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## Stakeholder participation practices and onshore CCS: Lessons from the Dutch CCS Case Barendrecht

Suzanne Brunsting<sup>\*a</sup>, Marjolein de Best-Waldhober<sup>a</sup>, C.F.J. (Ynke) Feenstra<sup>a</sup>, Tom Mikunda<sup>a</sup>

*Energy Research Centre of the Netherlands (ECN), Department ECN Policy Studies, Amsterdam, 1040 AW, The Netherlands*

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### Abstract

To date, hardly any field study results are available on responses from lay people in communities that are confronted with the possibility of a local CO<sub>2</sub> storage project. This paper describes one of the first of such studies, presenting a case description of an onshore CCS demonstration project in Barendrecht, the Netherlands. The aim of this study is twofold. First, we provide an in-depth analysis of the development of public awareness of an onshore CCS demonstration project in Barendrecht, the Netherlands. Second, by analyzing practices and outcomes, and by linking these to existing knowledge about stakeholder involvement and public communication, we identify a set of conditions for effective communication and involvement strategies. Findings indicate that one important cause of the lack of local acceptance of the project was the absence of a cohesive and timely involvement strategy for discussing the project with local stakeholders as part of the formal decision-making process rather than apart from it. The paper concludes with a list of recommendations for stakeholder involvement in future CCS operations.

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### 1. Introduction

Recently, a growing number of onshore CCS demonstration projects have started or are being developed. The deployment of CCS is being stimulated by the EU and governments in several countries, including the Netherlands. In 2006, project owner and developer Shell Storage B.V. started preparations for a CO<sub>2</sub> capture and storage demonstration project in two depleted gas fields under the town of Barendrecht in the South-West of the Netherlands, near the Rotterdam Harbor area. Upon successful completion of the permitting procedure, the project will be eligible for a €30 million grant from the Dutch government. Shell started informing the Municipal government of Barendrecht about the project in 2007 and started communication to the local public early in 2008. It soon became apparent that local politicians were strongly opposed and that residents had many questions about the procedure, safety, and risks for public health. The Environmental Impact Assessment (EIA) was approved early in 2009, but increasing resistance against the project called for additional discussion and research activities.

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\* Corresponding author. Tel.: +31 224 56 8113/4431; fax: +31 224 56 8339.

E-mail address: [brunsting@ecn.nl](mailto:brunsting@ecn.nl).

Nevertheless, local governments have officially declared themselves opposed to the project whereas the National Government has decided that the project is safe and should continue. The relations between the main stakeholders - the National Government, the local government, the project developer Shell, and the local public - are now polarized and disabling effective dialogue. By the end of 2009, the estimated project delay was at least two years.

As is evidenced by the present case as well as several other cases throughout Europe, public awareness and public opinion can be crucial factors in the development of CCS demonstration projects. Among the general public awareness of CCS technology is low, both in the Netherlands [1] and in other countries [2]. Two large-scale Dutch surveys have shown that after reading valid and balanced information, most people are not very enthusiastic about CCS as a mitigation strategy but do not strenuously oppose the technology either [1,3]. To date, however, hardly any field study results are available on responses to information from people in communities that are actually confronted with the possibility of a local CO<sub>2</sub> storage project. We do know from previous research as well as experience with other issues such as wind power in Europe, that general attitudes towards a technology can be quite different from local attitudes towards a specific project [4]. This suggests that valid and balanced information is just one factor affecting public perceptions. Therefore, the aim of this study is twofold. First, we provide an in-depth analysis of the development of public awareness and opinions of the CCS demonstration project in Barendrecht. Second, by analyzing practices and outcomes of stakeholder involvement and public communication and linking these to existing insights, we identify a set of conditions for effective involvement and communication strategies.

