Local Environment

The International Journal of Justice and Sustainability

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/cloe20

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To cite this article: Cat Acheson, Tom Hargreaves, Helen Pallet & Gill Seyfang (28 Jun 2024): Exploring intersectional approaches to waste through grassroots innovations in the U.K., Local Environment, DOI: 10.1080/13549839.2024.2368523

To link to this article: https://doi.org/10.1080/13549839.2024.2368523

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Published online: 28 Jun 2024.

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LOCAL ENVIRONMENT
https://doi.org/10.1080/13549839.2024.2368523

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Exploring intersectional approaches to waste through grassroots innovations in the U.K.

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ABSTRACT
Waste is an urgent global challenge. Patterns of excessive resource consumption and disposal are causing immense environmental and social damage. This paper argues that solutions to the waste crisis must be intersectional – addressing the ways in which multiple, overlapping forms of oppression are embedded in resource consumption and the generation of waste. Existing approaches to reducing waste in the U.K. and other Global North contexts have largely failed to take such an approach, but we identify grassroots innovations as a movement which may be well positioned to confront waste challenges in an intersectional way. Drawing on 19 interviews with practitioners and experts in the field of Grassroots Waste Innovations (GWIs), as well as analysis of select documents relating to key waste prevention projects, the article investigates the extent to which GWIs are taking an intersectional approach, and what this looks like. The research finds that GWIs are not generally understood in an intersectional way, but some compelling examples can be found. Framings, project design, and coalition-building emerge as key features of an intersectional approach. However, there are also some significant constraining factors. These include concerns that placing too much emphasis on multiple political causes will be off-putting to participants, lack of capacity, unhelpful funding structures, and the risk of tokenising people from marginalised groups in an attempt to increase diversity.

ARTICLE HISTORY
Received 14 March 2023
Accepted 31 May 2024

KEYWORDS
Waste; grassroots innovations; sustainable consumption; intersectionality; communities; environmental justice

1. Introduction

Global patterns of resource consumption and waste are causing severe environmental and social crises. As resource extraction, production, and consumption accelerate, the ability of the biosphere to replenish these resources, and absorb the resulting waste, is being stretched to breaking point, with devastating implications for liveability on Earth (Richardson et al. 2023). The extraction and processing of materials is responsible for 90% of biodiversity loss, and around half of global Greenhouse Gas Emissions (International Resource Panel 2019). Global consumption trends also reflect extreme inequity, with per-capita consumption in high-income countries over 13 times greater than low-income countries (International Resource Panel 2019). Waste and discarding are an important part of this picture. When materials are discarded, this drives demand for further resource extraction;

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compounding ecological harm, accelerating climate breakdown, and reinforcing global inequities (Middlemiss 2018).

The vast quantities of solid waste being generated each year – projected to reach 3.4 billion tonnes by 2050 – present major challenges for waste management (Kaza et al. 2018). Almost 40% of Solid Waste goes to some form of landfill, while 33% is dumped in the open environment (Kaza et al. 2018). High-income countries export large quantities of waste to lower-income regions in the Global South, with significant effects on health and wellbeing (GAIA 2019; Pratt 2011). This is a model rooted in environmental injustice: populations whose consumption and waste-generation are lowest bear the brunt of the harms of global consumerism (Adeola 2000; Middlemiss 2018).

Fundamental changes are needed to address these harms and injustices. Mainstream approaches to managing waste have tended to focus on recycling and changing consumer behaviours. These approaches have not tackled the systemic causes of the issue, and have failed to make interventions at the scale necessary to realise a tangible reduction in waste and resulting environmental and social harms (Liboiron and Lepawsky 2022; MacBride 2019). Community waste initiatives are increasingly emerging in recognition of the failures of mainstream approaches (Skarp 2021). Whilst community initiatives tend to confront waste post-consumption rather than during industrial processes where the majority of solid waste arises (Liboiron 2014), they can nonetheless offer alternative strategies for organising resource use and preventing excess waste, in ways that challenge mainstream capitalist logics (Skarp 2021). However, in both mainstream and community-based approaches to waste, there is a need to give more attention to the complex systems, power relations, and ideologies which determine how disposability is constructed, and which lives and identities are rendered disposable within dominant consumption and waste management paradigms (Liboiron 2014; Liboiron and Lepawsky 2022).

We argue that an intersectional approach is valuable for understanding how multiple oppressive systems interact within dominant waste paradigms. In this article, we bring together the fields of intersectionality and grassroots sustainability innovations for the first time, to explore how community waste projects in the U.K. – for example reuse, repairing, sharing, and upcycling – have the potential to offer alternative ways of organising consumption and preventing waste, in ways that actively subvert multiple forms of social oppression and environmental harm. "Intersectionality" refers to the ways in which multiple, overlapping systems of oppression shape society and lived experience (Davis 2008). Our utilisation of intersectionality theory extends beyond the concept's classic focus on race, class, and gender, to include other salient axes of oppression, such as colonialism, ableism, transphobia, and anti-migrant nationalism (Mehrotra 2010). Drawing from the emerging field of Discard Studies, we view all these axes, and more, as relevant to thinking about waste as a product of systems of discarding based upon logics of domination (Liboiron and Lepawsky 2022). Genuinely effective responses to waste should seek not only to reduce its environmental impacts, but also account for the differentiated impact of overconsumption and waste on multiple oppressed groups, and support full liberation from oppression.

We focus on grassroots innovations (GIs) as potential intersectional responses to the waste crisis. GIs are small-scale, low-cost solutions to pressing societal challenges, developed by civil society actors to meet community needs in the face of institutional failures (Seyfang and Smith 2007). The positioning of GIs outside of mainstream institutions and infrastructures, and their prioritisation of community need over private profit, may enable them to address multiple systems of oppression in an intersectional way. However, the existing literature on grassroots innovations for waste and sustainability in the U.K. and similar Global North contexts has yet to engage with intersectionality.

In this article, we explore the extent to which grassroots waste innovations (GWIs) are taking an intersectional approach to waste in the U.K., and what an intersectional approach can look like. We also explore the barriers GWIs face in taking an intersectional approach. The article begins with an overview of existing approaches to waste reduction, outlining why they are falling short. We then make a case for taking an intersectional approach. Drawing on 19 interviews with practitioners and experts connected with community waste-prevention, and analysis of 3 key documents in cases where stakeholders were not available for interview, we explore how GWIs are engaging with intersectionality, and the challenges they face in doing so. We then discuss the value of bringing together intersectionality and grassroots innovations, and the new insights this reveals.

