

Workshop “E-government vs. E-participation” at AECA XVI Congress  
“New business model: companies, markets and cultures”, Granada, 21-23 September 2011

## **”The role of e-participation in local government strategies for improving climate protection performance“**

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### **Abstract**

This contribution reviews various approaches to stimulating climate-friendly behaviour and introduces a participatory approach taken by local governments involving direct citizen participation in improving climate protection performance. The paper presents and puts up for discussion intermediary results of similarly structured climate dialogues in several cities in Austria, Germany and Spain. A core element of this form of citizen participation is the use of both traditional and electronic media for interactions in climate dialogues stretching over two years. The research project “e2democracy” investigates citizen panels collaborating with municipal governments on consensually agreed local climate targets. The results from a first survey among more than 400 participants in five cities show that participants have a special profile characterised by significantly higher levels of engagement in climate change, of sensitisation, issue knowledge, and beliefs in efficacy of targeted action. The findings lend support to expectations of enhanced community building and positive effects of online tools. Data from measurements via CO<sub>2</sub> calculator and CO<sub>2</sub> household books, respectively, suggest that there are also some indications of positive impacts on individual CO<sub>2</sub> balances.

### **Keywords**

Climate protection, local government, e-participation, social marketing, behaviour change, carbon footprint

### **Introduction**

Governments at all levels – from supra-national to local tiers – have stated specific targets to fight climate change and employ a variety of policies to reduce greenhouse gas emissions. A major focus is on cutting down energy waste, increasing energy efficiency and supporting the switch to cleaner energy sources by infrastructural investments, regulations, incentives and awareness raising campaigns. In search for effective forms of governance to fight climate change, local governments build on various alliances. Among others, city networks for climate change mitigation play an important role within multi-level climate governance. One example is the Cities for Climate Protection (CCP) programme, a major global municipal network aimed at reducing urban greenhouse gas emissions. Another one is the formation of contracts such as the Aalborg Commitments<sup>1</sup>. Such associations provide for exchange of information, mutual learning, capacity building, a sense of competition, and, last not least, financial and political resources (cf. Betsill/Bulkeley 2004).

However, since long it has become clear that achieving the ambitious climate protection targets is not possible without sufficient cooperation from consumers and changes in everyday practices in both

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<sup>1</sup> <http://www.aalborgplus10.dk/>

business and individual life styles. Therefore the topics of “sustainable consumption” and its promotion have entered the policy arena as issues of high importance (c.f. Jackson 2005), stimulating a variety of approaches to support shifts towards pro-environmental behaviours. New concepts such as “sustainable citizenship” involving “an understanding of citizenship as a total practice of responsibility between individuals and their political, social, economic, and natural environment” (Micheletti et al. 2009: 75) reinforce the implied transformation. Governments deploy an increasing array of approaches and instruments for promoting climate-friendly behaviour in private and corporate consumption. A major group relates to energy demand side management by financial incentives, energy performance contracting and advice, information and education campaigns, metering and feedback, energy audits, voluntary programmes and commitments for improving efficiency and curtailment behaviour (see Heiskanen et al. 2009). Another approach focuses on social marketing interventions, based on scoping consumer types and context conditions, followed by tailoring appropriate change strategies to different segments of the population in order to increase the chances of a successful shift to climate-friendly behaviours (cf. DEFRA 2008).

A third and more recent development is that governments are seeking a dialogue with citizens and companies and are beginning to discover citizen participation, supported by new media, as a specific tool in efforts towards mitigating climate change and raising the performance levels in achieving climate targets. The intentions behind this strategy include enhancing problem awareness, identification with public objectives, information on behaviour impacts (individual carbon footprint), social learning and capacity building, support in changing to climate-friendly behaviour, and exploiting possible advantages of electronic media for facilitating the pursuit of these targets.

This article seeks to contribute to exploring the prospects for and potential role of citizen participation, and, in particular of e-participation, in improving the performance of climate protection at local levels. It reports on the results of a first panel survey among more than 400 participants in climate dialogues in five European cities of different size, including both urban and rural regions in Austria, Germany and Spain. This empirical evidence is based on the European collaborative research project “e2democracy” (environmental electronic democracy)<sup>2</sup> funded by the European Science Foundation (ESF), the Austrian Science Fund (FWF): I 169-G16, the German Research Foundation (DFG), and the Spanish Ministry of Science and Innovation. The next section outlines the theoretical background for the empirical study: it reviews current approaches to promoting climate-friendly behaviours and summarises arguments for potential benefits of citizen participation and, in particular, e-participation for effective contributions to climate protection. The following sections present the methodology and empirical results, rounded up by a brief section with summary and conclusions.

