

Recycling, caring and chatting at the Food Bike: Citizen Participation in a Waste Management Experiment in Hengelo, the Netherlands

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Abstract

The food bike (*voedselfiets*) project in the city of Hengelo (Netherlands) was designed to stimulate citizens to separate organic from residual waste. The food bikes take standard routes with designated stops to collect food waste from residents in high-rise neighbourhoods, which lack space to separate organic waste in garbage containers. Data were collected by a mix of qualitative research methods, which allowed to develop a holistic and contextualized view of the reasons why citizens joined this environmental initiative. The from literature well-known factors of idealism and self-interest can partly explain participation in the food bike project, but we have found that a habitus of not wasting food and social needs are also important reasons for people to participate. Especially older people take part in the project because the food bikes suit their habitus of frugality. The social interaction -behaving in a desirable way in the eyes of neighbours, and chatting at the bikes- stand in marked contrast to collection of waste by garbage trucks, in which contact is avoided as much as possible. The social aspect was reinforced during the Corona crisis, when indoor social contact was discouraged by the Dutch government. As it is, municipal efforts to promote pro-environmental behaviour build on the idealism and perceived self-interest of citizens, but could also make use of the social and emotional considerations of prospective participants and their attachment to the neighbourhood.

Key words: pro-environmental behaviour; circular economy; citizen participation; habitus; food waste; neighbourhood cohesion.

Reciclando, cuidando e conversando na *Food Bike*: Participação cidadã em um experimento de gestão de resíduos em Hengelo, na Holanda.

Resumo

O projeto Food Bike (voedselfiets) na cidade de Hengelo (Holanda) foi concebido para estimular os cidadãos a separar os resíduos orgânicos dos não orgânicos. As food bikes seguem rotas padronizadas com paradas designadas para coletar resíduos alimentares de moradores de bairros altos, que não têm espaço para separar os resíduos orgânicos em recipientes de lixo. Os dados foram recolhidos através de uma combinação de métodos de investigação qualitativa, o que permitiu desenvolver uma visão holística e contextualizada das razões pelas quais os cidadãos aderiram a esta iniciativa ambiental. Os fatores bem conhecidos de idealismo e interesse próprio da literatura podem explicar parcialmente a participação no projeto da Food Bike, mas descobrimos que o hábito de não desperdiçar alimentos e as necessidades sociais também são razões importantes para as pessoas participarem. Principalmente os idosos participam do projeto porque as Food Bikes atendem ao seu hábito de frugalidade. A interação social - comportar-se de maneira desejável aos olhos dos vizinhos e conversar nas bicicletas - contrasta fortemente com a coleta de lixo por caminhões de lixo, nos quais o contato é evitado tanto quanto possível. O aspecto social foi reforçado durante a crise do Coronavírus, quando o contacto social interior foi desencorajado pelo governo holandês. Atualmente, os esforços municipais para promover o comportamento pró-ambiental baseiam-se no idealismo e no auto-interesse percebido dos cidadãos, mas também podem fazer uso das considerações sociais e emocionais dos potenciais participantes e da sua ligação ao bairro.

Palavras-chave: comportamento pró-ambiental; economia circular; participação cidadã; hábito; desperdício de comida; coesão do bairro.

Recycling, caring and chatting at the Food Bike: Citizen Participation in a Waste Management Experiment in Hengelo, the Netherlands

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Introduction

Municipalities in the Netherlands and elsewhere in the global North are increasingly seeing household waste no longer as a sanitary problem in need of disposal but as a resource to be retained in the circular economy. The separation of waste is a crucial step in recycling resources and many policy makers in the Netherlands, both politicians and civil servants at various administrative levels, are seeking ways to separate waste at the source. They do this on the premise that this results in a cleaner product which can be handled more easily downstream and that separation at the source might increase the citizens' awareness of the environmental consequences of their consumptive choices in general. The use of so-called 'food bikes' (*voedsel fietsen*) in the Dutch municipality of Hengelo is one promising experiment in separating household waste at the source as a contribution to the circular economy.

By Dutch standards the municipality of Hengelo (81,000 inhabitants on 1 January, 2022¹) is a middle-sized city. In line with the Dutch Waste Management Plan 2017-2029 (Ministerie van IenW, 2017) and the EU target of recycling 65 percent of household waste by 2035 (European Commission, 2018), Hengelo aims to reduce the amount of residual solid household waste to 100 kg per person in 2020 and 50 kg by 2030. The municipality has introduced a mixture of strategies to reach this goal. With reversed collecting residual waste must be taken away by the citizens themselves; recyclables are still collected door-to-door. 'Diftar' is the colloquial term for differentiated tariffs for residual solid waste removal. Other strategies are waste coaches and janitors giving advice to citizens, and sharing containers in which citizens can leave belongings to be picked out by others for reuse. And the food bikes.

The municipal government faces the challenge to get citizens involved. How to make them care for their environment? The municipality is a pioneer in trying out new ways of separating at the source in the Netherlands as a whole, but the response of citizens to these reforms has been mixed. Alongside citizens who have enthusiastically endorsed the new policies, others comply indifferently or grudgingly; others even fiercely resist. Waste was a hotly debated topic in the municipal election of 2018 (*TC Tubantia 20-2-2018*), reaching the point of the physical intimidation of aldermen and civil servants (*TC Tubantia 7-9-2018*). Resistance to many initiatives still rumbles on today.

¹ www.hengelo.nl/inwoners (accessed 7 January, 2022).

In this article we shall focus on the food bikes, a carrier tricycle used for collecting organic waste. The food bike project is a voluntary scheme in which inhabitants of high-rise buildings, who had never had separate containers into which to separate their household waste, can dispose of their organic waste. In contrast to most other municipal initiatives in Hengelo, the food bike can count on an enthusiastic response from many citizens. We have investigated what drives people to participate and whether –and how– participation in the food bike pilot in its turn also contributes to the development of a general pro-environmental behaviour and concern for their direct environment.

