

The Carbon Dioxide Reduction Workshop: Dutch Experiences with a Participatory Approach

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ABSTRACT *This paper investigates the potential of a method for participatory policy making in the field of carbon dioxide (CO₂) reduction in housing: the CO₂ reduction workshop. This innovative method aims to involve relevant actors at an early stage of urban development and to formulate common ambitions for CO₂ reduction. Special attention is paid to the inputting of information about options for CO₂ reduction. The workshop was organized and evaluated in two planning processes for new housing estates in the Netherlands. The evaluation addresses the design of the workshop, the utilization of knowledge in the process, the effects of the workshop on the commitment and knowledge of the participants and the effects on the wider planning process.*

Introduction

There is a trend developing in environmental policies towards participation of stakeholders in early stages of decision making. This trend is related to a growing recognition that the co-operation, knowledge and creativity of stakeholders are key success factors for effective policies. At the same time, it leaves planners with the question of how to organize a participatory process. Evaluation of participatory methods is therefore useful. Research into experiences with specific methods and their effects is indispensable for assessing the value of these methods. This paper investigates the potential of a specific method for participatory policy making in the field of carbon dioxide (CO₂) reduction in housing: the CO₂ reduction workshop. In the wide variety of participatory methods (for example, see Renn *et al.*, 1993, 1995; Glasbergen, 1995, 1998; Friend & Hickling, 1997; Healey, 1997; Steelman & Ascher, 1997; Vermeulen *et al.*, 1997, 1999; Jamison, 1998; Carson & Martin, 1999; Hampton, 1999; Klüver *et al.*, 2000; Woltjer, 2000; Petts, 2001), it mostly resembles consensus conferencing. However, the method was specifically designed to address planning failures in the field of urban planning and climate policy.

In this paper the authors discuss what contribution such a participatory workshop can make to CO₂ reduction in building locations. The workshop was organized and tested in two planning processes for new housing estates in the Netherlands. It was simultaneously evaluated, focusing on the design of the workshop, the utilization of knowledge in the process, the effects on the

commitment and knowledge of the participants and the effects of the workshop in the planning process. The authors will reflect upon the experiences with this design.

CO₂ Reduction in Housing: Rationale of a Participatory Approach

The housing sector is an important field in which reduction of CO₂ emissions can be achieved. Part of the potential for CO₂ reduction can be utilized in the development of new urban areas. There is an abundance of technical options available to reduce CO₂ emissions, such as insulation of walls, roofs and floors, high-performance glazing, solar domestic hot water systems, combined heat and power and solar cells. Measures with respect to the infrastructure and land use of urban areas, such as the construction of public transport, the mixing of functions and parking policies, can have some effect in reducing CO₂ emissions caused by traffic (van der Waals, 2001).

Governments stimulate CO₂ reduction in building locations with a wide array of policy instruments (see also van der Waals & Vermeulen, 2000; Elle *et al.*, 2002). In the Netherlands since 1995 there has been an energy performance standard (*energie prestatie norm*, EPN), a calculated measure with a legal status that weighs energy-saving measures in a dwelling. Since the introduction of the EPN, it has twice been lowered to increase the energy efficiency of new houses. In addition, communicative instruments have been developed, notably the national packages for sustainable building. Other policy instruments include subsidies for innovations, covenants, demonstration projects, fiscal arrangements and the financing of research and development (Ministerie van VROM, 1999).

Despite these efforts by the government, opportunities are being missed. Although CO₂ reduction is often mentioned in municipalities' strategic energy or environmental policy plans, many options fail to be applied in building practice (van der Waals, 2001; see also Silvester, 1996; Bossink, 1998). There are several reasons for the suboptimal utilization of CO₂ reduction options, which are revealed in three case studies, conducted in a prior phase of the research project discussed here (van der Waals *et al.*, 1999).

A common explanation for non-adoption of options for CO₂ reduction is that they are too expensive or not technically feasible (see Capello *et al.*, 1999). This is, however, only a partial explanation. In some situations options are applied despite higher investment costs and/or technical difficulties. However, enabling this places demands on the organization of the planning process. The authors' research has shown that even when municipalities have formulated CO₂ reduction targets, there may be no adequate co-ordination of environmental and housing policies, and CO₂ reduction may not be an issue in a building project (van der Waals, 2001). Barriers often arise later in the process. Municipalities often find it difficult to realize the implementation process once the financial implications become evident. After a study into the optimal energy infrastructure has been conducted, implementation is difficult due to lack of process management and a focus on technical and economic aspects (Correljé *et al.*, 2000). Building companies often assume a lack of interest in or even the opposition of consumers towards sustainable building, even without testing it.

An important aspect here proves to be the presence of an actor who takes the initiative and co-ordinates activities between different actors, such as municipalities, housing developers and energy distribution companies. In cases where

options for CO₂ reduction are applied, specific actors, such as an alderman, a project manager or an energy distribution company, appear to play the role of 'local champions'. Their process management strategies may include negotiating with building sector actors, commissioning research, discussing possible options and making agreements on the division of costs.

The importance of process management also follows from the need to utilize recent knowledge. New options are continuously being developed and improved and their characteristics, such as effects on CO₂ emissions and costs, are continuously changing. To make full use of technological possibilities, it is important to investigate new options at the local scale, all the more because legal instruments and checklists that are decided upon at the national level lag some years behind recent technological developments. Not only knowledge about individual options, but also insight into the energy system of an urban area as a whole is required to choose an optimal combination of technical measures applicable in the specific project.