## **Background**

Attempts to direct individual behaviours and lifestyles as well as operations in business contexts into more pro-environmental paths have been undertaken since the first indications of environmental damage became visible. Approaches that focus on individual agents as addressees for a successful mitigation of climate change principally need to be distinguished from approaches, which focus on structural change and infrastructural measures in society. Some critics argue that we are rather facing a tendency towards a “privatisation” of the responsibility for sustainability (Grunwald 2010) and warn against a neglect of the need for a public political debate of sustainability policies and structural measures in areas such as energy and mobility systems. It seems to be clear that public as well as private initiative and structural as well as individual change need to be complementary components rather than alternative options for successful climate policies.

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<sup>2</sup> <http://www.e2democracy.eu>

## **Approaches to promoting pro-environmental consumption and lifestyles**

According to an expert in the field, “behavioural change is fast becoming the ‘holy grail’ of sustainable development policy” (Jackson 2005: xi). A key to such behaviour change is often seen in attitudes and values, which are being addressed by seeking to reinforce pro- and modify anti-environmental dispositions. The rationale behind is largely the intention to cure an assumed information deficit and the perceived need for environmental education of the population. Therefore, related policy concepts regard information campaigns and interventions that focus on persuading and encouraging consumers as appropriate means. However, the effects of such policies have been modest (see e.g. Borgstede/Andersson 2010). Lifestyle changes turned out to be a more complex challenge. As a rule, they involve deeply rooted consumption patterns, hardened by habits and often constrained by external barriers.

One way out are social marketing approaches promising incremental increases of climate-friendly behaviour from developing and employing tailor-made strategies for identified segments of the population (cf. Barr 2008). According to its self-understanding, this strategy intends to offer sustainability policy as a positive perspective, which employs established techniques of segmentation and social marketing aiming at a “mainstreaming” of sustainable lifestyles. Critics object such approaches because they see a large part of unsustainable practices rather untouched and implicitly tolerated instead of seriously challenged (cf. Shove 2010). They also criticize the purely individualistic flavour of this approach, which neglects the embeddedness of behaviour in social and material contexts (Hargreaves 2011; Nye/Hargreaves 2010; Spaargaren/van Fliet 2000).

Along with these criticisms an alternative approach is emerging and being suggested as a fruitful and more holistic perspective for the understanding of behaviour change and interventions in favour of social objectives. This approach focuses on “social practices” as an alternative conceptualisation in contrast to individual behaviour and has its origin in a tradition of social practice theorists (e.g. Schatzki et al. 2001; Reckwitz 2002, Warde 2005). The social practice perspective claims to open up a more realistic view on social change and the conditions of changing individual behaviour; above all by taking account of the fact that individual behaviours are deeply embedded in social, institutional and material contexts. This implies that also climate-friendly or -harming behaviour is embedded within and occurs as part of social practices and means that it is not only guided by one’s own choice but also by relations to others around us, by what others say and do, by power relations and the specific social order in relevant contexts. This view also throws additional light on “consumer sovereignty” to which social and material structures often set limits. According to Shove and Pantzar (2005) social practices can be understood as the continual integration of images, meanings, symbols, skills and material stuff through regular and repeated doing by skilled practitioners in everyday life. Change in practices can emerge both from inside, initiated by the practitioner, and from outside, through contact with others. Focusing on social practices as central unit of analysis, as Hargreaves (2011) did in an in-depth ethnographic case study of a single behaviour change initiative, can prove fruitful for pointing out constraints to changing practices. To some extent, it also can show the way to subtle shifts in elements of practice towards pro-environmental aims.

A perspective that directly addresses the stimulation of behaviour change towards more sustainable practices is offering a suitable “choice architecture” based on what the authors (Thaler/Sunstein 2008) call “gentle nudges”. Their assumption is that it is important to anticipate the context in which people make decisions as well as the nature of decisions, and then to offer adequate decision support that influences the choice of actions towards a desired direction, such as towards climate-friendly behaviour. Thaler and Sunstein (2008) regard those decisions as most difficult which have uncertain or delayed effects, provide little feedback or are ambiguously related with practical experience, a situation typically encountered in the context of energy consumption. Offering information to households on their consumption in previous weeks, and on average consumption of energy in the

neighbourhood, together with positive and negative emoticons (as the authors did in a study among households in California) showed clear and positive effects on behaviour: households consuming above average decreased their consumption level, but below-average consumers increased their energy use significantly. Despite the unintended “boomerang effect” the feedback of information and the opportunity for making comparisons seem to have served as a positive nudge. The effectiveness of feedback is echoed by a survey undertaken by Darby (2006) and by more recent other studies in the smart metering context (e.g. Lanzarone/Zanzi 2010; Schleich et al. 2011), showing savings in the ranges of 1.5-15%.

