

## **Public engagement with water conservation in London.**

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### **Abstract**

Understanding water demand and consumers' capacity for change is essential in underpinning water demand management and water efficiency programmes. This paper presents the outcomes of a qualitative study which used discussion groups relating to water infrastructure with environmentally aware citizens in five London boroughs in the Lower Lea River Basin. The results showed a subtle interaction between users, water and technology. Users are generally unaware of their own water consumption. Individual perceptions of changes in water behaviour are constrained by habit and lack of knowledge about what changes can be made and how. Knowledge of environmental information was described as the inspiration behind making any changes. The paper concludes that access to information about water resources, infrastructure and conservation measures should be enhanced because although information sources are abundant, participants claimed they were inaccessible without considerable effort. Finally, an emphasis should also be put on helping the public form a more substantial part in environmental decisions.

### **Keywords**

Water demand management, water consumption, public participation, water efficiency

## **Introduction**

Systems of provision of water are now so well embedded in modern society that the infrastructure and technologies that enable household consumption are largely taken for granted (Otnes 1988; van Vliet et al 2005). As water resources are placed under increasing pressure due to growth in population and per capita consumption, understanding and managing demand for water has become very important (Butler and Memon 2005).

Addressing the study of urban water consumption in Australia, Sofoulis (2005) describes conventional approaches to understanding water demand as a dense fog,

obscuring most of the area where research on consumption activities would be expected: the realms of popular culture and everyday life, those messy, productive and resource-consumptive sites where people collectively reproduce, negotiate, perform and mutate identities, affinities, meanings, rituals, pleasures and significant practices in social assemblages that include a wide array of material object, media and technologies with their own social (or anti-social) trajectories (p. 446).

In contrast, a cultural approach to studying water demand helps to understand consumption patterns as they are etched into everyday life and social conventions (Sofoulis 2005). This also helps interrogate implicit assumptions about the nature 'water consumers' - who they are, how they behave, how they think – to better inform technical research agendas and demand management strategies and policies formulated by water companies and regulators (Medd and Shove 2005).

This paper uses a cultural approach to understanding water consumption. It aims to unravel some of the aspects of people's interaction with water, as well as the infrastructure and technology that is 'in charge' of their water provision. It investigates how these relationships influence individual changes in water consumption, either as the introduction of new technology or as a change in practice. Finally, the paper explores where and how members of the public understand themselves as part of larger schemes to help reduce water consumption, including the importance of access to environmental information relating to water supply.

Cultural research that is based on qualitative methods is gaining ground across the realm of environmental science, including water issues in the UK. For example, Knamiller and Sharp (2009) used qualitative interviews to examine water metering a user perspective. A similar approach was undertaken to explore everyday practices of water demand and consumption

under the influence of the 2006 drought and its aftermath in the South East of England (Medd & Chappells 2008).

Public participation and engagement is of increasing importance in the water sector. According to Harding (1998), public participation, in the form of community input of both knowledge and values enhances the quality of decisions made. While public participation usually denotes a formal process that involves the community in environmental decision-making it can also be informal (Harding 1998). Involving the public offers the opportunity to identify and settle issues that may arise prior to the plans being finalised and the development commences (Sarkissian et al 1997). Public engagement also helps to identify any long-term outcomes, which may be otherwise overlooked (Thomas 1998).

Water companies in the UK are now required to consult with the public regarding their water resources plans and the water industry is highly conscious of the importance of public perceptions of new water sources such as desalination and recycling (Bell and Aitken 2008). The opinions and emotions of water users can be an important component in the development of a holistic approach to encourage water savings (Knamiller & Sharp 2008). Sharp (2006) has pointed out that there are different ways of understanding water users in policy processes. Water users can be viewed as customers, who pay for the commodity in a commercial transaction with a certain level of service; or as citizens in a political system that recognises the right to water. This paper explores the relationship between water users, the infrastructures of water supply, the technologies of water consumption, and information about water consumption.

