Amsterdam University of Applied Sciences

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Published in:
Impact Assessment and Project Appraisal

DOI:
10.1080/14615517.2016.1176413

Link to publication

Citation for published version (APA):

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Download date: 09 12 2019
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To cite this article: Lea den Broeder, Kai Yin Chung, Loes Geelen, Monique Scholtes, Albertina Jantine Schuit & Annemarie Wagemakers (2016) We are all experts! Does stakeholder engagement in health impact scoping lead to consensus? A Dutch case study, Impact Assessment and Project Appraisal, 34:4, 294-305, DOI: 10.1080/14615517.2016.1176413

To link to this article: https://doi.org/10.1080/14615517.2016.1176413
We are all experts! Does stakeholder engagement in health impact scoping lead to consensus? A Dutch case study

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ABSTRACT
Stakeholder engagement in Environmental Impact Assessment (EIA) and Health Impact Assessment (HIA) provides opportunities for inclusive environmental decision-making contributing to the attainment of agreement about the potential environmental and health impacts of a plan. A case evaluation of stakeholder engagement was carried out to assess its effect in terms of consensus-building. The case consisted in two health impact scoping workshops engaging 20 stakeholders: policy-makers, experts and residents. A Participatory Action Research approach was adopted. Methods included observation, semi-structured questionnaires and interviews. Analysis methods consisted of several coding rounds, in-depth reading and discussion of Atlas.ti output reports, as well as studying questionnaire results. Participants reported a broadening of perspectives on health in relation to the environment and attainment of shared perspectives. Still, meaningful differences remained, indicating that joint learning experiences, trust and mutual respect created a ‘sense of consensus’ rather than a joint view on the issues at stake. To avoid disappointment and conflict in later project development, explicit acknowledgment and acceptance of disagreements should be included as a ground rule in future stakeholder engagement processes.

Introduction
Involving stakeholders throughout the environmental impact assessment (EIA) and health impact assessment (HIA) process is broadly advocated (e.g. Hebert et al. 2012; Glucker et al. 2013). One of the reasons is that this provides opportunities for more inclusive environmental decision-making, in particular regarding local communities’ concerns and needs. Such engagement requires a shift from a ‘rationalistic’ and ‘technocratic’ approach to one that takes the requirements and views of all stakeholders, including local communities, into account (Wilkins 2003; Mindell et al. 2004; Morgan 2012). ‘Deliberative’ processes, involving groups that are affected by policies or projects, are claimed to be potentially helpful in collecting relevant local experience and knowledge, developing solutions and addressing the concerns of local communities (Renn 2006). For example, local stakeholder engagement in HIA is reported to provide knowledge that is not available from existing data sources (Elliott et al. 2004; Negev et al. 2013). At the same time there is no guarantee that the voices of local communities are heard, and stakeholder engagement can also turn into a mere bureaucratic exercise (Chadderton et al. 2013). Also, stakeholders may lack the skills and knowledge to be able to participate, and they may require opportunities for learning (Chávez & Bernal 2008).

Evaluation of the participation processes is therefore important. Key evaluation components are representation, process structure, information used and outcomes and decisions (Abelson et al. 2003). In this paper, we focus on evaluation of consensus-building as an aspect of outcomes and decisions. Consensus-building can lead to changes in the points of view of stakeholders; how that happens and why is a question that requires further research (Wiklund 2005).

This paper describes a Dutch practice case of stakeholder engagement. In particular we focus on stakeholder perceptions of the level of consensus attained (‘perceived consensus’) and their respective views on the issues at stake (‘actual consensus’). In the Netherlands, the issue of stakeholder and resident engagement is particularly urgent because of recent political developments promoting the development of a ‘participation society’ (Delsen 2012). Such a participation society requires that various stakeholders including citizens, in a partnership...
with governmental agencies and professionals, take responsibility for the well-being of everybody.

The case concerned two workshops for health impact scoping (HIS) in a Dutch town, which were organised within the framework of a large, and much debated, infrastructure project. The workshop outputs were intended to contribute to knowledge about the potential health impacts of this project, adding to the knowledge already provided in an EIA procedure that had been finalised previously.