2. Towards intersectional grassroots waste innovations

2.1. Existing approaches to reducing waste

Mainstream policy approaches to tackling the waste crisis have focused on improving efficiency in production and consumption, increasing recycling rates, and changing consumer behaviours (e.g. UK Government 2018). These strategies have numerous flaws and have failed to offer meaningful solutions to the waste crisis. Most notably, recycling and other secondary production processes (e.g. remanufacturing) are assumed to displace the primary production of materials and resources, thereby reducing the environmental impacts, including waste, associated with primary production. While this may be true in some cases, it does not stand up to scrutiny as a general rule (Zink and Geyer 2017). In fact, primary production has been shown to increase *alongside* recycling, leading to compounded environmental impacts and greater quantities of waste (Liboiron and Lepawsky 2022, 68–69; MacBride 2019; Zink and Geyer 2017). The focus on recycling in waste policy frameworks has also institutionalised the production of disposables, by allowing manufacturers to present disposable products as sustainable (MacBride 2012; Zoie et al. 2022).

Policy emphasis on recycling and consumer behaviour change also frames waste an end-of-life issue. This deflects attention from production and industrial processes, and obscures the need for regulation and legislative change (Akenji 2014; Liboiron 2014; Maniates 2001; Villarrubia-Gómez, Carney Almroth, and Cornell 2022). Further, the performance of low-waste consumer behaviours – especially among more privileged social groups – has in many cases become a new indicator of elitism (Anantharaman 2014, 2022). This reinforces oppressive social hierarchies and erases the innovative waste-saving practices of many low-income, Indigenous, and Global Majority groups (Müller and Schönbauer 2020, Anantharaman 2018; Hernandez 2021; Siragusa and Arzyutov 2020).

The labour involved in low-waste lifestyles also places a disproportionate burden on women, who are positioned as responsible for social and environmental care under patriarchy (De Wilde and Parry 2022; Judkins and Presser 2008). The gendering of sustainable consumption work intersects with class, race, and caste, in cases where this additional labour is outsourced to low paid domestic workers, who are typically working class, often migrant, women of colour (Anantharaman 2014; Araujo and González-Fernández 2014; Windebank 2007). As demand increases for recycled and recovered materials under Circular Economy business models, the labour of informal waste workers across the Global South fails to be acknowledged, and workers are not afforded adequate rights and protections (Anantharaman and Schröder 2021; Barrie et al. 2022; International Alliance of Waste Pickers 2023).

2.2. Grassroots innovations: an alternative, community-based approach to waste

In the face of these mainstream failings, a plurality of bottom-up initiatives has emerged to advance environmental and social justice from the community level (Gibson-Graham, Cameron, and Healy 2013). Grassroots innovations (GIs) research explores how communities develop small-scale, low-cost, low-carbon solutions to local problems. GIs seek to address the failings of mainstream institutions and market forces, and prioritise social and environmental goods over profit (Hossain 2018; Seyfang and Smith 2007; Smith and Seyfang 2013). There are many examples of GIs which seek to reduce waste and develop alternative models of consumption. These include reuse, sharing, swapping and lending initiatives, repair networks, surplus food redistribution, litter picking, and small-scale recycling (Skarp 2021; Zapata Campos et al. 2021; Zapata Campos and Zapata 2017). Grassroots Waste Innovations (GWIs) typically find ways of revaluing goods and materials *before* they become waste – as opposed to dealing with goods and materials after they have already been discarded. Reuse, repair, and providing ways of meeting needs without the consumption of disposables (e.g. by distributing reusable period products) are all processes and practices which require fewer resources and are less technically challenging than recycling and materials recovery, and these are the kinds of innovations which can thrive at a grassroots level (Seyfang and Smith 2007). In addition, because GWIs prioritise social and environmental need over profit, they are well-positioned to challenge consumerism by facilitating a shift away from the imperative to continually purchase new goods and products (Hossain 2018).

The extent to which GIs present radical challenges to prevailing systems and power structures is contested (de Moor, Catney, and Doherty 2021). In Global South contexts, studies have explored how GIs enable marginalised communities to assert socioeconomic agency, and develop modes of innovation which subvert elitist, patriarchal, and homogenising forms of innovation which are often imposed by mainstream institutions (Fressoli et al. 2014; Gupta et al. 2003; Khalil et al. 2020; Parthasarathy 2017). Case studies examine how GIs emerge from local political struggles and social movements, provide resources and mobilising structures for political change, and prioritise participatory decision making and gender equity (Smith et al. 2017; Smith, Fressoli, and Thomas 2014; Zapata Campos et al. 2022).

In contrast, studies from Global North raise concerns about the depoliticisation of GIs, and their tendency to reproduce dominant systems by excluding minority groups and reproducing “innovation” as a male-dominated, elitist sphere (Anantharaman et al. 2019; Bulkeley and Fuller 2012; Keiller and Charter 2014; Lewis 2015; Schägg, Becker, and Pradhan 2022). Much of the literature ignores questions of gender equity and justice for marginalised groups (e.g. racial minorities, migrants, people with disabilities, and sexual and gender minorities). Studies exploring the “political” or “radical” aspects of GIs generally take these terms to mean the extent to which GIs can offer alternatives to prevailing economic structures and sociotechnical regimes, for example energy, food, finance, and consumer goods (de Moor, Catney, and Doherty 2021; Loukakis 2018; Martin, Upham, and Budd 2015; Seyfang and Longhurst 2016). This includes work on GIs as sites for post-capitalist prefiguration, which respond to the multiple social crises accelerating under capitalism, and create alternate modes of social and economic organising beyond capital accumulation and commodification (Chatterton 2016; Stephanides 2017). This body of scholarship offers a wealth of valuable insights. However, there is a need for deeper analysis of where GIs – particularly in the Global North – sit in relation to the multiple, intersecting systems of oppression implicated in questions of consumption and sustainability under capitalism.

