

BEYOND INDIVIDUAL BEHAVIOURAL CHANGE – WHY AND HOW?

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Abstract

Previous attempts to change energy-related behaviour have been targeted at individuals as consumers of energy. Recent literature has suggested that more focus should be placed on the community level and the social aspects of energy-related behaviour. This is because there are many limitations to individual behaviour change in energy use and climate action. These include social dilemmas (uselessness of personal sacrifices if others don't contribute), social conventions (people are not free to choose how they behave), the limitations of existing infrastructures and an overall feeling of helplessness of individuals when faced with the enormity of the climate challenge. These social aspects are increasingly important the motives for energy conservation are increasingly linked to large-scale environmental problems like climate change.

This paper examines the nature of these social aspects of behaviour change and the potential of various solutions on the basis of previous literature. We discuss, among others, the role of communities in providing individuals with assurance that others will participate, in shaping new conventions and in questioning old ones, in creating new infrastructures and in empowering individuals via the alignment of intrinsic and extrinsic motives and the provision of feedback on the results of individuals' and others' efforts. We then turn to ways of going beyond individual behaviour change in practical projects. We illustrate how the social aspects of behaviour change are addressed in six ongoing pilot projects conducted within an EC FP7 funded project, CHANGING BEHAVIOUR.

1. Introduction

Most of the behavioural change programmes to reduce energy consumption have focused on individual behaviour. They have tried to influence behaviour via economic instruments like grants and rebates, or via education and persuasion, e.g. information campaigns (Geller et al. 2006). Some programmes have been quite successful (Geller et al. 2006), especially on a small scale and in the short term (Abrahamse et al. 2005). In total, however, behavior change programmes have had a limited (about 10%) effect on energy consumption (Lutzenhiser 2002). Considering the urgent need to make deep cuts in greenhouse gas emissions, as well as the existing cost-effective potential to reduce CO₂ emissions through energy efficiency and energy conservation (e.g. Urge-Vorsatz and Novikova 2006; ESD 2006; IEA 2008), the current results of behavioural change programmes appear modest.

Sociologists have argued that traditional energy conservation programmes are too focused on individuals (Lutzenhiser 1993; Lutzenhiser 2002; Wilhite et al. 2000). They are based on an assumption that individuals

fully control their behaviour and make decisions in isolation. Research on consumer behaviour has shown that this is not the case. Energy-related behaviour is shaped by shared meanings, conventions and sociotechnical infrastructures that are largely beyond individual control (Wilhite et al. 2000; Shove 2003; Guy 2006). Individual decisions to save energy in order to conserve common natural resources are framed by social dilemmas (Uusitalo 1990; Kollock 1998): individual efforts are useless unless others participate. Finally, these problems, together with the invisibility of the consequences of our action, lead to a sense of disempowerment that is a major obstacle to low-energy lifestyles (Thøgersen 2005).

There is thus a dire need to engage communities, alongside individuals, in the change of behaviour and lifestyles in a low-energy and low-carbon direction (Middlemiss 2008). This change is visible, among others, in the increasing use of community-based social marketing in behavioural change initiatives (McKenzie-Mohr 2000). Examples of other community-based measures include the use of peer-to-peer communications, local intermediaries, and the linking of energy behaviour change to local sustainable energy initiatives (Stern 2002). The shift toward ‘community’ in behavioural change programmes is also visible in policy measures, such as in new initiatives by the UK Energy Saving Trust, which explicitly target communities (e.g., Peters and Fudge 2008; Martiskainen and Watson 2009).

We argue, however, that merely adding more ‘social’ and ‘community’ aspects to existing energy behavioural change programmes may not address all the problematic aspects of individual behavioural control. The debate about structure vs. agency is age-old in sociology, and it can be useful to consider the relationships between individuals, communities and society in more detail when designing programmes to change energy-related behaviour. Individual behaviour is constrained by structural factors, but on the other hand social structure is a human product. Established rules and ways of doing things can be changed when people start to ignore them, replace them, or reproduce them differently (Giddens 1984). There are, however, limits to how much individual human beings can change social structures. Thus, we examine ‘communities’ as an intermediate level between individuals and the social structure that serves as a way for individuals to change the structures that surround them (Heiskanen et al. 2009a).

Our paper draws on research conducted within a European action research project called CHANGING BEHAVIOUR¹. This project searches for successful ways to reduce energy demand among small-scale energy users (households, offices, small business, schools and municipalities). In this project (see <http://www.energychange.info>) we have collected three databases. One of them consists of in-depth analyses of 27 cases of more and less successful energy demand-side programmes and projects (Mourik et al. 2009). In addition, we have conducted a number of separate analyses of the relation between individuals, communities and society in energy-related change (Heiskanen et al. 2009a; Heiskanen et al. in press). At

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present, we are conducting six best practice pilot projects, in which various ways of going beyond individual change processes are being developed and tested, among a number of other new approaches. In this paper, we provide some first insights from this ongoing work.