## 2. Method

We analyzed case study data from early in 2007 until December 2009. First, we conducted an extensive literature search to obtain project background information and to identify key stakeholders as well as their position in the process and their relations with other stakeholders. Detailed project information was widely available on the internet. Confidential information and copies of communication materials were obtained with help of the stakeholders interviewed. Second, we conducted nine in-depth interviews with representatives of key stakeholders in October and November 2009: (1) The taskforce CCS (responsible for the general CCS communication strategy for the Netherlands); (2,3) DCMR, the Environmental Protection Agency of Rijnmond which is the local research, consulting, and permitting authority for the region including the Province Zuid-Holland and the Municipality Barendrecht; (4) the Municipality Barendrecht, referring to the members of the Municipal Council and the Municipal Executive who act as public representatives; (5,6) Two local political parties who were among the first to oppose to the planned project; (7) The national NGO Greenpeace, (8) NAM, who was the project developer until mid-2008; and (9) project owner and developer Shell. Respondents were selected on the basis of being either a beneficiary of, involved in, or declared opponent to, either the Barendrecht project or CCS in general. Topics addressed in the interview included: (1) stakeholder's views on the project negotiation process, (2) their relations with and views of the other stakeholders involved, (3) efforts undertaken to communicate with the other stakeholders and with the local public in general, and (4) their view on media coverage of the project and process (e.g. to what extent it has been balanced). Third, the authors paid several visits to Barendrecht to attend local meetings, visit the project location, and visit the project information centre.

## 3. Case Chronology

This section provides the background of the project and a selection of events between 2007 and 2009. Given the complexity of the case and space restrictions we focus on the roles of Shell, the National Government, and the municipality, and on what we see as key events in (1) the formal process of decision-making, (2) the informal and administrative processed supporting decision-making, (3) involvement of the local public, and (4) media attention to the project. To demonstrate how these events relate, we largely describe them in chronological order.

Barendrecht has over 46.000 residents and a relatively high number of young families [5]. Shell is the project owner and developer and responsible for the Environmental Impact Assessment (EIA), which is a legally required assessment of possible impacts of the project on the environment including natural as well as economic and social aspects. From the National Government, two Ministries are involved: the Ministry of Economic Affairs (EZ) and the Ministry of Environment and Spatial Planning (VROM). The Province of Zuid-Holland coordinates the EIA

procedure. Most of the permits have to be granted by the Province and the Ministry of EZ. The Municipality Barendrecht only has to grant some local permits at the very end of the process.

Early in 2007, the National Government announced a tender procedure to grant 60 million euros to two CCS demonstration projects and the intention to assign the grants by the end of 2007. Shell started working on a CCS project plan to submit for the tender and provided a notification of intent to perform an EIA by the end of 2007, which the Province published in February 2008. The EIA committee provided an advice for the guidelines that were to be followed for the assessment, which were approved in April 2008 by the Ministry of EZ and the Province.

From early 2007 onwards, Shell has involved the Municipality Barendrecht to discuss the project plans. The majority of the Municipality was not enthusiastic. Nevertheless, the Municipality agreed with Shell's intention to start informing the public as this is common practice after publishing a notification of intent to perform an EIA. In February 2008, Shell organized an information meeting for the general public in Barendrecht. Shell presented the details of the project and announced the availability of a project website, e-mail form, and telephone line through which the public could obtain more information about the project. Shell presented information about the EIA procedure, characteristics of CO<sub>2</sub>, and technical and geological project details. Another presenter was the director of the CCS Project Directorate, which had been installed by the National Government at the beginning of 2008. He explained the national climate and energy targets, intended policies to reduce CO<sub>2</sub> emissions (energy saving, renewable energy, and CCS), and why CCS is needed to meet national climate goals. Sixty people attended the meeting; half of them professionals half of them local citizens, many of whom were active in local politics. Shell stated that the CCS technology that is to be used in Barendrecht is ready, already in use and proven safe. In April 2008, Shell organized a second information meeting for the general public at the request of the Municipality. The meeting attracted about 250 visitors. In contrast to the first meeting, there was much more debate. There were so many questions that they could not all be answered that evening, but they were all written down and answered in the publicly available minutes of the meeting on Shell's project information website. Meanwhile, local political parties had started discussing the project plans. In particular, they were not convinced by the strong safety claims.