Pro-environmental behaviour is usually attributed to a combination of idealism and self-interest, hence cognitive processes. Research about waste management has been dominated by technical experts and, when ordinary people show ‘undesirable behaviour’, this hiccup leads experts to the over-hasty conclusion that these people ‘do not yet understand’. Hence the standard solution used to tackle these reluctant citizens is a mixture of education and awareness campaigns (on food waste Falasconi et al., 2019; Närvänen et al., 2018; Soorani and Ahmadvand, 2019; Zamri et al., 2020; on plastics Auta, Emenike and Fauziah, 2017; Kaiser, 2010); notably the same approach European governments were using to convince citizens who reject vaccination against the Corona virus. The trust in an awareness-raising campaign rests on the assumption that more knowledge leads to a different attitude which, in its turn, leads to behavioural change.

To a large extent, Hengelo’s policies also build on an assumed dose of both idealism and self-interest among its citizens. *Diftar* and reverse-collecting are aimed at addressing people’s financial self-interest and comfort, making them pay more attention to the way they deal with waste and to their consumptive choices. Various campaigns have been launched in order to build this awareness (*TC Tubantia* 17-4-2017). The trust in the development of awareness came strongly to the fore at a 2018 regional waste symposium, attended by one of the authors (Jordi Bok), at which the need to build awareness ran like a scarlet thread throughout the evening’s presentations.

A major conclusion of our research is that, contrary to the assumptions underlying Hengelo’s policies, more factors than idealism and self-interest played a role when we tried to understand the participation in the food bike project. In our research we have used an ethnographic approach to develop a holistic view of the motivations why people participate in the food bike project. Instead of trying to separate factors analytically, we try to show how different elements are integrated into the daily experiences of the people. We argue that this holistic approach to pro-environmental behaviour highlights two other reasons people participate in the food bike project: firstly, the social aspect of the activity and the desire to belong to a local community of like-minded people, and, secondly, an unconscious habitus (Bourdieu, 1990) of not squandering food. The aim of this article is to analyse the reasons the residents in Hengelo take part in the food bike project, by taking a holistic perspective, that is, going a step beyond idealism and self-interest. It is a case study of the fundamental question of what drives people to participate in environmental initiatives. The holistic approach of a qualitative research allows best to see the connections between different reasons why people join this environmental initiative in the context of their everyday lives.

We contextualize the food bike project by analysing it in relation to questions of governance. Assigning to citizens a larger responsibility to do something (here: waste management) which used to be a state task is an example of the ‘participation society’, a new policy launched in the Netherlands in 2013 (Troonrede, 2013). The transition towards this policy has led to frictions because, as Michael Power (1994) has argued, citizens are increasingly approaching the state as consumers: the state has to deliver. This citizen-consumer is either too passive or too outspoken and critical to the government’s liking (Boutellier, 2014; Brandsen, Trommel and Verschuere, 2017). For their part, citizens often complain that they receive neither the support nor faith from the government, which they need to fulfil their new role in the participation society. Moreover, the means and responsibility to enable these tasks to be fulfilled are not fairly distributed (Uitermark, 2015).

In the case of Hengelo, there is more friction between top-down governance and bottom-up participation arising from the unwillingness of citizens to adhere to the policies. For example, a sizable group of citizens discard their residual waste in places other than the assigned containers, sometimes unintentionally but also deliberately, using diverse and inventive strategies to get around them, practising, in the words of James Scott (2009), ‘the art of not being governed’. A subsidiary question of this article is: how does the food bike project relate to this shift towards the ‘participation society’ and the concomitant frictions?

Idealism, self-interest or other factors explaining pro-environmental behaviour?

The growth of the body of literature trying to explain pro-environmental behaviour has kept pace with the deepening of the global environmental crisis. We will follow Li et al. (2019: 29), who define pro-environmental behaviour as ‘purposeful action that can reduce a negative impact on the environment’. Specifying how one can reduce one’s impact, Naoko and Kosuke Kaida write that pro-environmental behaviour can be ‘collectively defined as behavior responsible for protecting the environment in diverse domains including monitoring resource consumption, participating in natural conservation, reducing impact on climate change, and supporting environmentally friendly products’ (Kaida and Kaida, 2016: 1244).

The most often seen explanations of pro-environmental behaviour stem from (socio-)psychological research and focus on moral behaviour and idealism on the one hand, or rational choice and self-interest on the other (Kollmus & Agyeman, 2002; Turaga, Howarth and Borsuk, 2010; Li et al., 2019). Idealism can arise from personal and social norms, but before the norms become active, they must be activated in people (Turaga, Howarth & Borsuk, 2010: 212-214). Theories focusing on rational choice start from the assumption that individuals ‘act to maximize individual utility in conformance with the *homo economicus* model’ and the ‘implication of this assumption for public goods, such as environmental quality, is that the incentive for free riding leads to the sub-optimal provision of public goods’ (Turaga, Howarth & Borsuk, 2010: 217).

Idealism and self-interest are usually interpreted as conflicting attitudes, but they do not have to when we take self-interest as a concept spanning wider than economic rewards or personal comfort. Kaida and Kaida (2016: 1246) argue that ‘the very acts of engaging in pro-environmental behaviour can enhance one’s subjective well-being’. The term ‘warm glow’ is used for this nice feeling about oneself when one behaves altruistically (Turaga, Howarth & Borsuk, 2010: 218) People ‘may prefer to see themselves as “green” rather than “greedy”’ (Bolderdijk et al, 2013: 413). Conversely, ‘violating the activated personal norms by not taking [...pro-environmental] action involves moral costs in terms of guilt, self-deprecation, and loss of self-esteem’ (Turaga, Howarth & Borsuk, 2010: 213).

