Environmental Politics

Making power explicit in sustainable water innovation: re-linking subjectivity, institution and structure through environmental citizenship

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This article offers a new perspective on environmental citizenship by proposing the 'subjectivity–institution–structure' framework. Applying the framework to a sustainable water innovation project in north-west England, it argues that the meaning of environmental rights, the understanding of required environmental responsibilities, and the degree of public participation in decision-making, are shaped by individuals' subjective values, institutional arrangements and structural conditions. Our framework makes power explicit in the practice of environmental citizenship. It is intended to help set reasonable targets for sustainable development actions, which is particularly important when working with individuals with limited power.

Keywords: environmental citizenship; power; water; subjectivity; institution; structure

Introduction

The macro processes of environmental innovation have been extensively studied, for example through ideas about large technical systems, and processes of transition (Guy *et al.* 2001, Geels *et al.* 2004, Brown and Clarke 2007). However, the local implementation of environmental innovations requires specific changes in practices of installation, maintenance and/or use (Shove 2003). This article draws on the concept of environmental citizenship to develop an analysis of the micro processes of environmental innovation in one case study housing development. Specifically, the case involves social housing tenants being subjected to a number of innovative water management systems with limited opportunity for input to design or development processes. Effectively, the tenants were expected to act as 'environmental citizens' (as defined by others). In the past, environmental citizenship analyses have been

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more often applied to voluntary environmental activities in the public sphere. With our analysis, we aim to demonstrate that, if appropriately structured, environmental citizenship can be more broadly applied; indeed, we suggest that it can carry powerful and important messages about the interactions between environmental innovation and inclusion.

Theorising environmental citizenship

Regulations, financial incentives and information provision have shown some, but not much, success in facilitating pro-environmental behaviours and attitudes (Barnett *et al.* 2006). The problems, Dobson (2003) argues, lie, firstly, in an incomplete understanding about the intentionality of human beings in sustainable development, and secondly, in the relationships between the state, industries, community and individuals, at the local, regional, national and global levels, which need to be redrawn. Against this background, the concept of environmental citizenship has gradually emerged as an alternative route through which to inspire change. It has increasing influence on both theoretical discussion and policy making. International and environmental organisations, such as United Nations (UNEP 2002) and Environment Agency in the UK (Barnett *et al.* 2006), are keen to understand how environmental citizenship can inform alternative policy strategies for promoting sustainable development, alongside regulatory and economic measures (Bell 2005).

Good environmental citizens are defined as people who exercise their personal rights to environmental justice, while simultaneously extending their duties into the environmental arena (MacGregor and Szerszynski 2003). This perspective combines the liberal (or rights-based) and civic-republican (or duty-oriented) views of citizenship. The rights-claiming approach acknowledges the multiple layers of rights that individuals, groups and communities enjoy. The Aarhus Convention, for instance, lays down three levels of citizens' rights: (1) environmental rights to clean water and air; (2) rights to secure access to information about the environment; and (3) participatory rights in the decision-making process (United Nations ECE 1998; Alabaster and Hawthorne 1999). Bell (2005) argues that these rights enable individuals to make choices and exercise their power in their everyday lives in addressing environmental matters.

In contrast, the duty-based aspects of environmental citizenship encourage people to take more responsible environmental actions and act differently for the sake of the environment (Carolan 2006). For many commentators (Carter and Huby 2005, Smith 2005) voluntarily entered into non-contractural environment responsibilities are a key part of environmental citizenship. For others (Bell 2005, Flynn *et al.* 2006, 2008), people need to justify their choices about lifestyles which affect the environment, to comply with environmental laws, and to seek more just arrangements to achieve sustainable development.

The notion of environmental citizenship offers some valuable insights in politicising the concept of sustainability. Dobson (2003, p. 5) conceptualises

environmental citizenship as 'a politics of everyday life', occurring in both private and public spaces. It is also a 'politics of attitude change', moving beyond notions of motivating behavioural change through extrinsic, largely monetary, motivations. Environmental citizenship highlights the need for citizen involvement in considering what 'sustainability' might mean and for active engagement in thinking as well as acting such that it can be achieved. It also seeks an inclusive, democratic process that recognises pluralistic voices concerning sustainable development (Hayward 2006). The notion of environmental citizenship, Jelin (2000) suggests, restructures not only human–nature relationships, but also human–human interactions.

There is considerable overlap between the literature of environment citizenship and environmental justice.[1] The connections lie in the concerns of socio-ecological exclusion and inequalities, that is, the rights based aspects of environmental citizenship. Advocates of environmental justice highlight the uneven distribution of environmental costs and benefits within communities along lines of class, gender, race, ethnicity, religion and other socio-economic status (Schlosberg 2004). Similar to environmental citizenship, environmental justice promotes meaningful involvement of people in the decision-making process (Schweitzer and Stephenson 2007).

Critiques

The rising popularity of the concept of environmental citizenship has, however, aroused concerns both within and beyond the literature of environmental citizenship and justice.

Latta (2007) criticises Dobson's approach to environmental citizenship for being instrumental. He warns that 'the basic *structure* of citizenship is nevertheless determined by a very precise and instrumental relation to the political end it is meant to serve' (p. 381, emphasis original). The limitation of the functional perspective, he argues, plays down the 'highly differentiated experiences of citizen duties and agency' (p. 385). The call for diverse, pluralistic and contesting voices of citizens also challenges the universalistic claims of the rights and duties embedded in the notion of environmental citizenship (Schlosberg 2004). Isin (2002, p. 275) suggests that citizenship risks representing a 'particular point of view of the dominant', and consequently dissenting voices can easily be silenced for the sake of 'togetherness and unity'. All these concerns suggest that environmental citizenship should be examined in a more politicised, culturally-sensitive and situationally-specific manner. The promotion of citizenship, Cleaver (2004) stresses, needs a 'better understanding of what it means to be an acting subject in particular circumstances'.