Before the summer of 2008, the Ministers of Spatial Planning and Economic Affairs met with representatives of the Province and the Municipality and decided to install a platform to discuss the EIA procedure. The Province chaired the discussion and group meetings were every 4–6 weeks. In addition, a communication workgroup was created with communication professionals of all main stakeholders including Shell, the National Government, and the Municipality. The task of the communication workgroup was not to come up with a unified project communication strategy, but to synchronize stakeholders' communication activities. Parties discussed the idea of putting up a general website about the project. The Municipality suggested that all information be put on the Municipality website, but other parties disagreed as they felt that this would not guarantee objectivity. Eventually it was decided that all parties would host their own websites and that these websites would be linked to each other.

In November 2008, almost one year later than originally planned, the National Government decided to allocate €30 million to Shell for the project in Barendrecht. On December 11, 2008, Shell submitted the EIA and request for permits to the Province and the Ministry of Economic affairs. In January 2009, the Province and Government decided that the EIA met the guidelines previously drawn up and approved, whereupon the EIA was published and deposited for public inspection for a 6-week period, as formally required. During this period, the Municipality as well as individual citizens could submit views. Meanwhile, the Municipal Council and Municipal Executive had agreed upon a list of questions about the project. This so-called 'question checklist' was finalized in December 2008, and would be used to submit the Municipal view on the decision to approve the EIA to the Provincial Executive and Economic Affairs in February 2009. The official position of the Municipality was that answers to the questions must be provided before a decision could be made, based 'not on emotions but on facts and figures'.

During the period January – March 2009, four meetings were organized with four independent experts that were hired by the Municipality and paid for by the National Government, to reflect on the research done for the EIA and to answer the questions in the 'question checklist' of the Municipality. Main concerns of Municipality were as follows. With regard to the decision making process, the Municipality argued that alternative locations should have been studied in the initial stages of project planning. According to the Municipality, it is not evident why the first onshore CCS demonstration project has to take place in a densely populated area such as Barendrecht. With regard to the legal requirements for the project, the main concern was the monitoring of the stored CO<sub>2</sub>. Although Shell and the National Government had made and announced an agreement on this, the Municipality and the public demonstrated low confidence in Shell and the government to assume responsibility for and subsequently properly

organize the monitoring. Concerns directly related to the project were mainly about safety. The Municipality disagreed with the conclusion in the EIA that ‘existing technology’ would be used in the Barendrecht project. Safety calculations were criticized for being based on models and not on real-life experience. Furthermore, the Municipality claimed that the risk analysis made in the EIA was incomplete as it did not consider morbidity issues such as illness and psychosomatic effects on public health. Finally, with regard to the distribution of costs and benefits, the Municipality stated that Barendrecht had already faced many infrastructural projects in recent years; that the risks of decreases in real estate value were unclear; and that project developers will hugely benefit from the project in multiple ways by obtaining government funding to pollute, which deviates from the ‘the polluter pays’ principle and is unfair.

The Municipality stated that it would cease opposition to the project if all of these concerns would be addressed satisfactory and the permitting procedure would be adapted to the situation, a.o. by taking into account specific characteristics of the area such as the high population density. However, during the roundtable sessions, several local political parties continued to develop protesting activities which received regular media attention. One of them started mobilizing the public by organizing petitions and a protest walk. According to the party leader, the petition resulted in around 900 signatures and the protest march was attended by around 300-400 people. Furthermore, in February 2009, a news item appeared in two national newspapers in the Netherlands in which one of the independent experts hired by the Municipality stated that there are still many uncertainties about CCS and that the safety of the project cannot be guaranteed. Later that month, the Municipality hosted a public meeting for the people in Barendrecht which was visited by over 1.100 people. All citizens of Barendrecht had been personally invited by a letter. According to a report describing the meeting, the spokesperson of Shell kept referring to the EIA when receiving questions about safety whereas this report is difficult to read for members of the general public. Furthermore, Shell stated that the project was not profitable. This remark was heavily debated afterwards. Shell also stated they would take into account public opposition, although this was not widely believed by the general public.