This paper is structured as follows. We first present a synthesis of why programmes to change energy behaviour should look beyond the individual, building on previous research. We then turn to examine how community approaches can surmount some of the problems that individuals face when trying to change their behaviour, building on selected case studies from the CHANGING BEHAVIOUR project. Finally, we examine how a sensitivity to ‘community’ aspects of behaviour change can be built in to existing energy conservation projects by providing illustrations from our six ongoing pilot projects. Our conclusions summarise the state of knowledge and practice in this area and suggest areas for further development.

2. Beyond individual behaviour change – why?

Many existing approaches to changing energy-related behaviour suffer from a conceptual problem: methodological individualism. By drawing on purely economic or psychological representations of behaviour, they fail to recognize the socially grounded nature of human behaviour (Wilhite et al 2000; Biggart and Lutzenhiser 2006). In the following, we elaborate on five issues in adopting energy-saving behaviours that are disregarded when focusing merely on individual behaviour.

The social construction of ‘energy’ in everyday life

There is extensive evidence showing that energy experts and ordinary energy users view the world very differently. Experts frame energy use in different terms – often ones that are distant from ordinary energy users’ needs and concerns. They fail to understand why households behave ‘irrationally’ because they fail to grasp the logic of energy use (e.g., Shove 1998; Guy and Shove 2000; Parnell and Popovic-Larsen 2005). The divide between energy experts and ordinary energy users is not a difference in intellectual capacity. It is more a difference in cultural practices – ways of viewing and doing things that are socially shared among interacting communities (Lutzenhiser 2002). Where energy experts see “efficiency potentials”, ordinary people see homes, appliances and ‘normal’ ways of doing things.

Knowledge about how to conduct your everyday life is a product of social interaction (Berger and Luckmann 1966). We do not learn how to make purchases, furnish our homes or use energy through elaborate calculation or decision making rules, we learn by interacting with others – parents, friends, neighbours, peers (Bandura 1977). This is what is ‘real’ to energy end-users, rather than the models and facts provided by experts. Thus, we need to view energy efficiency knowledge as embedded in social practices, such as home improvement, and the ways in which people learn through socially situated action (Darby 2006).

We can thus be somewhat critical toward attempts to change people's conceptions about energy that are targeted at individual thought and decision processes. If we agree that interpersonal and structural relationships are significant factors in learning (Andrews et al. 2002; Darby 2005), we need communications that address the social construction of energy knowledge and awareness in everyday life (Parnell and Popovic-Larsen 2005). This suggests that people need to learn about energy and create shared meaning for efficiency practices together with the other people with whom they interact in their everyday life. Powerful individuals can introduce new conceptions of energy and efficiency, but in order for these conceptions to 'stick' and become a part of everyday reality, they need to be adopted by socially interacting communities (Andrews et al. 2002; Darby 2005).

Social conventions

It is not only knowledge and meaning that are socially constructed – much of our behaviour is, too. Individually-oriented behaviour change programmes have been shown to disregard the social nature of behaviour (Wilhite et al. 2000). It is implicitly assumed that each consumer makes decisions about consumption in isolation, and is free to choose products and services on the basis of personal preferences.

Research on the evolution of consumption patterns has shown that individual choice has a limited role in many types of environmentally relevant behaviours (Wilhite et al. 2000). For example, Shove (2003) has examined the development of washing and bathing, showing how commonly shared conventions of cleanliness and 'freshness' have increased the frequency of both activities over the past decades. Similarly, the demand for 'convenience' products has grown as the temporal organization of family life has disintegrated: families rarely go to work at the same time, eat at the same time, and spend their leisure time in the same place. Such conventions relate to the mutual ordering of everyday life across individuals. They are not primarily individual choices: consumption patterns are shaped by shared conventions that evolve historically, creating common understandings of decency and appropriate behaviour (Cowan 1983).

Conventions are learned and maintained through social interaction. They are reinforced by a vast commercial system of technologies, marketing and media that contribute to a convergence of conventions of "comfort, cleanliness and convenience" (Shove 2003). It is thus difficult for individuals to step outside conventional systems of consumption. It is even difficult to perceive the 'conventional' nature of self-evident and 'normal' customs. Even if they are called into question, the renouncement of 'conventional consumption' (such as frequent showering or laundering) is easily perceived of by others as anti-social. As conventions are by definition socially shared, one solution is to support new social groups that collectively develop alternative conventions (Ornetzeder et al. 2008). Moreover, if we want to question existing conventions, a deliberative and inclusive process of problematising current lifestyles is needed (Tukker et al. 2008).

Lack of infrastructure

The evolution of consumption patterns, conventions and customs is closely linked to the development of technologies of everyday life (Røpke 2003; Shove 2003; Gram-Hanssen 2007). For example, Shove (2003) has shown how air conditioning systems have evolved through mutually reinforcing developments in scientific specifications of 'comfortable' living and working temperatures, building design and workplace practices. While air conditioning standards have converged around the world, alternative schemes for 'making oneself comfortable' have been marginalized (Guy and Shove 2000; Chappels and Shove 2005). Even though conventions and sociotechnical systems are two sides of the same coin (Shove 2003), it is worth addressing infrastructures separately as their materiality requires specific resources for change.