The required systematic analysis of possible options should take place at an early stage of the planning process. If options are considered only in the implementation phase, chances may be missed when changes to the spatial design, housing designs and financial budgets are not possible or are no longer acceptable. Furthermore, if actors who can play a role in the implementation of CO₂-reducing options are not involved in the planning process or are involved only at a late stage, they may not be inclined to contribute. The case studies mentioned above have shown, however, that CO₂ reduction is considered relatively late in the planning process. One explanation is that there is a strong emphasis on internal discussions within the municipality. Actors who may contribute to CO₂ reduction, such as environmental organizations or energy distribution companies, are often not involved (van der Waals, 2001).

The above observations suggest that strategies aiming at the early activation of actors are needed to go beyond conventional practice. This involves raising awareness among key players, giving an insight into the kinds of options available for CO₂ reduction and making agreements about the actual implementation of options for CO₂ reduction. Inclusion of citizens' views may provide legitimate criteria for the assessment of proposals (Renn *et al.*, 1993). The CO₂ reduction workshop is meant as an essential element of such interactive policy strategies. To develop the specific design of the workshop, literature on participatory decision making was used, which will be discussed in the next section.

Using Experiences in Participatory Policy Making for Design

A growing body of knowledge about participatory policy making is available in the literature. It offers a variety of guidelines and recommendations, reflecting the great diversity of participatory methods applied in practice. Some methods are short-term and one-off in nature. Examples are consensus conferences (Fixdal, 1997) and awareness scenario workshops, which are 2- to 4-day events about urban sustainability (Bilderbeek *et al.*, 1993), and the *planungszellen*, 3- to 5-day processes in which groups of around 25 citizens are asked to advise a governmental body about the choice between policy options (Dienel & Renn, 1995). Other methods involve a process of up to 1 year or even longer, such as the Local Agenda 21 discussions organized by municipalities (Coenen *et al.*, 1998; Vermeulen *et al.*, 1999), the *Salzburger Verkehrsforum* (Magistrat

Verkehrsplanung, 1996) and the three-step procedure for citizens' panels (Renn *et al.*, 1993).

An important difference between these short event methods and the lengthy methods is the nature of the product. The short events produce broadly supported advice or packages of measures put forward at either the early stages (awareness workshops and consensus conferences) or the late stages (citizens' courts) of policy making. As such they are complementary to existing policy procedures. The lengthy methods tend to replace traditional 'closed' policy procedures and incorporate all stages of policy making (problem definition, examination and assessment of possible solutions, selection of options and sometimes also decision making and implementation and monitoring).

On the basis of an inventory of 22 participatory methods in the field of environmental policy applied in the Netherlands and some other Western countries, Vermeulen *et al.* (1997) have characterized the application of participatory methods as a diverse and recent practice, in which there is enthusiasm for experiments. There are also differences as regards the reasons for applying participatory methods. Participatory policy making can be intended to:

- improve co-ordination between organizations towards a policy problem;
- improve the implementation and effectiveness of policies by seeking consensus and support for them;
- reach shared assumptions and visions on normative issues;
- utilize the creativity, intellectual potential and knowledge of participants (Vermeulen *et al.*, 1997).

There are some limitations to the methods as they are applied in practice. The Dutch inventory has shown that, despite the rich literature available, the organizers of participatory processes often have a pragmatic attitude; an explicit connection between the motives and the specific design of a method (the actors involved and the methods of working, etc.) is often lacking. Furthermore, in many cases possibilities for an integrated weighing of societal and environmental consequences of proposals or for an assessment of uncertainties in knowledge are limited. Friend & Hickling (1997) provide various tools for comparing and choosing proposals in stakeholder dialogues. Another important drawback of many participatory methods is their poor incorporation into formal policy processes, which implies that the results often do not play a role in the decision making (see also Glasbergen, 1995; Jamison, 1998; Klüver *et al.*, 2000). Participatory methods are frequently applied on an *ad hoc* and experimental basis. Healey (1997) stresses the need for systematic institutional design for collaborative planning. Other problems include: the possibility that actors after a participatory process still employ power-based strategies; and tensions with the rank and file of the participants (Glasbergen, 1995).

Despite these problems, the organizers and participants often judge participatory methods in positive terms. The advantages frequently mentioned are that people gain more understanding for each other's opinions, achieve a certain level of consensus and have the possibility of letting their perceptions and visions play a role in policy processes (Vermeulen *et al.*, 1997).

Various authors have also given recommendations as to the design of participatory processes (Saint & Lawson, 1994; Kaner, 1996; Friend & Hickling, 1997; Grin *et al.*, 1997). A common feature in this 'how-to-do-it' literature is that a succession from divergence (the inputting of perceptions, solutions, criteria,

interests and visions) to convergence (weighing, assessing, persuading and choosing) is envisaged. Examples are the 'diamond of participatory decision making' in Kaner (1996) and the succession of 'problem shaping', 'designing', 'comparing' and 'choosing' in Friend & Hickling (1997).

Principles for the Workshop Design

In the second section, drawing on experiences in urban planning and energy policy, the authors concluded that a participatory approach might be fruitful for increasing the commitment of policy makers and stakeholders to the implementation of options for CO₂ emission reduction. The planning and development of large building locations usually take many years. For reasons given above, a participatory approach in the earliest phase of these planning processes may enhance opportunities for CO₂ emission reduction. On the basis of this analysis, the authors worked with some starting points in designing the workshop: (1) it should be a short but intensive event, working as a catalyst in the planning process; (2) it should enable the selective inclusion of relevant actors, allowing them to present ideas, concerns and assessment criteria and to choose collectively; (3) it should be workable and affordable for local authorities; (4) it should enable 'lay' stakeholders and citizens to competently discuss options for CO₂ emission reduction, without being dominated by experts; and (5) it should produce practical results that (6) can easily be used in subsequent formal planning procedures. As such, the intended approach does not strive for a full replacement of traditional 'closed' planning procedures by a participatory process. Neither do the authors intend to achieve forms of full or direct democracy for these urban planning processes. That would be difficult in this case, because these locations are still to be developed, and the future citizens are not yet known. These starting points bring us to the aforementioned short event methods. The authors' source of inspiration for the workshop design is the consensus conference (Fixdal, 1997) and a specific application of it, the European awareness scenario workshop (Bilderbeek *et al.*, 1993; European Commission, 1994). On the basis of the six starting points the workshop design can be described using four characteristics, which the authors will discuss now.