By March 1, 2009, an important change took effect in the electricity, gas, and mining law, made by the Minister of Economic Affairs. The so-called ‘national coordination regulation’ (RCR) implied that for the CCS project in Barendrecht, decision making would take place at national instead of local level. The Ministry of Economic Affairs will coordinate the permitting procedures and may overrule a local authority if it takes a decision the Municipality disagrees with, or if the Municipality refuses to cooperate with the granting of an environmental permit. According to the National Government, the reason for this legislation is to make procedures shorter and more effective. According to the Municipality Barendrecht, the RCR is a means of forcing them to accept the CCS project.

On March 13, 2009, a Dutch environmental education organization launched a website with neutral, reliable information about climate change, CO<sub>2</sub> emissions, and CO<sub>2</sub> storage that has been written and approved by an independent editorial board with partners from government, industry, science, and NGOs. The website was built upon request of the National Government and tailored to the general public. Although this joint stakeholder initiative was meant to represent a broad range of views thus guaranteeing a degree of impartiality, several weblogs called the website pro-CCS propaganda from Shell and the National Government.. This impression was presumably created by the occurrence of several other events in the same period, most notably the RCR and the opening of an information centre in Barendrecht funded by VROM, EZ, and Shell within the same week.

On March 18, the information centre CO<sub>2</sub> storage was opened in a shopping mall in Barendrecht near one of the CO<sub>2</sub> injection sites. The centre was funded by the Ministries of Economic Affairs and Spatial Planning, with contributions from Shell. Its aim was to inform the general public about all aspects of the project and opinions about CCS in Barendrecht. However, not all main stakeholders were on board. The Municipality and local political parties did not actively use the information centre as a communication channel. Instead they displayed project information separately, in the lobby of their office building. Presumably in part because of the absence of the Municipality, many people initially thought that the information centre was owned by Shell.

On April 24 2009, the EIA committee published its advice to the Ministers. The committee stated that the EIA was complete and a fair and balanced assessment of the impact and risks of the project. It also said that the safety risks were properly assessed and complying with Dutch legislation. Nevertheless, by the end of May 2009 the Municipality announced a decision to say no to the CCS project, claiming that a number of questions as written down in their question checklist had remained unanswered. On June 20, 2009, both the Ministers of VROM and EZ visited Barendrecht to talk with the Municipal representatives and with the residents of the area. They stated that they would treat decisions around the project carefully and after discussion with the Municipality, and that they

understood that the Municipality must have felt overwhelmed by the rapid developments. In the summer of 2009, the National Government announced that three additional reports would be written to answer those questions that the Municipality considered insufficiently addressed in the process: a report on alternative locations, a report on possible psychosomatic effects of the project, and a review of external safety issues. Shortly before the results were made known, local citizens announced the formation of a local activist group called ‘CO2 is no’. Nevertheless, based on the research results the Ministers officially decided to approve the project on November 18, 2009. In a media response, the Municipality stated that ‘Shell has taken the government hostage.’

In December 2009, both Ministers visited Barendrecht to explain their decision in a public meeting at the local theatre in the presence of 600 people. Another group of citizens of an unknown size watched the meeting at the town hall, where it was broadcasted live. The discussion leader attempted to make the public take turns in asking questions to the Ministers, but to no avail. The Ministers were continuously interrupted by boos, whistles, and cries of disapproval. The Public response consisted mostly of speeches from audience members stating that the process of decision making had been undemocratic and that they would never allow the project to continue. These speeches were continuously followed by rounds of applause. At the time of finishing the case analysis, it was unclear which steps would be taken next, and by whom.