Sociotechnical systems only become visible when the problems created by them are acknowledged in society. Even then, the unavailability of alternative systems creates barriers to change. And even when technologies like low-energy housing constructions become available, they are difficult to adopt because of the lack of supporting competencies, services, and social structures. High-energy technologies are linked to broader systems of supporting knowledge structures, supply chains, commercial interests and conventions (Guy and Shove 2000; Lutzenhiser 2002) – what many scholars of technological change call 'regimes' (Verbong and Geels 2007). Such regimes are embodied in urban infrastructures of electricity, water, waste and other utilities (van Vliet et al. 2001) as well as in the available routines, knowledge and skills of how to conduct one's daily life.

Thus, shifting to low-energy lifestyles often requires a questioning and search for alternatives, not only for existing conventions, but also for existing infrastructures of consumption and work. It is obvious that changes in entire infrastructures are beyond the powers of most individuals; they are collective endeavours. While sociotechnical systems and infrastructures are national or even global, they are also partly amenable to local modification and experimentation. Sustainable housing areas and alternative utility systems are some examples of current experiments in creating new infrastructures of consumption (van Vliet et al. 2001; Ornetzeder and Rohrer 2006).

Because infrastructures are central in defining the carbon-intensity of modern lifestyles, they are also central in supporting and maintaining change. Even though individuals can be induced by information or incentives to 'go against the grain' and learn to curtail energy consumption, such changes are often short-term and rarely survive once the change interventions are discontinued (Kurz 2002; Abrahamse et al. 2005). For lasting change, individual learning needs to be supported by new routines, infrastructures, institutions, supply chains and networks (Bijker et al. 1996; Rohrer 2001).

Social dilemmas

Today, the major motivation for energy saving policies and programmes is in protecting the environment, particularly the global climate. Thus, we are not asking individuals to save energy only because of personal benefits, but also to protect the common good. However, it is well-known that individual attempts to protect 'public goods' such as the environment and natural resources easily lead to social dilemmas².

Social dilemmas arise when we try to solve collective problems like climate change by focusing solely on changing individual behaviour, (Kollock, 1998). Unless people can assure themselves that others are contributing, their efforts to reduce the carbon footprint of their personal behaviour may be pointless. This dilemma is reflected, for example, in a recent survey in which 57% of the respondents stated that they 'do what they can for the environment', but it does not make a difference because 'other citizens' or 'large polluters' do not do so (Eurbarometer 2005). Recent guidelines for behavioural change campaigns have acknowledged this problem and stressed the importance of making sure that everyone is participating and that people see that others are also 'doing their bit' (Olli et al. 2001; Lucas et al. 2008).

More fundamentally, community management (i.e. management of resources by the entire community rather than by individuals) has been suggested as a solution for the dilemmas of the sustainable energy consumption (Gardner and Stern 1996; Jackson 2005). While community management presents a promising approach to social dilemmas, mere close interaction with others within a community is not sufficient (e.g. Brint 2001). Ostrom (1990) has identified features of traditional communities that have successfully managed shared resources sustainably, including clearly defined governance boundaries, rules concerning the utilisation of resources, collective choice agreements, monitoring, graduated sanctions, conflict-resolution mechanisms, and the ability to self-organise. Such features are notably lacking in today's world of energy use and carbon emissions. Yet, at various levels, groups of individuals can create new institutions and schemes for resolving social dilemmas. For example, Kollock (1998) has argued that *transformation* is a promising avenue to resolve social dilemmas: collective action can be reframed by providing assurance that others will co-operate, signalled through pledges and common symbols.

Helplessness

The previous paragraphs show that individuals are locked-in to existing consumption patterns through many structural, social and sociotechnical ties (Sanne 2002). Thus, exhortations to individuals to 'take

² The notion of social dilemmas in natural resource use is grounded in the problem of public goods (e.g. Hardin 1968). Public goods are goods for which property rights are not defined, and which can be freely used by anyone (e.g. shared natural resources like the atmosphere). Thus, there is no mechanism to limit overuse and depletion of the resource. Even when individual users perceive the problem of overuse, their unilateral actions to limit use are ineffective if others continue the unlimited use of the resource. While economists originally suggested the allocation of property rights as a solution to this problem, this is not often feasible or desirable (Ostrom 1990).

responsibility' may be frustrating and create a feeling of helplessness (Cleveland et al. 2005). The small things that are easy for individuals to do may be relatively useless in the face of the enormity of climate change. Psychological theories of individual-level change have discussed empowerment as a key factor supporting behavioural change; a feeling of helplessness is the greatest obstacle to change. People are most motivated to change when they feel they are becoming more competent and more able to take charge of their lives (De Young 2000; Kaplan 2000).

Helplessness and disempowerment can be countered by providing individuals with feedback on the collective impact they are making in reducing energy demand and hence, e.g., carbon emissions (Tukker et al. 2008). Feedback is an important aspect of empowerment because the problem itself is invisible, and people have no way of knowing whether they are making a difference. Moreover, they have no way of knowing whether others are participating, and hence collectively making a significant difference.