A significant area of discussion questions environmental citizenship's advocacy of individual citizen environmental responsibility. Some critics suggest that too much emphasis is placed on personal commitment, for example, ethical investment (Carter and Huby 2005) or sustainable consumption (Seyfang 2005). The concept, Maniates (2002, p. 45) warns, can become

dangerously over-individualised, and 'there is little room to ponder institutions, the nature and exercise of political power, or ways of collectively changing the distribution of power and influence in society'. Informed by a gender perspective, MacGregor (2005) criticises that the advocacy of citizenship encourages more labour- and time-intensive lifestyles, which, wittingly and unwittingly, exerts additional burdens on women in particular.

Another area of discussion raises questions about whether environmental rights deliver the benefits that are expected of them. Environmental citizenship suggests that participatory governance improves environmental decisions. Evidence, however, does not always support such claims. Cleaver (2004, p. 274) warns that seeking consensual decisions can 'doubly disadvantage the marginalised and inarticulate' because they feel that they need to conform to social expectations. Studies by Beierle and Cahill (2000) show that democratic decision-making processes do not always lead to good environmental policies since majority rule may end up pursuing collective bads. Sharp (2006) highlights how managers control participation to achieve desired policy ends. It is clear that participatory processes need to be considered critically and developed with sensitivity to specific contexts.

Subjectivity–institution–structure framework

Here, we propose a 'subjectivity–institution–structure' framework which offers a contextual approach to environmental citizenship. Our aim is to provide a framework for thinking about environmental citizenship which overcomes some of the criticisms cited above. We hope our framework will both support analysis and guide practice.

We draw on Carolyne Ellis and Michael Flaherty's subjectivity theory (1992), Mary Douglas' institutional thinking (1987) and Derek Layder's conceptualisation of social structures (1994) to build this framework. This framework places emphasis on the dynamics and complexity of interplay between individuals' subjectivities, institutions and societal structures. It acknowledges the way in which 'citizenship is *structured* as well as the degree to which citizens can *structure*' (Valencia 2005, p. 176, emphasis original).[2]

Ellis and Flaherty (1992, p. 1) define subjectivity as 'emotions, meanings, situations, experience, motivations, perceptions, hopes and fears'. The multiplicity of subjectivities, they argue, is intended to explore the 'interconnections among emotional, cognitive and physical experiences' (p. 4). Their theory acknowledges the partial capability of human beings in negotiating meanings, and they stress the need to contextualise subjectivity in social contexts and circumstances. The concept of subjectivities is crucial to our understanding of the human–nature relationships. Murphy (2006) suggests that subjectivity underpins citizenship in practice since it explores how people perceive their rights and duties in relation to green action and examines people's motives and assumptions about sustainability. This part of the framework acknowledges that the meanings of 'good' environmental citizens are multiple and constantly

contested and renegotiated. The dual nature of subjectivity – transformative and reactionary – offers opportunities as well as obstacles in promoting citizenship (Gough and Scott 2006).

Douglas' (1987) theory of institutional thinking explores the relationships between individual minds and social institutions. Douglas defines institutions as rules, norms and conventions. Her approach challenges the rational choice models by explaining how our everyday practice, experiences and modes of social relations are connected to institutional factors, such as values and routines. She argues that institutions provide 'rules of thumb' that take over the thinking process for us. In her words, 'social institutions encode information. They are credited with making routine decisions, solving routine problems, and doing a lot of regular thinking on behalf of individuals' (Douglas 1987, p 47). She views subjectivity and structure as linked through institutions, and expressed in social practice. Applying a similar concept of institutions, Shove (2003) studies how social norms and technology co-shape each other. She argues that domestic water consumption and the choice of domestic appliances are related to the level of comfort, cleanliness and convenience that are socially expected.

Layder (1994) defines structure as 'structured patterning of social relationships and reproduced practices over time and space ... and the power relations that underpin them (p. 140). Structures show hierarchies of social control, such as class, gender and ethnicity, that affect the distribution of resources and power between individuals. Structures provide the historical and socio-cultural contexts that both enable and constrain individuals to take actions. According to Layder (1994, p. 216), structures are linked to subjectivity and institutions because 'the subjective realm of social action is both formed and constrained by the reproduced practices which constitute the institutional domain of modernity'.

This 'subjectivity–institution–structure' framework, we argue, is useful in exploring the intertwined relationships between individuals, society and the environment. Social–environmental interactions can be better understood if the differing subjectivities and institutions governing attitudes and behaviour are examined. It is also crucial to see these in the context of wider structural issues. As such, the framework contextualises the process of the social and ecological connectedness of individuals. It also helps put power in the centre of the citizenship debate since it is inherently supportive to those without power in society. This arises from two factors. First, the emphasis on structure means the approach explicitly examines who gains and who loses through a 'citizenship' process. Second, the focus on individuals' subjectivities ensures that the perspectives of all different parties are explicitly taken into account, whatever their background.

Linking theory and practice

This article draws on a case study involved with sustainable water innovations in elderly peoples' homes in the north-west of England. A combined grey-water

and rainwater system and a collective rain-harvesting system were implemented for tenants which were intended to both improve the environment (by using less water) and to improve the tenants' livelihoods (by reducing their water bills). While the practitioners developing and promoting the innovation did not explicitly use the term 'environmental citizenship' in discussing the case, the application of environmental innovations to people's daily lives make this case a clear example when enhanced 'environmental citizenship' might have been claimed.

The case study demonstrates how citizens' environmental responsibilities, duties and 'right to a voice' cannot be clearly delineated. In terms of responsibilities, the elderly tenants were asked to adjust to different water supply systems from what they were accustomed to. While physical changes in behaviour were not required (at least, not until the system went wrong), the tenants were asked to be content with using water filtered from rain, sinks and baths for the purposes of washing clothes and flushing toilets. As the analysis below will show, for some tenants this expectation challenged their 'environmental right' to clean water. Moreover, as the application of the new technology did not proceed completely as expected, the tenants' lack of involvement in the design or management of the innovations became an issue.