#### **4. Case Analysis**

In this section, we will explain the developments in Barendrecht by linking them to existing insights in stakeholder involvement and public communication. Onshore CCS implementation in the Netherlands can be classified as an ‘unstructured problem’ [6]. Typical for discussions about unstructured problems are questions like ‘Do we really need this?’ and ‘Do we need something else instead?’ These questions have been and continue to be raised CCS technology. The project development in Barendrecht took place against a backdrop of a debate about the utility and necessity of CCS. According to the National Government, CCS is needed because alternatives are not yet ready. This claim is contested by others who question the effectiveness of CCS as a climate mitigation measure and mention that there may be better alternatives available. Greenpeace, for example, argues that choosing for CCS means choosing coal and vice versa. According to Greenpeace, this technical ‘lock-in’ will prevent renewable energy sources from competing on the energy market in years to come [7]. Nevertheless, project development in Barendrecht has not been preceded by an organized discussion about the utility and necessity of CCS.

Another feature of unstructured problems such as CCS is that stakeholders widely vary in their beliefs, values, and presumptions about the problem and its possible solutions. In Barendrecht, for example, the National Government and Shell mainly viewed the CCS project from a techno-economic point of view whereas the Municipality mainly took a social and local perspective. In such a situation it is recommended that a stakeholder dialogue includes all different perspectives on the problem, regardless whether they are broadly or marginally endorsed [8]. Furthermore, stakeholders representing these perspectives should also have equal power to influence decision-making. However, in Barendrecht, public involvement was only possible through the legally required opportunity of submitting views to the EIA. Local parties did not have a role in the organization of the permitting procedure or in policy-making. Although local concerns have been addressed extensively in the informal process of decision making, and all stakeholders have discussed extensively with each other throughout the project, the fact that local parties did not have any formal power to influence decision making implies that no equal weight was given to their perspective on the socio-economic, health, and safety consequences of the project. The Municipality and the local public of Barendrecht were involved much too late and were not given the power to ensure that their concerns would be taken into account in the process of decision-making. The procedural discussion group, the roundtable sessions with independent experts, additional research carried out by order of the National Government, demonstrate that all stakeholders have put serious effort into solving the issues raised by the Municipality. However, none of these measures gave the Municipality and the local public any formal decision-making power. Instead, the introduction of the RCR reduced Municipal power even further. As a result, several members of local political parties have sought other means of influencing the process. Organizing (public) protest activities, voicing opinions in the media, and demanding for additional independent research may all be seen as strategies to obtain influence that would not have been used, at least not to this extent, if the Municipality had been at the negotiation table in the process towards obtaining permits and developing policies and public communication strategies.

Another challenge to a fruitful negotiation is that central to the discussion are specific policy or technological options, not the perspectives of the stakeholders themselves. This is because perspectives cannot be classified as ‘right’ or ‘wrong’ – they are just lenses through which people view reality. Attacking a stakeholder group’s perspective will not result in a useful discussion and will ultimately lead to a deadlock [8]. In Barendrecht, for example, proponents of the CCS project have tended to label questions about the necessity of CCS and available alternatives as irrelevant to the present discussion. Concerns about safety have at times been deemed emotional or irrational. However, such labeling of arguments implies that these arguments are invalid or even self-serving, being rooted in NIMBYism or in climate skepticism. For this reason, the Municipality feared the label ‘emotional’ and has repeatedly stated that they would base any decision on ‘facts and figures’ and not on ‘emotions’. This illustrates the sharp distinction made by all stakeholders between valid arguments (rooted in technical knowledge) and invalid arguments (rooted in lack thereof). As a result, both proponents and opponents to the project have contested each other’s expertise. In the media, those opposing the project have shown a tendency to exaggerate and dramatize the risks of CO<sub>2</sub>. For example, a local politician has claimed that if something happened, ‘100.000 people could be killed’. However, those in favor have made equally exaggerated claims in favor of CCS. For example, one of the Ministers has stated in a newspaper interview that ‘CO<sub>2</sub> is completely harmless’.