The evaluation focused on three main questions:

- In what way did the HIS workshops influence stakeholder perspectives on health and a healthy living environment?
- What level of actual and perceived consensus on these perspectives was reached at the HIS workshops?
- What were the perceived factors that contributed to or hindered the development of consensus on health and a healthy living environment?

This paper first describes the methods applied. Then results and analysis are presented. Finally, conclusions and lessons learnt for EIA practice are discussed.

**Methods**

A participatory action research (PAR) approach (Reason & Bradbury 2008) was applied: a researcher (LdB) provided conceptual (health definitions, dimensions of a healthy environment) and methodological (group work methods) input for the development of the HIS workshops. Moreover, this researcher was present during the workshops. The workshop developers, who also conducted the workshops (LG, MS), provided input in post-workshop evaluation interviews (KYC) and commented on the preliminary evaluation report that formed the basis of this paper. Thus, intervention development (workshops) and knowledge development (evaluation) were closely linked and were carried out in collaboration with those affected by the infrastructure project.

Multiple methods (questionnaires, observation and interviews) were applied for data collection (LdB, KYC), and qualitative data analysis (LdB, KYC, AW and JS) was carried out (Figure 1).

**Local setting**

The case we studied concerns a Dutch town of 26,000 inhabitants. A major rail and road infrastructure development was planned, substantially increasing passenger and cargo transport through the town centre (Gemeente Vught 2013). This was part of a national development plan (Ministerie van Infrastructuur en Milieu 2011). An EIA for this project had already been carried out, commissioned by the project developer, and mitigating measures, with a focus on noise pollution, had been proposed. The plan and the EIA report had been presented to residents. However, residents still had serious concerns and opposed the plan. Residents set up an action committee, and multiple complaints were filed. In particular, residents claimed that health impacts had not been appropriately addressed (Gemeente Vught 2013). The Municipality therefore commissioned the Municipal Health Authority to develop and carry out two HIS workshops with local and national stakeholders including residents. Evaluation was included in the development process right from the start (LdB).
The workshops were carried out by Municipal Health Authority staff (LG, MS), and the results were described in a report for the Municipality (Geelen & Scholtes 2014). The first workshop aimed at developing a joint vision on a healthy environment, combining the knowledge and perceptions of all participating stakeholders (hereafter referred to as ‘the participants’), i.e. experts, policy-makers and residents. The health definitions of the World Health Organization and Huber et al. (2011) were explained, and the interaction between health and the environment was discussed using the model of sustainable communities developed by Egan (2004). In the second workshop, the joint vision was applied to the infrastructure development plan, and potential health impacts were identified. These are described in the Results section. The Municipality selected 39 participants, including residents, on the basis of a variety of roles, and personally invited them. This procedure was followed as the Municipality wanted to have key persons on board, but had insufficient time and resources to carry out meetings with larger groups of stakeholders.

The workshops consisted of a combination of introductory lectures, providing knowledge about health models and health impacts, and group work, developing a joint vision on a healthy environment for the local community. Group work was also carried out to apply this vision to the infrastructure plan. To support cooperation between lay and expert participants, two main rules were maintained throughout the workshops. The Chatham House Rule (Chatham House 2002) states that participants may freely use information received during a meeting, but may not reveal the speaker’s and other participants’ identity or affiliation. The ‘Everybody is an Expert Rule’ was designed by the workshop developers and states that every participant is an expert in his/her specific role and domain when participating in the workshops. The aim of this rule was to create a level playing field among participants and explore knowledge, experiences and insights from a variety of roles and views.

Data collection

Firstly, participants filled out a questionnaire at the start of the workshops. This questionnaire contained two open questions, one asking HIS participants for their definition of health, and one about desirable outcomes of the workshops. A five-point-scale question asked them to rate the importance of health in transport infrastructure project planning.

Secondly, photos were taken during the workshops (LdB) that were later used to help the participants recall their experiences when interviewed. Thirdly, participants filled out an evaluation form after each workshop, rating the instructiveness of the workshops, positive/negative atmosphere, level of satisfaction and amount of room to express their views on a 5-point scale, and rating the workshop as a whole on a 10-point scale. This questionnaire also contained two open questions: what went well during the workshops, and what could be improved. Participants were asked if they were willing to be contacted for an individual interview afterwards.