Our aim in this article is to show how the application of an environmental citizenship framework drawing on 'subjectivity–institution–structure' provides a strong and nuanced analysis of this case, demonstrating its potential to provide insights in relation to other areas of environmental innovation and governance. In particular, the article has three objectives. First, we will show the different perceptions about the meanings and practices of hygiene in the use of grey-water and rainwater among stakeholders. Secondly, we will illustrate how tenants' green behaviours are shaped by norms of social respect and a strong desire for community harmony in the process of participation. Thirdly, we will challenge the assumption that enhancing personal responsibilities offers 'green' solutions since environmental responsibilities are not equally shared by all. We will argue that it is neither environmentally moral nor desirable to ask the poor elderly to take a lead with respect to the new 'environmental' behaviour while they face tremendous constraints on their livelihoods.

We will start the empirical part of this article by offering details about the case study. We will then interrogate environmental citizenship opportunities offered through the 'subjectivity–institution–structure' framework. We will conclude by proposing how the framework provides guidance for better interventions in achieving environmental citizenship.

Case study: sustainable water innovation project in north-west England

The case study discussed here is drawn from the Water Cycle Management for New Developments (WaND) project (2003–2007), sponsored by the EPSRC and industrial collaborators. It was one of three case studies within the socio-economic work package, which aimed to examine the role of technology in

achieving sustainable water management in England and Wales. The investigation assessed the power dynamics of stakeholder involvement and explored the distribution of costs, benefits and risks in sustainable water management.

The case is an environmental demonstration project located in the north-west of England. It was started in 1998 and completed in 2002. It was initially recommended by our former Master's student who worked in an organisation which played an active role in the demonstration project (but she was not involved with the project). Apart from accessibility, other factors helped us to select it as a case study: it contained multiple sustainable innovations; it won numerous community regeneration awards; we heard about a few problems associated with the project; and most stakeholders were willing to work with us. The case study was ahead of its time in the innovations it implemented; but in many respects it might be seen as a typical 'mundane' example of environmental innovation at the development level.[3]

Our student introduced the residential manager and the caretaker to us. Through snowball networking, we identified another eight stakeholders. They were: the developers, the project advisers, the surveyors, the architects, an academic, the rainwater collection system suppliers, the plumbing service providers, and the tenants. We conducted a stakeholder analysis and interviewed each stakeholder in order to understand their roles, perceptions and motivations in introducing sustainable technologies, and their experiences in working with other stakeholders.

We held a focus group discussion with tenants in December 2005. We chose a focus group since we wanted lively debate and a range of perspectives. We took the residential manager's advice and prepared a letter to invite tenants to join our discussion. Finally, one male and two female tenants formed the focus group. They were all over 50 years old and each has been living in north-west England for more than 30 years. The male tenant was the chairman of the community association committee while the two females were ordinary tenants who were friends of the residential manager. The two female interviewees had the combined grey-water and rainwater systems installed in their flats while the male had the rainwater collecting system (the details of the systems will be discussed later). The focus group discussion lasted for 1.5 hours. We prepared semi-structured questions to investigate their everyday experiences of the innovations and their actual involvement in the decision-making process of the project. The discussion was audio-recorded and fully transcribed. After the discussion, the tenants invited us to visit their flats and the laundry room and to see the water systems. We met a few more tenants during the visits and heard more comments on the infrastructures. Although the informal conversations were not audio-recorded, we jotted down our observations and their comments in our research diary immediately after the visit. Following repeated reading of our notes and transcripts, we coded the material and generated themes. It may be argued that the choice of the tenants in our focus group discussion was not representative, but we were more interested in exploring the multiple and

contesting experiences of the relationships between individuals, their community and the sustainable technologies. We also drew on secondary data, such as design briefs, minutes, master plans, newsletters and financial arrangements, to support our arguments.

Sustainable water innovations

This project was divided into two phases: Phase 1 (1998–mid-2000) and Phase 2 (late 2000–2002). Twelve tenants were connected to the combined water systems in Phase 1 (Figure 1). The systems were designed to flush toilets, drawing initially from recycled grey-water collected from baths and showers, backed up by rainwater, when the grey-water was depleted. Technical problems found later in the systems meant that they were scrapped in Phase 2. In Phase 2, a further 22 tenants were connected to the communal rainwater harvesting system (Figure 2). It collected rainwater from roof areas for gardening, toilet-flushing and was also connected to their washing machines.

   Various stakeholders stressed in interviews that residents had been actively involved with the Project. The developers claimed that: 'I wouldn't have done it without the residents' involvement at all' (interview with developers, 9 January 2006). The chairman of the community centre represented them at the monthly meetings. Tenants were invited to go for a trip to the Centre for Alternative Technology in Wales and attended the training programmes. These activities
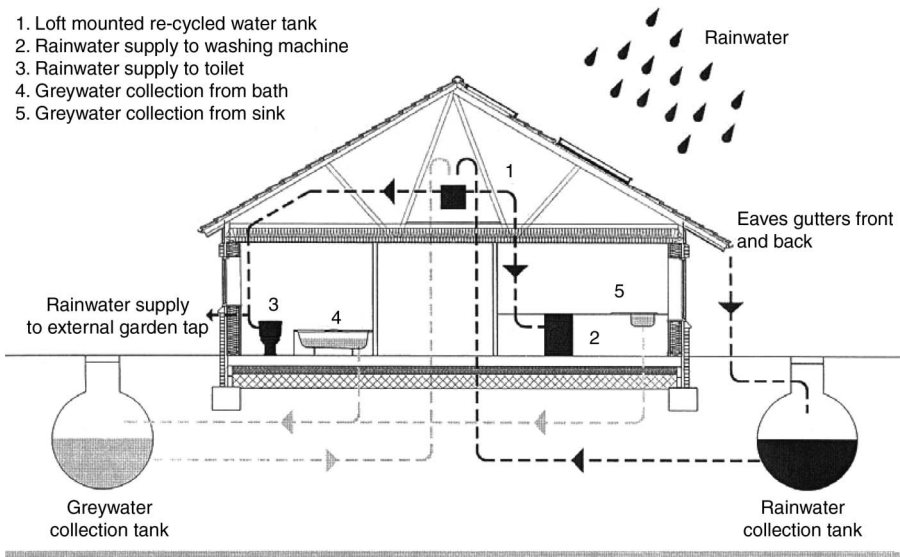
Figure 1.   The combined grey-water and rainwater systems.
Source: Project fact sheet (project name, location and developers are kept anonymous), p. 1.