Stakeholders have also openly questioned each other’s integrity. In part, these seem to have been fed by several claims of project proponents that seem a bit too strong. First, the safety claim. Both Shell and the National Government have stated several times that the label ‘demonstration project’ refers to lessons to be learned in areas such as legal procedures, regulations, and monitoring, but not to technological lessons because the technology has been proven. However, their EIA report does state that the project will provide technical lessons since there are still uncertainties, be it predominantly with regard to chain integration. Although the technology has been tested, for example as part of gas storage or enhanced oil recovery, the Barendrecht project will be different: this will be the first onshore integration of the entire CCS chain with the aim of injecting CO<sub>2</sub> into an empty gas field. Therefore, admitting that research on CCS chain integration is still in progress may have been a more effective strategy in public communication. A second claim that seems to have backfired is that Shell will not make money from this demonstration project. Even though it is true that in years to come Shell’s investments will largely outweigh expected benefits, this is of course a strategic investment which is nothing a commercial project developer has to be ashamed of. However, both Shell and the National Government kept using climate mitigation as the main argument for the present project - while at the same time refuting alternative perspectives on climate mitigation strategies.

According to many CCS experts, one of the greatest challenges to the employment of CCS is that lay people do not understand the significance of the technology. In the present case, several stakeholders have stated that non-technical people are more often opposed to the project than those with a technical education, thereby suggesting that lack of understanding is a main cause of protest. The issue of filling knowledge gaps (which ones and in what way) is therefore one of the main topics of debate when involvement of the local public as a stakeholder group is concerned. However, although there is some evidence that being exposed to valid and balanced information leads to mostly neutral opinions towards CCS, [1,3] having more knowledge about CCS does not result by definition in a more positive attitude. One variable that is particularly well-known for influencing information processing and public opinion formation is trust in the organizations providing the information. Public information is perceived more balanced and objective when endorsed by multiple information sources [9], which is another argument for broad stakeholder involvement.

In the present case, the project information available to the public was complete, with all relevant reports, minutes, and Q&A overviews available on various stakeholder websites. However, regarding the quality of information supplied to the public by the main stakeholders, we conclude that it was only in part valid and balanced, that a large part of the information about the project was difficult to understand, and that trust was not established. At the start of the project communication in Barendrecht, information sources tailored to the public regarding the CCS and its wider context did not yet exist. The local public thus had to rely upon information from the project stakeholders, which showed little balance and was for the larger part not endorsed by multiple stakeholders. Instead, much of the information came from one source and had either a negative or positive bias. The first website with general information that was explicitly tailored to the public and was endorsed by multiple stakeholders was launched late in the process, as well as the information centre that also presented information from various stakeholders. The information centre could have played a central role in objective communication, but was put in place too late and was not endorsed by the Municipality. For this reason, and because the information centre was

financed by the government and Shell, some citizens have doubted the objectivity of information provided. The content of public communication was strongly focused on telling people facts, figures, and socially desirable reasons for carrying out the project (to prevent climate change), but paid little attention to local costs and benefits. The timing of public involvement reinforced the impression that Shell would be the only beneficiary which was therefore not a highly trusted source of information about safety or costs and benefits. In sum, whereas levels of public awareness and knowledge regarding CCS are still low, chances of exposure to information that provides context to CCS are still very small with only a handful of good but not yet widespread information sources available.

## 5. Recommendations

Based on this case study, the following recommendations can be made for future CCS projects.

*Have the utility and necessity discussion first.* Because CCS is presented as a solution to the complex problem of climate mitigation, prior to planning any CCS project there should be a discussion about CCS in the context of alternative solutions to this problem. The National Government should take the lead in developing a stakeholder discussion about views on energy solutions in general and CCS in particular, and subsequently not only develop but also communicate clear and strong policy measures endorsed by a wide array of stakeholders. This should be done before any specific CCS demonstration project is started.