### **The Context: The socio-technology of water consumption**

In her book *Comfort, Cleanliness and Convenience*, sociologist Elizabeth Shove (2003) analyses the co-evolution of systems, devices and practices and what these mean for people and the way they organise their lives. She identifies mutually shaping relationships between users, technologies and large-scale water systems. As novel technologies emerge, so do the meanings and significance we assign to objects, habits and systems. Infrastructures of mains water and sewerage permit a way of life that would otherwise be unthinkable. A private bathroom was only feasible once suitable engineering and plumbing techniques were available. Laundry machines have transformed the practice of washing clothes as well as the meaning of laundry itself, redefining concepts of cleanliness and introducing new ones such

as that of freshness (Shove 2003). Furthermore, while the increasing efficiency of domestic technology allows us to get more from a given amount of water, the same technologies may also augment demand and foster unsustainable practices and patterns (van Vliet et al 2005; Von Weizsaker et al 1998).

As ‘gate keepers’ of the boundaries of infrastructure (i.e. the home), consumers are actively involved in its functioning, although they rarely see themselves in this light. Despite the interdependence between infrastructure and consumption, the only point of user-utility contact remains the bill, posted periodically, by which point it is virtually impossible to relate the levels of consumption to the actual practice of it (van Vliet et al 2005). In the UK, there is an additional cognitive separation between consumption and the source because communication between the supplier and the consumer is limited to the water bill which is issued annually.

### **Methodology**

To further understand these issues we conducted a set of discussion groups with participants who were likely to be aware of environmental issues. Unlike quantitative studies, discussion groups are a source of rich qualitative information that can help in understanding perceptions and worldviews (Burgess et al. 1988a, 1988b). Such aspects cannot be gleaned from large scale quantitative surveys and questionnaires because these tools are geared towards describing a situation rather than providing the context and reasoning behind different positions. The use of small group discussion to explore environmental values is now well established and has become an accepted research tool since Burgess et al. pioneered it over two decades ago.

Small discussion groups are aimed at exploring the knowledge and perspectives of specific social groups. In our case, participants identified themselves as environmentally aware through their social association and self-perception. The reason to focus on such a group is that we can expect them to be more motivated than the general population to inform themselves on environmental aspects of water and to understand this progressive socio-technological setting of water-consumption. In this study, recruitment primarily took place through direct contact, at events such as the local ‘Green Drinks’ forum, by contacting various London based environmental networks such as the London 21 Sustainability Network

and London Sustainability Exchange, local authorities and community centres.

A total of five focus groups were held between 7 July and 13 August 2009. Recruitment focused on environmentally aware citizens and a total of 24 participants took part in the discussions. The groups ranged in size from 3-7 participants. One group was comprised of 7 people, one of 4 people, one of 3 people, and two of 5 people. Of these participants at least 14 were university educated. The age range was spread between those in their mid-twenties to those in their sixties. Six participants were in their 20s; 5 in their 30s; 4 in their 40s, 3 in their 50s and 5 in their 60s. The ethnicity of most participants was white and English. One participant was of Indian descent, and 4 people had immigrated from overseas: the Netherlands, Portugal, Israel, and the United States of America.

The study area was defined by the Lower Lea catchment in east London. The research focused on five London boroughs: Hackney, Tower Hamlets, Newham, Waltham Forest and Haringey. According to 2006 estimates, there are more than 1,100,000 inhabitants in these five councils (ONS 2008). Water services in the area are provided by Thames Water, the UK's largest water and wastewater services company. Water is abstracted from the Thames, the Lea and groundwater. This area is highly urbanised and for many residents the Lea or the Thames are more associated with open spaces than with daily water consumption. While the study focused on this area, it can be expected that similar views will be expressed in other areas of London and other metropolitan areas of the UK, which are served by similar infrastructures and technologies.