### **Citizen participation supported by new media in service of mitigating climate change**

Direct participation of citizens in climate policies is still a potential that largely lies idle. This may be surprising since the topic of citizen participation has entered the stage of sustainability policy prominently already in the late 90ies with the adoption of the Aarhus Convention (UNECE 2000) and the coining of the concept of “environmental democracy” (Hazen 1997). Principles such as access to environmental information and integration of all stakeholders are of high importance also for climate policies. However, the potential for participation of all stakeholders in climate protection measures, particularly at local level, is still largely unexplored. Principally one can distinguish different levels of participation, depending on the degree of integration into or influence on decision-making and policy goals. A common categorisation is the distinction between three levels: (1) information, (2) consultation, and (3) active participation (Macintosh 2003, 2004). Citizen participation in climate policies can serve a variety of functions such as access to information, awareness raising and opinion formation, increasing identification with climate targets, exchange and discussion, inviting proposals, incorporating local knowledge, contributions to decisions and problem solving, legitimation and control of policy implementation, and feedback on policies. Participatory approaches in climate policies could learn much from experiences with user involvement in other fields, especially in innovation processes and energy demand side management (e.g. Rohrer 2005, Heiskanen et al. 2009). Above all, a decisive factor of organised citizen participation in climate policies is its quality as collective action: it can provide for mutual learning, community experience, reinforcement and backing to individual strategies of behaviour change and to some extent, it is able to account for stronger power to intervene into and to change social practices (Pratchett et al. 2009).

The advent of the Internet has brought an increasing number of new forms of participation employing electronic media commonly summarised under the label of “e-participation”. Their special advantages lend themselves to use for several functions that might play an important role in enhancing the chances to achieve local climate targets: Participation via Internet allows for instant access to structured information. It facilitates new forms of communication and interactions such as electronic fora and online deliberations due to increased flexibility, speed and connectivity (cf. e.g. Talpin/Wojcik 2010). The decentralised networking structure provides for instant messaging and interactions without restrictions of location. Outreach and speed reduce transaction costs of communication, mobilisation and organisational strategies. Via Internet, one can offer and use interactive elements of participation processes such as polls, checklists, questionnaires, surveys, or carbon calculators more efficiently. Last not least, the threshold and effort for implementing applications and platforms for interactions via social media are significantly reduced. In many respects e-participation promises to offer greater convenience of interactions and hence may facilitate and ease active engagement (cf. Kubicek 2007).

Climate targets set by governments are decisions of the political system that citizens may support, ignore or obstruct with their activities. The use of e-participation in climate policies offers enhanced opportunities for designing such processes in a way, which allows for reinforcing a “gentle nudge” towards climate-friendly consumption behaviour as pointed out above. Providing useful information and orientation, timely feedback and comparative figures on individual energy consumption and CO<sub>2</sub>

emissions can significantly profit from the superior capabilities of the Internet. This potential enables to model suitable “choice architectures” which tend to support decisions towards reducing energy consumption, increased energy efficiency and curtailing of CO<sub>2</sub> emissions.

### **Subject and design of the “e2democracy” project**

The research project “e2democracy” aims at exploring the potential of citizen participation including strong elements of e-participation in the context of climate policies at local level with a special interest in the impacts on the participants, their climate-relevant behaviour and local governance regimes (cf. Kubicek et al. 2010). It joins three teams across Europe working together based on a common research design related to a common subject: it comprises ongoing, similarly organised participation processes in each of seven cities and regions in three countries (Bregenz and Mariazell region in Austria; Bremen, Bremerhaven, Wennigsen in Germany; Zaragoza and Pamplona in Spain). The provision of some common core elements helps to approach the character of a field experiment that will allow for comparative assessments at a later stage of the project. At each site local government, local companies and citizens have agreed on a target of reducing CO<sub>2</sub> emission levels by at least 2% per year over a two years observation period. Local governments spread invitations to all citizens through large-scale information measures via local media and kick-off events. Additionally project-related telephone surveys among the population before the start provided for awareness of the opportunity to participate. The core element of the participation process is a panel of citizens working with local government on achieving or exceeding the agreed target. Free choice of the mode of participation is possible – via traditional means (in person, via mail, telephone etc.) or via electronic media (Internet). Three types of interaction play a key role:

- (1) provision of and access to information offering guidance on climate-friendly behaviour (regular newsletters, information via project website or on paper);
- (2) bimonthly documentation of individual consumption data (via an online carbon calculator with instant production of individual CO<sub>2</sub> balances, or via a personal “CO<sub>2</sub> household book” on paper with subsequent calculation and transmission of CO<sub>2</sub> balances by support staff);
- (3) various forms of theme-oriented meetings and exchange (e.g. group meetings with expert talks, group excursions, chats with experts, discussion platforms).