1. Day tank in loft space
2. Supply to WC
3. Supply to washing machine
4. Incoming recycled rainwater
   supply from communal tank

Rainwater

1

Eaves gutters
front and back

2

Supply to external
garden tap

2

3

4

Rainwater collected
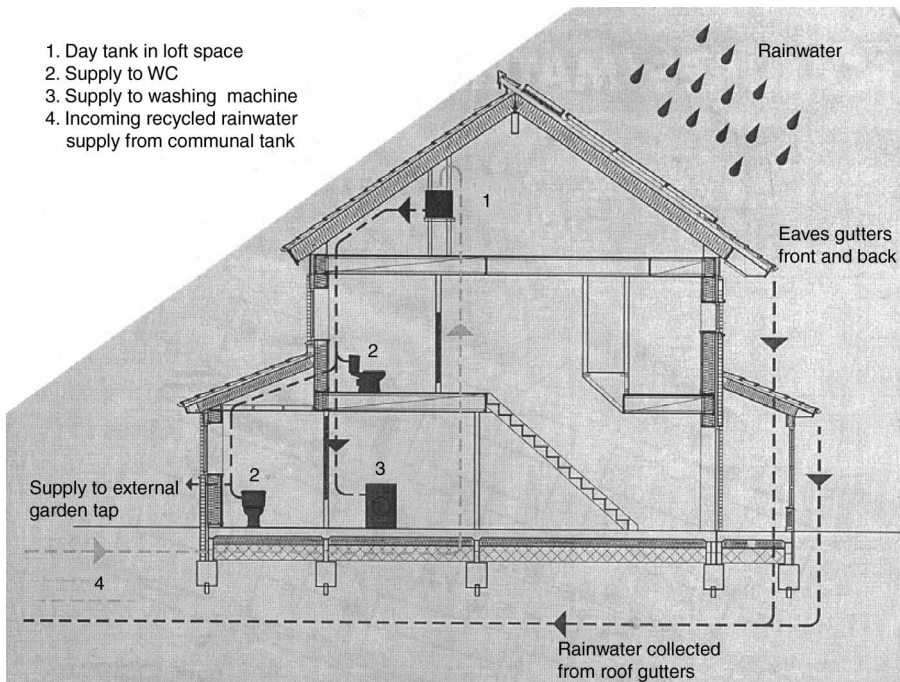from roof gutters

Figure 2.   The communal rainwater supply system.
Source: Project fact sheet, p. 2.

were intended to educate tenants and enable them to have a more positive feeling about the technologies.

However, our study shows that tenants' participation is partial, selective and instrumental. The tenants were not involved in the process of choosing sustainable technologies because they were generally perceived as technically incompetent. The developers in interviews stated explicitly: 'that was basically a technical process and there was not that much point in involving them' (interview with developers, 9 January 2006).

To make the sustainable water innovations attractive to funders, the developer argued that the new system would save the tenants money. However, the combined grey-water and rainwater system was found to be faulty shortly after implementation in 1998. The functioning of the combined system was as follows: grey-water was collected from baths, showers and washing basins. In principle, the toilet-flushing system was designed to work initially from recycled grey-water, backed up by rainwater, when the grey-water was depleted. However, since each property in the Project was occupied with a single elderly tenant, the grey-water generated from their baths and washing was often sufficient to meet their needs. As a result, the system never called for rainwater back up. The system design suggested that if rainwater was not called for within 28 days, the rainwater system would shut down automatically. As a

consequence, there would be no reserve water to flush toilets. This brought a serious problem when tenants had a party or their family stayed for the week-end. In addressing the problems, the affected tenants were instructed to turn the taps on or to take longer showers in order to create sufficient grey-water.

The inconvenience and grievances brought about an 'anti-technology feeling' among the affected residents. They felt like guinea pigs subject to an experiment with the new water equipment. The professional stakeholders, in interviews, accused them of being technologically-ignorant. A surveyor said: 'we had a tenants' meeting and the end-users' understanding of it [the combined water system] is absolutely terrible' (interview with surveyor, 19 January 2006). Facing strong resistance, the developers decided to scrap the system and put all toilets back on mains water. However, the 12 affected tenants were not informed about this decision.

In the analysis that follows, we will apply the 'subjectivity–institution–structure' framework to two aspects of sustainable water innovations: first, we will consider differing ideas about the right to clean water; we will then consider the variety of perspectives with respect to appropriate participation in the decision process.

Rights to clean water

The case study demonstrated a clear contrast between different groups' subjective ideas about the nature of 'clean' water. From the developers' perspective, water provided from rain and from other people's treated grey-water was technically clean, and perfectly suitable for use in clothes washing. The use of such water would not only reduce pressure on local water services, but it would also reduce the tenants' water bills. For the tenants, however, such water was a cause of suspicion. They thought rainwater was not clean enough to wash clothes and would also leave a bad smell in their clothes. Likewise, using other people's grey-water was regarded as dirty. Finally, water was a relatively small part of the tenants' household budgets: savings in this area were a lower priority than those relating to energy and heating.

In order to unpack these different perspectives on clean water, we need to start to situate people's understanding in relation to the institutions and social norms which surround them. For the developers, engineers, and suppliers, providing sustainable water innovations meant giving the tenants access to the latest technological developments. The use of grey-water or rainwater represented a set of 'green' behaviour to which, as for many readers of this article, they may have been personally attracted. Taking the tenants to the Centre for Alternative Technology appears to be an attempt to develop similar 'green' social norms among them.