Fourthly, 15 (out of 20) participants who had given their permission were contacted by email for a post-workshop interview. Three respondents declined because of a lack of time, and 12 participants agreed. Interviews were conducted, nine months after the workshops, by one researcher (KYC), either at the office of the respondents or in their home. The first part of the interview consisted in showing the respondents photos taken during the workshops and asking them to comment. The aim of this procedure was to help them recall how they experienced the workshops. Subsequently, they filled out a questionnaire containing questions about participation, learning, atmosphere in the workshops as well as satisfaction, after which the actual interview took place. The semi-structured interviews focused on how respondents experienced the workshops, and on how this influenced their views on health and a healthy environment. Interviews were recorded by voice recorder, transcribed verbatim and sent back to the interviewed participants for review.

Data analysis

Data were coded in Atlas.ti by two independent coders (KYC, LDB). A code book was developed containing codes for each of the research questions, and adapted after coding of the first three interviews. Codes for health definitions (research questions a and b) were initially based on Huber’s model of health containing six dynamic dimensions: bodily functions, mental functions & perception, spiritual/existential dimension, quality of life, social & societal participation and daily functioning (Huber et al. 2014), and later adapted to contain four additional codes: ‘free of diseases and risk exposure’, ‘health is totality’, ‘health is subjective’, and ‘other health-defining elements’, all based on the data studied. Codes for perceptions of a healthy environment (research questions a and b) were based on Egan’s model of sustainable communities (Egan 2004), which had also been used during the workshops. Two codes, ‘healthy living environment is totality’ and ‘other elements of a healthy-living environment’ were added. Codes for perceived factors that contributed to or hindered consensus-development (research question c) were based on a synthesis of three, partly overlapping, models of consensus-building, listing:

- conditions under which striving for consensus in group decision-making is appropriate or inappropriate (Susskind et al. 1999);
- key differences among stakeholders that cause conflict and thereby hinder the achievement of consensus (Briggs et al. 2005);
were taken, based on a survey involving all residents, jointly commissioned by the Ministry, the Province and the Municipality.

**Participants**

Because of tight time frames regarding the HIS workshops, only seven participants attended both workshops, seven attended only the first workshop and six only the second one. In total, 20 participants, from regional and national levels, and including experts, policy-makers and residents, attended (Table 1). Of these, four were residents: two of these were active opponents of the plan, and the other two were a local professional and a resident.

**Stakeholders’ perceptions regarding health and a healthy living environment**

Most participants added new elements to their health definitions after the workshops. In pre-workshop questionnaires ‘environmental interaction’, ‘free of disease and risk exposure’ and ‘mental condition’ were most often mentioned as elements that define health, followed by ‘physical condition’, ‘sense of wellbeing’ and ‘health is totality’. In the post-workshop interviews ‘environmental interaction’, ‘free of disease and risk exposure’ and ‘mental condition’ were elements that were, again, often mentioned. However, the participants more often made reference to ‘autonomy’ as a central aspect of health.

Health means being able to live one’s life in a kind of free environment and being able to take one’s own decisions about how to stay healthy.

Although in post-workshop interviews ‘environmental interaction’ was less frequently mentioned than ‘autonomy’, participants’ expressions demonstrated that this interaction was nevertheless considered very important:...
... every human being, yeah, every person, yeah, every sensible person so to speak, who knows what health is, and who knows how miserable one can feel, knows that health is not just: I have the flu or I don’t have the flu. But (he/she knows) that it is also something you can DO in your environment.

Several participants indicated that the workshops had widened their definition of health. They expressed a sense of continuity, adding new aspects to their pre-existing view. Some referred to the broader perception of health as a new discovery for themselves.

It happened rather clearly for me. Yeah, really surprising. I think: Oh, so this is health, too! … I had an idea about health, in my world, but I could not look past the blinkers. And during the workshops my world became larger. I could see further, see more, so that I changed my views somewhat … And I became … how would you put it … somehow wiser …

Health definitions shifted towards a sense of openness and flexibility, including participants’ personal experiences, for example, ‘staying away from doctors,’ or ‘having a harmonious family life.’ The slightly ‘medical’ concept ‘mental condition,’ frequently mentioned before the workshops, seems to have become a less important element, while the related, but more ‘subjective,’ ‘sense of wellbeing’ became a slightly more central element in participants’ health definitions.