Each discussion session comprised three parts. The first addressed a set of questions aimed at investigating awareness of water and associated technologies in their lives, and to confront people with their water consumption. The second part investigated efforts at making individual changes to practices, either by introducing new technology or as revising habits. The last part focused on the larger context of environmental decisions and responsibilities for water issues. Participants were also given information sheets showing them water consumption statistics during the discussion. The discussions were recorded, with the consent of the participants, and then transcribed. Following accepted protocols in qualitative data analysis, the transcripts were coded to identify common themes to develop the outcomes of the research. In the following section, we provide the results and illustrate the findings with

snippets of the conversation. We have used pseudonyms to maintain the anonymity of the participants. The pseudonyms selected indicate the sex and ethnic origin of each person quoted.

## **Results and Discussion**

The first series of questions came to examine the residents of the Lower Lea River Basin's awareness of water usage in their lives. The participants largely conform to the characteristics of modern day society with regard to water. When asked to think of their everyday lives and list when and where they use or encounter water participants identified the vast majority of daily uses, although they were surprised to note that some had just escaped them, including some that are agreeably trivial:

*Charlotte (60's, retired, lives alone in a flat): Oh yeah I should have put watering.*

*Judith (60's, retired, lives alone in a flat): The first thing I thought of with you was all your plants on the balcony!*

*Charlotte: It's interesting I'm surprised I didn't think of them.*

*Judith: See I forgot washing up and I do the washing up every now and again.*

*James (50's, works, lives alone in a flat): I forgot drinking. I just remembered when I was filling up the drinking...*

The actual source of the water, as well as what happens to it once we discard it, was an even more vague matter. One participant simply stated, regarding wastewater, that hopefully it goes to the same place "*only further down*". This participant was appreciably informed on the subject, knowledge that he acquired out his own curiosity, inspired by his admiration to these feats of technology. Yet generally, knowledge about the water provision was only held by participants who had visited Thames Water sites as part of their studies.

Thames Water was generally recognised as the region's water supplier, albeit some did so with uncertainty. The knowledge was ascribed to the periodic bill, exemplifying how for many this is the only point of contact (van Vliet et al 2005) unless for 'abnormal situations', for instance when witnessing any maintenance work or the repairing of a burst pipe. When asked to determine their sewage operator some participants were unsure and doubtful whether that was Thames Water or not. Between those who answered accurately, knowledge was unanimously attributed to the bill.

It seems that their mental model of the owner and operator of the water infrastructure had a separation between the input, which was easily identified as the water company, and the output, which was not. This also highlights the limits of the ‘customer’ model of the public in the water sector discussed by Sharp (2006). Although the participants could identify their water company by the logo on their bills, many were unsure about the nature of the service provided. In contrast, they were able to discuss in detail the importance of water in everyday life and society, providing the basis for a stronger identification of the public as ‘citizens’ within debates and discussions about water.

### **Consumption**

After examining the information sheets, participants were intrigued at many of the facts shown.

*Matthew (20's, works, lives in a share flat): The figure 150 litres, it just strikes me as such a large amount of water, than you say per day, I'm just like whoa! But it really does, I'm trying to visualise 150 litres all in one place so I think whoa, that's a lot of water, and then to think that, you know, it's going through, consumption rate is like that per day per head, it's pretty crazy really.*

Participants were mostly ill informed about their own water usage in general and particular activities alike. On many occasions, participants’ beliefs and assumptions about water consumption did not match the facts shown. When asked to compare themselves to these statistics, participants could only estimate their average consumption based on intuition and general impressions, many believing it to be less than average, while some gauging it to be higher:

*Adriana (30's, works, lives in a share flat): It's big, rather big...Yeah. At least according to my mental scale, my scale of what I think... Because I use water the whole day in many, many ways, water is always present, food, cleaning, the salads, dishwasher, clothes, shower, in the summer I probably shower twice a day.*

One of the participants (male, 30's, works, lives with a partner in a house) recalled measuring for himself how much water he uses in “an average shower” with the help of a bucket and a timer. The result was staggering: “50 litres for just a normal 10 minute shower!”

However, even with these facts in hand, clearly dependence on habits was still a barrier to

cross in order to consume less water. This arose almost as a source of discomfort for the participants who want to make a change and take the right decisions.