A Short and Intensive Event Aiming at Awareness and Consensus

The workshop is designed as a short and intensive event with a 1 + 1 day formula, aiming to stimulate awareness about options for CO₂ reduction and to reach consensus about common ambitions. This is achieved by developing visions on desirable measures in the field of energy consumption in houses, urban planning and traffic. The design includes sessions aimed to generate ideas (divergence), as well as activities to achieve a convergence towards a limited number of actions to be taken for actual implementation of options for CO₂ reduction. Obviously, a single workshop can only be a start in a long planning process that may take up to 10 years, but is intended to have a 'catalysing effect' in the policy process. On the basis of the policy analysis briefly discussed in the second section, the authors expect early deliberations of stakeholders to enhance the possibilities of stakeholder co-operation in later stages of the development of building locations.

Early Involvement of Relevant Stakeholders

A wide range of stakeholders are invited to the workshop, to enable actors who can play a role in the implementation of options for CO₂ reduction to be consulted, possible barriers to be identified and ideas of actors with knowledge about the local situation to be used. To best reach these objectives, the workshop is held at an early stage of the planning process. Special attention is given to ensure equal opportunities for all participants to contribute. Four groups of categories of actors are distinguished: policy makers (politicians and civil servants), building sector actors (housing developers and housing corporations), companies (the energy distribution company, the traffic company and the chamber of commerce) and civil organizations (environmental organizations and the women's advisory committees). For each category the authors asked the municipality to invite six persons, representing various organizations within those categories in their community.

To encourage the visions of all participants to clearly come to the fore, the participants work in these small, relatively homogeneous groups on the first day of the workshop. Later there are sessions in which the emphasis is on exchange of opinions between actor groups and joint decision making in the whole group.

Provide Tailor-made Knowledge

Much effort is taken to give the participants insight into the possibilities for CO₂ reduction and the feasibility and usefulness of different measures. Knowledge about the contribution of different sources of CO₂ emissions in an urban area and about options for CO₂ reduction and their CO₂ effects and costs is presented in a straightforward way. The background of the participants and the early stage at which the workshop is held imply that no thorough analyses of possible combinations of options are needed, but rather experience-based, non-specific, one might call it 'robust', information, suitable for a pre-assessment of options. Single-page fact sheets are used as one of the ways to communicate this type of information. In more lengthy participation methods special attention is often given to evaluating differences in opinion amongst experts and the implications of uncertainty in knowledge about (environmental and social) effects of proposed policies (for example, see Renn *et al.*, 1993; Friend & Hickling, 1997; Vermeulen *et al.*, 1999). The authors' workshop format does not provide such deliberations. Being an early-stage catalysing event, scrutinizing the results is dealt with during a subsequent stage of the formal planning process. The authors' focus during the workshop is on providing robust information as demanded by stakeholders.

During the process the authors give three experts a specific role. These experts provide information 'on demand' in the workshop. Because of the time needed to address gaps in knowledge, there is an interim period of 3–4 weeks between the two days of the workshop, during which the experts assess the consistency of the proposals produced on the first day and comment on the gaps in knowledge identified. The authors contracted experts for three themes: energy consumption in houses, urban planning and traffic. They came from consultancy firms, meeting two requirements: (1) experience with developing building locations with a focus on sustainable energy, traffic and urban structures; and (2) experience with participatory methods.

Connect the Workshop to the Formal Planning Process

The final principle for the workshop design is that it should be connected to the formal planning process. A declaration with common ambitions and measures is prepared, signed by all and presented to local officials and to the media. Another way to increase the prospects of a follow-up is the participation of civil servants as well as of politicians who are involved in the formal policy process.

Experimentation and Evaluation

In our research, the workshop was organized and tested as a policy experiment in a real-life situation, with actors involved in the planning process of actual building locations. The method was developed by TNO (Netherlands Organization for Applied Scientific Research) Strategy, Technology and Policy and the Department of Environmental Sciences and Policy of Utrecht University, jointly. Experimenting as scientists with policy-making methods poses a dilemma of independence versus involvement. As the designer of the method, inevitably the project team is closely involved. For running the experiment, the authors depended upon the full co-operation and commitment of local authorities (for example, in selecting and inviting participants and forwarding results). On the other hand, evaluating the process and the outcomes requires independence.

This dilemma can to some extent be dealt with by clearly separating tasks between the institutes involved during the experimentation and evaluation. Therefore team members from TNO Strategy, Technology and Policy organized the workshops and team members from Utrecht University executed the evaluation.

However, there is another side to this dilemma. In fact, the combination of designing, experimenting and evaluating offers an opportunity for more thorough evaluation than often occurs. It allowed us to make more explicit the philosophy behind various elements of the workshop design and observe the performance of these elements in practice.

In doing this, the evaluation consisted of four research activities (see Figure 1).

- The first research activity involved the *situation before the workshop*. An interview was held with the project manager of the municipality to see whether plans with regard to CO₂ reduction already existed and to get some basic information about the location. In addition, a survey was conducted among the participants 3 weeks before the workshop. This survey contained questions about the ambitions and the knowledge of participants about housing and CO₂ emission reduction.
- To evaluate the *process during the workshop* itself, four people observed the different parts of the programme during both days of the workshop. A detailed checklist was used to test the authors' expectations about the functioning of the working methods in the workshop and to evaluate the interactions during participatory decision making. The authors used criteria derived from the literature (e.g. Webler, 1995), focusing on equal access to the interactions, on how participants used their own knowledge and knowledge provided in the discussions and on the role of the facilitators. The checklist itself contained, for each element of the workshop, the assumptions of the designers and specific questions for the observers.