The regular monitoring and provision of information and feedback to participating citizens over a longer time period, based on their individual consumption and lifestyle patterns, is intended to stimulate informed choices and to support responsible behaviour towards reduced CO<sub>2</sub> emissions (cf. Stern 1999).

Depending on local agendas the participation processes started at different points in time: the citizen panel activities in Bremen took the lead in January 2010, the panels in Austrian and Spanish cities started between April and autumn 2010, and in the remaining two German cities still later, in Wennigsen only recently in May 2011. Nevertheless in at least three cities the participation processes have reached already half of the projected observation time (2 years) allowing for a full one year measurement of the development of CO<sub>2</sub> balances by June 2011. Therefore, the reported empirical findings to some extent represent intermediate results, in particular as regards the impacts. Before it comes to outline preliminary effects of this form of participation in terms of local targets achievement, this paper will summarise findings with a focus on the following questions:

- Who are the citizens who are willing to engage actively in a participation process for achieving local climate targets and how do they differ from the population at large?
- What are their motivations, attitudes and expectations?
- What are their views of the role of government and businesses as regards climate protection?

- Which functions is the participation process able to fulfil?
- In which ways do users of e-participation (“onliners”) differ from users of traditional participation means (“offliners”)?

## **Methodology**

In each city and region, respectively, a telephone survey among a representative sample of the population had been carried out before the start of the local participation process (with sample sizes between 502 and 926 respondents per city). The results provide general profiles of attitudes, knowledge, behaviour and assessments related to climate change, policy measures, consumption, citizen participation, local governance and electronic media. Selected findings will be used for comparisons with characteristics of active participants of citizen panels.

The empirical results presented in the next section primarily stem from a first round of surveys among the citizen panels in five locations for the time being: Zaragoza, Pamplona, Bremen, Bregenz and Mariazell region. The surveys took place between the second and third bimonthly measurements of consumption records primarily online and for “offliners” via postal surveys, respectively. Questionnaires went to 680 panel participants in the three countries in total; 408 questionnaires have been returned by end of June 2011. With an average response rate of 60% (54% in Austria as well as in Germany, 64% in Spain), they establish the basis for the results in this paper.

An additional source is data on consolidated CO<sub>2</sub> balances and in specific fields of everyday life (energy consumption at home, transport, nutrition etc.) from the carbon calculator offered via local project websites. This data allows for an overview on preliminary effects in terms of CO<sub>2</sub> balances and performance regarding the achievement of climate targets. Of 903 registered participants in the CO<sub>2</sub> measurements in total, 747 have delivered at least their baseline data; 540 have also provided data for the subsequent measurements by end of June 2011. In this paper, only data from the carbon calculator, which citizen panels in Austria and Germany use in common, have entered the analysis. The reason is that in order to guarantee for at least a full year of observation the analysis had to be limited to those cities, which have already accumulated data on baseline measurements plus at least six further measurements at bimonthly intervals. By end of June 2011, Bremen, Bregenz and Mariazell region fulfilled this requirement. Using data on overall CO<sub>2</sub> emissions only from participants with complete datasets for the whole period yields 132 cases in total for the three cities.

## **Results**

Attracting citizens to engage in a collaborative effort with other stakeholder groups to improve climate protection at local level one cannot take for granted; especially when the participation process is explicitly announced as projected for a period of two years and when the tasks are demanding continuous input. Therefore, it is of special interest, which segments of society one can expect to join such initiatives, and how enduring such engagements are.

### **Who are the participants in local climate dialogues?**

As regards basic socio-demographic aspects such as the share of men and women, there is a remarkable congruence of the distribution across all three countries, showing a rather equal participation with a slight majority of 52% male panellists among the 408 respondents in total. Attracting a well-balanced composition of participants by age turns out to be much more difficult: while the middle age stratum of 30-50 years is rather strongly represented in the German and Spanish citizen panels (44%), the distribution is heavily skewed towards the older strata in Austria (71% are above 50). Younger citizens below the age of 30 are underrepresented in all panels. The picture

regarding educational levels of the participants is still more unbalanced, most extremely in Germany: more than 60% have academic degrees. In Austria and especially in Spain the overrepresentation of higher educational levels is much less pronounced. As a whole, these findings correspond rather well to what we know from resource-based explanations of political participation (e.g. time, civic skills; cf. Brady et al. 1995), although we will still have to seek explanations for significant differences between countries (and cities) at a later stage of the project. As regards the mode of participation, there is a strong preference for e-participation: practically two thirds (65%) are onliners.