Both idealism and self-interest can be built into a knowledge–attitude–behaviour model, which supposedly explains how the behaviour of people can be changed in a pro-environmental direction. In the most basic form of this model more environmental knowledge will improve people’s pro-environmental attitude, and an improved attitude will lead to a positive change in environmental behaviour (Kollmus & Agyeman, 2002: 241). However, many studies have convincingly demonstrated that the steps from knowledge to attitude, and attitude to changed behaviour are not straightforward (Berthoû, 2013). In the expanded Theory of Planned Behaviour, a change of attitude does not lead directly to a behavioural change, but attitude together with subjective norms and a perceived control over the situation influence the behavioural intentions, and a change of behavioural intentions can lead to changed behaviour (Kollmus & Agyeman, 2002: 243; Botetzagias, Dima & Malesios, 2015).

This model can be further refined by bringing in more factors found by psychological and sociological research, which explain differences between individuals in pro-environmental behaviour: demographic factors like education, gender, income, social class, age, marital status, place of residence and ethnic background (Botetzagias, Dima & Malesios, 2015; Li et al. 2019, 30; Gifford & Nilsson, 2014: 146-150); pressure from peers and

family (Kollmus & Agyeman 2002: 247); feedback about one's environmental behaviour (Kollmus & Agyeman 2002: 246); childhood experiences in nature (Gifford & Nilsson, 2014: 142); belief that technology will solve our environmental problems (Kollmus & Agyeman 2002: 253); religiosity (Yildirim & Özdemir, 2022; Gifford & Nilsson, 2014: 147-148); parenthood (Dupont, 2004); and place attachment (Li et al., 2019: 28).

Researchers have struggled to maintain an overview of the many factors explaining pro-environmental behaviour. One way to keep an overview is the use of flow diagrams with arrows indicating causal and conditional relationships between variables, ideally with a quantitative measurement of the strength of the relationship (e.g. Bamberg & Möser, 2007; Liu, Teng and Han, 2022; Kaida & Kaida, 2016). Other researchers have sought to group these factors. For instance, Li et al. (2019) distinguish between external variables (norms, costs, convenience) and individual variables (e.g. attitudes, social capital, socioeconomic characteristics, previous experience with pro-environmental behaviour). Naoko and Kosuke Kaida (2016) distinguish between 'antecedent' and 'consequent' factors. They consider idealism and self-interest 'antecedent factors', psychological factors which motivate people to engage in pro-environmental behaviour. Consequent factors are the senses of well-being and satisfaction generated by the pro-environmental behaviour.

While we recognize the strength of the above psychological and sociological studies, we regret that the analysis remains at the level of individuals. Even when researchers speak about social norms, they look at the impact thereof on the behaviour of individuals. We agree with Gert Spaargaren, who proposed a sociological model in which not the individual attitude or norm is at the centre, but 'the actual behavioral practices, situated in time and space' (Spaargaren, 2003: 688).

In the same vein as Spaargaren, Sara Berthoû makes a plea for a 'practice theory', which is 'not a theory as such, but a common denominator for social and cultural studies looking at *everyday life practices*' (Berthoû, 2013: 55; italics in the original). While 'other theoretical approaches place the social in the mind', Berthoû argues, 'practice theory sees the social as constituted in, and productive of, practices. In practice theory individuals are not interesting as actors in and of themselves, but as performers of practices and as a place where a plurality of practices intersect' (Berthoû, 2013: 55). In practice theory, 'instead of understanding pro-environmental behaviour as what people have in common –beliefs, ideas, and norms– it becomes significant to look at what they *do* in common in order to avoid granting beliefs and norms deterministic characteristics that individuals cannot escape or change' (Berthoû, 2013: 65). The words 'beliefs, ideas and norms' in this citation can be read as all sociological and psychological factors mentioned above.

Berthoû was inspired by symbolic interactionism, 'which holds as its premise that the meaning of a situation [...] is produced in the interaction between people or between people and objects. This is to say that meaning is not an independent entity to be revealed "underneath" social life, but something construed in it' (Berthoû, 2013: 57). The ethnographic methodology used in our research aligns perfectly with the 'practice theory' and symbolic interactionism advocated by Berthoû. By this approach new factors come into view, in particular the 'habitus' of participants and the sense of belonging, on which we will come back later in this article.

The Food Bike Project in Hengelo

The pilot of the food bikes project began in the summer of 2016, initially for three years, after which it was extended to December 2021 when it would be evaluated.² The project entails the collection of food waste in high-rise neighbourhoods in which, because of a paucity of outside space, the residents cannot use the garbage containers which residents of ordinary houses have for food and garden waste. The project could potentially reach 7,000 households in Hengelo. Residents collect their food waste at home in standard buckets provided

² This evaluation was not available at the time of completion of this article.

by the municipality and empty the buckets into the carrier tricycle at fixed times in the week, on Mondays, Wednesdays and Fridays between 9:00 and 12:00. The food bikes take six standard routes with designated stops at which they wait for participants for thirty minutes. Only food waste is allowed (including bones and fish bones) but biodegradable bags, the remains of plants or potting soil are refused. The food waste is transported by bike to the 'Groentuin' (Green Garden) where it is composted. The compost is later used in the Groentuin itself or in municipal parks.³

Participation is free of charge and prior registration is unnecessary. All the residents need to do is to ask for a bucket from the driver of the food bike. Other buckets are banned and it is not permitted to leave the bucket on the street to be emptied by the drivers of the food bikes; the drivers are not bin men and the residents have to empty the buckets themselves. Ideally, they do this on all three days because fresh food waste can be composted better than waste which has been kept for a longer time.

A study of the economic and environmental impact of the project found that, in 2018, before the expansion of the project in 2020, some 500 households took part in the project. The project definitely helped to reduce the production of greenhouse gases compared to a situation in which the food was thrown away with the residual waste. However, the reduction of greenhouse gases would have been even bigger if the food waste had been burnt to generate electricity. The cost of processing the food waste was also higher than the collection and burning of the waste (Mulder et al., 2020: 30-34).