Participants	Interim period of 3 to 4 weeks				After 2 weeks	After 3 months
	1 week in advance	Day 1	Day 2	Day 3		
Workshop programme	<p>Building actors Housing developers Housing corporations</p>	<p>Policy makers Councillors Council officials</p>	<p>Civil organizations Residents' organizations Environmental groups</p>	<p>Companies Energy distribution company Transport company</p>		
Research	<p>Written survey Ambitions of participants Knowledge of participants</p>	<p>Observation</p>	<p>Observation</p>	<p>Survey by telephone Commitment to results Implementation of declaration Plans for co-operation</p>		

Figure 1. The workshop programme and the evaluation.

- To evaluate the *effects of the workshop* in terms of *commitment and knowledge* of the participants, the authors conducted a second written survey of the participants 2 weeks after the workshop.
- The final research item concerned the *effects on the planning process*. Three months after the workshop another survey was held. Because the research had to be conducted shortly after the workshop, it was too early to establish whether options for CO₂ reduction had been adopted. However, it was possible to determine whether the workshop had led to (intensification of) activities to achieve CO₂ reduction. The survey was conducted by telephone, using a checklist with both open and closed questions. For the Eschmarke, 16 interviews were successfully completed, while this figure was 14 for Bangert Oosterpolder. Six months after the workshop, interviews were conducted to discuss the results with the project managers in both municipalities where the workshop was held.

The surveys, observation checklists and results have been described in detail in the final project report (van Hoorn *et al.*, 2001; see also van der Waals, 2001). Figure 1 shows the workshop design in more detail, as well as the items addressed in the evaluation. In the next two sections the authors discuss some of the results, focusing on the experiences with the workshop process and its effects, respectively.

The Workshop Process

The workshop was held at two building locations, the Eschmarke (near the city of Enschede) and Bangert Oosterpolder (near the city of Hoorn). These municipalities were chosen because they were the first to react positively after several municipalities were contacted. A selection criterion was that the timing of the workshop would be such that relevant decisions still had to be made. At both locations, 20 people participated. These stakeholders had been identified and invited by the municipality, following the instructions of the research team. Here the authors discuss the processes in both cases, using information from the surveys and observations.

At both locations, there were no concrete plans with regard to CO₂ reduction before the workshop, although CO₂ reduction was addressed in more general municipal policies. The survey started with an open question on the three most important goals of the respondents or their organizations with respect to the building location. In the Eschmarke, two participants (13%) mentioned CO₂ reduction or energy as one of these goals. In Bangert Oosterpolder, this figure was six (35%).

The first day was used to provide information, to formulate visions with packages of measures and to identify gaps in knowledge. The authors had asked the alderman of spatial planning to give a short opening speech. This was meant to inspire the participants and underline the commitment of the city board to the results of the workshop.

After the opening speech, there was a presentation in which the three experts were interviewed about possibilities for CO₂ reduction in the field of energy, urban planning and traffic. This was meant to convey the principles for developing an urban area with low CO₂ emissions, without having lengthy expert lectures.

After this introduction, the participants were split into four role groups: building sector parties, policy makers, companies and civil organizations. Their first activity was to interview each other in pairs. In these interviews, people had to describe their image of the location in 2020, using a positive and a negative scenario. In most interviews, the participants managed to generate many positive and negative aspects, but many pairs could not get away from the present.

The four role groups each worked towards a vision consisting of a list of priorities. There was good rapport between the participants. The civil organizations group consisted of organizations with different objectives (environmental groups, the women's advisory committee and a social worker), the companies consisted of a traffic company, an energy distribution company and real estate agents and the policy makers were composed of civil servants from different departments and politicians from different parties.

In Bangert Oosterpolder, heterogeneity within the policy makers group led to creativity being restricted. The discussion in the group remained rather abstract because the alderman and the project manager seemed unwilling to disclose all their ideas. The civil servants mainly talked about issues relating to their own departments' competence and seemed to be afraid to say politically incorrect things.

An 'option market' with three stands (for energy, traffic and urban planning) was set up for the participants, to be used as a source of information during the group discussions. They could ask the experts questions and get fact sheets about specific options for CO₂ reduction. These fact sheets contained information about technical issues, costs, effects on CO₂ emissions and conditions under which the options could be applied.

A 'vision carousel' in the afternoon was intended to challenge the different visions. This was done by dividing the participants into heterogeneous groups (mixing policy makers, building sector parties, companies and civil organizations) and letting them comment on the other visions presented on posters in the four corners of the central room. The participants were asked to indicate their criteria for assessing the visions, and the useful and less useful elements of the visions, and to identify gaps in information. The latter was very important. Despite the group discussions and the ability to visit the option market, participants still appeared to have many questions, which confirms the need for explicit ways to identify them.

At the end of the first day, there was a discussion about the questions and uncertainties identified. The authors intended to solve some of them through interactions between the participants and the experts, and to identify actions to resolve uncertainties in the 3- to 4-week period between the first and the second day. In the Eschmarke, this discussion was very constructive and animated. In Bangert Oosterpolder, on the other hand, there was little discussion at this point. In both cases, few participants offered to make enquiries about uncertainties unless the chairman explicitly asked them to do so. For example, a representative of a public transport company supplied information about a new type of small-scale public transport on demand. However, most tasks were left to the organizing team.

In the Eschmarke, discussions on the first day were at a more general and abstract level than the authors expected, leading to priorities everybody supported (flexibility and sustainability, etc.) and concealing possible conflicts. To improve this, in Bangert Oosterpolder, the authors gave more basic information

about the rough plans for the location, asked the participants to make their goals for CO₂ reduction more explicit and used maps of the location, on which people could draw their ideas.