I think it is very important that people feel well in their environment, whatever that environment may be. People should feel well … and then: one can still feel well despite being ill. That was one of the eye openers, the definition of health.

Moreover, the notion of health as a subjective state, which had not been mentioned before, came up strongly after the workshops.

… Health is, to some extent, very subjective. One person rushes to the doctor to get sleeping pills, just in case a cargo train might pass by, and, yeah, another person is not bothered too much.

When talking about their definition of a healthy living environment, participants not only mentioned a broad range of dimensions (Table 2), but they frequently linked different aspects to one another (Figure 2). Moreover, participants explicitly stated that a holistic approach is needed when reflecting on what constitutes a healthy living environment:

… Everything is connected … Look, when we talk about a good environment … before you know it we are talking about another topic … I am talking about decibels, but I also want people to cross that road safely. And there, you are already in a different … then you are talking about transport and accessibility, but also social issues. Because you don’t want people to remain at home and wait for home care to call or not call. So before you know it … and here you can already see it, you go full circle.

### Healthy living environment: consensus?

According to the final questionnaires that respondents filled out at the occasion of the interviews, and in contrast with the outcomes of these interviews, participants did not feel that the HIS workshops had deeply changed their perception of health and a healthy environment (Table 3). At the same time they did indicate that a shared vision had been accomplished after the workshops.

In the interviews participants confirmed that they had experienced a common understanding of what constitutes a healthy environment, despite differences regarding minor aspects.

In the final report, there is this fantastic image, in three words … Before the workshops, during the workshops,
These issues might differ. And some participants stated that there was a greater sense of agreement during the first workshop, as compared to the second one. The high degree of consensus that participants reported, however, was not confirmed when they were asked specifically what dimensions of a healthy living environment they thought the participants agreed or disagreed about with each other. Besides the dimension ‘transport and connectivity’ (eight perceived this as agreed, three as disputed), no other elements were perceived as agreed upon by more than half of the interviewed participants. Moreover, for the dimensions that after the workshops. Before the workshops all arrows pointed in every direction, during the workshops there were question marks, exclamation marks, etcetera. And after the workshops: all arrows in the same direction. I found that striking, it totally reflected the feeling that I had about the workshops.

However, participants expressed different interpretations of how this ‘shared vision’ had come about. Some participants indicated that it developed during the workshops. Others reported that there had been, right from the beginning, a common starting point, where workshop participants agreed on the issues at stake in this town – even though their opinions on how to approach

**Figure 2.** Dimensions of a healthy local environment as mentioned in interviews.

**Table 3.** HIS workshops impact according to stakeholders (by questionnaire).

<table>
<thead>
<tr>
<th>Scores on 5-point scale</th>
<th>Vision on health changed after attending WS1 (n = 9)</th>
<th>Vision on healthy living environment changed after attending WS1 (n = 9)</th>
<th>Shared vision on healthy environment after attending WS1 (n = 9)</th>
<th>Vision on health changed after attending WS2 (n = 10)</th>
<th>Vision on healthy living environment changed after attending WS2 (n = 10)</th>
<th>Shared vision on healthy living environment after attending WS2 (n = 10)</th>
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Notes: Answer categories: 1 totally disagree; 2 disagree; 3 neutral; 4 agree; 5 totally disagree.
the participants considered as agreed upon, there was disagreement on what exactly was at stake and how important that was.

This was about (...), for example, people who are less mobile and who cross the railway crossing, people with a visual impairment, and sometimes with psychiatric problems. Anyway, the need to cross, and that this may cause dangerous situations. That is sort of, erm, I find that less important in the context of the project as a whole.

Consensus with the residents, about the issue of safety for vulnerable groups, was mentioned, but NOT for everyone at the table.

**Consensus: contributing factors**

What helped create a perceived common understanding, and what hindered the participants? The most important factor, as perceived by them, that contributed to the development of consensus was the decision-making mechanism, in particular the way the HIS workshops were organised. This was mentioned by all participants interviewed. They praised the preparation of the stakeholder workshops, the lucid introduction of the proceedings during the gatherings, the clear explanation of the applied theories and methods used, the good atmosphere and the good process-monitoring by the facilitators during the workshops.

I thought it was just great, the introduction, the drive (of the facilitators), how they tried to get people together.

And everyone sees: Hey, we have to change our view.