One important subsidiary function of the project is that the people who ride the food bikes and are employed in the Groentuin are people who find it difficult to find a job on a fully open job market because of some handicap, or, to use the term accepted by policy makers, people 'with some distance to the labour market'. The project provides them with work and ideally is helping them to find a regular job. This subsidiary function of the food bike tends to be rather hidden from view, perhaps intentionally. The project is in the hands of SWB Midden Twente. SWB stands for Sociaal Werk Bedrijf (sheltered workshop), but SWB only uses the abbreviation in its official communications, as if to hide the character of the organization.⁴ Because it is an activity run by the sheltered workshop, the municipality can justify the extra cost of collecting the food waste in this labour-intensive manner.⁵

We have observed a discrepancy between, on the one hand, the formal procedure of the food bikes set out on the municipal website and, on the other hand, the messier reality. Participants do not always bring their residual rubbish in the designated bucket, exceed the limits of the bucket and people who have no bucket – some of whom living in low-rise houses – also manage to slip in. The municipal policy makers know this and tend to tolerate it as long as it does not get out of hand. Ironically, it might cause problems when the programme becomes so successful that too much food waste is being offered, that is, when capacity of the composting machines is surpassed. Although some cyclists do point out that the participant should bring a bucket next time, we rarely observed people without one being turned away. The cyclists check the purity of the food waste and, when necessary, remove unsuitable waste and tell residents to separate correctly. The behaviour seen as the most problematic is caused by those people who leave bags with their food waste at the stops before the cyclist has arrived. This behaviour can upset the neighbours because the street looks untidy and the rubbish can easily litter the street.

3 www.hengelo.nl/Welkom-in-Hengelo/GPDC-Producten-catalogus-1/_Burger-en-Bedrijven/Voedselafval.html https://www.hengelo.nl/Welkom-in-Hengelo/GPDC-Producten-catalogus-1/_Burger-en-Bedrijven/Voedselafval.html (accessed 19-1-2021).

4 For instance in its website, <https://www.swb.nl> (accessed 7-1-2022).

5 The amount of work involved equals around four full-time jobs (Mulder et al., 2020: 34).

Methodology

Our analysis is based on ethnographic data collected by one of us (Jordi Bok) from October to December 2018, as part of a larger, exploratory research project on citizen participation in Hengelo's waste management. The municipality was reluctant to let us interview the cyclists, feeling that these people 'with some distance to the labour market' should be protected, but we were free to talk to the residents who made use of the food bikes. We made some additional observations and held interviews on site in January 2021 in order to see how the food bike project had fared during the Corona lockdown of 2020-2021.

Our principal method was participant observation at the stops of the food bikes. Ideally, a researcher doing participant observation would ride a food bike or live in the neighbourhood but both these options had to be ruled out for practical reasons. (For several days, Jordi did join one waste coach and two janitors on their walks, though.) What the researcher did was being there where the interaction takes place, observing and having casual talks with both the cyclists (3 persons) and the residents (18 persons). If time allowed an interview, a topic list with open questions was used (15 interlocutors). This methodology does not permit a systematic quantitative analysis but is extremely helpful in understanding the world through the eyes of the people themselves. Interviews were not led by presumptions of the researcher but by what was brought up in the conversation by the people themselves. This ethnographic approach is ideal for finding unexpected relations and interpret answers in wider contexts.

The reactions of our interlocutors to the researcher were mixed. Some simply came to the food bike to empty their bucket and ignored him; others enjoyed the attention and happily made time for a talk. Some bias has inevitably slipped into our data, as we talked most to the people who had time to talk. However, such self-selection is no different to a survey using standard questionnaires. The ultimate test of qualitative research is not a randomized sample or large number of respondents but trust. We built up rapport by regular contacts and also by making a point of speaking to people when we happened to meet them at other locations, thereby demonstrating we took the relationship seriously.

The participant observation was conducted in two neighbourhoods. One is Thiemsland, a central neighbourhood with relatively expensive rented and owner-occupied apartments. A large majority of the inhabitants – as well as the participants – are native Dutch who are retired or close to retirement. The other is Hengelose Es, a neighbourhood of mostly cheap rental apartments, which has a more varied age distribution and a larger share of people with a migrant background. This composition is reflected in the population attending the food bikes, although in Hengelose Es also the majority of the participants were in the second half of their lives. By choosing these two neighbourhoods, we have proxied a cross-section of the total population of Hengelo.

In addition, we both conducted interviews with the alderman, the civil servants in the municipal administration responsible for the waste management policy of Hengelo, and staff of a housing corporation (5 interviews in total). We also scanned the online local daily, *TC Tubantia*, which regularly publishes about the waste collection in Hengelo. A survey conducted by Krispijn Faddegon (Mulder et al., 2020) offered some complementary quantitative data. Finally, we were also contacted by citizens who are very critical of the municipal administration and of their own accord shared their views with us by email or phone (5 interviews). Using this triangulation of methods, we have gained a good overview of the way the food bike project is experienced by the participants.

Self-interest and Idealism in the Food Bike Project

The two fundamental reasons people try to develop a sustainable lifestyle are: firstly self-interest and secondly idealism or the conviction that nature or the ecosystem has to be preserved and protected. Sociological and psychological research has developed models to show how these reasons interact with multiple factors, including antecedent and intervening variables, like age, education, religious convictions *et cetera* (Kollmus and Agyeman, 2002; Gifford and Nilsson, 2014). Self-interest and idealism also came to the fore in our research.