In the 3–4 weeks between the two workshop days, the research team assessed the coherence of the different packages, commented on the gaps in knowledge identified and drew conclusions on 'common ground'.

The second day started with introductions by the experts, in which they gave feedback on the visions produced the first day, gave guidelines for their elaboration and discussed the uncertainties identified on the first day.

Participants now worked in three heterogeneous groups (one each for energy, traffic and urban planning), elaborating on the elements agreed upon on the first day. On the first day, not all participants in the Eschmarke had found their way to the experts and the fact sheets at the option market, so the authors decided to give the experts a more active role by letting them participate in the group discussions. This worked very well. They answered questions, gave new insights and challenged the participants to address issues or to make ideas more concrete. This direct discussion between the participants and the experts was more effective than the written information, at least at the time of the discussion itself.

In the afternoon session of the second day, participants had to identify actions to implement the visions. The actions were to state *what* should be done (make a plan and do research, etc.) and by *whom*. Most groups managed to do this, but it was difficult for people who were not used to thinking in terms of implementation processes. Only a few people made promises to implement actions personally. The actions were generally formulated for categories of actors, such as the municipality or developers.

In the energy groups in both cases, the emphasis was not on specific actions, but merely about the level of ambition. First, it was necessary to clarify what part of the CO₂ emissions the goal should be related to and what the relevant parameters were. Secondly, the feasibility of different levels of ambition had to be discussed thoroughly. Especially in the traffic groups, where discussions were mostly about accessibility, liveability and parking problems, CO₂ reduction did not play a role.

At the end of the second day, there was a plenary discussion, including a voting activity, to formulate a declaration. In this discussion, there was little time to talk about the implementation of actions. In both cases, the group reached consensus about a quantitative goal.

In the Eschmarke, the ambition was to lower CO₂ emissions by 20% compared to the EPN of 1.0 and to use 3% of the building costs for options for CO₂ reduction. In addition, in 80% of the houses, current techniques would be applied and in 20% new techniques would be experimented with. No year was mentioned for meeting the target. The Eschmarke declaration, in particular, included many actions (a park-and-ride facility, new housing design concepts, good architecture, the creation of reserve space and the mixing of categories of houses) that either were not related to CO₂ reduction, or were only indirectly related.

In Bangert Oosterpolder, the objective agreed upon was more ambitious: it was to build dwellings with an energy performance that qualified for the certificate of the World Wildlife Fund for 'low-energy houses' (an EPN of 0.75), which would lead to a CO₂ reduction of 40–60% compared with 1987. Twenty

per cent of the energy in the houses and buildings would be supplied using renewable resources. In addition, CO₂ emissions caused by traffic would be reduced by 12–15% compared with the current situation.

At the end of the workshop, the declaration was handed to the alderwoman (in the case of the Eschmarke) or the mayor (in Bangert Oosterpolder). Asked afterwards, in the Eschmarke, a majority thought the declaration to be an adequate reflection of the opinions that were brought forward during the workshop. In Bangert Oosterpolder, more people had a neutral opinion about this. In both cases the statement that all participants of the workshop had a fair and equal contribution to the text of the declaration received much support.

Effects of the Workshop

Effects Immediately Afterwards

According to the evaluation shortly after the workshop (see Figure 1), in the Eschmarke, about half of the participants stated that they fully agreed with the declaration, while others were neutral (Figure 2). Apparently, the workshop did not lead to full consensus about all actions in the declaration. In Bangert Oosterpolder, commitment to the declaration was somewhat greater. In both cases, the policy makers had more reservations about the declaration than the building sector parties.

In both cases the statement that all participants of the workshop had a fair and equal contribution to the text of the declaration received much support.

The respondents were also asked about their plans to implement the actions listed in the declaration. This revealed a great deal of commitment: most actions would be implemented by more than one actor. The majority of intended activities applied to building sector parties and policy makers.

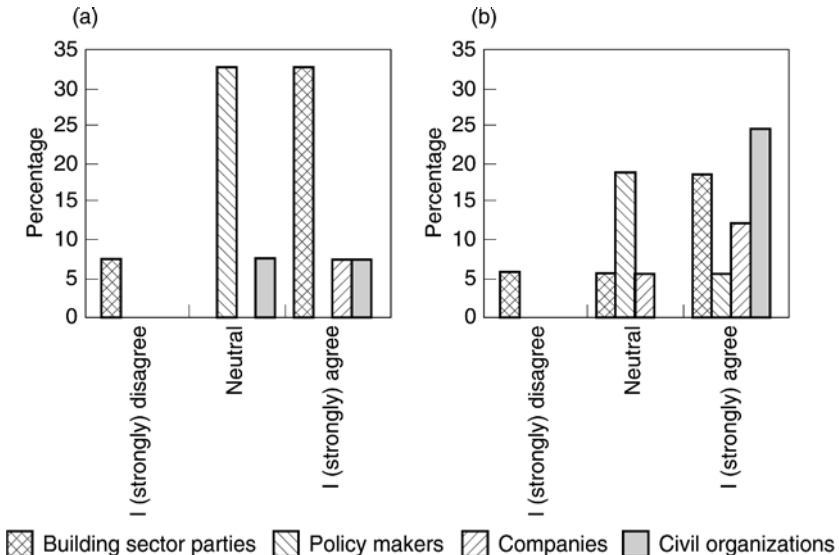


Figure 2. "What is your opinion of the statement: 'I fully agree with the declaration that was formulated on the second day?'" (a) The Eschmarke (N = 16). (b) Bangert Oosterpolder (N = 16).