That was the best part of it!

Using health and a healthy living environment as the main topics of the workshops, instead of focusing directly on the infrastructure development and related political processes, was mentioned as a stimulus for shared vision development. Some participants considered health as ‘relevant for everyone’, ‘connected to other topics’ and ‘not threatening’.

You can see that health is a topic that connects people.

That was very clear for the people in the workshops.

Health is not threatening, that helped build a bridge.

The proposed infrastructure plans were named as a ‘common enemy’ or ‘urgent problem’ that was ‘on everyone’s agenda; and this was, in the perception of several participants, a common interest that promoted cooperation between all stakeholders.

The mix of participants with different backgrounds and roles was also frequently mentioned. It provided the opportunity for various stakeholders to listen to one another and become more familiar with each other’s point of view. This open approach, instead of a focus on controlling and directing process and outcomes, was considered a positive contribution to consensus-building.

Everyone has their own little island, and finally all these islands came together, so that went very well.

When you see that there is a new arena, a new role (...) to enter into a dialogue with residents and the municipality ... It sticks in my mind. A good step that should be acknowledged.

Some interviewees, however, voiced concern about the absence of ‘key’ stakeholders: on the one hand representatives of, for example, the Ministry of Infrastructure and Environment, and on the other hand residents with more varied backgrounds and interests and representatives from various interest groups. Another difficulty encountered was the difference in participants taking part during the first and the second workshops.

I think that, well that is my opinion, that one should basically have the same people around the table all the time, at the second workshop too. Because then you can build on, with people from the first part. Interviewees mentioned the sharing of information as a factor that enabled good communication. As mentioned earlier, interviewees indicated that their horizon had been widened. They also valued the transparency displayed by the municipality that shared information and strategies with other stakeholders, including residents.

The contact between the municipality and the residents is fabulous, and that is because the municipality is very transparent. They don't just share facts, but also share the strategies with residents, discuss with residents: which strategies do you have, which ones do we have, yeah ...

However, some participants complained about information overload, in particular about ‘abstract theories’ about health and healthy environments.

Yes, for sure, the explanation was very clear. But it was still highly theoretical, everything we were told ... And eh, model Lalonde and this and that, and everything at once ...

A very important enabling factor was trust. The Municipal Health Authority was mentioned as a trusted and impartial actor to organise and facilitate the workshop. Respect for different points of view during the workshop was another aspect identified as a factor leading to trust and development of a shared vision. The Chatham House Rule and Everybody is Expert Rule were considered to have set the stage for a positive atmosphere and outcome of the workshops.

We listened well to one another; we paid attention to each other during the discussion, like ... I think there was respect for one another, and for each other's opinion ... There were different folks ... It was a very mixed group of people.

A few enabling factors came up that were not related to the workshops, but rather to the existing local situation, such as past cooperative experience, formal and informal contact and communication among stakeholders, and the subjective experience and general satisfaction of the residents living in the area. News items in the media concerning health and living environment were mentioned by stakeholders as a factor that strengthened the urge of community members to become engaged.
Barriers to consensus-building

The most important hindering factor as experienced by participants was the incompatibility of mental models. Some participants claimed that those who attended the workshops had ‘different backgrounds’, ‘different roles’ and ‘different cultures’, and that a few participants displayed ‘technical’ and ‘conservative’ approaches, showing little understanding for other stakeholders’ views. Other participants stated that people working in the field of ‘hard infrastructure’ generally do not take those with a ‘health and community’ background very seriously.

... Health people ... policy advisers for health, but also staff members of the Municipal Health Authority or the Provincial Health Board, or, in short, all people working on health ... I notice sometimes that you are seen as an activist. You advocate health, just like people from Greenpeace advocate the environment ... and they think this is just one small aspect. ‘OK, fine, I’ve heard you as an activist, and now we’ll proceed with business, the project. I’ve heard you, I’ve checked a box, I’ve talked to you, thank you and goodbye’. Well, it happens, it is a feeling that I get when I talk to my colleague about this case.

‘Different goals’ of project management staff and residents were also mentioned as possible hindering factors. Differences between national economic interests and local living environment interests were perceived as a source of conflict. And hidden interests, related to those goals, were mentioned as barriers.