*Nathan: I can't think of anything to be honest. I can't, it's all sort of basic stuff you like to do everyday... You might, if it was just for a few days, you might put off laundry. ... But other than that, on a long-term basis I can't really think of any way round it.*

Furthermore, these type of comments show that environmentally aware citizens feel they have exhausted everything within their own remits of knowledge and power, and although they are happy to incorporate more changes, they cannot do so unless instructed or are part of a bigger scheme. Thus, in order to do so, the public now requires guidance and help from bigger actors, like the government, councils and water companies, to help change habits or insert new technology into the home. This type of information will not only help people make changes, but could mean an unambiguous and easy solution:

*Emily (20's, works, lives with a partner in a flat): One of the things that's the most time consuming is doing all the research to find out what are the right things to do or what are the best things to do... And how do I go about doing them? ... If you were given an information pack that had all the information about the things that you could do, with research already done for you, whether that makes people more, kind of, you wouldn't mind doing the actual things if you were given the information.*

Thames Water use the annual bills and their website with to provide details about water saving technology, but because of this rare communication, the participants felt that they are ill-informed.

A solution that was mentioned by several participants is labelling products with some sort of a water efficiency index, a suggestion that many other participants were convinced would be a beneficial tool to help opt for an environmentally friendly product:

*Hannah (50's, works, lives alone): When you buy appliances, you can look at the energy rating, but I don't think they have the water rating, do they? I can't say I've ever seen one. So perhaps as consumers we should be arguing for that, saying that we want to know what the water usage is of this washer compared to another one or...*

On this account, it should be noted that The Water Efficient Labelling Scheme of the Bathroom Manufacturers Association (BMA) does offer to raise awareness to bathroom products that could potentially use less water (and energy). At present, there are 20 UK bathroom product manufacturers registered in the programme. However, replacement of

bathroom products or even white goods (dishwashers and washing machines) are slow processes and even within a group of environmentally aware participants there was no willingness to pay for the costs of changing appliances. Furthermore, there was the additional concern whether or not the energy and resource footprint of replacing appliances would negate the positive effect of saving water.

### ***Changes***

Nonetheless, the vast majority of participants claimed to have made some changes to their pattern of water usage in recent years. One such way is to change the user's domestic system, which a few participants have carried out. One of the participants had a meter installed immediately after moving in, purely for water saving purposes. He also talked about installing a water butt to collect rainwater after being encouraged to do so by the local council (Hackney). Unfortunately, he encountered problems with the installation as well as the actual use, which serves as an example that the ease of operation of a water saving appliances may influence the perception and willingness of the user to accept it (Hills & Birks 2004).

Such changes were not shared by everyone. Instead, participants listed the constraints, limitations and worries with refashioning their water systems. A point mentioned by all tenants is the lack of choice/ability to make changes to the physical characters of the house including its infrastructure for water. Tenure was the most common impediment in terms of living circumstances:

*Charlotte: Well you can't [install a water meter] if you're a council tenant. I don't know about leaseholders, will they have to, I don't think so, and anyway there are none in the building that I live in...*

Other important factors mentioned were the hassle concerned with making 'big' changes, as well as the associated cost and the investment required with transforming the domestic technology, for example replacing older appliances with newer and more water efficient devices. In many ways, the embeddedness of water technology into the fabric of modern buildings is a barrier for change, as it requires both capital investment and significant inconvenience to change, only becoming worthwhile as part of comprehensive refurbishments.

Under existing circumstances, however, the conversation mainly revolved around small isolated changes in water usage habits that individuals can and have adopted. Behaviour changes are important, as they allow for individual agency in changing the interaction with the system. These included cutting down on range/duration of activities (such as showering less frequently), changing the method altogether (washing machines instead of doing it by hand) or simply being more efficient:

*Maria (30's, works): When I take a shower... I have a bucket with me, it fills up when I'm showering... And then I use it to flush the toilet.*

Maria also stated that it could become uncomfortable and “messy” at times, showing that it is not an ideal situation but rather the ingenuity of one consumer, trying to fight what Sofoulis (2005) describes as the ‘user-unfriendliness’ of the shower drain . Some changes mentioned were somewhat controversial, demonstrating that for many, bodily wastes are something not to be re-encountered.