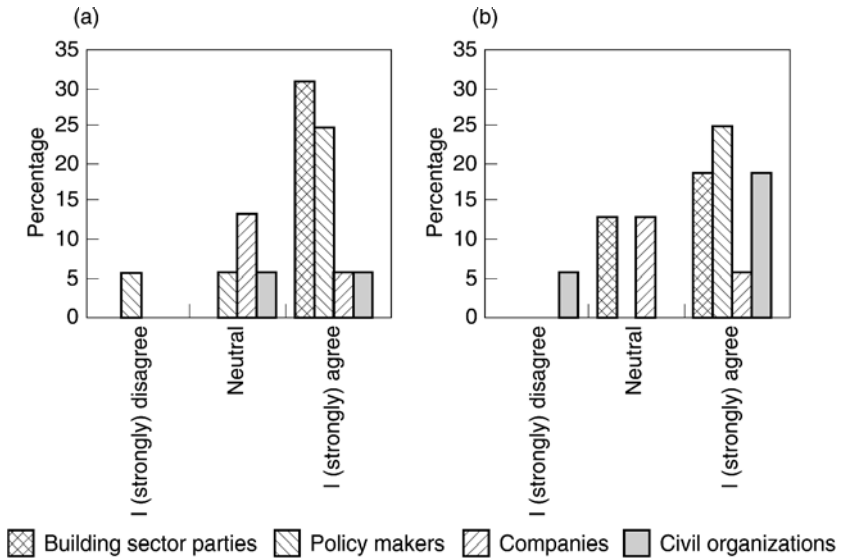


Figure 3. "What is your opinion of the statement: 'As a result of the workshop, my knowledge of the possible contribution of my organization to CO₂ reduction has increased?'" (a) The Eschmarke (N = 16). (b) Bangert Oosterpolder (N = 16).

The effects of the workshop on the knowledge of participants about CO₂ reduction were roughly the same in the two locations. Most participants said that their knowledge of the different issues related to CO₂ reduction had increased to some extent as a result of the workshop, with the exception of the economic feasibility of options for CO₂ reduction. Most respondents said their knowledge of the possible contribution of their organization to CO₂ reduction had increased (Figure 3). In general, the participants considered the information given to them useful. The introductory interviews of the experts and the fact sheets were particularly appreciated.

As mentioned earlier, experience-based 'robust information' is needed in a participatory process like the CO₂ reduction workshop, rather than detailed analyses. This requires experts with the ability to present their knowledge in a easily consumable way and who are not afraid to present imperfect and provisional knowledge (preferably 'rule of the thumb' instead of detailed calculations).

However, some of the experts proved to have difficulties in assuming this role. It took quite some effort to find a way to present knowledge from the different disciplines involved in a uniform way. City planners work with concepts that are hardly quantifiable (such as the mixing of functions and integrating elements of the landscape, etc.). In contrast, energy consultants are committed to making detailed calculations of expected CO₂ reductions and return on investments, due to the demands of decision makers in traditional closed planning processes. Traffic experts have a somewhat intermediary position, as they are used to working with quantitative assessment models, but there is only fragmented knowledge about the CO₂ effects of traffic measures, and behavioural aspects, which are difficult to predict, play an important role. In sum, a participatory approach places not only participants, but also the consultants providing the

information to decision makers, in a new role, and this puts demands on their ability to reproduce their knowledge in reasoning from a wider perspective.

Effects on the Planning Process

The effects on the planning process were investigated by means of a survey of the participants by telephone 3 months after the workshop.

In response to an open-ended question about the effects of the workshop, "raised awareness about the issue of CO₂-reduction" was mentioned most frequently, followed by "being better informed about the subject". Other respondents described the effects in terms of the "adoption of options for CO₂ reduction", "getting to know each other" or "co-operation between parties". In Bangert Oosterpolder, many respondents said the effects of the workshop were not yet clear and they had not initiated any activities thus far.

Both in Eschmarke and Bangert Oosterpolder, the majority claimed that they still fully agreed with the declaration (respectively 81% and 86%). There was an open-ended question about what activities the participants or their organization had undertaken or intended to undertake as a result of the declaration. If the participants expressed no intention to implement the actions, they were asked why this was the case. As expected, few concrete activities had been undertaken yet in either location at the time of the survey. The responses of the participants fell into six categories.

- *Affirmative:*
 - (1) support and intentions for follow-up activities;
 - (2) promise of implementation at a later stage;
 - (3) stressing CO₂-related intentions before workshop.
- *Non-affirmative:*
 - (4) relativizing possible CO₂ reduction in new housing;
 - (5) pointing at roles of other actors;
 - (6) scepticism.

The first type of response, typical of five participants in Bangert Oosterpolder and three participants in the Eschmarke, was that they supported the workshop results and that they or their organization had already undertaken some preliminary activities. These activities were, for example, discussions within the municipality to explore the possibility of a follow-up to the workshop, the application of photovoltaics in another building location in the same municipality, the decision of a housing corporation to implement the declaration in its building requirements and the intention of the developers in the Eschmarke to make a pilot project with some tens of dwellings to experiment with options for CO₂ reduction.

The second type of response, from respondents in Bangert Oosterpolder, was that the planning process had come to something of a standstill at the time of the research. They were waiting for the outcome of the formal consultation process, and there was a discussion with the province about the building programme. The results of the workshop would be implemented when the planning process was resumed. These people wanted to contribute to the realization of the declaration, although four of them also added that the goals, particularly the target of 20% renewable energy, might not prove entirely feasible for financial reasons.

The third type of response (of five participants in the Eschmarke) implied that they were already paying attention to CO₂ reduction before the workshop and the workshop therefore had not led to new activities. Some civil servants claimed that the municipality already had a level of ambition for energy efficiency before the workshop which was even higher than the objective agreed on in the workshop. Remarkably, during the workshop these high ambitions had not been brought forward. The interview with the project manager before the workshop had not revealed such ambitions either.