2.3. Introducing intersectionality

To address issues of power, oppression, and diverse needs and perspectives, sustainable consumption and waste reduction strategies – including those emerging through grassroots innovations – can benefit from taking an intersectional approach. The concept of intersectionality derives from the work of Kimberlé Crenshaw and the Black Feminist movement. It was developed to critique the ways that both the Feminist and Black Power movements were failing to account for the differentiated experiences of Black women, who face overlapping oppressions on the basis of gender, race, class, and sometimes sexuality and other categories of difference (Combahee River Collective 1977; Crenshaw 1989, 1991). Many feminist scholars have used intersectionality to explore how multiple forms of oppression interact to shape “individual lives, social practices, institutional arrangements, and cultural ideologies, and the outcomes of these interactions in terms of power” (Davis 2008, 68; Lutz 2014). Racism, sexism, classism, and other forms of oppression often reinforce each other; making certain groups particularly marginalised in society (Davis 2019). Liberation theories and movements can be considered intersectional when they pay attention to these overlapping systems of oppression, and seek to tackle multiple injustices in a joined-up way, by recognising that a common logic of supremacy and domination lies at the root of different instances of injustice (Davis 2016). bell hooks has referred to this as “imperialist white supremacist capitalist patriarchy” (2003, xiii).

Intersectionality has been continually adapted and reinterpreted over the years (Walby, Armstrong, and Strid 2012). There are lively scholarly debates over questions such as whether its core focus should remain on the experiences of Black women, or whether it should be extended as an analytical frame to address all salient assemblages of oppressions and privileges in any given case – including, for example, colonialism, ableism, transphobia, and anti-migrant nationalism (Mehrotra 2010; Yuval-Davis 2015). In this article, we adopt the latter interpretation, in common with scholars who have used intersectionality as a lens for exploring the multidimensional nature of climate and environmental justice (see Section 2.4.). Intersectionality can and does offer invaluable insights to the study of waste and systems of wasting, when taken as an analytical tool for addressing the many overlapping systems of oppression salient to this sustainability challenge. We hope we can honour the roots of the concept, while also demonstrating its expansive uses.

2.4. Intersectionality, environmental justice, and waste

Environmental justice scholarship and activism have increasingly evoked intersectionality to demonstrate how the climate and ecological emergency is fundamentally connected to systems of oppression including racism, colonialism, patriarchy, ableism, classism, and other axes of domination and vulnerability (Amorim-Maia et al. 2022; Di Chiro 2021; Malin and Ryder 2018; Mikulewicz et al. 2023; Thomas 2022). Whilst environmental justice has always been preoccupied with how environmental harms are a reflection of oppressive social relations, intersectionality adds important contextual and critical depth to these analyses (Ryder 2017). Scholars who apply intersectionality to environmental and climate justice have diverged from the classical focus on race, class, and gender. They explore the multiple overlapping axes of oppression implicated in the industrial production systems driving climate and ecological breakdown, how these are mutually reinforcing, and the diverse ways in which climate and environmental vulnerabilities are experienced, even by people within the same identity group (e.g. homeless populations), depending on their other intersecting identities (Malin and Ryder 2018). Intersectional environmental justice scholarship goes beyond a shallow understanding of sustainability problems, to argue that true ecological flourishing can only be achieved with an abolitionist approach to dismantling multiple, interconnected structures of oppression (Di Chiro 2021; Malin and Ryder 2018). Furthermore, intersectional environmental justice reveals how oppressed identity groups mobilise resistance through building diverse coalitions across borders and boundaries, and recognising that relations to Land must be repaired from the damage caused by historical and ongoing systemic violence (Di Chiro 2021). Solutions to environmental injustice are shown to lie in political action and solidarity networks at the grassroots level, rather than incrementalist or technocratic strategies of mainstream sustainability discourses (Di Chiro 2021; Mikulewicz et al. 2023).

Waste occupies a central position in environmental justice scholarship and activism. Although the term intersectionality is not commonly used, studies demonstrate how waste brings to bear many overlapping oppressions (e.g. on the basis of race, class, gender, indigeneity, ability, coloniality), to determine which communities bear the brunt of dealing with industrial and post-consumption discards, and how the resulting environmental, social, and health impacts are experienced (e.g. Bullard 2000; Fuller et al. 2022; Liboiron and Cotter 2023; Ngata 2018; Pulido 2016; Shadaan and Murphy 2020). Furthermore, grassroots organising *against* harmful waste impacts on marginalised communities has been central to the environmental justice as a body of scholarship and as a dynamic form of activism (Bullard 2000; Kraus 1993; Pellow 2004). Crucially, scholars have examined how intersectional politics factor in to the ways grassroots movements frame the nature of the problem, and pursue certain solutions over others. For example, Kraus (1993) contrasts the perspectives and strategies of African-American, Native American, and white working-class women activists in organising against toxic-waste dumping in the United States. Intersectional thinking can also be identified in recent scholarship on how overlapping factors such as class, race, gender, and environmental and health injustice come together in waste management systems and the experiences of informal waste workers in the Global South (Chigwenya and Wadzanai 2020; Millar 2020; Wittmer 2021). This diverse and dynamic body of waste and environmental justice scholarship demonstrates the importance of considering how multiple different systems of power and oppression are bound up in the generation and distribution of waste, how its impacts are experienced, and how alternative strategies for dealing with waste can both advance *and/or* constrain social justice for different groups.

The developing field of Discard Studies has emerged to examine precisely such questions. Intersectional thinking is undoubtedly present in Discard Studies' analysis of how systems of waste and processes of discarding are fundamentally tied to power (Reno 2015). As Liboiron and Lepawsky (2022) explain, dominant systems only function because of the things they reject, destroy, or externalise. There is thus an interrelationship between how certain materials are devalued and discarded under (racial, patriarchal) capitalism, and how certain bodies, identities and lives are rendered disposable to ensure the smooth functioning of the neoliberal capitalist economy, and to safeguard the interests of the most powerful groups (Katz 2011; Reno 2015; Vergès 2019; 2021). Furthermore, intersectional thinking about waste and discarding not only analyses the multifaceted nature of the problem, but also how communities experiencing various interlocking oppressions can mobilise with and through waste, to advance new lifeworlds foregrounded in social justice, collective care, and ecological flourishing (Meissner 2021; Millar 2020; Wittmer 2021).