The alternative waste treatment systems of reversed collection and *diftar* also give a financial incentive to use the food bikes. When complying with the combined policy of reversed collection and *diftar*, people have to bring their waste to collective, subterranean containers. A maximum of 30 litres of waste can be deposited at a time and every time the chute of the container is used, a fee (of € 1.30 per 'click') has to be paid. If food waste is disposed of with the residual waste, the chute fills up more quickly and a click has to be paid more often. Moreover, if food waste is kept at home for too long, it begins to smell, so people feel forced to throw away waste (hence pay for a click) even before they have amassed enough waste to fill the full 30 litres. By participating in the food bike project people can kill two birds with one stone: food waste is removed before it begins to stink and the amount of residual waste which has to be paid for is reduced. This self-interest in joining the project was the factor which featured most prominently in our interviews. Saving money by having fewer 'clicks' was especially to the fore in Hengelose Es, where most people have a lower income than Thiemsland and where most households have more members (hence produce more waste). Similar self-interested motivations were also mentioned by people living in low-rise houses in the surrounding neighbourhood, who would love to participate or actually did participate, even though they were excluded from the project by the then formal rules. The occupants of these houses have outdoor private containers for organic waste, but also have to pay every time they choose to put the container out on the street for the garbage truck.

Both *diftar* and the food bikes appeal to people's self-interest but the food bike addresses peoples' self-interest in a positive way, by helping and facilitating them. This is in stark contrast to *diftar* which is experienced as a punishment by many citizens. Various people pointed out that they appreciated the food bike for this reason. One interlocutor was very upset about *diftar* because 'the municipal government only takes things away'. He would like to see the food bike expanded because, by taking this positive initiative, the municipality 'is finally doing something to help its citizens'.

Besides self-interest, idealistic motivations are also prominent. Participants who mention their convictions as the primary reason for their participation conceptualize the food bike as a move 'to close the circle'. However, the people driven by idealism usually connected their contribution more broadly, citing the current and future state of the environment and our planet. Various participants referred to topical issues which are hardly, if at all, related to separation of food waste, like the plastic soup in the oceans or plastic dumped in natural surroundings. These convictions were rarely purely eco-centric and many mentioned feelings of solidarity with future generations. Some also mentioned solidarity with humans who live in parts of the world in which the effects of climate change and overexploitation of resources are already much more visible than in Europe.

When the discussions with the participants deepened, the scale and complexity of the environmental and climate problems clearly emerged. These make it difficult for them to notice the immediate effects of their actions. But our findings also show that, even though their actions in themselves do not influence these issues directly, their perceived threats to these issues influenced the sense of urgency for their actions. As Henry, a participant from Thiemsland in his fifties, put it:

*'It is like a drop of water on a hot plate. If everyone begins to throw a drop on it, it will get cooler (...). And I don't think it should be an excuse to say, "If only I do it, it does not help..." If everyone keeps shouting that for sure nothing is going to change.'*⁶

⁶ Names of our interlocutors are pseudonyms in order to protect their anonymity; the original quotes were all in Dutch.

The enthusiasm with which they try to contribute contrasts with a scepticism, pessimism or even frustration about wider policies and structures and about more powerful but irresponsible actors. To begin with, some think that much of the waste they separate –especially non-organic recyclables– will be burnt together with the residual waste anyway (TC Tubantia 3-10-2018; TC Tubantia 17-10-2020). Moreover, many participants analyse waste management in a broader societal context. For instance, Erica, a woman in Thiemsland, who spontaneously joined the conversation we were having with a cyclist about the fact that companies are not obliged to separate their waste, added that this is exactly what was happening in hospitals too. She also thought it was weird that so many products come with seemingly unnecessary plastic packaging. *‘The companies don’t want to change’*, she told us. *‘Big companies have so much power (...) the government dances to their tune.’*

These insightful views from our interlocutors show that the idea prevalent among policy makers that people will act in a more pro-environmental way when they have been given more knowledge is not only naïve, it is downright paternalistic. Whose knowledge counts? Deeper insight could lead citizens to the conclusion that it is useless to recycle waste. Fortunately, despite this pessimism about wider policies and despite the uncertainty about the impact of their actions on the bigger picture, participants with pro-environmental motivations did stress the importance of making their contribution. Erica, for instance, concluded, *‘But alright. I want to do this. I think this is a good initiative and I would like to contribute.’*

So far, our findings support the hypothesis that self-interest and pro-environmental idealism lead people in the direction of pro-environmental behaviour and that such pro-environmental idealism and attitudes are developed through the imparting of knowledge to raise people’s awareness. While this is valid to a certain extent (as long as people overcome well-informed scepticism), we found that this conclusion is not sufficient to grasp the complex processes in which pro-environmental ideals and behaviour develop and are sustained by participants. In the next sections, we show how decisions to join the project are made in a multifaceted web of considerations.

A holistic View of the Construction of Motivations and Behaviour

A survey conducted among participants in the food bike project found that 69 percent now separated food waste more regularly; 79 percent agreed with the statement that their knowledge about separating waste in general had increased, 79 percent reported that they dealt with their waste more consciously and 53 percent declared they separated other waste more often since they had participated in the food bike project (Mulder et al., 2020: 36). These figures are interesting but do not tell us how people integrate the handling of waste into their daily lives.

People make decisions on the basis of a fuzzy mix of conscious and unconscious arguments and emotions. We often found that, stimulated by our interview questions and trying to provide a clear explanation, the participants created an artificial order in the messy and complex processes in reaching decisions about participating or not. To paraphrase John Law (2004), our interlocutors *‘created order in reality’*. However, when we had longer conversations with the participants, it is precisely this complexity of multiple factors interrelating in their broader lives we encountered.

Initially, self-interest and environmental idealism often play a simultaneous role. Willem, a retired participant from a low-rise building in Hengelose Es, illustrated this perfectly by comparing his motivations for participating in the food bike project with participation in a lottery for a social cause: *‘I am not doing it for charity but because I also want to win something. However, it is nice that something good will come of it.’* Indeed, we often found that pro-environmental behaviour is seen not only in terms of a sacrifice and that the sense of doing good enhances people’s well-being. This satisfaction about how they live their lives –in the terminology of Kaida and Kaida (2016) a *‘consequent factor’*– is a form of self-interest and contributes to a sustained participation.