The fourth reaction, which was from four participants in the Eschmarke, mainly building sector parties, was that the possibility of making a significant contribution to CO₂ reduction with new houses was limited, because the addition of new houses is small compared with the existing housing stock and new houses are already quite energy-efficient.

A fifth category of respondents explained that it was not part of their job to implement the actions. Some said that their organization focused on issues other than CO₂ reduction, such as the practical utility of houses and the living environment (a women's advisory committee), social and cultural aspects (an organization for social work) or the accessibility of business sites (a regional chamber of commerce). Other people indicated that they would be able to pay attention to CO₂ reduction, but that it would not be appropriate for them to take the initiative, considering their role in the planning process. In both locations, the environmental groups explained that they merely had an advisory role and checked the plans of the municipality in the formal consultation procedure.

The final type of response, from a few people involved in the Eschmarke, implied that they were quite sceptical as regards the implementation, because the declaration was not binding, a workshop was easily forgotten and CO₂ reduction was not an important issue for consumers.

In the telephone interviews, plans for implementation were specified for the different actions in the declaration. This showed that participants still planned to implement them. Bringing the actions to the attention of policy makers and planners was also counted as a form of implementation. The question about *specific* actions thus led to a more positive picture in terms of prospects for implementation than the general question about follow-up to the workshop.

The question remains as to whether the intended actions are a result of the workshop or whether they would have been implemented anyway. This is difficult to establish, since the participants may have different perceptions and previous aspirations may be influenced by the present situation.

According to the respondents in the Eschmarke, most of the actions would have been implemented without the workshop. For instance, developers were already working on new housing concepts, and in the land use plan a mixing of housing types had already been envisaged. However, several respondents said that the workshop helped to draw attention to existing ideas. In Bangert Oosterpolder, the workshop seems to have generated more new ideas. Several actions were considered to be new by the respondents, while for other actions opinions differed as to whether these were new.

One of the objectives of the workshop was to encourage co-operation in realizing options for CO₂ reduction. The participants were asked whether they had plans to co-operate with others in implementing the actions and, if so, with whom. In Bangert Oosterpolder, there were more plans for co-operation than in the Eschmarke. Altogether, the 12 persons in Bangert Oosterpolder who

answered this question mentioned other actors they could co-operate with a total of 68 times. In contrast, in the Eschmarke, this figure was 29 for the 15 respondents. Most intentions concerned co-operation between the municipality and building sector parties or between individual actors in the building sector. Actors from the company group and the civil organizations were mentioned only a few times as candidates for co-operation. The fact that these actors were present at the workshop did not give them a more central position in the policy arena, at least as far as the implementation of the actions in the declaration was concerned. Most intentions for co-operation involved relationships that already existed before the workshop.

Six months after the workshop, a final interview with the project manager was conducted. In the Eschmarke, the municipality had not taken any initiative for follow-up to the workshop. The project manager in Bangert Oosterpolder had taken more pains to implement the results. In Bangert Oosterpolder, the declaration had been sent to the mayor and aldermen, who had instructed that it should be integrated into the programme of requirements and the master plan that was being prepared. If the actions in the declaration were not carried out, there was an obligation to explain the reasons to the municipal council. At the time of the interview, the results still had to be integrated into the requirements for the first 500 dwellings. In the discussions with developers, the declaration was used to remind them of the commitment they had made. However, several goals competed with CO₂ reduction, namely architectural quality, the expected financial returns from the sale of land and the need to keep house prices within affordable limits. The developers had difficulties combining these goals. Weighing the various objectives was still a matter of political discussion.

Results

To answer the question of what contribution a participatory workshop can make to CO₂ reduction in building locations, the authors discuss the findings in terms of the four design principles for the CO₂ reduction workshop.

A Short and Intensive Event Aiming at Stimulating Awareness and Consensus

The workshop design allowed the building of consensus in both cases, as was demonstrated with the public presentation of the signed declarations at the end of the second day and the high level of agreement after 3 months. The evaluation also demonstrates an increased awareness of possibilities for CO₂ reduction and the possible contribution of the actors themselves as an important result. Furthermore, in both cases it was possible to reach consensus about a target for CO₂ reduction and the steps required to achieve it, even when this involved adopting options that are more expensive than conventional techniques. The position taken afterwards by local officials, who often took a neutral opinion, was remarkable.

Early Involvement of Stakeholders

It proved possible to involve a variety of relevant stakeholders in the workshop: participants had a positive opinion of their involvement afterwards and had equal possibilities to contribute to the deliberations. However, the observations

during the process showed the importance of facilitators being attentive to the danger that project managers and politicians would dominate the discussion. In the end, the authors conclude that it was useful to invite politicians to the workshop. The use of external facilitators contributed to fair discussions, which is also reflected in the statement of most of the stakeholders afterwards that the declarations adequately reflected the opinions that were brought forward during the workshop.

Provide Tailor-made Knowledge

The inputting of knowledge was given special attention in the workshop design. Working with independent experts in an 'on demand' role was useful for addressing questions raised by participants. As a result of the workshop, the knowledge of participants about options for CO₂ reduction and about ways to contribute themselves had increased, at least to some extent. The information provided (fact sheets and questions answered) was evaluated positively by the participants. The insights gained into the feasibility of options helped to set an ambition level that participants felt to be realistic.

Connect the Workshop to the Formal Planning Process

The final principle of the workshop was the integration of the method into the political process. Here, experimentation by scientists of course has its limitations. The workshop design includes some provisions that connect it to political decision making, specifically the participation of councillors and aldermen, the opening speech by the alderman and the handing over of the declaration to the alderman or mayor. Three months after the workshop most stakeholders still expressed a willingness to implement the actions discussed. In interpreting this, it must be noted that the responsibility to organize any follow-up to the workshops was left to the municipalities.