A further solution suggested to empower individuals is to align intrinsic and extrinsic motivations (Kaplan 2000; Corbett 2005), referring to intrinsic motivations that relate to resource conservation as an end in itself, and extrinsic, i.e. ulterior motivations like cost savings and personal benefits (see Kasser 2003). People need to feel their efforts are making a difference, and require government support for this. However, if the support is too directive, it can undermine the intrinsic motivation (Thøgersen 2006). Thus, empowerment cannot be accomplished top-down – 'being told what to do' can engender even more helplessness (Kaplan 2000). Individuals need to be invited to participate in devising their own solutions. Moreover, incentives should be aligned to support individuals' voluntary efforts (Thøgersen 2006).

These observations suggest that low-carbon communities can support individual empowerment in different ways. From the individuals' perspective, collaboration in a community may counter helplessness and help to empower individuals by providing a feeling of competence, feedback on the impacts of their and others' actions, and a 'voice' in devising solutions.

3. Examples of how communities can help individuals

Recent behaviour change programmes for energy and climate conservation have recognized the socially conditioned nature of human behaviour. We can also see more sociologically informed guidelines for behaviour change emerging from many sources and highlighting a variety of new issues and 'tools' for behaviour change (e.g. Danton et al. 2006; Lucas et al. 2008). However, there is still limited understanding of exactly how the individual level and the community level interact and how communities can help in surmounting the obstacles that individuals face in changing to low-energy behaviours and lifestyles.

In our view, the key factors in targeting communities are that we are targeting the context of behaviour (Middlemiss 2008), rather than individual attitudes or beliefs. Even though the context (social and physical structure) is largely man-made, it is difficult to change through individual action. Communities provide an intermediate level of action between macro-structure and micro-agency where individuals can shape their own conditions for behaviour (Heiskanen 2009a). In this approach, energy end-users are viewed not only as energy consumers, but also as ‘energy citizens’ (Martiskainen and Watson 2009). End-users are thus not only shaping their own behaviour, but also the collective ‘rules’ that govern social behaviour.

In Heiskanen et al. (2009b), we have started to examine in more detailed how real-life collaborative and community-based programmes help to overcome some of the problems in individual behaviour change. This provides some further ideas on how community-based behaviour change programmes can help individuals and how conflicts between the individual and society can be solved. We examined four different types of community-based programmes: a local community (Manchester is My Planet, UK), a sector-based community (Green Office, Finland), an interest community (Carbonarium, Hungary) and a ‘smart mob’ community³ (Carrotmob, multinational). These community-based programmes were selected to represent the diversity of different types and scales of communities in different parts of Europe that can be mobilized to promote energy saving and carbon reductions:

- Manchester is my Planet (MiMP) is a city-regional programme aimed at transforming the level of action on climate change by local authorities, universities, businesses and citizens (see Robinson 2009). The programme includes a behavioural change work stream spearheaded by a Climate Change Pledge Campaign encouraging citizens across Greater Manchester to reduce their CO₂ emissions by 20% by 2010. The campaign sought to target mainstream public opinion in a positive and inclusive way, and utilize a network of over 100 partner organizations that had been engaged in the wider MiMP programme. The campaign aimed to encourage citizens to make a personal commitment to reduce their own CO₂ emissions and feel part of wider ‘movement’ of personal, social and organizational change. In this way the programme sought to challenge the social convention that action on climate change was purely the responsibility of government or environmental activists. The aim was to address three key motives to mobilise participation: mainstreaming environmental action as fun and cool, saving money, and empowerment through positive local action. The pledge campaign has been quite successful, as more than 20,500 residents have signed up. While behaviour changes are still being evaluated, the number of pledges demonstrates to politicians that a significant constituency support ambitious city-regional leadership on climate action.

³ ‘Smart mobs’ are a form of community in which organized social action is based on technology-mediated, emergent behaviour (Rheingold 2005). Thus, there is usually little formal organisation. Technologies like social media and mobile phones enable people to mobilise on a seemingly ad hoc basis. The smart mob community examined here, Carrotmob, is not included in the meta-analysis by Mourik et al. (2009), but basic data are available in our inventory database of demand-side programmes (<http://www.energychange.ceu.hu>), and a more detailed analysis is available in Heiskanen et al. (2009b). Even though Carrotmob is an international movement, we have focused our analysis on the Carrotmob activities in Helsinki, Finland.

- Green Office is a programme run by WWF Finland to promote low-carbon workplaces and lifestyles (see Heiskanen 2009). While Green Office is not primarily a community but a certification and training scheme, it makes extensive use of some community management principles: *Networking among the participants* is a core element of the programme. WWF Finland organises four network meetings annually, hosted on a rotating basis by the participating offices. These network meetings are important for learning and information exchange as well as for the formation of new supply chains. *Commitment* is an integral element of the scheme. It is ensured by the contract signed between the participating offices, through annual inspections and via the required reporting and signaled by the right to use the Green Office logo. The programme makes use of *social pressure and social recognition*, including pressure from current and prospective employees, peers and customers. Social pressure and emulation has also been employed by WWF Finland in having ‘admired’ and well-known companies as participants in the scheme, serving as role models for prospective participants. Currently, 200 offices with a total of 20 200 employees have gained the Green Office certificate and in 2007, the Green Office participants reduced their CO₂ emissions by 12%.