Ideas about hygiene are formed in our youth. Reproduced through our daily practices, they become habitual, and thus achieving changes in such habits is likely be slow and difficult (Jackson 2005). The architect in our case study highlighted how pollution left the buildings in the local town black when

he was young, and how this would have equally been the case in the tenants' youth. In this respect, the tenants' suspicion about the quality of rainwater may well have been founded during an era when local rain carried deposits from factory emissions. In one interview a tenant was surprised to find the limited treatment to which the rainwater would be subjected: 'they'll only want to put a tablet in once a year' (interview with tenants, 16 December 2005).

As Shove (2003) emphasises, issues about hygiene and cleanliness have long been used as important class differentiators: if you have few resources, being clean is a crucial symbol of respectability. If the tenants felt that the innovations had the potential to limit their access to clean water, and consequently affect their hygiene, they might have perceived this as highly insulting. For instance, facing a lack of access to water owing to the design fault of the combined water systems, a female tenant complained:

> You know, I am sick and tired of having no water. We're in the 21st century now, and we've got no water in the toilet. How good is that? Because, I tell you what, when I was a kid ... we always had water in the outside toilet. (Interview with tenants, 16 December 2005)

We are not claiming that these 'technology-resistant' ideas were pre-dominant in the tenants' initial reactions to the water innovations. Rather, it appears that they were one of several strands of thinking. However, as mistakes eroded the tenants' trust in the experts, such ideas may have become more prevalent. Certainly, at the time of our interviews, distrust of the experts' claims about 'clean' water was shared by a number of residents.

We have already discussed the difficulties that occurred with the combined rainwater and grey-water system above – more detail about this situation helps to illustrate how trust broke down. On one occasion, some tenants hosted Christmas parties for their families and friends. The breakdown of the combined grey-water and rainwater system during that time meant that there was no water to flush toilets. This did not just cause embarrassment, but made them feel bad about not being a good 'host'. When the tenants put forward their complaints, they were partially blamed for causing the problems because they did not produce adequate grey-water.

> Tenant: 'When I said I'd no water and I'd ring and he'd [the engineer] say, "Well, just let your, your erm, shower run." I said, "Well, what's that got to do with anything?" "Let it run down," he said. I said, "Well, how long will it take to let your water run down?" So, therefore, I wasn't going to save a penny, was I?' (Interview with tenants, 16 December 2005)

The tenants found the 'solutions' of turning the tap on or taking longer showers ridiculous because grey-water, from their perspective, was generated from purposeful actions, such as washing hands, and should not be created in order to support the system. This undermined the legitimacy of the engineers' claims to be supporting 'green' action, especially when the problems continued for a long period.

Although the difficulties with the hybrid water system did not directly affect tenants whose houses were renovated during Phase 2, their neighbours' difficulties will have increased Phase 2 tenants' suspicion of the experts. One resident also noted a difficulty with a Phase 2 installation. While her washing machine was meant to be fed from the filtered rainwater, it was connected in error to the unfiltered water. As a consequence she was washing her clothes in 'dirty' water for six months.

> Tenant: 'He [the technician] had attached my washing machine to the rainwater. They shouldn't have done, it was against the law. And I washed my clothes for six months in dirty water. It wasn't purified.' (Interview with tenants, 16 December 2005)

Such difficulties will have further eroded assurances given to the tenants that all problems with the initial design had been overcome.

These tensions between the tenants and the 'expert' engineers and developers bring us to the structural aspects of our argument. In our view the tenants may not have been so much 'anti-technology' (as some of our expert interviewees claimed) but rather they were suspicious of new technologies imposed on them as poorer, working class individuals by 'experts', who were middle class and did not enjoy the 'benefits' of such sustainable water technologies for themselves. It is our view that they were right to be suspicious. The developers were able to 'impose' their ideas on the tenants' houses and the tenants did not have sufficient resources to 'vote with their feet' and go and live elsewhere.

> Tenant: 'They should have said, "Well, this is a new thing, because, maybe, we don't know whether it's going to work. We don't ..., you know, but you're just going to have to bear with us." Well, you'd have had a warning, then, but we had no warning to say that all these things were going to happen.' (interview with tenants, 16 December 2005)

Moreover, the potential for the technologies to erode tenants' sense of self-respect made the topic emotive, potentially depriving them of the opportunity to be (even) respectable. The tenants told us that they felt like guinea pigs in a green experiment.

> Tenant: 'We didn't even know it was a thing that wasn't ... hadn't really been tested before.' (Interview with tenants, 16 December 2005)

It is clear from our case study that the innovations increased the tenants' feelings of powerlessness, and in this sense they reinforced the existing inequalities of our societal structures.

Involvement in decision making

Another interesting area of different perspectives in this case study concerned the contrasting views and understanding of participation between the innovation end-users (the tenants) and the implementers (the developers).

From the developers' perspective, they consider that tenant participation was achieved because the chair of the community association was on the design panel for the construction. In this respect tenant representation was a 'norm' through which tenants' views could be manageably fed into the estate design. Indeed, in comparison with their peers, developers who follow norms of tenant representation in design processes may see themselves as relatively progressive because tenant consultation is considered and conducted.

Moreover, for the developers, choosing which of the myriad potential innovations to select was a technical process, requiring detailed research and scrutiny beyond that which could reasonably be imposed on the tenants. In recognition of the novelty of the technology, however, the trip to the Centre for Alternative Technology was funded by the developers so that tenants could be more familiar with the sort of technology to be used.

However, the tenants suggested that their involvement in the project was low. They did not even feel that they had adequate access to information about the innovations.