Yes, I think that different stakeholders, the stakeholders were at that table whilst secretly keeping their own interests in mind. That is a disturbing factor when you are trying to get to a joint vision.

One participant explicitly claimed that more attention should have been paid to the investigation of the values behind the views and interests of participants. Others mentioned distrust of national government and infrastructure project management as a major hindering factor for consensus-building. Multiple examples were given by various participants on this aspect. ‘Sneaky’, ‘lack of information and transparency’ and ‘general distrust of government’ were all named as reasons for distrust.

No, they keep information back. So I even think that the Ministry and the infrastructure organisations keep information away from the municipality, because they fear the municipality, with its transparent approach towards citizens ... And then they say ... yes, well, it will be all over the place ...

Moreover, lack of knowledge about possible alternatives to the proposed infrastructure plans by national government and project management was mentioned as a hindering factor. National government and national project management were also said to withhold information from other stakeholders. The lack of effective communication from the government was also named as a hindering factor. In particular there had been insufficient clarity about the policy-making process and insufficient feedback to the citizens about policy consultation.

Participants said that news items in the media concerning health and living environment had been causing concern. However, participants explained that all this had taken place prior to, and outside the scope of, the HIS workshops.

Finally, the timing of the workshops in the infrastructure development process was identified as a possible drawback as regards the development of consensus. Some people found it was quite late in the policy decision process and doubted whether the workshops would be helpful in influencing further decision-making.

Personally, I think that one should start this kind of process much earlier, with this HIA, with residents of course.

Conclusions, lessons learnt and further research

Conclusions

In our study, we firstly focused on whether stakeholders’ perceptions of health and a healthy environment changed after the workshops. Questionnaire data suggest that participants did not change their pre-existing views much: many respondents ticked the category ‘neutral’. In contrast, in the interviews participants stated that changes did take place in the way they view health and the relationship between health and the (physical and social) environment. Therefore it seems that, rather than dramatic changes in perceptions, these perceptions were broadened to include a wider range of environmental elements as relevant health determinants. The participants appear to have developed a more holistic picture of health. Moreover, this picture seems less ‘formalistic’; the participants claimed that after the workshops they had developed the notion that health includes subjective experiences.

As interviews provide more space to elaborate on issues than questionnaires, the broadening of views on health and a healthy environment we identified may have been the effect of these different research methods before and after the workshops. Moreover, there was a time gap between workshops and interviews. However, as the respondents explicitly and rather unanimously claimed that the workshops changed the way they viewed health and health-relevant environmental factors, it does seem plausible that their participation in the workshops at least partly had this impact.

Our second research question concerned the level of perceived and actual agreement about views on health and healthy environments. The stakeholders in the workshops perceived a high level of agreement concerning their views on health and healthy environments. However, looking more closely at specific dimensions of a healthy environment we found a discrepancy between this perceived degree of consensus and the degree to
which the actual content of their views match. There were meaningful differences between participants on what environmental aspects were important for the community’s health, and what issues should be addressed in an adapted plan. Instead of creating absolute consensus, therefore, the workshops might have created ‘a sense of consensus’ among stakeholders.

Thirdly, we looked at factors that promoted or hindered consensus-building in the perception of the participants. Promoting factors included smooth organisation of the workshops, space for all participants to express and exchange views and interests and a high level of trust among participating stakeholders. Moreover, the topics health and healthy environment were considered as non-threatening topics that everyone can connect to. Perceived barriers for consensus-building included hidden interests and poor communication by national stakeholders, and different mental models, or ways of thinking, related to the different positions of various stakeholders and the roles they have to play. However, these factors apparently did not block the process of reaching agreement between all stakeholders.

Lessons learnt

The case provides several lessons. First of all, the participants felt that the workshops provided an opportunity to actively participate in the policy-forming process. However, the workshops were organised after the actual EIA had been carried out and time constraints caused discontinuity in the composition of the stakeholder group involved. For the same reason the residents were a minority in the workshops. The level of participation, in any case for the residents, may be considered relatively low, and could be labelled ‘consultation’ (Arnstein 1969) or perhaps ‘advising’ (Edelenbos & Monnikhof 2001). Despite this, the process seems to have had an impact on policies; instead of a narrow focus on noise reduction in the mitigation plan, community concerns and needs, for example, connectivity and safety were also discussed, leading to alternative, more expensive, mitigation measures. This case should therefore be viewed as a first step towards more meaningful participation in a national setting where this is currently absent.