- Carbonarium is a non-governmental association in Hungary established in early 2005 with the overall aim of decreasing its members’ CO₂ emissions and also increasing climate change awareness of the general population (see Vadovics 2009). The members keep track of their own CO₂ emissions, compare them with one another, implement mitigation measures, and pay membership fees based on their calculated CO₂ emissions. Members of the association can be both individuals and organisations. At the moment, Carbonarium has 13 members, all individuals, who agreed to record their monthly energy consumption (household electricity, heating, car mileage, etc.), send it to the administrator of the programme, and pay membership fee based on their calculated CO₂ emissions. Carbonarium prepares statistics on its members’ consumption and emission data, makes comparison between members, and also publishes some of the statistics on its website, accessible to the general public. For this purpose, Carbonarium developed its own methodology for calculating emissions. The format of the association is fully democratic and gives each of the members space for expressing opinion and influencing the activities of the organisation.

- Carrotmob is a virtual community that aims to reduce CO₂ emissions by harnessing consumer power in a particular fashion. The idea is to get a large number of consumers to show up and buy commodities as a special event, on the same day at the same place. In a bidding contest, different service providers are asked to give offers on how large a share of the earnings from the event they will use for investments in energy efficiency. Carrotmob makes a deal with the service provider that promises the highest percentage. The purpose is to create a win-win situation, where neither consumers nor businesses spend extra money, while still achieving energy reductions. In this form of ‘smart mob’ consumer activism,

consumers can make a difference by simply coordinating their purchases of products or services that they would buy anyway. Making responsible consumer choices together is enjoyable and creates a feeling of togetherness, as well as the possibility to make a visible difference in a selected target. Coordinating purchases makes shopping a social event. The Carrotmob phenomenon started in San Francisco in early 2008; since then, Carrotmob teams have emerged in multiple locations in ten different countries.

These community-based programmes are very diverse and deal with different kinds of behaviour changes. Some are externally organized whereas others have emerged from members' concerns. We conducted an in-depth analysis of what approaches the different communities use to deal with the constraints on individual behaviour change: socially shared knowledge and meaning, social conventions, lack of infrastructure, social dilemmas and helplessness (Table 1).

The community-based programmes that we examined used networking to create shared knowledge. Where external programme managers were involved, this meant tapping into the existing social networks to learn about participants' concerns and daily practices, whereas for participant-initiated programmes, this kind of social anchoring came quite naturally. All of the communities examined used networking for peer-to-peer sharing of experiences and ideas. The processing of carbon and energy issues in social networks gave rise to the development of a local, socially shared language and set of meanings for dealing with energy in everyday activities. For example, the Green Office programme's network meetings have focused on various aspects of office work (e.g., office IT energy use) in order to create common understanding of different IT users' views and meanings and their relevance for energy use.

There are also two distinct ways in which the community-based programmes aim to tackle the social conventions that constrain individuals in shifting to a low-carbon lifestyle. One is to deal with the conventions 'head on' by challenging existing routines and 'standard procedures' (cf. Middlemiss 2008). This is the approach taken by Green Office and Carbonarium. Green Office deals with conventions by actively reshaping 'appropriate' procedures and patterns (e.g. paper use) in office work. Carbonarium strives for a more fundamental type of challenging by debating and challenging the taken-for-granted beliefs about modern life of its members and audiences. Another approach is to try to create new conventions. This can be accomplished, for example, by shaping the public image of climate action by making it more mainstream and entertaining, as the MiMP programme is doing. Fun is a crucial element also in Carrotmob, but it also attempts to actually create a new convention by turning (some kinds of) consumption from individual into collective and coordinated activities.

The community-based programmes in our examples deal with the lack of appropriate infrastructures in various ways. Mostly, they have created new knowledge networks and communication infrastructures to support new consumption patterns. None of the communities in our examples have yet managed to

significantly change the ‘hard infrastructure’ conditioning the carbon intensity of our lifestyles. MiMP is the best positioned to actually reshape and create urban infrastructures, but as it has a legacy of existing infrastructure, change in a large urban area is a slow process. Thus, most of the infrastructure created until now is still on the drawing board. Interestingly, Carrotmob has created new infrastructure to coordinate consumer action via Internet and mobile communications. The community-based programmes also work to create new supply chains – for example, Green Office has forged new supplier relations within its own network.

In reframing social dilemmas, the communities that we studied made use of two distinct approaches, even though some employed both strategies. One was to focus on win-win solutions by stressing the financial and social rewards for climate actions (see also Middlemiss 2008). This approach was dominant in the Green Office case, where certification and stakeholder loyalty promote the financial success of the participating offices. The link to win-win solutions is also present in Manchester is My Planet, where private benefits and the benefits for urban regeneration are stressed. Carrotmob also reframes the social dilemma from sacrifice to pleasure by enabling consumers to ‘painlessly’ encourage companies to invest in energy efficiency. But some of the communities also strive for reframing the social dilemma on a more fundamental level by turning the individual’s win-lose dilemma into an ‘assurance game’ (Kollock 1998), where members can be assured that others will participate. The MiMP Pledge Campaign involves an important element of assurance, as residents can see that many others have signed up to the pledge. On a smaller scale, a similar effect is created in the case of Carbonarium through membership and common monitoring, and in the case of Carrotmob, by the mobilization of consumers to be visibly present to each other at the events.