Intersectional interventions to the waste crisis matter; both in terms of the prevention of further environmental and social harms, and possibilities for creating more just and flourishing futures. Drawing on this rich body of scholarship, in this article we aim to uncover what intersectional approaches to waste can look like in the U.K., and the extent to which grassroots innovations are offering such approaches.

2.5. Intersectionality and grassroots innovations: a new field of enquiry

Previous studies of community waste projects in the U.K. have identified that most GWIs aim to have a positive social as well as environmental impact. For example, GWIs aim to alleviate poverty, tackle social isolation, foster community cohesion, and create reskilling and employment opportunities for disadvantaged groups (Dururu et al. 2015; Luckin and Sharp 2005; Skarp 2021, 126–128). However, these studies have not employed intersectional analyses to explore the extent to which GWIs understand social vulnerabilities as arising from *multiple systems of oppression*, that interact with and mutually constitute each other. Nor have existing studies examined how GWIs relate to wider political struggles across the intersecting lines of gender, race, class, ability, queer identities, and so on. The potential role that GWIs could play in addressing systemic injustices in an intersectional way is therefore yet to be determined. This new empirical study of GWIs in the U.K. is intended to open a door to this investigation.

Our research seeks to answer the following questions:

1. To what extent are grassroots innovations taking an intersectional approach to waste in the U.K.?
2. What can an intersectional approach look like for grassroots waste innovations?
3. What constraints prevent grassroots waste innovations from taking an intersectional approach?

3. Methods

For this cross-sectional study, nineteen semi-structured interviews were conducted with practitioners involved in one or more grassroots-level waste projects, representatives from U.K. waste management and waste policy institutions, and academics with expertise in community waste. A challenge we faced in our sampling strategy was that there is no established field of intersectional grassroots innovations for waste in the U.K.. As a result, there was a lack of recognised experts who specialise in "intersectional grassroots innovations" to approach. We therefore used purposive sampling to identify interviewees with the broadest possible range of relevant experiences and perspectives.

Our sampling strategy was threefold. First, to gain insights on GWIs from multiple perspectives, we sought to interview (i) people with on-the-ground experience, (ii) people who support, connect and advocate for these on-the-ground groups, and (iii) policy and business actors working in waste. Second, we sampled for diversity across waste streams. "Waste" is a broad and continually shifting category, encompassing a range of materials which differ significantly in their physical and symbolic properties, and in the processes used to "manage" them after they have been discarded (Skarp 2021, 26–43). We wanted to ensure that our study captured the full range of waste streams which GIs in the U.K. are intervening in. We therefore approached interviewees with experience or knowledge of grassroots-level projects covering textiles, food, plastics, wood, period products, tools and household goods (e.g. kitchenware), and e-waste. Whilst there are many other "things" which are considered waste in various contexts, for example wastewater and sewage, these were the dominant types of waste we identified as being addressed by grassroots innovations. Desk-based research and the interviews themselves confirmed this. For the first two aspects of our sampling strategy we drew on our pre-existing networks and web searches to identify interviewees. We also used open calls on social media to solicit interviews with GWI practitioners, as far more projects exist than can be identified through desk-based research or personal networks alone. Our open calls stated that we were looking for people "involved in a Zero Waste project", who were "passionate about the links between sustainable consumption and social justice".

The third aspect of our sampling strategy was snowball sampling. Many of the interviewees suggested other relevant projects or intermediary networks. An overview of participants can be seen in Table 1. In three cases, targeted interviewees were unavailable for interview, and we therefore sought out relevant literature they or their organisations had produced. These were: a report from a GWI working on e-waste, a post on LinkedIn by the CEO of a major network for community sustainability projects, and a blog written by the project manager of an initiative run by a period poverty organisation. A full list of these documents can be seen in Table 2.

Table 1. Interview participants.

Interview No.	Type of participant	Sector
1	Practitioner	Sustainable fashion
2	Practitioner	Food sharing
3	Network coordinator	Sustainable fashion
4	Practitioner	Upcycling, reuse, and food sharing
5	Practitioner	Sustainable period products
6	Practitioner	Reuse and repair
7	Practitioner	Swapping and lending
8	Practitioner	Reuse and repair
9	Practitioner	Reuse, upcycling, and recycling
10	Network coordinator	Food sharing
11	Network coordinator	Reuse, upcycling, and recycling
12	Practitioner	Repair
13	Academic expert / practitioner	U.K. University / reuse
14	Academic expert	U.K. University
15	Community sector expert	Reuse, repair, upcycling, swapping, and lending
16	Private sector expert	Industrial waste and resources management
16	Private sector expert	Industrial waste and resources management
17	Private sector expert	Industrial waste and resources management
18	Community sector expert	Reuse, repair, upcycling, swapping, and lending, sustainable food, outdoor access
19	Network coordinator	Sustainable period products

Table 2. Public-facing documents used to supplement interviews.

Document No.	Type of document	Title / topic	Author	Associated organsiation
1	Annual report	A model for a city-wide repair economy	Sophie Unwin	Remade Network
2	Blog post	A look at the DECOLONISE MENSTRUATION project	Diana More	Bloody Good Period
3	Linekedin post	“Funding for the third sector is broken”	Michael Cook	Circular Communities Scotland

Ethical approval was granted by the University of East Anglia Research Ethics Committee. In the interviews, interviewees were asked to describe the activities undertaken and the various environmental, social, and political goals of the GWI(s) they were connected with. They were also asked to describe their own ideas for a more socially just and environmentally flourishing world, and to discuss what they saw as the role of GWIs in bringing about social and environmental justice. Barriers and challenges to achieving social and environmental justice through GWIs were also discussed. The interviews all lasted around one hour, and were transcribed verbatim.

Thematic analysis of interview data and documents was conducted using NVivo, focussing on (i) the roles played by GWIs in addressing waste problems; (ii) the presence of intersectionality in GWIs’ framings and activities; and (iii) the key challenges GWIs face in taking an intersectional approach. It should be noted that the intersectional approaches discussed in the next section are based solely on what interviewees reported, or what public-facing communications from the projects in question presented. It was beyond the scope of this paper to independently verify these, and this is a limitation of the methods we have used. It points to the need for more studies of specific projects using a broader mix of methods, to understand intersectional approaches in more depth.