Although the intention was to reach out as much as possible into strata, which do not yet behave climate-friendly, one could expect that citizens who are already sensitised to the need for changing behaviours towards conformity with climate protection would be more likely to participate. The results confirm this expectation: almost one third of the participants show very high, 61% fairly high interest in climate and environmental policy. They also distinguish themselves by a significantly higher level of information on climate change and the problems involved: 70% assess their information level as high or very high (compared to 54% in the local population at large). On the other hand, significant differences of satisfaction with present measures taken to mitigate climate change at local level also indicate a higher level of problem consciousness among the panellists: less than 40% are (very) satisfied with these whereas the corresponding figure for the general population shows a clear majority. Another clear difference is visible regarding the degree of belief in the prospects to achieve climate targets. Here the situation is contrary: two thirds of respondents from the citizen panels view a successful achievement realisable; among the population at large, the majority in each of the participating cities is pessimistic about this issue. A similar pattern is discernible with regard to assessing the effectiveness of various measures against climate change: panellists have higher trust in effective contributions of energy saving, using pro-environmental means of transport, and purchasing regional and durable products.

Overall, these findings confirm that the participants in local climate dialogues are characterised by significantly higher levels of interest in the issue of climate change and its mitigation, of sensitisation and issue knowledge, and of beliefs in efficacy of targeted action. Although this should not be surprising, it does not mean that all participants are “environmentalists”, practice sustainable lifestyles and have already completely adapted their consumption so that there is no potential for improvements. There are also people among the panellists, whose lifestyles correspond to or are close to mainstream. Among others, information on household energy profiles or variables such as interest in politics in general indicates a certain share of such people.

### **Motivations and expectations**

Asked about their motivations to participate in the local climate dialogue projects, a feeling of ethical responsibility for future generations ranks ahead all other motives (98%). Next come worries about climate change, a strong interest in environmental affairs, the desire to lead a healthy life, and the belief that citizens should engage in fundamental issues of common concern (91%), in other words, a sense of what has been described above as “sustainable citizenship”. A strong motivation is also the view that politics does not pay enough attention to climate change (88%), an interest in knowing the individual carbon footprint (84%) and in saving energy costs (83%). Three quarters of the panellists also felt obliged to join since government had appealed to all citizens. Only for a minority of 20%, a general political interest has contributed to their participation. Some interesting differences between offliners and onliners seem worth noting: the motives to comply with an appeal to all citizens, to feel responsible to future generations and to save energy costs play a significantly lower role among onliners, whereas the view that politics is too inactive is more frequent among them.

The expectations citizens hold about the participation process are of special importance for organisers of such initiatives, in this case for local governments and intermediary organisations. *Figure 1*

provides a picture of major expectations of panellists reflecting the importance ascribed to various aspects of the participation process, disaggregated by mode of participation:

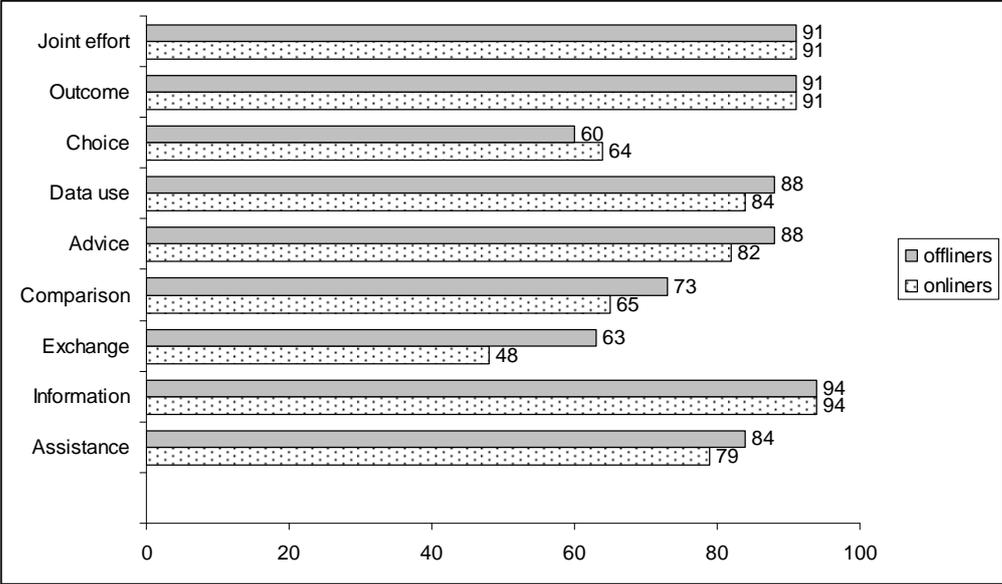


Figure 1: *Aspects of the participation process the participants regard as important or very important (in percentages, n=369)*

For offliners and onliners alike, three features have priority: receiving useful information on energy saving and CO<sub>2</sub> reduction; joint and balanced efforts of public sector and companies together with citizens; and utilisation of outcomes for climate protection measures. Next important, in particular for offliners, is transparent handling of individual data; personal advice on energy saving and CO<sub>2</sub> reduction; and assistance with operating the CO<sub>2</sub> householdbook and CO<sub>2</sub> calculator, respectively, for onliners. Surprisingly, opportunities for exchange and discussion with other panellists as well as for comparing one’s personal CO<sub>2</sub> balance with those of others seems less important although still expected by a majority and more so among offliners. It seems that especially onliners tend to rely more on individual activities and efforts or expect to get relevant information and support from the net.