While the communities have experienced varying success in dealing with the above-mentioned constraints on individual behaviour change, they all appear to be making some progress in dealing with helplessness. They do so by providing demonstration of the progress made collectively. For example, the aggregated carbon reduction of all Green Office organizations is calculated annually. The communities also empower by demonstrating in various ways that others share the same concern and are taking action. This can include members of the same community, but also others within the region, as in the case of Manchester is My Planet. A sense of accomplishment is also created through small and visible results – for example, when energy saving measures are taken using the proceedings of a Carrotmob event. Another important factor in alleviating helplessness is the provision of new competencies and a legitimate context for action (cf. Middlemiss 2008). This includes support and encouragement from others, but also participation and togetherness at common events. Moreover, when actions are decided on and roles are allocated, individuals gain a legitimate context for taking action to save energy.

Some of the community-management principles for supporting individual change described above have emerged through conscious design decisions. Others, however, have emerged incrementally as the initiatives

have evolved. Not all design elements are ideal, and the initiatives that we examined also encounter problems that they cannot easily solve. Moreover, even if some solutions work in a certain context, they may not be easy to transfer to another context. However, we believe it can be valuable to identify some of the more general design principles from the actions of successful – or even partially successful community-based programmes, as indicated in Table 1. They arise from real-world practice, but address some of the more theoretically derived problems identified in section 2. Our next question is then to ask whether such elements can be built into future behaviour change programmes in order to surmount the obstacles to individual behaviour change.

Table 1. Examples of how community-based programmes support individual behaviour change

Creating socially shared knowledge and meaning	<p>Networking for shared knowledge</p> <ul style="list-style-type: none"> - alignment of energy messages with existing beliefs and practices - peer-to-peer sharing of experiences and ideas - development of a shared 'language' for energy and resource conservation
Challenging and reshaping social conventions	<p>Challenging existing conventions</p> <ul style="list-style-type: none"> - creating a supportive environment for problematising current lifestyles - challenging taken-for-granted beliefs about modern life - challenging taken-for-granted practices at the workplace <p>Creating new conventions</p> <ul style="list-style-type: none"> - reshaping energy conservation as fun - turning consumption from an individual into a collective event - creating new traditions
Creating new infrastructures	<p>Creating new communication and knowledge infrastructures:</p> <ul style="list-style-type: none"> - calculation tools, social media - supply chains and supply networks <p>Creating new 'hard' infrastructures:</p> <ul style="list-style-type: none"> - products, buildings, urban structures, energy systems
Transforming social dilemmas	<p>Win-win solutions:</p> <ul style="list-style-type: none"> - aligning private and collective benefits - aligning regional and societal benefits - turning energy saving from sacrifice to fun and enjoyment <p>Assurance:</p> <ul style="list-style-type: none"> - collective commitment to goals - visible pledges to work toward energy and climate goals - visible presence of others who share the same goals and actions - symbols to communicate commitment and membership
Alleviating helplessness	<p>Demonstration of progress:</p> <ul style="list-style-type: none"> - aggregated impact of collective action - individuals can see that 'others are doing their bit' - small but visible results <p>Competency and legitimacy:</p> <ul style="list-style-type: none"> - support and encouragement from others - participation and togetherness - providing a legitimate forum for energy action

4. Socially oriented behaviour change approaches in six European pilot projects

The overall aim of CHANGING BEHAVIOUR is to develop a sophisticated but practical model of end-user behaviour and stakeholder interaction that integrates knowledge of context, timing and actors into energy demand management practice. We are testing and developing this model in six pilot projects with the purpose of developing a toolkit for practitioners. The model does not deal only with the problems of individual vs. community-level change. However, this is one aspect that it should address. This section analyses how we have done this so far, and what challenges remain.

CHANGING BEHAVIOUR is an action research project and we are working together with practitioners from intermediary organizations working mainly on the local level. Our practitioner partners have designed the pilots on the basis of their own competencies and the needs arising in their operating context (see Table 2). The pilots aim to change various types of individual behaviour, such as changing the energy-using habits of office staff, changing household energy usage patterns, or inducing investments in energy efficiency. However, the focus is also on the broader context and the community in which this behaviour is embedded. Thus, the pilots are not primarily community-based, but we aim to deal with individual-community relations as one factor in the change projects.