> Tenant: 'They didn't give you any information, not enough information because, I tell you, if I'd have known, I wouldn't have gone into that bungalow. I really wouldn't.' (Interview with tenants, 16 December 2005)

They also felt that they had not been consulted about the implementation of the innovations. They only learnt about the technologies having been installed in their flats at the moment when they signed the contracts with the developers.

> Tenant: 'Well, X [the developer] said to me, when I went to sign my tenancy, "You're in a bungalow with the recycled water." She said, "It's nothing, though. They wanted us to go in."' (Interview with tenants, 16 December 2005)

They felt it was too late to turn it down.

> Tenant: 'you know, we didn't even get the chance to refuse, anyway, you know ... you didn't think you'd have to refuse because they never said, "Well, it could be..." But, then again, you see, I say common sense is sometimes better than high brains, but I should have thought, well, you know, it could be a bit "iffy" [suspect] But, it didn't really, it never occurred to me that it wouldn't. It didn't really.' (Interview with tenants, 16 December 2005)

Our case also showed that there was no mechanism through which the tenants' perspectives on the technology could inform the innovation design, apart from the tenant representative.

For the tenants, the issue of participation in the design process had to be viewed in the context of the norms of their existing social relations. On the one hand, they cared about the features of their homes. On the other hand, the social situation of a committee was challenging; most had a poor educational

background and lacked the self-esteem and familiarity with 'business' language to confidently represent themselves in a committee meeting.

> Tenant: 'They really treated you as though, you know, "She's a pensioner. She's, well, they're stupid. But…pensioners have got common-sense if they haven't got … I don't profess, you know, to have any brains, because I didn't, I didn't get my 11+. I had brothers and sisters who did and went to High School/Grammar School and what have you. I didn't!' (Interview with tenants, 16 December 2005)

Moreover, the extent and regularity of the meetings would have been difficult for those suffering ill health. Consequently, tenants were content to let their chairperson represent them in the Steering Committee of the project. Although ordinary tenants were allowed to attend the Committee, they did not see it as appropriate since their action might risk disrupting the collective harmony of the community (conversations with tenants, 16 December 2005), because it would appear to question the ability of their chairperson to represent them. The norm of social respect and the desire to be accepted, therefore, constrained them from getting more involved in the decision-making process. In this respect, the formal process of participation had little impact on project design or implementation.

As project implementation progressed, however, other less formal processes of feedback developed which are also instructive. In interviews, a tenant suggested that their opinions were often passed to the management through the manager and caretaker. These informal channels appear to offer safe and efficient routes for them to get heard with respect to their experiences of the new water systems (Research diary, 16 December 2005). Furthermore, maintaining good personal relationships with the manager and caretaker allowed tenants to seek immediate help more effectively. For instance, when the combined grey-water and rainwater system did not work, the tenants were formally instructed to report the problems directly to the company by phone. Owing to the location of the company and complicated personnel arrangements, technicians did not make their visit within a week. To avoid nuisance, tenants rang the caretaker to seek help. Since the caretaker had received basic training in plumbing, he could see them and tried to sort their problems out within hours (interview with caretaker, 16 December 2005).

This analysis demonstrates the differing social norms in which individuals' behaviour can be positioned: the developers saw their practices as achieving good practice in tenant participation; the tenants were concerned with behaving towards their chairman, manager and caretaker in a way which maintained community harmony. The difference between these analyses is indicative of the different structural positions of the developer and tenants. Because they are operating from a position of relative power, the developers and engineers do not perceive the tokenism of the participatory structures they have developed. The genuine technical dilemmas which were faced during the design process were at the forefront of their minds. Achieving effective tenant participation was probably more difficult because they did not have a full

knowledge of the technology themselves, and as the problems with the hybrid systems demonstrated, would have found it hard to explain and justify in simple language. The developers had the power to impose their perspective that the design was a purely technical process, and thus avoided the need to present and justify their decisions. The limited participation of the tenants reinforced the engineers' perspective that the tenants were technically incompetent.

In contrast to the developers and engineers, the tenants' relatively powerless position meant that their involvement in the design of their new houses was a small part of the complex web of their existing social relations. They were hindered from articulating their needs in public fora due to their own lack of confidence, and their desire not to challenge existing effective working relationships. The informal arrangements which later developed provided a feasible route to highlight some of their concerns to managers. We should note, however, that such arrangements discriminate against people who do not have dense social networks. They also risk reinforcing social inequalities. For instance, some tenants felt that they needed to maintain good relationships with the caretaker; otherwise they could not get the immediate assistance when they needed. This gives the caretaker a great deal of influence in the establishment. Overall, the processes of tenant participation in this case study reinforced the tenants' perception that the developers and engineers did not think that their perspective was important.

Contextualising citizenship in 'subjectivity–institution–structure' framework

Table 1 highlights the features of the 'subjectivity–institution–structure' approach to environmental citizenship and summarises the findings from our case study. Putting the three key elements of environmental citizenship (i.e. exercising rights, enhancing individual responsibilities and participatory governance) against subjectivities, institutions and structures, we examine how different factors enable and constrain the achievement of successful citizenship.

Subjectivity highlights the role of people's perceptions and meanings in exercising their rights to a clean environment and the motivations underlying their personal commitments to the environment and their participation in the decision-making process. Our case study has suggested that the tenants and the developers have shown different understandings about what the right to clean water means, what environmental responsibilities are required, and how much participation tenants should be involved in decision-making process. The gap between the developers' promises about the benefits of water innovations and the tenants' experience of daily inconvenience generated ill-feeling and distrust between them. This has undermined the tenants' willingness to take up the environmental responsibilities that they thought were imposed on them.

Institutional factors connect the inner (subjective) and the outside (structural) worlds. They are social values and cultural norms that shape people's understanding and access to their rights. Individual responsibilities to

Table 1. Contextualising environmental citizenship in 'subjectivity–institution–structure' framework.