4. Findings and discussion

The majority of GWIs we identified focus on (i) the refusal of single-use products and the rethinking of consumption, and (ii) repairing, reusing or redistributing goods which are already in circulation. Although it is not common for GWIs to take an intersectional approach to waste prevention, there are some important exceptions. We identified that intersectional approaches in GWIs can show up in how they frame their work, how projects are designed, and in coalition-building with other groups across diverse causes. We will now discuss these findings in detail.

4.1. Intersectional approaches exist, but they are not typical for GWIs

Interviewees outlined four distinct roles for GWIs in society: (1) as a route to changing patterns of consumer waste, (2) as a way of modelling alternative socioeconomic relations, (3) as counterproductive to achieving system change, and (4) as routes to intersectional social and environmental justice. We will address the first three of these here, before conducting more detailed analysis of GWIs as routes to intersectional social and environmental justice in the next section.

Firstly, perhaps unsurprisingly, mainstream institutions for managing waste view GWIs primarily as a route to altering patterns of consumer waste (or failing to do so). Viewed in this instrumentalist light, grassroots and community level projects were not considered to be particularly effective, compared to mainstream actors such as government, or individual behaviour change. As one representative from a private sector recycling and waste management company put it:

> I think local initiatives are great and I would never want to stop them […] [but] how many of the reuse programs, and repair systems, of […] these little villages that are created […] just don’t work, because the whole village doesn’t sign up. And lots of people take the car and go shopping somewhere else, and so the model, you know, unless you live in an enclave, you can never escape […] I just think they’re doomed to fail. (Interview 16)

Another interviewee, representing a waste and resources industry network, viewed grassroots initiatives in a more positive light, stating they can "prove concepts", which can then be adopted into the mainstream waste management regime – as was the case with curb-side recycling (Interview 17). In both examples, the role of GWIs was limited to the extent to which they have a measurable effect on reducing the amount of municipal solid waste being produced under the existing conditions of a consumerist society. This reflects the standard approach taken in mainstream perspectives on waste management, which are concerned with measurable impacts and cost–benefit analysis (Sharp and Luckin 2006). The underlying economic conditions of capitalism and consumerism were taken for granted and unquestioned, while social impacts were seen as incidental. Our interviews with actors working in the mainstream waste regime therefore suggest that there is limited consideration of the intersectional potential of GWIs.

Secondly, several interviewees highlighted the importance of GWIs in prefiguring alternative socioeconomic systems. These interviewees took a more critical approach to the underlying economic conditions which lead to the generation of excessive waste. This perspective was expressed by practitioners who were directly involved in one or more GWI, or academics, with a greater degree of critical distance from mainstream policy perspectives (Interviews 1, 7, 11, 12, and 13). Interviewees recognised that while the material impact of such projects may be limited, they are nonetheless important for building community resilience, practical skills and capacity, and creating cultures of mutual aid at a time of increasing instability. They viewed the fragmentation or breakdown of capitalist provisioning systems as the backdrop to these grassroots projects. As a Repair Café volunteer explained:

> now, in the early 2020s, we've got a situation where [capitalism] isn't meeting people's actual physical needs […] but until we replace that shit, we're in a mess, aren't we […] So myself and various people […] have been trying to figure out how do we meet our needs in a post-capitalist reality. (Interview 12)

This post-capitalist perspective chimes with the literature on GIs as radical community mobilisations in times of economic crisis, institutional failure and political instability (Chatterton 2016; Fressoli et al. 2014; Loukakis 2018; Zapata Campos et al. 2022). GWIs were seen as having the potential to create alternative systems of provision which are more accessible and affordable, that prioritise the needs of low-income communities, and challenge exploitative, capitalist wage-labour relations through non-hierarchical organising structures. Unlike the more institutionalised, instrumentalist perspectives on GWIs, post-capitalist perspectives are rooted in an awareness of social injustice. However, these perspectives tend to be limited to challenging economic injustice. Other forms of injustice, such as gender inequality, or structural racism, received less attention among the interviewees.

Thirdly, a contrary perspective discussed by two interviewees was the concern that the existence of GWIs for tackling environmental and social issues serves to absolve government and corporations from taking responsibility for these issues. They expressed concern that GWIs could be counterproductive to achieving system change for environmental and social justice. This concern speaks to longstanding critiques of the instrumentalisation of "Big Society" by David Cameron's coalition government following the 2008 financial crisis, which deferred responsibility for social welfare and public services onto community volunteers rather than the state (Coote 2010; Evans 2011; Kisby 2010). Adding to arguments made by Hauxwell-Baldwin (2013) that the instrumentalisation of communities for realising environmental policy goals has failed to deliver, interviewees expressed concerns that GWIs could be unwittingly entrenching systemic social and environmental injustice. However, the picture is complex, as one interviewee explained in relation to a national programme of community fridges their organisation helped support:

> I don't think it falls to community, or Big Society, or anything like that, to solve problems that have been created by government, big businesses, etc. But I do think that communities have a brilliant role to play in understanding what local community needs are […] they've got that that ability to connect on the ground in a way that like, we wouldn't be able to do without our network of community groups to support. (Interview 10)

An intersectional lens can be particularly useful in unlocking these nuances. Even though GWIs have a troubling positionality in relation to structural problems like food insecurity and wasteful food supply chains, they can still play a valuable role in tapping into community needs which are locally situated, context-specific, and overlooked by mainstream institutions. It should be kept in mind that this logic strays uncomfortably close to the neoliberal governance strategy of "trusting people to know what needs doing" in the face of substantial government spending cuts (Coote 2010, 82). However, the kind of community organising which happens through GWIs can be decidedly more politicised than the Big Society conceptualisation of citizen philanthropy allows for (Kisby 2010). Moreover, the work of GWIs to engage with diverse needs that are marginalised by mainstream structures does not preclude the development (or reinstatement) of a strong welfare state and environmental regulation. Rather, GWIs have the ability to offer something beyond what government intervention into systems of provision would likely offer: critique of, and mobilisation against, the multiple oppressive systems behind the status quo.

This brings us to the fourth perspective which emerged in the interviews: GWIs as routes to intersectional justice across multiple axes. Ideas around intersectionality were discussed by eight interviewees, though not all of them felt the GWIs they were involved in succeeded when it came to taking an intersectional approach, for reasons discussed in Section 4.3. An intersectional approach can show up in a number of ways, as we explore in the next section.