**Views of the role of government and businesses**

The importance of an expected joint effort for the participation process is consistent with the view of responsibilities of major stakeholders: asked for the distribution of responsibilities for fighting climate change, a majority (nearly 60%) either views politics, companies, and citizens as equally responsible to contribute, or assigns a bigger share of responsibility to politics and companies.

The survey also had asked panellists which of several options they held most suitable for bringing politics to do more for climate protection. For 80% of the respondents, citizen initiatives and petitions are the most effective means, whereas only 14% expect this from elections and only a tiny minority from demonstrations.

The assessment of local governance regimes reveals an interesting and consistent pattern pointing to effects that might have to do with the different sizes of cities involved. Overall, the majority of participants declare themselves less satisfied or dissatisfied with local governance overall (60%), transparency and accountability (67%), participation opportunities (61%), and information policies

(58%) in their cities and regions, respectively. However, on all four criteria the picture is contrary in the two locations with the smallest population: in contrast to the big cities with several 100.000 inhabitants, a strong majority of the panellists in Bregenz (27.000 inhabitants) and Mariazell region (5.000) assessed their local governance positively. A possible explanation could be that apart from legitimate reasons for criticism the distance to government institutions in larger cities is greater, making governance processes less clear and accessible to citizens, which is more likely to provoke negative images than in smaller communities. However, the fact that the same contrasting pattern also appears for assessments of satisfaction with democracy at large at the national level rather points to less pronounced criticism among the two Austrian panels.

Less surprising is the high value panellists attribute to citizen participation as such as a feature of governance regimes and democracy: more than 90% agree or strongly agree that citizens should participate in political decision-making. On the other hand, the results also indicate that this does not imply a fundamental demand for direct democracy since more than 60% agree to leaving politics to elected representatives. Viewed at the disaggregated level it becomes clear that this overall result mainly goes back to the participants from Spanish cities: only here, more than 75% hold this view whereas in all other cities strong majorities are against complete delegation of politics to formal representatives.

### **Differences between users of e-participation and “offliners”**

The present analysis allows for some further findings on differences between onliners and offliners; a more systematic study of these subgroups is planned for a later stage of the project.

As expected from well-known facts on “digital divides”, also the two subgroups among the panellists show highly significant differences in their composition by gender, age and education (sig. < 0,01). While 60% among the offliners are female, the relation among onliners is reverse; the majority (55%) is male. Nearly 80% among the offliners are above 50 years old, among the onliners only 36%. The level of education of nearly one third of the offliners is low; among the onliners only 7% have low education. However, the design of the participation processes established the provision of free choice of participation and communication means as a core element right from the start to guarantee, as far as possible, for inclusiveness and openness to all citizens.

In the majority of process-oriented attitudinal and motivational characteristics, there are little or no differences between off- and onliners. For instance, between both groups the beliefs in achieving the local climate target and the effectiveness of measures are similar. Different results are more visible in various assessments, such as the satisfaction with local measures against climate change: offliners are less critical than onliners in this respect; the corresponding ratio of dissatisfied respondents is 55% : 64%.

On the question in which form proposals to politics are more effective, the difference is as expectable: among the offliners 21% regard public face-to-face events as superior, among the onliners only 8%; however, among both groups the overwhelming majority opts for a combination of public face-to-face events and interventions via Internet. A special issue is the mutual assessment of advantages of an online and an offline version of consumption measurement for the calculation of CO<sub>2</sub> balances. The assessment list comprises the following criteria: effort, handling, support, actuality/speed, flexibility, contact with others, access to information, opportunity to bring in ideas, feeling of common effort. On each criterion, both groups rated their own tools better. This need not necessarily reflect biased assessments for all criteria as the choice of tools according to individual preferences and skills would imply subjective differences of benefits. However, the response pattern also shows more. Onliners see the biggest advantages of their tool (the online carbon calculator) in better flexibility, information access, actuality and speed, handling, and reduced effort. For offliners the form of support with their tool (the CO<sub>2</sub> household book) is the aspect on which the largest percentage among this group agrees

as being superior to the online mode. The offliners also tend to rate both tools to a larger percentage as equal than this occurs among the onliners. The criteria “generating a feeling of common effort” (above 50% in both groups) and “opportunities to bring in ideas” (nearly 50% in both groups) show the highest levels of agreements on both tools being equal, among offliners as well as onliners.