The interrelationships between factors are more complicated than just the combination of the self-interest and idealistic motivations discussed so far. Many factors simultaneously play a role and influence each other. For example, the just cited Willem gave a long explanation for using the food bike. He has a vegetable garden which produces a lot of garden waste. He takes this to the central municipal waste collection point by bike. Garden waste is not allowed on the food bike and should be disposed of in the organic waste container which Willem, who occupies a family dwelling, has. He has to pay the waste collection service every time he places his organic waste container on the street to be emptied. By taking the garden waste away to the municipal collection point, he saves money on having the container emptied. He chooses a bike to transport the garden waste because it is the most environmentally friendly to do so but also because he likes to ride his bike and, being retired, has time to do so. The flipside of taking his garden waste away is that he has little organic waste left to fill his organic waste container which therefore takes a long time to fill up. Consequently, the food residue begins to rot, which he dislikes not just because of the smell but also because he knows rotten food waste is less hygienic and not good for composting. Therefore, his antipathy to using the organic waste container for his food waste also has ideological roots. Moreover, he likes the idea that high quality compost will be processed from the food waste, meaning he can contribute to the circular economy. Ideally, he would like to compost it himself but he is afraid that this process would attract rats and bother his neighbours. Ideology and self-interest in various forms, plus some other factors – such as taking into account the neighbours – play a simultaneous role and interrelate in the context of his broader life.

We found other factors also play a role, some of which help to explain the overrepresentation of older people among the participants. A recurring explanation from older participants was that, now they are older, and especially when they have grandchildren, they begin to think more consciously about the state of the world for future generations and want to act responsibly. Moreover, they now have time to immerse themselves in it. As the bikes only collect during working hours, many people with a regular job are unable to participate for practical reasons.

This last point illustrates that, when the food bikes are contextualized in complete lives, there are not only multiple factors which motivate people to participate, but people also have other priorities. These priorities are frequently related to time and comfort. Moreover, there are things in their lives that they are not willing to give up, even if these are directly harmful to the environment. Even for highly motivated participants, other priorities sometimes prevail over their pro-environmental ambitions.

Therefore, many participants, also the idealistic ones, discard the food left-overs with the residual waste when it begins to smell. Other people who act pro-environmentally in other ways have chosen not to join because they are unable to fit in with the food bike schedule or found it too much trouble to obtain a bucket. People balance pro-environmental behaviour with other aspects of their lives and they are not easily prepared to shake up their whole lives for a better separation of organic waste. Many people combine pro-environmentalism with unsustainable patterns of behaviour. For example, Evelien, living in Hengelose Es, separates and recycles fanatically, but also produces unnecessary carbon dioxide by burning wood in her stove because she loves the warmth and ambiance. Henry, who as we have shown is quite idealistic, recycles zealously and also tries to limit his consumption, cannot resist taking his car out for the slightest reason and *'blasts it down the highway at 150 km/h'*. Although he feels guilty, he tells himself, *'I cannot do everything. And I don't want to do everything.'* How do the people explain, more to themselves than to us, these contradictory actions and reconcile them with their ideals? People want to do their share but on their own terms and not at the cost of everything else.

From these complicated patterns, we infer that people integrate environmental considerations into their broader lives and that state-run initiatives which focus narrowly on self-interest or idealism might be having little effect. Building up knowledge and awareness will make few inroads into these attitudes. Many people are already convinced of the urgency of doing something about environmental problems but simply make

different choices. A boost in knowledge can also lead to a critical attitude towards environmental policies and power relations. This attitude sometimes leads people to conclude that the negative impact of environmental actions on their individual lives is relatively larger than a positive impact on the ecosystem.

Nevertheless, in spite of these qualms, for many people pro-environmental behaviour is also part of the way they want to live their lives. New state initiatives can build on existing but often still latent idealism, if pro-environmental behaviour is facilitated in broader daily routines. Once new patterns of environmentally friendly behaviour have been ingrained into their lives, people will not easily fall back on old habits. This was explicitly stated by a participant from Hengelose Es, who told us that, now he has now begun separating the food residue, he feels he *'cannot go back'* and that he is paying more attention to the separation of other waste as well.

Self-interest and idealism are integrated into a web of considerations but the next sections shows that the decision to join the food bike project can also be taken for reasons other than the environment.

A Habitus of not wasting Food

Sociological and psychological studies which try to build comprehensive models of pro-environmental behaviour always mention age as one factor but disagree about whether age has a positive or negative effect and are inconclusive on the reasons for a possible effect (López-Mosquera, Lera-López and Sánchez, 2015: 35; Li et al. 2019, 30). Robert Gifford and Andreas Nilsson (2014: 142, 146) argue that younger people are more concerned about the environment but that older people demonstrate more concrete pro-environmental behaviour. The finding that older people engage more in pro-environmental behaviour 'may support the hypothesis that something important happened to an older generation that did not happened to the younger generation. If so, such a cohort effect would not be caused by ageing itself, but by events that had a greater impact on one age group than another' (Gifford & Nilsson, 2014: 146). The Second World War and the decades after that might have been an historical period in which the older cohort learnt to be careful with resources. Another explanation might be the amount of time spent outdoors as a child and feeling connected to the immediate environment, which is less at the present day than in past times.

An examination of the food bike project shows there can be no doubt that elderly people were overrepresented and we have already given a clear explanation: they have more time during the morning hours in which the food bikes operate. Arguably even more important is that, during certain periods in the past, they have experienced scarcity, which made conservation behaviour necessary, and this experience has lingered on into the present. Berthouï also remarked that 'everyday life is influenced by habits, routines, [and] rituals' (Berthouï, 2013: 58). Such routines are based neither on ideology nor on self-interest but is better captured by Pierre Bourdieu's concept of *habitus*. 'The *habitus* [...] ensures the active presence of past experiences, which deposited in each organism in the form of schemes of perception, thought and action tend to guarantee the 'correctness' of practices and their constancy over time, more reliably than all formal rules and explicit norms.' Habitus as a learnt, embodied disposition for action is 'a present past that tends to perpetuate itself into the future by reactivation in similarly structured practices' (Bourdieu, 1990: 54). Bourdieu's hypothesis was that people who grow up under similar conditions, for instance, people from the same social class or the same era, develop a similar habitus.