The second lesson is that health is a topic that has the potential to connect different stakeholders; everyone can understand and relate to the value of health, both for individual residents and for society at large. The focus on health and a healthy living environment brought up issues that had been neglected in the EIA procedure, in particular those issues that are not catered for in the regulatory framework for EIA, such as well-being and neighbourhood connectedness. The focus on health also provided the local stakeholders, including residents, with a legitimate reason to strengthen their engagement in the policy process. Reinforcing local stakeholder engagement links up with the concept of a participation society: if citizens and other stakeholders are to take greater responsibility for the well-being of everybody, they should also be allowed to play a more active role in decision-making.

The third lesson concerns the role of learning in stakeholder engagement. Stakeholders stated that they gained new insights and broadened their views. But, more importantly, this learning process was an opportunity to deal with differences in stakeholder roles, frames of mind and personal preferences. The workshops seem to have served as a (collective) learning mechanism, containing three important elements described in the theory of experiential learning (Kolb 1984). First of all, a process approach was applied, in which knowledge was not only transmitted (lectured) but also developed (creating a joint vision) and applied (case application in the project). Secondly, the learning took place in, and was explicitly linked to, a social context with different stakeholders, where all participants were encouraged to share their expert or lay knowledge with one another. Moreover, the learning was linked to a wider social environment, i.e. the policy arena where decisions about infrastructure development were made. Or, in Kolb’s words, a transaction took place between objective conditions and subjective experience (Kolb 1984). Thirdly, the transmission of knowledge apparently also changed the participants’ perceptions of reality, opening up new ways to look at and reflect on health issues in relation to the environment. Such social and organisational learning processes are not only vital for individual cases such as the one we studied, but in a broader context they are also meaningful for the further development of EIA ‘culture’ (Morgan 2012).

The fourth lesson relates to the gap between perceived and actual consensus. The joint learning experience described above seems to have been important as a means of creating a ‘level playing field’ and space for all stakeholders to express their views. Lay and local knowledge and personal experiences were acknowledged, and combined with ‘expert’ knowledge. The shift towards ‘subjective’ experience in the way participants defined health shows the impact of this process. This exchange, combined with the mutual trust and respect experienced by stakeholders, apparently resulted in the creation of a ‘sense of consensus’. This may by itself reduce conflict; empathy, understanding and empowerment are important elements of stakeholder involvement in environmental problem-solving (Ducker & Morgan 2012). However, a ‘false’ impression of joint visions can also pose a risk of stakeholder disappointment, as the resulting expectations might not be met in further planning and implementation. It would be a mistake to presume that deliberative processes are essentially beneficial to everybody; power imbalances and unequal access to information cannot always be solved in the stakeholder engagement process (Negev et al. 2013); this must be taken into account and addressed.
before genuine and inclusive deliberation can take place (Abelson et al. 2003). Cuppen et al. (2015) argue that acknowledging and accepting different frames of thinking and mind-sets is an essential requirement for fruitful public participation, and for local communities to voice their concerns and be heard. The participants in the HIS workshops did clearly recognise different roles or positions, differences in information access and related mental models. ‘Frame reflexivity’, explicitly identifying these differences, would have made sense from the participants’ point of view. The two ground rules of the HIS workshops that worked so well to create a sense of consensus should therefore be amended by a third ground rule: the agreement to disagree.

Further research

As a pilot for further research, this evaluation of the HIS workshops shows that it is worthwhile to apply a PAR approach in studies about stakeholder participation in EIA. PAR empowers stakeholders to communicate and cooperate and it promotes collaboration across sectors (Rice & Franceschini 2007). The PAR approach directly contributes to practice, enabling action and learning processes by continuous assessment and feedback, and should therefore be an integrated stream in the whole process (Wagemakers et al. 2010). In this specific case researchers and local practitioners cooperated closely, acknowledging each other’s expertise and knowledge, in developing methods and concepts for the workshops, empowering local practitioners to carry out a fruitful project and carrying out the research activities, both during the workshops and later on. The PAR approach thus reflects the value of participation in EIA in general: the researcher practises what (s)he preaches.