4.2. Intersectionality through framings, project design, and coalition-building

We identify three key ways that GWIs are taking an intersectional approach to challenging multiple systems of oppression: through framings, project design, and coalition-building.

4.2.1. Framings

We borrow the concept of framings from Social Movement Theory, where it is used to refer to the ways that social movements or groups perceive societal problems, what they consider to be potential solutions, and beliefs about why a particular course of action is necessary, morally justified, and effective (Benford and Snow 2000; Della Porta and Diani 1999, 58–82). Some GWIs adopt an explicitly intersectional framing of environmental and social justice issues. Although the word "intersectionality" itself is rarely used, some GWIs emphasise the need to address multiple axes of oppression in a systemic way, when confronting the problems of overconsumption and excess waste. For example, when discussing how a community reuse hub combines its reuse work with supporting refugee and homelessness charities, one interviewee stated:

> they're all social justice issues based around one party or one group claiming power over another group […] it all links together. It's all about how we manage power, and how we share resources, and who decides who does what and why they do it, and who has the power to do those things. (Interview 9)

The work of reusing and redistributing goods and materials, in a way which includes and benefits underprivileged groups, was thus framed as important for challenging multiple structures of dominance and exclusion, in which power and material resources are concentrated in the hands of a dominant group over subjugated others. This recognition of the common dynamics of oppression, which lead to inequality on the basis of multiple axes of difference (such as race, citizenship status, and material dispossession), aligns with Ecological and Black Feminist writings on how a "logic of domination" characterises multiple systemic injustices, from colonialism and patriarchy, to white-supremacy and ecocide (hooks 2003; Plumwood 1993; Warren 1990). The notion that reuse and repair at the grassroots level might play a role in dismantling systems of domination is therefore promising from the perspective of intersectional justice.

Another example of GWIs using intersectional framings is the case of a sustainable fashion initiative which runs community repairing and swapping events. Its founder described their work in the following way:

> we're trying to create a vision of what fashion could be, if it was […] feminist, anti-capitalist […] anti-fascist, like you know, anti-racist, all these things. Because fashion has historically been, like, racist, ableist, like, fatphobic, like, all these things. (Interview 1)

In this example, creating a space where people come together to mend clothes, share skills, and bypass the mainstream fashion industry is considered to have implications beyond the environmental savings gained by diverting old clothes from landfill. By empowering people with the skills and confidence to make and mend garments, the initiative views itself as a counter to the oppressive and exclusionary beauty standards and the commodification of gendered bodies in mainstream fashion, as well as the gendered and racialised exploitation of workers in fast fashion supply chains. In this way, this GWI is engaged with systemic critiques of misogyny, racism, ableism, and the subjugation of marginalised groups in a capitalist system.

However, intersectional framings are not always easy to translate into outcomes. The same interviewee acknowledged that although the project is motivated by intersectional feminist, anti-racist, anti-ableist and anti-exploitation politics, these politics were not necessarily reflected in their public-facing work:

> So there's all of those things we're not, like, overtly engaging with […] in our outward facing stuff, but that's obviously always in the background of my brain. (Interview 1)

This speaks to a much-discussed issue for radical politics: the gap between how liberation theories are *evoked* to gain credibility and cultural capital, and the steps taken to *enact* liberation by the entities which capitalise on these theories (Lutzenberger and Clark 1999; Ndhlovu 2022; Tuck and Yang 2012). However, intersectional framings can still be powerful in their own right. As Social Movement theorists have argued, framing processes are key to shaping actors' perceptions of political possibility, and have a dynamic relationship with the development of shared understandings of injustice, shared values and practices, and a shared interest in bringing about change (Benford and Snow 2000; Taylor and Van Dyke 2004, 268–271). GWIs which take an interest in intersectional social and environmental justice should therefore not be judged solely on quantifiable outcomes. Internal framing processes are also significant for longer-term political change.

4.2.2. Project design

There are ways that intersectional framings *can* be translated into tangible outcomes. This is evident in how GWIs design their projects and workflows. Given that multiple environmental and social injustices are fundamentally intertwined, GWIs can choose to develop projects which contribute to addressing multiple injustices in a joined-up way.

A compelling example is Bloody Good Period, an organisation which aims to tackle period poverty by distributing free period products and to challenge the misogynistic stigmatisation of people who menstruate through advocacy and education initiatives (Bloody Good Period 2023). They promote the use of reusable alternatives as well as standard disposable products to address the environmental impacts of waste period products. As well as confronting patriarchy and environmental harm, they also aim to challenge the colonialist and racist dimensions of period stigma and lack of access to adequate products and facilities for menstruators who experience intersecting marginalisations on the basis of gender, race, coloniality, economic status and refugee status (More 2021). Their "Decolonising Menstruation" project explored these issues through a series of collaborative workshops with refugee and asylum seeker groups. The workshops explored relationships between colonialism and menstruation, and what a decolonial approach to menstruation could look like. Participants were gifted a welcome pack including a range of reusable menstrual products (More 2021). The Decolonising Menstruation project is a significant example of intersectional project design, because it recognises that although all people who menstruate have common cause when it comes to tackling patriarchal stigma and period poverty, there are also specific and incommensurable justice issues such as racism and colonialism which require attention in their own right. As Bohrer (2019) argues, this respect for incommensurability, while simultaneously working towards overarching political goals, is key to effective intersectional organising.

Another GWI that has sought to align intersectional framings with intersectional project design is the Remade Network in Glasgow, which works on repairing and redistributing e-waste. Their report, "A Model for a City-Wide Circular Economy", declares:

> We know that it is those who have contributed least to climate change that are most disproportionately affected by it. We want to reverse this by centering the voices, experiences and skills of the communities we serve in our work. And, as a female-led organisation, we seek to highlight women's perspectives and experiences on tackling climate change, supporting calls for a feminist green new deal. (Unwin 2021, 11)

The organisation attempts to act on this feminist, climate justice framing through its "Desktop Distribution project", which ran during the Covid-19 lockdown in 2021. Through establishing networks with other organisations and interest groups supporting local residents with diverse needs, the Remade Network provided desktop computers to women experiencing digital exclusion and social isolation on the basis of multiple systems of marginalisation, including racism and language barriers (Unwin 2021).