Looking at the effects of the workshop on the planning process fewer results can be seen in the Eschmarke than in Bangert Oosterpolder. In the second, a higher level of ambition was adopted and the actors have a greater commitment to these goals, connections with the political process are stronger and there are more plans for co-operation. The interviews gave some indications of possible explanations for these divergent results.

- The *project manager* in Bangert Oosterpolder made more efforts to implement the actions than did the external project manager in the Eschmarke. This could make a significant difference later in the planning process. The fact that the project manager was from an external consultancy firm and did not have intensive contacts with all actors involved may have contributed to this.
- The participants in Bangert Oosterpolder considered *energy issues more important* before the workshop than did those in the Eschmarke.
- The *approach to the planning process* in the Eschmarke was quite traditional. There is an emphasis on internal discussions in the municipality and there is a clear separation between the preparation and implementation of plans. This approach implies that implementation of the declaration is seen as a task of the municipality, and other actors are not invited to contribute. In Bangert Oosterpolder, building sector parties have more influence in the planning process because they participate in the project group that develops the plans, as well as in a working group for sustainable building.

- These findings underline that a workshop is only the beginning and a clear implementation procedure is needed for a follow-up.

Lessons Learnt

As discussed, the workshop was tested twice. The process observations, the survey held 2 weeks after the workshop and the internal discussions in the project team led to some lessons for the workshop format. Most of these lessons had already led to adaptations during the research process. These are the following.

- In the Eschmarke the authors did not start with discussion of past policies for the building location, in order to keep an open playing field. However, experience showed that it is important to give factual information about the local situation and existing plans for the new building location, because they will be discussed anyway. In Bangert Oosterpolder, the authors provided this information very briefly before the first day (on one page) and by means of an introductory speech by the project manager. This worked well.
- In the Eschmarke during the first day there was a tendency for participants to come up with non-controversial, general ideas everybody supported. To get the deliberations more focused, participants should be encouraged to think about an explicit level of ambition for CO₂ reduction. In Bangert Oosterpolder, therefore, the authors asked the groups on the first day to formulate their objectives in quantitative terms, for both energy and traffic measures. Information about the (expected) performance of other building locations in terms of these ambitions was given as a reference. Facilitators are vital in encouraging participants to make the visions concrete enough, for example by indicating the essential elements of a vision. These changes proved to be successful.
- In the Eschmarke the involvement of aldermen was restricted to an opening word and receiving the declaration. In Bangert Oosterpolder two aldermen took part in the workshop. This resulted in stronger discussions. Therefore, facilitators of the discussions have to be attentive to the danger that they will dominate the discussions. In the end, however, the signatures of these two aldermen were important in taking the results into official policies. The authors conclude that politicians, as well as the project manager, should actively participate in the workshop, because they are needed for the implementation.
- With regard to the experts, the authors changed their role to a somewhat more active role than initially planned. The experiences with the option market showed that experts should have an advisory role during the group discussions, rather than merely being available to answer questions. The observations taught us that oral information given by the experts was more effective than written knowledge during the discussion itself, although the fact sheets were highly appreciated.

More important than these improvements in the workshop design itself is that, to some degree, follow-up of the participatory process can be encouraged by provisions in the design itself. For instance, it would be useful to improve the formulation of the actions by devoting more time to talk about them, to ask the participants to come up with actions their own organization can implement and to give examples of correctly formulated actions. In addition, provisions in the

planning process as a whole are needed, all the more because there are no obvious 'owners' of the problem of CO₂ emissions at the local level. Subsequent planning process management is required. This should be addressed during the preparations for the workshop. Follow-up activities ideally would include:

- further elaborations of the actions agreed in the declaration, using the workshop results in policy research projects and investigating ways to achieve the goals agreed on;
- guaranteeing the continued involvement of relevant actors;
- discussion of adjustments when there are unexpected developments;
- monitoring implementation and giving feedback to the participants about this.

Final Remarks

Sustainable urban planning is a comprehensive concept. It includes water, nature and ecology, traffic, liveability and energy as the main sustainability themes at the level of the design of urban areas. The CO₂ reduction workshop covers just two of these themes (energy and traffic). Wider interpretations of sustainability may also include issues such as safety, social equity, economic prosperity, good housing quality and spatial quality. Furthermore, sustainability in the built environment also concerns the 'greening' of existing cities. In the authors' opinion the workshop format, with adaptations, is also useful for addressing other sustainability issues. These other themes involve a choice among different options, the need for co-operation among actors and the utilization of relevant knowledge. The most important adaptations concern the information provided and the selection of actors involved. It is conceivable to organize parallel workshops (CO₂ reduction and traffic issues, water and ecology, and architecture, etc.) and then to hold an urban planning workshop to integrate the ambitions formulated in the different workshops into one urban design. This may seem to involve extra work for municipalities. However, an interactive approach can prevent a situation in which plans prepared by urban planners need to be changed in later stages because important actors appear not to agree with them, as is often the case (van der Waals *et al.*, 1999).

An extension of the applicability of the CO₂ reduction workshop could also concern the practice of urban renewal. In the existing housing stock there is a considerable technical potential for CO₂ reduction. A large number of urban renewal projects are expected to take place in coming years in the Netherlands. Because CO₂ reduction receives little attention in urban renewal projects (van der Waals *et al.*, 2000), the workshop could indeed play an important role in raising awareness about the subject. Here as well, adaptations would be needed with regard to the information about technological options and the selection of participants, such as housing corporations and residents in the area.

It seems a promising way forward to further develop participatory policy strategies, noting that this should also include proper institutionalization in implementation processes. The evaluation of the workshop experiments clearly suggests that a participatory method is only useful if the planning process as a whole has an open character. If urban planners do not have a ready ear to contributions of people from outside the traditional policy arena and choose to

persist in decide–announce–defend strategies, it makes little sense to organize a participatory workshop.

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