repairs. The annual reports summarize the number of repairs and the products but do not supply mitigation data. In total, 39,030 repairs were registered of which in average 62.7 % had been successful. This equals 24,472 repaired devices.

For Germany, the statistics of "Netzwerk Reparatur-Initiativen" is available for 2013 until 2023. It contains data of 83 initiatives which is less than six percent of all registered initiatives in Germany. Over the last 10 years, 10,219 successful repairs and 3,901 failed attempts are listed. For their calculation of the impact, the saved emissions and resource excavation from Appendix A were used.

The most accurate calculations were conducted by Privett (2018). However, this was done with less underlying data from 13 Repair Cafés in the UK and additional survey results from 222 visitors and volunteer organizers. Here, the calculation was approached with a Life Cycle Assessment (LCA) regarding the mitigated emissions of production in case of replacement. Mitigated landfill

emissions were added. The results were reduced by emissions from transportation, spare parts and the rebound effect which causes additional goods to be consumed (Privett, 2019). Emission savings in kilogram CO_2eq per kilogram of repaired devices as average over all repairs is the output.

To present an estimation for the total impact in Germany, the given data from Netzwerk Reparatur-Initiativen is extrapolated to the given number of 1,500 registered initiatives in Germany (Hansing et al., 2023).

Resulting Mitigation

Repair statistics show that household appliances, diverse electronic items and consumer electronics make up the largest share of the repairs (Netzwerk Reparatur-Initiativen, 2023 a). The ratio of successful to failed attempts is around two thirds which is also reflected in the average success ratios of 63 % to 67 % documented by Repair Café.org (see Appendix B) and Privett (2019).

Privett (2019) concludes his findings to the following positive mitigation effect of repairs. On average, every kilogram of repaired devices saves 8.8 kg of CO_2eq emissions over discarding it.

According to the calculations from Netzwerk Reparatur-Initiativen, the total repairs of 83 initiatives equal to a positive climate mitigation of 120 tons CO_2eq and 1,581 tons of saved resource material since 2013.

While in 2013 only three initiatives tracked their data, in 2022 already 34 Cafés participated resulting in 29 tons of saved emissions and 377 tons of resources (Netzwerk Reparatur-Initiativen, 2023 a). This result can be understood as very conservative due to the small number of participating Repair Cafés. Resulting, every Café has average annual emission savings of 853 kg CO_2eq and 11.1 tons of resources.

When the results are extrapolated to the registered number of 1,500 Cafés in Germany (Hansing et al., 2023), the annual saving potential increases to 1,280 tons CO_2eq and 16,650 tons of saved excavated material.

83.2 million people lived in Germany in 2020 (Destatis, 2021) with an average 12.5 kg of electronic waste (Destatis, 2023) causing 2.40 million tons of CO_2eq emissions per year from discarding electronic waste and buying replacements (imug, 2022). In this comparison, the minor scale of the positive impact gets clear. The approximate yearly saving of all registered Repair Cafés is only 0.053 % of the total German annual emissions caused by electronic waste.

Discussion

The resulting numbers for the quantitative impact of the German RCI provide a first estimate. However, these need to be discussed carefully from two sides: First, the meaningfulness evaluated against the background of restricted data availability and assumptions. Second, the mitigation impact itself against the overall emissions in absolute numbers.

Still, many Repair Cafés do not register and track the repairs very closely. Thus, a large insecurity must be considered with the results. To supply more precise data, tracking of the repairs must be enhanced in the future. On the other hand, the provided results can be understood as conservative because the real impact might be larger than the resulting numbers due to unregistered Cafés like the one in Flensburg. The responsibility lies at the RCI to implement a stricter tracking of repairs to assess the impact more detailed in the future. Having a better data base, positive impacts could be used to acquire funding or as promotion of the movement to get more attention boosting the positive effects.

While there is a strong positive trend of registration and data monitoring, the mitigation results of the extrapolation conducted in this work have shown, that the current impact is almost neglectable against the dimension of absolute emissions in Germany per year.

On the other hand, every saved ton of greenhouse gas emissions is viable in the progress to a more climate friendly and resilient society. Following, in combination with the manifold positive qualitative effects on the society, the RCI provides an impact that is yet small in absolute numbers but is likely to be an important lever in the future as seed for change.

This work provides a short and comprehensible overview of the RCI in Germany including functioning, effects and a classification against total numbers. However, results could be improved with larger databases that require fundamental research and questionnaires.

Conclusion

In the journey towards a sustainable and equitable future, sufficiency emerges as a critical yet often overlooked strategy. The analysis has shown that the Repair Cafe Initiative in Germany serves as a tangible illustration of sufficiency in action, illuminating its potential to reshape consumption patterns by its qualitative impacts and already positive contributions to climate mitigation.

Repair Cafes act as a seed for broader change within communities and offer a positive effect on climate mitigation by saving greenhouse gas emissions in various lifecycle stages of a product. Additionally, resource use is reduced and social effects can have a lasting influence. These effects make the initiative a viable example for a sufficiency measure in practice.

The results also underline the significance of combining different measures to reach a striking positive impact in climate change. One single movement or initiative will most likely not be successful in creating an impact that is noticeable to divert the climate warming and its dramatic effects in the future. It remains questionable whether the Repair Cafés can trigger a cultural revolution. What they do for sure is providing a small contribution to rethinking, establishing repairs and climate protection that can grow and mature in the future (Kannengießer, 2018).

Even though the calculations indicate the savings of 1,280 tons CO_2eq to be small in comparison to the general consumption patterns of the current society, Repair Cafés are one of many steps towards the desired safe and just space for humanity.

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Appendix

A: Base values for calculation by Netzwerk Reparatur-Initiativen, 2023

The first value given is CO_2 emissions for production, the second one the amount of mined earth for production. This would equal the total mitigation, when an item is repaired instead of discarded.

Gerät	CO₂ Emissionen	Rohstoffauf-wendungen	Einheit
Bügeleisen	8,69	136,3	kg/kg
Kaffemaschine, Kaffeevollautomat	6,01	47,6	kg/kg
Fön, Elektrorasierer, Lockenstab, Glätt-eisen	1,24	29,5	kg/kg
Toaster, Eierkocher	5,87	77,7	kg/kg
Wasserkocher	4,16	40,2	kg/kg
Küchenmixer/Handmixer, Mixstab/Pü-rierstab, Nähmaschine, Küchenma-schine, Brotschneidemaschine	2,34	27,9	kg/kg
Bildschirm, Computerbildschirm	335,61	2894,4	kg/kg
Laptop, Desktopcomputer	208,87	2347,9	kg/kg
DVD-Player	17,23	356	kg/kg
Drucker, Scanner	78,91	1132,9	kg/kg
Fernseher	146,66	2116,1	kg/kg
Handy, Smartphone, E-Book-Reader, Tablet, Digitalkamera, Telefon, Video-kamera, Navigationsgerät	7,6	65,8	kg/kg
Mikrowelle	72,54	1212,7	kg/kg
Staubsauger	49,44	201,2	kg/kg

Further assumptions: A successful repair increases the device's lifetime at least 30 %

B: Summarized RepairMonitor Results from 2018 until 2022

Year	Number Global RC's	Number Global Repairs	Success Rate
2018	34	7,857	65 %
2019	67	13,609	63 %
2020	64	5,500	n/a
2021	56	3,200	n/a
2022	97	8,864	> 60 %
Total	318	39,030	62.6 %