It is worth pointing out that feminism and intersectionality are not interchangeable. There is a debate among intersectionality theorists over whether it is accurate to use the term intersectionality when gender is treated as the core axis of oppression, to which other forms of discrimination are added (Mason 2019). As Mason (2019) argues, this diverges from Crenshaw's original conceptualisation of the term, which emphasises how gender, race and class as oppressive categories are fundamentally intertwined and mutually constitutive, and must therefore be addressed together. According to some intersectionality scholars, different axes of oppression produce new analytical categories at the point of intersection, and so it does not make sense to view intersectional subject positions as merely the sum of multiple distinct oppressions added together (Hancock 2007; Walby, Armstrong, and Strid 2012, 243). This more complex understanding of intersectionality is arguably less present in the example of the Desktop Distribution project. However, this does not mean that a project like the one described here is not relevant when it comes to an intersectional justice agenda. The Desktop Distribution project is a useful example of how waste-saving practices such as reuse and repair can achieve more than simply diverting waste from landfill, or even creating alternative infrastructures of provision which by-pass the capitalist linear economy. As the example shows, grassroots practices of reuse, repair, and the redistribution of discards can also be a conduit for subverting systemic marginalisation, and can be mobilised to support a vision of transformative system change. A pragmatic interpretation of intersectionality can therefore be used to capture the significance and radical potential of everyday waste prevention work at the grassroots level.

4.2.3. Coalition building

Another highly significant way that GWIs can take an intersectional approach to the environmental and social injustices of the waste crisis is through coalition building with other groups working across different social and environmental justice issues (Di Chiro 2021). As Bohrer (2019, 249–257) argues, a sign of strong intersectional organising is when solidarity occurs across multiple interlinked injustices, without collapsing differences and erasing incommensurable experiences.

One particularly strong example of coalition building by GWIs came from a Community Trust which runs a reuse, repair and recycling hub and a community pantry alongside other projects. The representative we interviewed explained that waste is a significant issue in the local area (Interview 4). They connected this not only to systemic discrimination by the city authorities against this predominantly working class, racially diverse area, but in addition they suggested that racism underpins how this problem is characterised and who is blamed:

> When the Roma community started settling […] here, there was a lot of racism towards them. They were blamed, as racism [does], they were blamed for everything from, you know, rubbish in the streets to theft, and all sorts of awful, awful things. (Interview 4)

Tackling racism and anti-migrant sentiment is therefore intertwined with the task of reducing waste and pushing for environmental justice in the local area. But rather than assuming that racism would go away if waste and environmental issues were addressed, the Trust acknowledged that racism and hostility towards migrants must be confronted proactively. Working in coalition with a range of other local groups proved to be key to this. The interviewee went on:

> The way we combated that [racism] was to support Roma organisations locally, to help them grow, we supported them with funding and so on, so they could take on some of these issues, but we also set up an anti-racist festival where we invited anti-racist organisations and arts organisations to celebrate the contribution immigrants have made. (Interview 4)

This example, and the earlier example of Bloody Good Period, which worked in coalition with three refugee organisations and the grassroots group Decolonising Contraception, are rather unique in the data. The other GWIs we engaged with had not taken such substantial steps towards working in coalition with a variety of groups on social justice issues that intersect with waste prevention work. This is not necessarily due to a lack of interest in doing so – but there are a number of barriers which prevent GWIs from taking an intersectional approach.

4.3. Barriers to taking an intersectional approach

Interviewees identified four main barriers to achieving intersectional outcomes: (1) the perception that placing too much emphasis on political causes will be off-putting to potential participants; (2) lack of capacity, (3) unhelpful funding structures, and (4) attempts to increase social diversity resulting in the tokenisation of people from marginalised groups. Some of these challenges – particularly lack of capacity and funding – reflect long-established tensions for GIs, which have been documented at length in the existing literature. However, the literature to date has framed these as challenges to the up-scaling and/or replication of GIs, and their impacts on top-down policy agendas (Hossain 2018; Martin and Upman 2016; Martin, Upham, and Budd 2015; Smith et al. 2016; Walker 2011). Our findings differ from the literature in that we are not addressing the extent to which GWIs are constrained in their ability to upscale, replicate, or interact with mainstream policy agendas. This perspective has already been covered extensively. Rather, we find that issues around avoiding potential controversy, capacity, and funding pose specific challenges for the *intersectionality* of GWIs. Therefore, these findings merit discussion here.

Firstly, the perception that placing too much emphasis on political causes will be off-putting to potential participants was discussed by five interviewees. Some expressed a personal commitment to anti-oppression politics, but felt they needed to tone this down to avoid alienating people. Several interviewees noted that GWIs tend to be female-dominated and have feminist leanings. This was seen as problematic by a representative from a sustainable fashion network in terms of broadening the appeal and widening the impact of the projects:

> When we talk about female empowerment and feminism, that can be alienating for men as well. It shouldn't be, but it can be. So we need to also remember to make it a bit more accessible to men as well, just so that they join in these kind of movements. Not too much, they should still be okay with feminism, but you know. (Interview 3)

The conflict between being radical and having broad appeal is commonly experienced by GIs (Seyfang and Longhurst 2016; Smith 2007). The data presented here shows that tensions can arise not only regarding the extent to which GWIs should be challenging capitalism, but also the extent to which they should address intersecting issues such as gender equality. Furthermore, three interviewees suggested that to attract a diverse base of participants GWIs need to be less overtly political, because of concerns that political ideologies such as anti-capitalism do not feel relevant to people's everyday struggles. Interviewees expressed concern that an overtly anti-system framing and praxis could be alienating to people not already sympathetic to these ideas. This reveals an interesting tension: capitalism and intersecting systems of oppression were widely recognised as the root causes of everyday struggles such as poverty and social exclusion, and yet the expression of radical, intersectional political ideas is still associated with elitism and privilege, to the point where it could undermine attempts to deliver positive and inclusive social impacts.