*Involve stakeholders in the process as early as possible to give equal attention to perspectives.* Given the novelty of CCS demonstration projects, local stakeholders who are among the first to experience a CCS demonstration project should be involved in the process of location selection, permitting, and the policy making as soon as prospective locations come into view. This should warrant the representation of different perspectives (e.g. population density issue and local characteristics of the area) in addition to a techno-economic perspective.

*Allow main stakeholders equal power to influence the decision making process.* Project proponents should realize that all issues surrounding the project may be clear to them but not necessarily to other stakeholders involved. Instead of trying to get the project through “as is” it is more productive to view the process as a negotiation in which stakeholders have equal influence on the outcome. No matter how extensive the informal process supporting decision-making, if one of the main stakeholders has little power to formally negotiate decisions with other stakeholders the process is not going to be successful. The present situation in Barendrecht could have been prevented by involving the Municipality in the preparations of the EIA (e.g. discuss what research is required and have a say in which parties will do the required research) The Municipality would then probably also have felt less need to voice negative opinions about the project through the media during the decision-making process and the local public could have trusted the Municipality to represent her interests.

*Establish a dialogue between stakeholders about CCS that is rooted in mutual acknowledgement of each stakeholder's identity, values, knowledge and views.* In the present case, all key stakeholders have repeatedly dismissed each other's arguments either based on assumed lack of expertise or assumed lack of integrity. Both behaviors are destructive to the process. As we have seen, some key stakeholders view the problem of CCS as structured whereas others view it as an unstructured problem. It is no use arguing which perspective is more ‘true’. Factually, there is no consensus yet about the costs, benefits, technology, and regulation regarding CCS. It can thus be contested who has the ‘wrong’ view on the issue or who is lacking relevant knowledge. For this reason, concerns and arguments raised by stakeholders that may stem from a lack of knowledge cannot be deemed invalid. That said, demands of stakeholders who are involved in decision-making should be grounded, reasonable, and negotiable. For example, demanding zero-risk would be an unrealistic demand and should not be accepted as input to negotiations. Furthermore, anti-normative behavior during meetings should be dismissed openly and immediately. One may expect stakeholders to treat each other reasonably, despite differences in perspective. To enforce this, especially meetings with the local public may require an adapted setting.

*Be Transparent about costs and benefits.* Attacks on perspectives can also be prevented by transparency about costs and benefits to stakeholders, as this question is strongly tied to perceived stakeholder motives. In particular, both governments and project developers should realize it does not enhance their credibility to motivate the development of CCS projects by exclusively referring to climate change. Firstly, because to a large part of the general public the story of climate change is either too difficult to understand or just not seen as relevant to them personally. Secondly, because CCS is expected to have technical and economic benefits as well. These benefits, and to whom they will apply, should be discussed in an open, transparent way.

*Create trust before attending to knowledge gaps.* Although it is clearly important that comprehensible and accessible public information on CCS is available, information is only used if it is trusted. This requires that prior to public communication stakeholders have agreed about the process, and knowledge creation (e.g. research reports) should be done in such a way that every stakeholder will trust the outcomes. One way of establishing this is to decide together with project opponents who will perform the required research. If research reports are not trusted they will not convince opponents, regardless of their quality or approval by permitting authorities. In the present case, the Municipality has demanded for independent research. Independency in this context primarily referred to research performed by a party selected by the Municipality instead of Shell. Finally, one way of earning trust of the local public is to be transparent about the process. Let the outside world know what is going on at the negotiation table. Regularly update the local public. Make an agreement about who will do this and how. In this case, for example, the Municipality could have taken up that role. As long as all negotiators are committed to the process of finding solutions, it will not be in the interest of any of them to thwart the project by exaggerated media outings.

## 6. Conclusion

Putting up a constructive stakeholder dialogue about an unstructured problem such as CCS is a difficult task requiring attention to and knowledge of stakeholder involvement at every level, from involving the right parties in formal decision-making to engaging in a dialogue with the local public in an appropriate setting. However, knowledge about each level is available as well as practical guidelines for putting that knowledge into practice.

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