*Charlotte: I flush the loo less. When I'm on my own, and then somebody pops round and then...*

Although some agreed to take to ‘drastic measures’ and sacrifice their ‘comfort and cleanliness’, certain habits were still difficult to renounce, be it washing clothes (“*I just don't see what you would do otherwise*”) or flushing the toilet after every visit (“*stains the bowl*”). These standards, different from one person to the next, reflect how people’s priorities and necessities cannot be categorised under a few simple headings. In line with Shove’s (2003) analysis of consumption and everyday life one of the participants defined what a necessity is for him (20's, student), which displays the role of social conventions in our water usage:

*I suppose the way I see a necessity is whether it makes you able to participate in society, that's how I see a necessity. So yeah, if you have water to drink, you'll survive but that's as far as you get.*

Motivation for changing behaviour and household technology was generally attributed to knowledge of environmental information. One participant recalled an article she had read some 20 years earlier, which has made her mindful of the importance of conserving water and the incorporation of new technology into her home, such as a water-meter and a water butt.

A few participants confirmed that having been taught extensively about environmental issues with a specific focus on water issues, has increased their awareness of the water problem and more importantly, has caused them to be more conscientious of the need to start being more parsimonious with water.

*Samuel: I think because I've learnt probably a bit more about water this year, my pattern has changed, I think I consume less now. Maybe I don't spend as long a time in the shower as I used to. I just do what I need to do. Before, I would just enjoy it I suppose, stuff like that. So I think I've cut down.*

Participants generally believed that education could raise awareness with the general public as well, and could urge people to confront these issues, make them “*feel there is a water shortage*”.

### **Information**

In line with the findings of Haklay (2002), ‘traditional media’ is the most common source of environmental information for the participants. Some however, mentioned they look out for specific information about the environment. Neither was suitable for all participants, who felt they should be more regularly informed about ‘their’ water, by government, local authorities or the water companies themselves and not just if “it’s an issue”. Although the original question referred to knowledge about environmental issues, participants soon demanded environmental information related to their water consumptions specifically and how it can be changed. This shows that that the participants are looking for action related information, as opposed to information that is more oriented towards raising awareness, or the common representation in the media as a social problem which can discourage individual agency.

That is not to say that information is not available. Thames Water is currently running several education programmes in schools, colleges and organisations within their supply zone where people are instructed about “water and the water industry in simple, meaningful terms”, including topics like “saving water, sewage treatment, how we treat and deliver tap water” (Thames Water n.d). Recent findings (Geiger et al 2006) are indicating that more and more people are now using the Web as an information source and Thames Water also offers abundant information about water saving devices and techniques on their website. A couple who took part in one of the groups, for example, stated they had replaced many of their appliances at home after they had done the research themselves. Statistics and figures were

also gathered for the information sheets shown in the discussion groups from various websites. However, as mentioned above, participants felt information is somehow not making its way to them, highlighting a field where more research should be conducted.

While the study highlighted action related information, the true importance of information in these issues and its affect on water savings should be more closely determined. While the need for information was repeated by all groups and many of the participants, consumer behaviours are influenced by many factors, making the matter of changing behavioural patterns highly complex (Jackson 2005). Information provision is not the magic cure. Information campaigns, while widely used, are less effective than other learning methods such as trial and error and observing others (Jackson 2005). Further still, the constraints mentioned earlier (cost, habit, etc.) remain, and the act of simply 'knowing' is not likely to take these away. That said, the research highlighted that action-related information, might prove helpful, if it is properly delivered and reaches a wide audience as part of a bigger and more comprehensive scheme.