Table 2: The CHANGING BEHAVIOUR pilot projects

Project	Project manager	Aims	Targeted behaviours
1. Climate Club Godollo	GreenDependent Sustainable Solutions Association, Hungary	Support households in energy and carbon saving measures with information and meetings	Household energy use (curtailment behaviour) and lifestyle change
2. Micro-ESCOs	Enespa Ltd., Finland	Stimulate homeowners to make investments for energy efficiency and carbon savings	Energy efficiency investments
3. Northtown Technology Park	Cowi Baltic Ltd, Lithuania	Change everyday routines of staff to reduce energy consumption in office buildings	Staff energy use (curtailment behaviour)
4. Power Agents	Verbraucherzentrale Nordrhein-Westfalen, Germany	Train youth groups to reduce energy at home and in their surroundings	Household energy use (curtailment behaviour)
5. The Energy Academy	Manchester: Knowledge Capital, UK	Volunteers are trained to communicate on climate change to local residents	Household energy use (curtailment behaviour) & efficiency investments
6. Towards Energy Efficiency of Dwellings in Cēsis	Ekodoma Ltd., Latvia	Stimulate energy renovations in multi-apartment buildings by engaging residents	Energy efficiency investments

The social conditions for individual behaviour change are addressed to a certain extent already in the choice and focus of the pilots. Three of the pilots (Micro-ESCOs, Northtown Technology Park and Towards Energy

Efficiency of Dwellings in Cēsis) address the social interdependency of behaviour by focusing on target groups that share facilities or a common neighbourhood. Moreover, three of the pilots (Climate Club Godollo, Power Agents and The Energy Academy) rely on networking among end-users as a crucial element for change.

However, in other respects, the pilot projects are still ongoing and we are developing best practices as we progress. Thus, the following sections analyse the extent to which we have managed to target key aspects of individual-community relations in the pilots.

The socially shared nature of energy knowledge

The proximity and face-to-face interaction among the target groups in our pilots allows our project managers to use social networks to shape socially shared knowledge and meanings, at least to some extent. We are also designing tools that help project managers to assume the end-users' perspective and understand their concerns and everyday practices. An example of questions that we ask project managers to address is presented in Table 3. We have also developed a set of alternative, small-scale research approaches for project managers to learn more about the target group's needs and concerns.

Table 3. CHANGING BEHAVIOUR questions for project managers – how well do you know your target group? (abbreviated)

- | |
|---|
| <ul style="list-style-type: none">- What is the motivation of the target group (what are they interested in, what benefits would they value?)- What do they know about energy issues?- What are the main barriers to the kind of behavior changes you would like to accomplish<ul style="list-style-type: none">o economic, psychological, social (norms, routines, conventions), physical, information, knowledge, other- Who do they interact with? (e.g. service providers, neighbours, colleagues, associations)- What are they already doing to save energy and why?- What do they know, think and expect from your organization and your programme? What is their opinion about your organization's competence and credibility (try to take an honest view on that).- What do they know, think and expect about the kind of behavior changes you would like to accomplish?- What are their needs, priorities, worries and how can these be related to your programme?- What factors in their context (knowledge, values, institutions and technology) influence their energy-related behaviour? |
|---|

Challenging and reshaping social conventions

Different projects have different ambitions in terms of challenging and changing conventions and established social rules. This is easier in user-initiated projects, where it is more likely that the participants are prepared to question conventions. An external project manager's scope of action is somewhat limited: there is something of a dilemma between understanding and respecting the target group's culture, on the one hand, and challenging existing conventions or trying to create new ones, on the other.

The notion of conventions is important even though we have not yet quite figured out how to deal with it. Conventions are one of the main reasons why end-users themselves see their own behaviour as logical and sometimes even as ‘self-evidently correct’, even though energy experts see things differently. Examples include standard procedures in offices, or conventional calculation rules (payback periods) for energy efficiency investments.

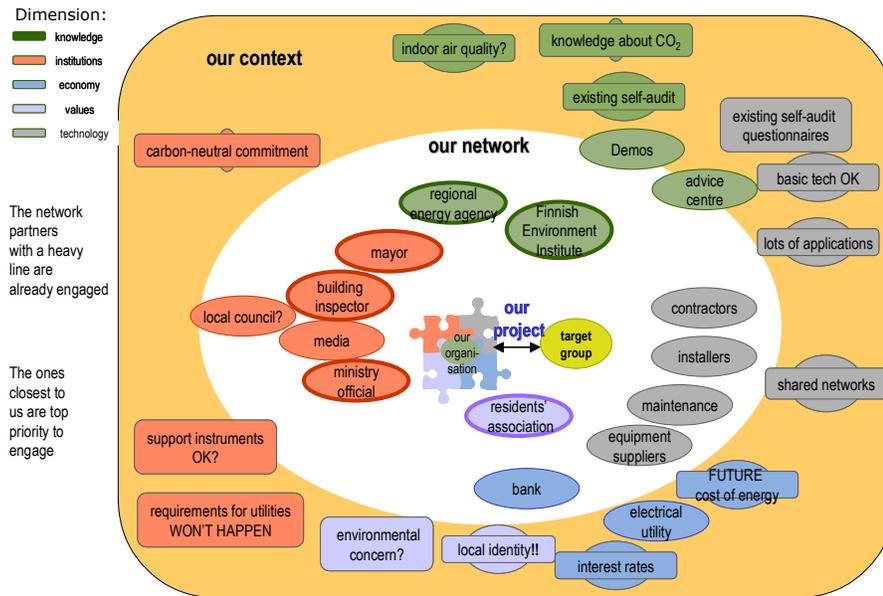
It is also important to acknowledge that conventions are shared by wide networks of people and supported by large systems of institutions, technologies and markets. However, on a small scale, some of our pilots are considering the options of suggesting and testing different and unconventional ways of solving existing problems (e.g. making heating system investments collectively rather than individually). Moreover, some of the pilots provide excellent opportunities for initiating critical discussions on social conventions in peer-to-peer networks.