**Preliminary effects of the participation processes**

One hypothesis was that the participation process and its special design offer better potentials for stimulating and enforcing climate-friendly practices by enhancing community building, shared understanding and mutual learning as well as by individual information feedback, monitoring and comparison of consumption effects. Therefore, the final part of this intermediary account of empirical results summarises the preliminary findings on these assumptions.

On the question “To what extent do you have the feeling to act as part of a community in the local climate dialogue”, the result was the following: 58% responded “rather much” or “very much”, 38% “somewhat”, and 4% “not at all”. This strong majority of positive assessments support the hypothesis that the process indeed enhances community building.

An attempt to assess whether the participation process also had any indications of positive effects on shifts towards more climate-friendly behaviour and improved CO<sub>2</sub> balances has been made with a look at preliminary results based on the measurements via CO<sub>2</sub> calculator and CO<sub>2</sub> household books, respectively. The findings are visible in *Figure 2* and *Figure 3*:

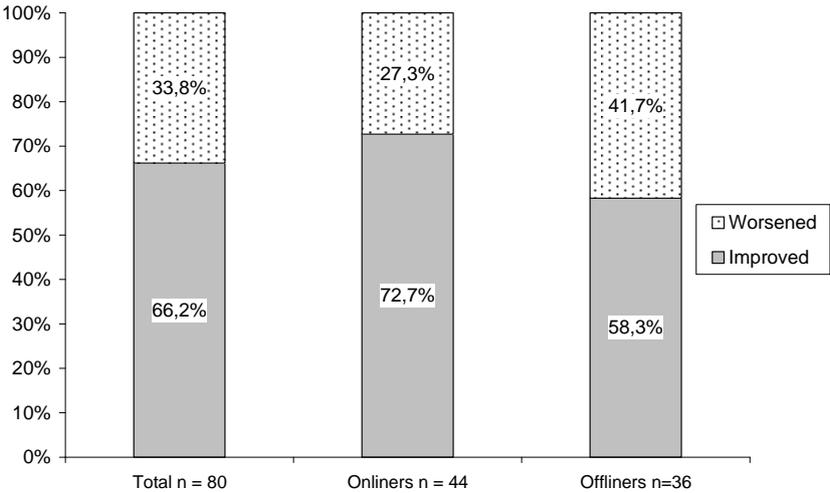


Figure 2: *Direction of change of individual CO<sub>2</sub> balance among citizen panels (Bregenz, Mariazell region and Bremen)*

A first indicator is to what extent and in which direction changes are observable at the individual level. The preliminary result points towards a positive development: Overall, two thirds of the panellists in the three locations with already completed measurements for full one-year period show improvements of their CO<sub>2</sub> balances by at least 2% (in line with the local climate target). The result among the onliners appears to be even more positive whereas the share of cases with improved CO<sub>2</sub> balances among the offliners is lower but still above 50%.

Figure 3 presents the results on a second indicator, the overall CO<sub>2</sub> balance of all three panels together: In each case, the average emissions per bimonthly period of the previous year constitute the baseline.

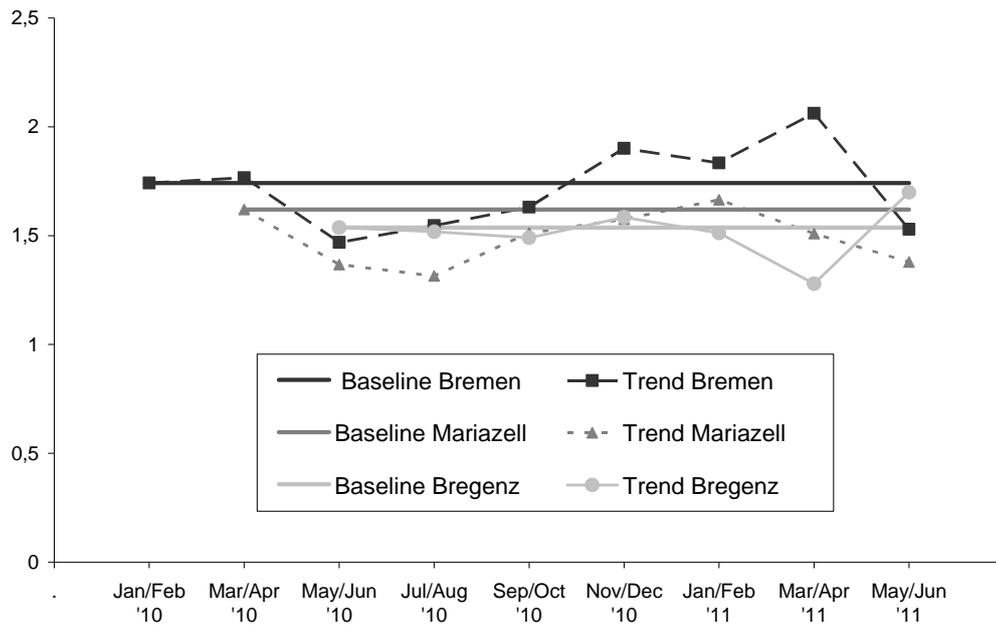


Fig. 3: Overall levels of CO<sub>2</sub> emissions among citizen panels (tons per capita, n=83)