An interesting finding in regard for getting information came from one participant, who indicated the value of discussion groups as a learning situation. Discussion groups, she claimed, could make people more appreciative of water and instruct them how they could save water by doing small changes or help with bigger ones:

*Sarah: Even if everybody was having these sort of conversations, everybody just remembering to switch their taps off so they're not dripping, ... I think I'll go home and you know, I'm guilty at leaving the taps dripping and now I'll make sure that I don't after having this discussion. So I think, having more of this sort of discussions.*

### **Decision-making**

The issue of water being a human right was brought up more than once. Indeed, one participant assigned this feeling to the notion that England gets a high level of precipitation:

*James: ... It's raining all the time, I mean it's not Israel it's not Spain, it's Britain, it's wet, we have a right, I mean I feel as if we have a right to our water.*

This was not a reason for people to escape responsibility and place it in the hands of higher authorities. People understood it as a mutual and exclusive problem, both social and environmental, and hence despite "fragmental responsibility", water conservation is a

problem “*we are all responsible for*”. Many expressed their frustration at water wastage, particularly misuse of water, wasteful designs and company leaks.

Nevertheless, participants didn’t know how they could take part in the bigger solution, outside the boundaries of their own home, although many felt it is their prerogative.

*Qamar (20’s, student, lives with family in a flat): the communities have the right to participate in these kind of things, so I would like, if my local authority was making a decision, then I would want to be consulted on that and I’d feel it was my right to be consulted as well...*

For now, participants stated all they could do is “hammering on doors” or use the conventional democratic channels.

Some felt their biggest impact can only be “being vocal with friends and family”. Others claimed they could imagine making a difference in their professional lives, but not as citizens. Participants were confused about roles of different actors such as the government, local councils and the water companies. Figure 1 summarises the relationships between infrastructure, technology, culture and decision making that shape users experience and consumption of water in the form of a ‘rich picture’ that describe the actors and the interactions between them.

## **Conclusions**

The discussion groups helped to reveal the inconspicuous interactions between users, water and technology. Unfortunately, these subtle interactions have now led to unsustainable practices, as users have grown accustomed to a continuous supply of water, without having to worry about it. Participants attested to not knowing where their water usage and consumption stands as a whole as well as particular activities, and had to rely on ‘intuition’, comparisons and even false assumptions. The infrequent interaction with water companies, the lack of feedback loop in the form of water meters and the hidden infrastructure of water in the homes of participants all contribute to this.

Being environmentally aware, the overwhelming majority of participants had made some changes in their personal life to adjust to a low potable water consumption lifestyle. While some introduced new technology that will help them save water into their homes many others

spoke of their limitations in doing so. Consequently, change of habits and customs seemed to be the prevalent way of dealing with the need to be more conservative with water. Even so, the habits and values regarding personal and domestic hygiene also serve as a constraint, as new practices are limited by existing cultural norms.

Changes were ascribed to knowledge and being educated regarding the need to save water. Furthermore, many participants claimed that they would like to receive more information. However, the information 'requested' by participants is not limited to simply water issues but also include action-related information about effective water technology and behaviour change. In turn, this could help make informed decisions and overcome the barriers that are currently present.

The level of ignorance and lack of information about the water system that was found in this study involving environmentally aware citizens are likely to be magnified in the general population. Whilst information alone is unlikely to lead to changes in behaviour and consumption this study highlights important areas for water companies and other organisations to focus public engagement efforts. These include basic profile raising so that the public are aware of the services they provide, including sewerage; providing fundamental information regarding the water and wastewater systems; specific information about how much water people use in their daily activities; and practical guidance on how to save water in the home.

Focus groups are a useful method for water companies and others interested in reducing demand for water to understand the knowledge, perceptions and needs of water users in the context of their daily lives, values and social expectations. They also provide opportunities to provide information and education to water users and for participants to learn from each other about the need to conserve water and methods of achieving it. Whilst resource intensive, small discussion groups provide an alternative means of public education to the usual mass media, internet or mail out programmes. Community networks, such as those used in this study, can be used to access small groups of people who already exist for other reasons but which may be helpful in providing a deeper level of engagement with customers than would normally be achieved.

There is no doubt that the public has an important role in reducing demand for water. As

water shortages become critical the public should not only be guided to make changes but also form a big part of the decision making process. The sentiments and judgments of the public should be included in water demand management decisions, as well as expert knowledge and analysis.

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