	Exercising rights	Enhancing individual responsibilities	Participatory governance
Subjectivities	Tenants and developers have different ideas about what the right to clean water means.	Tenants and developers have different ideas about what is required for environmental responsibility.	Representation by the chair of Community Group is good practice for developers, but provides limited voice for tenants.
Institutions	The threat to tenants' right to clean water challenges the social norm of cleanliness.	Willingness to take on environmental innovations connects to developers' social norm about green action.	Norms of conflict avoidance and desire for social acceptance dissuade tenants from active participation in Steering Group and design team meetings.
Structures	Cleanliness and hygiene are important class markers, and threatened by the innovations.	Developers' class-based perception of tenants as incapable of understanding new technology is reinforced.	Lack of participation reinforces tenants' perception that developers do not think their perspective is important.

the environment are both embedded and reproduced by our daily routines, habits and the 'right ways to do things'. Our case study has shown that the norms of cleanliness and hygiene were embedded in the tenants' daily practices, such as flushing toilets and cleaning clothes. They repeated the practices without their conscious scrutiny. However, the breakdown of the systems, the failure to find a solution, and the 'smell' of their clothes owing to the perceived unclean rainwater caused the tenants to feel that their right of access to clean water was denied. These incidents challenged the social norms of cleanliness enmeshed in their minds. The values of hygiene are related to their upbringing. The norms of conflict avoidance and the desire for social acceptance have also constrained their participation in the decision-making process. We are aware that institutions are not fixed, and they may change subject to circumstances. However, our case study has indicated that the enduring nature of institutions can become an obstacle for the promotion of environmental citizenship.

Social structures underline the cultural contexts, social constraints and power dimension that influence what rights can be exercised, how individuals take up more responsibilities to the environment, and how collective decisions are made in public fora. In our case study, class was a strong social force which shaped the tenants' subjective values of cleanliness and hygiene. The developers' class-based perception of tenants as incapable of understanding new technology was also reinforced during their everyday interactions. This understanding provided the developers with an explanation for the tenants' increasing resistance to the innovations. The limited space for tenants to get involved in the decision-making process also produced a general feeling amongst the tenants that their voice was not appreciated.

For the sake of clarity, we distinguish the roles of subjectivities, institutions and social structures in this article. We are, however, fully aware that they are highly interrelated. For instance, the tenants in our case study generally felt unable to do anything about their environment owing to numerous resource limitations. These structural constraints result in strong feelings of power-lessness that affect their subjectivities and so they thought their actions would not make any difference. The unfavourable institutional and participatory arrangements further undermined the possibility of taking collective action in addressing the disadvantages. The mutual mistrust between the tenants and the professional stakeholders has, unfortunately, produced collective misconceptions about sustainable technologies amongst the tenants. This has caused negative impact on pro-environmental attitudes and behaviour. It is the interplay between subjectivities, institutions and structures that explains the unpredictable outcomes generated from the complex processes of promoting environmental citizenship.

Conclusions and policy implications

There are many attempts to reduce unsustainable practices through environmental innovations that have an impact on citizens. Such innovations are

carried out with good intentions, but can be jeopardised by differing perceptions about citizens' environmental rights and duties, as aptly illustrated by this case study. The 'subjectivity–institution–structure' framework lays bare these differences; and thus, we suggest, offers a useful framework for re-conceptualising environmental citizenship.

One anonymous referee argued that because water consumption is undertaken privately, and because the innovations had minimal impact on residents' livelihoods, our case should not be understood through the language of environmental citizenship at all. The question raises an important issue about the nature of the 'environmental citizenship'.

> *Maybe this case study is more about the pitfalls of ecological modernisation and the top–down imposition of techno-fixes on less-powerful consumers rather than about environmental citizenship?*

While agreeing that the case has involved top–down imposition of techno-fixes on less powerful consumers; we question whether these factors stop it being a case of environmental citizenship. Our view is that it is not only hard but inappropriate to separate the public from the private sphere: water may be consumed privately, but the ultimate source is a public one and is shared with the environment; moreover, although water in our case study is individually consumed, as our case has illustrated, its consumption is socially shaped. We also think it is important not to minimise the socio-psychological impacts of experiencing problems with household water supply systems.

The question illustrates differing perceptions about what the concept of environmental citizenship can achieve: the referee suggests that it is useful and appropriate only for the analysis of cases meeting specific (public, livelihood-related) 'citizenship' criteria. Via the subjectivity–institutions–structure framework, we believe that environmental citizenship has the potential to be applied much more broadly to the analysis of myriad situations where citizens interact with attempts to improve the environment. We think the framework has potential both to inform post hoc analyses of innovations – as in the case study here – and to guide pre-innovation discussions about innovation design and process.

One of the implicit assumptions underlying the framework is that those without power bear disproportionately high costs in fulfilling their commitments to the environment and face more constraints in exercising their rights to a clean environment and in contributing to environmental decision making. The notion of citizenship may easily be used to ask anyone for environmental duties. By understanding the subjectivities, the institutional arrangements and structural constraints surrounding those with less power, this framework can help to set 'reasonable' targets for sustainable development in different situations. By exploring people's perceptions about their rights to environment, their abilities to make changes, and the constraints they encounter in participation, we believe that this framework can make environmental

citizenship work more effectively with and for people, especially the poor and the marginalised.

Acknowledgements

Notes

1. There are disagreements amongst scholars about the differences between environmental citizenship and justice. For example, Middlemiss (2007) argues that the former tends to be agency-oriented while the later structure-oriented.
2. We gain insights from Anthony Giddens' (1984) structuration theory to construct the framework, especially the concept of duality of structures. However, we are aware of the limitations of his theory: firstly, it has been criticised for being over-agency and under-structure (Archer 2000); secondly, it is accused of playing down objective structures which exist independent of individuals' reasons and motivations (Layder 1994). Readers are advised to avoid the confusion of the terminology. For example, we do not use define structure as 'rules and resources' as what Giddens (1984, p. 377) suggests. Instead, we stick to Layder's conceptualisation of structure.
3. This project involved other sustainable technologies, such as photvoltaics, but we focus on the water innovations in this paper.