The baseline levels are somewhat different in each place; Bregenz starts at the lowest, Bremen at the highest level. The trends seem to show clear influences from seasonal effects (increased energy consumption for heating in winter, partly for travel in spring/summer). They oscillate more or less around the baseline so that the average levels of emissions have only marginally changed, except for Mariazell region; here the trend indicates a clear reduction of the baseline level by more than 2%. However, due to the low number of cases in this region this finding gives reason to take it with some reservation.

### Summary and conclusions

This paper has introduced arguments for exploring citizen participation including e-participation elements as a promising approach to improving climate protection performance and achieving local climate targets. With an investigation of similarly structured local climate dialogues involving direct citizen participation it contributes to an empirical testing of such a strategy. The European collaborative research project “e2democracy” has enabled the empirical study of such processes organised by local governments in Austria, Germany and Spain in order to encourage climate-friendly behaviour among their citizens and businesses. Participating citizens can choose between traditional and e-participation. Common design characteristics such as a citizen panel collaborating with local governments on reducing CO<sub>2</sub> emissions over longer time span and bimonthly measurements and monitoring of individual consumption behaviours over two years allow for a combined assessment of participation experiments in Zaragoza, Pamplona, Bremen, Bregenz and Mariazell region. The empirical findings are intermediary results and therefore one should take them with the demanded caution. Nevertheless, they shed light on the potential of such participatory approaches in climate policies.

The participants in climate dialogues demanding long-term commitments and continuous input show a special profile: they are characterised by significantly higher levels of interest in fighting climate change, of sensitisation, issue knowledge, and beliefs in efficacy of targeted action. However, not all participants are “environmentalists” or already practice sustainable lifestyles. There is still potential

for improvements among the panels; however, the limited space for sustainability improvements among participants with already higher levels of sustainable practices decreases their interest to continue the participation over the projected two year-period. This aggravates the problem of panel mortality. That two thirds of the participants are onliners and show weaker ties to the process adds to this problem. The demanding nature of participation does not lend itself to what has been termed “slacktivism”, i.e. just serving to increase the feel-good factor of the participants without impact on real-life outcomes (Christensen 2011).

There are some indications of support for the hypothesis that the design of the participation process offers better potentials for enhancing community building and mutual learning as well as individual information feedback, monitoring and comparison of consumption effects, which in turn would stimulate and enforce climate-friendly practices. A strong majority of positive assessments on the question of feelings to act as part of a community in the local climate dialogue indeed lends support to enhanced community building. The regular provision of information and feedback to citizens over a longer time, based on their individual consumption and lifestyle patterns, facilitates or induces informed choices and supports responsible behaviour towards reduced CO<sub>2</sub> emissions. For offliners and onliners alike, receiving useful information on energy saving and CO<sub>2</sub> reduction, joint efforts with public sector and companies, and utilisation of outcomes for climate protection measures are priorities. The majority also regards opportunities for exchange, discussion and comparison with other panellists as aspects of high importance. It seems, however, that onliners tend to rely more on individual activities and efforts or expect to get relevant information and support from the net.

Regarding the question of effects on shifts towards more climate-friendly behaviour and improved CO<sub>2</sub> balances a definitive answer is not yet possible. However, based on the measurements via CO<sub>2</sub> calculator and CO<sub>2</sub> household books, respectively, there are some indications of positive impacts. At the individual level, a clear majority of participants show improved CO<sub>2</sub> balances after one year. Among the onliners the percentage of cases with improved balance is significantly higher than among offliners. The overall CO<sub>2</sub> balance of the local panels, however, is less certain. Only the community with the smallest panel indicates a clear reduction of the baseline level CO<sub>2</sub> emissions by more than 2% but its reliability suffers from a low number of cases.

There are a number of further reservations against the present data on material effects in terms of CO<sub>2</sub> such as limited control of the validity of inputs by panellists, which forbid a simple interpretation of the trends. As these methodological issues are not the subject of this paper and would need more space, we have to leave them to separate treatment. Although the results point into the direction of improvements of CO<sub>2</sub> balances, one should refrain from a too early assessment and generalisation of a definitively positive achievement of the agreed local climate targets.

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