Creating new infrastructures

Some of the pilots are working on developing new supply chains and service networks. This can include, among others, the development of a network of service providers for energy renovations. It can also include the engagement of financial institutions for the provision of capital for energy renovations. Other pilots, like the Godollo Climate Club, are creating new knowledge infrastructures like a calculation tool for household carbon emissions. One of the pilots, Micro-ESCOs, involves the attempt to create a shared heating infrastructure for single-family houses. This would bring significant efficiency gains. However, it is still not certain whether this goal will be achieved.

The creation of new infrastructures is largely beyond the powers of our small-scale and relatively short-term change programmes. This is particularly the case as concerns ‘hard’ infrastructures like urban structures and energy networks. Knowledge infrastructures and social infrastructures like supply chains and service networks are somewhat quicker and easier to assemble. What we have done is to develop a tool for analysing the stakeholder networks and central context factors – including technologies and supply chains – surrounding the project in order to facilitate the identification of opportunities and obstacles for change (Figure 1).

Figure 1. CHANGING BEHAVIOUR draft tool for mapping opportunities and obstacles for change in ‘hard’ and ‘soft’ infrastructures



Transforming social dilemmas

We identified above two ways to transform social dilemmas: the alignment of individual and collective benefits, and assurance of the participation of others. Not all projects can offer significant win-win solutions to their target group. However, our pilot projects are exploring opportunities to build in a range of co-benefits into the design of their projects. In addition to the (currently topical) carbon reductions and the (traditionally emphasized) cost savings, other co-benefits of energy efficiency and conservation projects can include: increased comfort, safety for the family, local economic development, local pride and self-image, self-reliance and social cohesion, among others.

Competitions are also a way of providing ‘social rewards’ and transforming energy saving from sacrifice to fun and entertainment. Two of our pilots (Climate Club Godollo and Northtown Technology Park) plan to organise competitions for their target groups.

We have not yet developed any practical tools for ‘assurance’, but some assurance-building mechanisms are integrated into the pilot project designs and contexts:

- embedding projects in a context where sustainable energy is being promoted more widely
- follow-up on local pledge campaign for concrete actions
- organizing community events – end-users see that others are concerned and taking action
- using social media to create group identity

Alleviating helplessness

Demonstration of progress and the progressive development of competency and a feeling of being in charge are important factors in alleviating helplessness. Here, we have developed a set of tools for projects to systematically collect feedback from and to provide feedback to their stakeholders and target group. This includes (1) designing and monitoring projects with a view to the target group's and stakeholders' concerns (2) providing feedback to target groups and stakeholders on achievements on an individual and collective level.

Target groups are thus not viewed merely as passive 'recipients' of new solutions and behaviour patterns, but as active players in shaping the new behaviours. Moreover, an increased sense of competency and achievement can be promoted by:

- using networking to provide support and encouragement
- trying to make sure that progress by the target group is matched by progress by other players (other households, businesses, public sector) on the local level.

5. Discussion and conclusions

Relations between communities and individuals are not the only factor shaping energy behaviours, and they are not the only issue that we aim to target in our project. Other crucial aspects of behaviour change include identifying predisposing, enabling and reinforcing factors of change on a more individual and on a more macro-structural level. They also include paying attention to differences – alongside shared cultural features – among the target group. Issues like timing and good fit to context – beyond social context – are also central.

However, numerous authors have stressed that individuals alone cannot solve all behavioural problems in energy use patterns (e.g. Wilhite et al. 2000; Lutzenhiser 2002). Yet most of their advice is then directed to researchers and national-level policy makers. By looking at 'community' as an intermediate level of action between individuals and the broad macro-structure, however, we can identify options for small-scale intermediaries to move beyond individuals to target the social context. The community level is also one where individuals themselves can change – at least to a small extent – the conditions for their own behaviour.

Our approach to examining energy and resource users in the context of communities (which may be local, or interest-based, or workplace communities) can empower people to become environmental citizens and take action and change their own social environment. Communities can also be crucial for overcoming social dilemmas by showing that others, too, are taking action. Moreover, as conventions are socially shaped, they can also be re-shaped by communities of mutually interacting people.

Engaging the 'social' is not, however, a panacea for sustainable energy use and energy conservation. Community-based and socially oriented approaches help to overcome certain problems, but not all of them. For example, experience shows that the invisibility of the impacts of our energy consumption patterns is a severe obstacle to changing them. Making energy use 'visible' involves a social aspect, but it also involves personal issues of attention, interest and learning. People need appropriate and personalized feedback on both their own and others' conservation achievements. All in all, proponents of sustainable energy consumption need to combine a good understanding of economic, psychological, micro-sociological and macro-sociological factors influencing consumption.

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