We did indeed see this habitus reflected in the motivations of many older participants. Many older participants named saving money and not wasting food as important reasons for joining the food bike project, seeing it not so much as a matter of calculated self-interest. Willem illustrated this well, when we met him again after our interview, this time at the local repair café:⁷

‘Well, I have been thinking about it. It is not because of the environment. Of course, it is good for it and that is fine. But I also think it is just a waste, of money... a real waste. An acquaintance of mine, for example, threw away a washing machine which was still working. I asked him why he was buying a new one? “Well”, he said, “it might not have broken down yet, but it will be soon...” I was astonished... I really don’t understand. That people discard something while it is still working properly. I think it is a waste.’

This sort of an attitude transcends current circumstances and has roots in past experiences. The same can be said as a motivation for saving money. Although many of the older participants are currently not struggling to get by, they talked extensively about their youth in which wasting anything was not an option and they needed to be creative with what they had. We also noticed that many older people frequent the repair café in Hengelo, without any compelling financial need to do so.

This theory proposes that people are hardly aware of their habitus but our interlocutors, possibly triggered by our questions, proved quite conscious of their habitus (without, of course, using the term). A telling illustration of this habitus was provided by a participant from Thiemsland who told us that one way he could tell the difference between younger generations and his own is that, when peeling an apple or a potato, he peels it much more thinly than younger people usually do. We did indeed see that on average older participants hand over less food residue than younger ones. It seems the values and habits from the past have lingered on into the present and to have become important in themselves.

A Sense of Belonging: Social and emotional Aspects of the Food Bike

It is also helpful to think of a ‘sense of belonging’ as a motivating factor in itself. People can display pro-environmental behaviour not because they strongly believe in the ideological or self-interested need for it but because they want to show their attachment to a group of people who demonstrate pro-environmental behaviour. Berthoû has theorised this sense of belonging: ‘Shared understandings, or shared practices, is not just another way of saying that individuals are doing the same things but rather that human beings are oriented towards each other’ (Berthoû, 2013: 65).

In our research this attachment to a group of people was a localized emotion, focused on the neighbourhood. This sense of belonging works not only as a consequent factor but can also be an antecedent factor which stimulates people to adopt the new behaviour. Some participants told us that, initially, they had not really considered joining the project, despite knowing what it was about, but decided to do so after being encouraged by neighbours.

Social factors came out clearly in a survey conducted among participants: 68 percent of the respondents have experienced more contact with their neighbours as a result of the food bike; 42 percent feel more connected to their neighbourhood because of the food bike project; and 28 percent stated that their social network in the neighbourhood has grown (Mulder et al., 2020: 36).

⁷ At a repair cafe volunteers try to repair broken objects for free or a minimal remuneration; they are usually only open once or twice per month. Repair cafes are another means to achieve a circular economy.

Our qualitative data make clear how these statistics should be interpreted. These social aspects have merits beyond pro-environmental behaviour and are valuable in themselves. For example, people brought the buckets of neighbours who were unable to do this themselves, either because of their age or because they had to go to work during the food bike hours. One man, when he greeted another man passing by, explained: *‘Something like this, for example. This man is from Turkey and barely speaks any Dutch, but he is always very friendly. You don’t need to have a long conversation but when we meet at the food bike we always greet and have some contact.’* Another participant in Hengelose Es particularly stressed the importance of the food bikes for the social cohesion of the neighbourhood. He once sent away someone from another neighbourhood who had been trying to dump bulky waste in Hengelose Es.

The sense of belonging and the sense of doing good were not limited to the environmental effect but also affected people’s social world. Various participants like the fact that the project helps people who have difficulty breaking into the labour market. One participant recalled how moved she was when at the annual open day of the Groentuin, the garden of the sheltered workshop, one of the workers told her: *‘It is so good that you are participating, because otherwise I might no longer have any work.’*

The citizens participating in the food bike project not only believe they are contributing to this social cause indirectly by the creation of work, but also directly through their interaction with the cyclists. Most people at least greet or thank the cyclist. Frequently this initial contact is followed by a small chat, often about the weather, the news or waste. In Thiemsland especially, this small talk can develop into longer conversations. The residents in Thiemsland, the large majority of whom are retired, have more time; moreover, there is no language barrier like that which exists in Hengelose Es, where some migrants have limited proficiency in Dutch; for his part the cyclists, who during the time of our research were often present in Thiemsland, also happened to be more of an extravert. Henry described the gratifying interaction with one of them in a few words:

‘I see the cyclist have a chat with everyone [...] Doesn’t this cheer you up? Don’t you get a fresh lease of life because of it? [...] Just look at this man smiling as he chats with the people.’

The sense of purpose goes both ways. While the cyclists enjoy the interactions, they also feel that they are important to some – especially elderly – participants. One of the cyclists, for example, said that he enjoys standing at a certain spot because there is a bench next to it on which – especially during the summer – elderly people frequently sit down to have a chat. He went on to say that he thinks it is important to talk to people and support those who need it.

These interactions can lead to a sense of connection and can sometimes take an unexpected turn. One cyclist recalled that an older participant with whom he sometimes chatted sighed she did not know how to install her Internet connection. He gave her his phone number so she could call him and eventually together they managed to find a solution to the Internet connection. When a little later he did not show up for a while because of an injury, the woman called him again to ask why he was not there and when he would be back.