References

Alabaster, T. and Hawthorne, M., 1999. Information for environmental citizenship. *Sustainable Development*, 7, 25–34.

Archer, M., 2000. *Being human: the problem of agency*. Cambridge: Cambridge University Press.

Barnett, J., Doherty, B., Rootes, C., Carr, A., Burningham, K., and Gray, K., 2006. *Environmental citizenship: literature review*. Bristol: Environment Agency.

Beierle, T. and Cahill, S., 2000. *Electronic democracy and environmental governance: a survey of the states*. Resources for the Future. Discussion paper 42. Available at: http://www.rff.org/documents/RFF-DP-00-42.pdf [Accessed 22 July 2005].

Bell, D., 2005. Liberal environmental citizenship. *Environmental Politics*, 14 (2), 179–194.

Brown, R. and Clarke, J., 2007. *Transition to water sensitive urban design: the story of Melbourne, Australia*. Melbourne: School of Geography and Environmental Science, Monash University.

Carolan, M., 2006. Ecological representation in deliberation: the contribution of tactile spaces. *Environmental Politics*, 15 (3), 345–361.

Carter, N. and Huby, M., 2005. Ecological citizenship and ethical investment. *Environmental Politics*, 14 (2), 255–272.

Cleaver, F., 2004. The social embeddedness of agency and decision-making. *In*: S. Hickey and G. Mohan, eds. *Participation: from tyranny to transformation? Exploring new approaches to participation in development*. London: Zed Books, 271–277.

Dobson, A., 2003. *Citizenship and the environment*. Oxford: Oxford University Press.

Douglas, M., 1987. *How institutions think*. London: Routledge.

Ellis, C. and Flaherty, M., eds., 1992. *Investigating subjectivity: research on lived experience*. London: Sage.

Flynn, R., Bellaby, P., and Ricci, M., 2006. Environmental citizenship and sustainable energy: analysing attitudes to a future hydrogen economy. *Paper presented at the Social Policy Association Annual Conference*, 18–20 July, University of Birmingham.

Flynn, R., Bellaby, P., and Ricci, M., 2008. Environmental citizenship and public attitudes to Hydrogen energy technologies. *Environmental Politics*, 17 (5), 766–783.

Geels, W., Elzen, B., and Green, K., eds., 2004. *System innovation and the transition to sustainability: theory, evidence and policy*. Cheltenham: Edward Elgar Publishing.

Giddens, A., 1984. *The constitution of society: outline of the theory of structuration*. Cambridge: Polity Press.

Gough, S. and Scott, W., 2006. Promoting environmental citizenship through learning: toward a theory of change. *In*: A. Dobson and D. Bell, eds. *Environmental citizenship*. Cambridge: MIT Press, 263–286.

Guy, S., Marvin, S., and Moss, T., 2001. *Infrastructure in transition: urban networks, buildings, plans*. London: Earthscan.

Hayward, T., 2006. Ecological citizenship: a rejoinder. *Environmental Politics*, 15 (3), 452–453.

Isin, F., 2002. *Being political: genealogies of citizenship*. Minneapolis: Minnesota University Press.

Jackson, T., 2005. *Motivating sustainable consumption. A review of evidence on consumer behaviour and behavioural change*. Centre for Environmental Strategy, University of Surrey.

Jelin, E., 2000. Towards a global environmental citizenship. *Citizenship Studies*, 4 (1), 47–62.

Latta, P.A., 2007. Locating democratic politics in ecological citizenship. *Environmental Politics*, 16 (3), 377–393.

Layder, D., 1994. *Understanding social theory*. London: Sage.

MacGregor, S., 2005. No sustainability without justice; a feminist critique of environmental citizenship. *In*: A. Dobson and D. Bell, eds. *Environmental citizenship*. Cambridge, MA: MIT Press, 101–126.

MacGregor, S. and Szerszynski, B., 2003. Environmental citizenship and the administration of life. *Paper presented at 'Citizenship and the Environment' Workshop*, 4–6 September, Newcastle University.

Maniates, M., 2002. In search of consumptive resistance: the voluntary simplicity movement. *In*: T. Princen, M. Maniates, and K. Conca, eds. *Confronting consumption*. Cambridge, MA: MIT Press, 199–236.

Middlemiss, L., 2007. Community for sustainability: some initial findings on the influence of community-based organisations on individuals. *Paper presented at 6th Global Conference: Environmental Justice and Global Citizenship*, 2–4 July, Oxford.

Murphy, J., ed., 2006. *Governing technology for sustainability*. London: Earthscan.

Schlosberg, D., 2004. Reconceiving environmental justice: global movements and political theories. *Environmental Politics*, 13 (3), 517–540.

Schweitzer, L. and Stephenson, M., 2007. Right answers, wrong questions: environmental justice as urban research. *Urban Studies*, 44 (2), 319–337.

Seyfang, G., 2005. Shopping for sustainability: can sustainable consumption promote ecological citizenship. *Environmental Politics*, 14 (2), 290–231.

Sharp, L., 2002. Participation and policy: unpacking connections in one UK LA21. *Local Environment*, 7 (1), 7–22.

Shove, E., 2003. *Comfort, cleanliness and convenience*. London: Routledge.

Smith, G., 2005. Green citizenship and the social economy. *Environmental Politics*, 14 (2), 273–289.

United Nations ECE, 1998. *Convention on access to information, public participation in decision-making and access to justice in environmental matters*. United Nations ECE/CEP/43, agreed in Aarhus, Denmark, 23–25 June 1998. Available at: http://aarhusclearinghouse.unece.org [Accessed 23 August 2007].

UNEP (United Nations Environmental Programme), 2002. *Environmental citizenship: an introductory guidebook on building partnerships between citizens and local governments for environmental sustainability*. Integrative Management Series No.5.

Valencia, A., 2005. Globalisation, cosmopolitanism and ecological citizenship. *Environmental Politics*, 14 (2), 163–178.