Further research should focus on deepening our understanding of the role of (joint) experiential learning in the effective engagement of residents and other stakeholders. We also need to learn more about the handling of differences in positions, opinions and interests. Moreover, as this case concerned only the scoping stage, experiments including other IA stages are needed to develop a more comprehensive insight into how to attain better inclusion of stakeholders in EIA and to respond more appropriately to (health) impacts and community concerns.

Acknowledgements

The authors would like to thank Liesbeth Claassen and Hanneke Drewes of the National Institute for Public Health and the Environment, the Netherlands, for their critical comments and helpful advice.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the National Institute for Public Health and the Environment (RIVM) [grant number S/015026/01/CS].

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References


### Appendix 1. Code book (final version)

<table>
<thead>
<tr>
<th>Code family: definitions of health (research question a and b)</th>
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</thead>
<tbody>
<tr>
<td>Physical condition (health defined by physiological status) (1,2)</td>
<td>Mental condition (health defined by (perceived) psychological status) (1,2)</td>
</tr>
<tr>
<td>Social condition (health defined by (perceived) amount of social interaction and sense of social isolation and feeling of loneliness) (1,2)</td>
<td>Sense of wellbeing (health defined by (perceived) general feeling regarding one's life and existence) (1)</td>
</tr>
<tr>
<td>Environmental interaction (health defined by (perceived) ability to function within one's environment to satisfy wants and needs) (1)</td>
<td>Spiritual wellbeing (health defined by spiritual fulfilment and a sense of purpose) (1)</td>
</tr>
<tr>
<td>Autonomy (health defined by (perceived) ability to make decisions on changes related to one's life and environment) (9)</td>
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<tr>
<td>Free of diseases and risk exposure (health defined explicitly as (caused by) the lack of diseases and health risk exposures) (9)</td>
<td>Health is subjective (health defined as a subjective experience and different for each individual even with similar contextual factors) (9)</td>
</tr>
<tr>
<td>Health is totality (health defined as a complete and/or integrated state of being with a combination of different components or aspects) (9)</td>
<td>Other health defining elements (not confirming to the definition of other elements) (9)</td>
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<table>
<thead>
<tr>
<th>Code family: elements defining a healthy living environment (research question a and b)</th>
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<tbody>
<tr>
<td>Social and cultural (vibrant, harmonious and inclusive communities) (3)</td>
<td>Governance (effective and inclusive participation, representation and leadership) (3)</td>
</tr>
<tr>
<td>Environmental (providing places for people to live in an environmentally friendly way) (3)</td>
<td>Housing and the built environment (a quality built and natural environment) (3)</td>
</tr>
<tr>
<td>Transport and connectivity (good transport services and communication linking people to jobs, schools, health and other services) (3)</td>
<td>Economy (a flourishing and diverse local economy) (3)</td>
</tr>
<tr>
<td>Services (a full range of appropriate, accessible public, private, community and voluntary services) (3)</td>
<td>Other elements of a healthy living environment (9)</td>
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<tr>
<td>Healthy living environment is totality (a combination of various aspects) (9)</td>
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<th>Perceived general level of similarities on relevant aspects of healthy living environment by participants (9)</th>
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<td>Perceived similarity housing and the built environment (3)</td>
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<tr>
<td>Perceived similarity environmental (3)</td>
<td>Perceived similarity economy (3)</td>
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<tr>
<td>Perceived similarity public and commercial service (3)</td>
<td>Perceived similarity transport and connectivity (3)</td>
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<td>Perceived similarity governance (3)</td>
<td>Perceived similarity other elements of healthy living environments (2)</td>
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<td>Compatible mental models such as culture, religions, social function and role (4,5,8)</td>
<td>Compatible personalities and emotions, and behaviours (8)</td>
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<td>Compatible interests (4,6)</td>
<td>Compatible information access and interpretation (4,5,7)</td>
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<tr>
<td>Compatible decision making mechanisms (6,7)</td>
<td>Compatible strategies to cope with power (6,7)</td>
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<tr>
<td>Significant amount of trust and insignificant amount of distrust (7,8)</td>
<td>Other contributing factors (9)</td>
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<td>Incompatible interests (4,6)</td>
<td>Incompatible information access and interpretation (4,5,7)</td>
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<td>Recommendations on GBB workshops (9)</td>
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### Sources:

9. Based on data content (open coding)