A second barrier is lack of capacity. GWIs are typically low-budget, and are reliant on the work of volunteers or a handful of staff members. This means that they have limited time and resources available to build coalitions with other groups and movements, a task which is fundamental to building intersectional coalitions, as discussed above. This problem was explained by a member of a local environmental group:

> We struggle to do the things we've already said we're going to do. Like, we don't have a Development Manager, we don't have anyone on the Board with loads of time on their hands to go, "actually yeah, I'll go and meet that group", or 'I'll go to this and just see what happens". (Interview 8)

Despite the increasing prominence of discourses around intersectional climate and social justice, several participants noted that the people who get involved in grassroots sustainability initiatives are still overwhelmingly white and middle class. People of colour and working class communities express high levels of concern about climate and environmental issues, but the culture and demographic make-up of many environmental groups make them uninviting (Bell 2020; Bell and Bevan 2021). Therefore, it is particularly important for GWIs to invest time into building relationships with marginalised communities. However, the heavy workload and high levels of stress involved in maintaining the core function of GWIs means they often struggle to do so.

Thirdly, unhelpful funding structures, which have long been acknowledged as a challenge for waste projects at the community level (Sharp and Luckin 2006, 284), placed significant constraints on GWI's ability to take an intersectional approach. In cases such as Scotland's Climate Challenge Fund, a major funder of GWIs in Scotland prior to 2023, funds were only granted to cover capital costs and new innovations, rather than ongoing costs and staffing costs (Cook 2022). This makes it difficult for existing projects to become established within their communities, and leads to job insecurity for staff. Unsurprisingly, this is not conducive to staff having time and personal capacity to explore multiple ways of making a difference socially. It was also noted that funding bodies tend to grant funds for projects which are *either* environmental *or* social (Interview 18). Funding bodies typically require impact auditing, and it is easier for GWIs to measure impact when they adopt a single-issue focus. The bureaucracy and heavy workload involved in securing and retaining funding, combined with external pressures to quantify the "success" of the initiative, undermine attempts to explore more intersectional and radical modes of organising. As Skarp (2021) points out, rigid funding requirements constrain the ability of community groups working with waste to prefigure radical alternatives to capitalist waste management paradigms. This same rigidity also constrains their ability to take an imaginative, intersectional approach to tackling diverse but intertwined social and environmental issues.

Lastly, an additional challenge GWIs face when it comes to intersectionality is the risk of tokenising people from marginalised groups. Scholars concerned with intersectionality have drawn attention to how the concept has been appropriated to reinforce essentialist categories of difference which are themselves oppressive, and used by neoliberal institutions to performatively showcase examples of "diversity", instead of dismantling entrenched hierarchies and power structures (Bilge 2013; Di Chiro 2021; Jibrin and Salem 2015). One interviewee expressed that there would be a risk of tokenism if the organisation attempted to bring in more people of colour purely for the sake of wanting to appear to be diverse:

> I think there's a risk in that scenario [that] you go out and you meet, you know, another group or another network and they're like, what are you actually bringing to the party other than the desire to be seen alongside, you know, another social group, and kind of tick your box? (Interview 8)

This note of caution relates back to issues around lack of capacity, time, and resources to develop meaningful and reciprocal relationships across diverse interest groups. It also suggests that an insufficient understanding of intersectionality can lead to blunders (Mason 2019). In some cases trying to “include” marginalised groups in an overly prescriptive vision of waste prevention could even be counter-productive for social justice. For example, a representative from a reusable period products initiative pointed out that reusable period products are not suitable for unhoused people, because:

> a lot of the time these people don’t have access to private bathrooms, and they don’t have access to places where they can sterilize their products in a very good manner. So that can lead to higher risk of infections, and it’s just, yeah, it would be great if there was a solution for that, but at the moment I would say like, reusable period products are useful for tackling period poverty in places like outside of homeless shelters. (Interview 5)

What’s clear is that approaching intersectionality in a genuinely radical and politicised way requires careful thought, critical awareness, and self-reflexivity (Jibrin and Salem 2015). GWIs which are already struggling to meet the ever-growing demands placed on them by the failures of mainstream systems of provision unsurprisingly also struggle to undertake this critical intersectional work.

5. Conclusion

Intersectional approaches to addressing overconsumption and excess waste are needed more than ever, but in the U.K. it has not been clear before now whether intersectional approaches exist or, if they do, what they look like. Our research shows that grassroots innovations for waste prevention are a fruitful domain in which to explore these questions. In bringing together intersectionality and grassroots innovations for waste prevention, this article has offered a novel approach to the field of grassroots innovations for sustainability. For the first time, we have shown how intersectionality can shed light on the many diverse forms of value GIs can have, beyond their role in providing immediate solutions to practical problems such as excess waste. Applying an intersectional lens to the study of grassroots innovations can add new vitality to the field, moving beyond established debates over the extent to which these community level projects can scale up and interact with mainstream waste policy agendas, or tensions around whether or not they are part of a neoliberal agenda of scaling back government and corporate responsibility for environmental and social issues. We have shown that although intersectional approaches are still not common among GWIs in the U.K., they have the potential to provide interventions into the multiple, interconnected systems of oppression which underpin the dominant paradigm of linear resource extraction, unsustainable consumption, and excess waste.

Furthermore, we have contributed to the extensive and diverse field of intersectionality, by opening up a new area of intersectional praxis for analysis. As intersectionality theorists have argued, keeping intersectionality thoroughly grounded in practical examples of political organising is extremely important to prevent the co-option of intersectionality into depoliticised, neoliberal structures (Bilge 2013; Jibrin and Salem 2015). Our analysis has illuminated what intersectional approaches can look like in practice for grassroots sustainability innovations, and how intersectionality emerges through framings, project design, and coalition-building. We have also identified several key barriers which constrain the development of intersectional approaches for GWIs: the perception that intersectional politics will be alienating to potential participants; a lack of capacity and resources; unhelpful funding structures; and concerns over tokenising people from marginalised groups in a performative way.

There is a need for more in-depth, case study research to explore the intricacies of intersectional GWIs, and the possible ways that barriers to intersectionality can be overcome. This is a very new and exciting field, and further research should contribute to the development of a diverse ecosystem of grassroots innovations which are genuinely intersectional, and therefore better equipped to address the multiple crises unfolding under the destructive model of extractive and wasteful capitalism.

Acknowledgements

The authors would like to thank all of the research participants for contributing their time.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The authors would like to thank Norfolk County Council for contributing funding to this research project.

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