Although contacts usually do not go as far as this, it was certainly not the only time that residents expressed regret at missing the usual cyclist when he or she was not there, because they enjoy the interaction with the cyclists. We noted various expressions of caring for and connectivity with the cyclist, in which appreciation for the environmental effect of the project is also reflected, albeit perhaps indirectly. We observed and also heard that participants brought the cyclists sweets and other snacks during holidays. We also observed that Henry brought the cyclist coffee when it was cold outside and heard from the cyclist that a woman at the shopping centre in Hengelose Es sometimes comes out of her shop to smoke a cigarette and have a coffee with him.

Of course, it is not only the interactions between the cyclist and participants which are appreciated for various reasons, the same can be said about the interactions among the neighbours. New arrivals are welcome to join the discussion between cyclists and participants and sometimes these talks develop into longer conversations. One of the cyclists in Thiemsland said that, especially during the summer, neighbours gather around the food bike and can sometimes easily talk for fifteen minutes or so.

These social considerations are hardly mentioned as the first step in taking environmental action and, of course, nobody joined the food bike project to seek, for instance, IT-assistance. However, when our discussions continued these social factors came out clearly and occasionally dominated the participants' food bike experience.

The social factor can feed back into the willingness to separate carefully. We observed cyclists giving subtle, informal and friendly advice on waste issues and cyclists who sometimes complimented participants when they handed in less. We once observed a cyclist giving a participant some tips about limiting the food waste and challenged him to hand in less next time; a challenge that he accepted and met. Moreover, the cyclists add to what Jane Jacobs (1961) has famously called 'eyes on the street'. The presence of a cyclist makes it almost impossible for residents to litter and, when this does happen, the cyclist has time to remove the litter. The personal control makes it possible to operate protocols with some leniency without letting the situation get out of hand, for example, when people bring more than one bucket of organic waste. Too strict a control of the protocols could dampen residents' enthusiasm and have a negative effect on the functioning of the system.

Conclusion and Recommendations

This article is the first comprehensive study of an interesting experiment in pro-environmental behaviour, the food bikes in Hengelo. Idealism and self-interest –two cognitive factors explaining pro-environmental behaviour known from literature– have played a role in the acceptance of food bikes. Our ethnographic approach sheds light on how idealism and self-interest can be contextualized in the everyday practice and are mingled with more varied considerations. It became clear that the food bike project plays on self-interest in a positive manner because it helps citizens with any problem they encounter first hand (paying a 'click' at the collective chute and the stench of rotting food); consequently, the food bike project has enjoyed a more positive reception than either *diftar* or reversed collection, which also address the self-interests of citizens but by punishing them for non-compliance.

Our qualitative research has also shed light on two other factors, which are far less prominent in sociological and psychological literature because these factors operate on a more subconscious level. Firstly, older people take part in the project because the food bikes suit their habitus of frugality. They 'just' do not want to waste food. Secondly, a sense of belonging played an important role. Some persons joined because they wanted to behave in a socially desirable way in the eyes of their neighbours, but also because they enjoyed the interaction around the food bikes and felt good about the social effect of helping the cyclists, people with a distance to the labour market. The social interaction at the food bikes is in marked contrast to the collection of waste by garbage trucks in which contact is avoided as much as possible.

Follow-up observations and interviews during the Corona period confirmed these patterns. During the first Corona wave, the food bikes did not work for six months, after which the project restarted, expanded and kept going through the second wave in the winter of 2020/2021. All the people we spoke to discarded their food waste with the residual solid waste for as long as the food bikes did not operate. They were annoyed by the smell at home and the higher cost of disposing of the increased residual household waste.

This time of deprivation led to the extra appreciation of the food bikes and the motivation to separate waste. However, the discontinued and then restarted separation of food waste also signals that a top-down facility is necessary to address the latent motivations of citizens to separate their waste.

The social aspect has acquired a new layer during the Corona crisis when social contact was discouraged by the Dutch government. People visibly enjoyed the interaction, as some participants remained and chatted around the food bike, joked with the cyclist and walked to, or from, the bikes together with their neighbours. A woman in her eighties from Thiemsland summed it up nicely: *'I still have plenty of family who visit and look after me. But some persons have been much lonelier during this period [than I am]. For them it is even more important and I also see that these are the people who go looking more [for the food bike].'* And a participant from Hengelose Es in his seventies responded enthusiastically to the question of whether he enjoys the chats at the food bike: *'Yes, especially now! Because of the Corona virus I am nearly always stuck at home, I barely go anywhere and hardly speak to anyone.'*

We feel that these insights can lead to minor interventions which could make the food bike project an even bigger success than it is. The municipality could address the older generation with reference to their habitus of not throwing things away. By and large, older generations are sometimes depicted as old-fashioned or out-of-touch with the world today. In terms of being prudent with scarce resources for the sake of the ecosystem, such rather derogatory characterizations are totally undeserved. The older population does not have to be reminded of their own values but can also serve as a role model for younger generations.

The social factor can be exploited by facilitating social interaction in the neighbourhood. Food bikes should stop at places with benches or trees which give protection from rain, sun and wind (or if this infrastructure is missing the vegetation and necessary street furniture can be placed to create such inviting social space). If the collection time is once a week moved to after office hours, more people could participate and people might spend more time socializing at the bikes. Moreover, the municipal policy of somewhat downplaying the fact that the cyclists are people with a distance to the labour market should be reversed. The food bike is an exemplary opportunity to drum up more attention for them and to integrate this group of people into the 'participation society'. Just playing the trump card of self-interest or ideals might be an unnecessary restriction of policy makers.

Postscript

By the time we concluded this manuscript, the sad news reached us that the municipality will discontinue the food bikes and replace them by containers for organic waste on 1 July 2023. Needless to say that we regret the wasting of such a fine project. And for the food bikes themselves there is no mechanism in place to recycle the idea.

Acknowledgement

We are very grateful to Rosemary Robson for her English corrections.

Ethics declaration

We declare that the research meets the ethical guidelines of the Ethical Review Board of the Faculty of Social Sciences, Vrije Universiteit Amsterdam.

Received: January 30, 2023

Approved: March 31, 2023

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