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Local participation in complex technological projects as bridging between different communities in Belgium

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Local community participation in complex technological projects, where technological innovations and risks need to be managed, is notoriously challenging. Relations with local inhabitants easily take the form of exclusion, protest, controversy or litigation. While such projects represent opportunities for creating knowledge, business or societal benefits from the perspective of the community of driving actors, they often represent a potential threat to health, safety or prosperity from the perspective of the community of people who happen to live near the facilities. What are the challenges in dealing with this difference and which practices are helpful in bridging this gap? In this paper we analyse the functioning of an organised group of local inhabitants in the development of an Enhanced Landfill Mining project in Belgium where previously landfilled waste is going to be used for recycling and energy production. We find that setting up a multi-actor platform, organising a group of involved locals, combining formal and informal communication channels, maintaining a mutually credible dialogue and involving knowledgeable local people as bridging figures are important ingredients to bridge the gap in this case. We also discuss the emerging challenges of local community participation for all actors involved and especially for the organised group of 'Locals' who risk to become a victim of its own success by being incorporated too much in the project consortium and leaving a new gap to be bridged with the rest of the local community.

Keywords: local community; community participation; stakeholders; waste disposal; Belgium

Local community participation is considered an important challenge for complex technological projects. Indeed such projects present important economic, social and ecological opportunities as well as threats that are distributed and perceived differently among the stakeholders. There is often a distinction between a community of interested stakeholders, and a geographically defined community of local stakeholders. The interested stakeholders are driving the project and tend to mainly look at the opportunities. The local community members become part of the project only because they happen to live near the site where the project is planned. They generally don't feel in control, lack information, and tend to look more negatively at the project, seeing mainly the risks and disadvantages. In such a context, bridging between these two types of communities is necessary and challenging.

This article is based on a longitudinal follow-up study of an organized group of local inhabitants (the Locals) that has become actively involved in the case of a so-called Enhanced Landfill Mining project (ELFM) [1]in Belgium. We will analyse what can be learned from this experience about local community participation and the bridging function of an organized Locals' group between the interested stakeholders and the local community. Technical engineers look very differently at opportunities and risks than financial managers, economic advisors or investors, and these will yet look very differently than local inhabitants. Each of them reflects differently upon particular problems and probably their reaction to specific solutions differs considerably. The question then is how to organise meaningful interaction between all these different stakeholders.

In the first part of the article we give an overview of the literature on public participation in complex technological projects. The focus is on the bridging function between different interested and geographical communities of actors. In the second part we analyse the case of an organized Locals' group involved in an ELFM project in Belgium. We first describe the antecedents, the local context and the most important actors in this case. We then focus the analysis on the interactions and activities of the Locals that have taken place since a research consortium was started up, under the initiative of a private company and in collaboration with the regional government and university researchers. In the last part we propose some learning conclusions for the different actors involved in complex technological projects about the involvement of local inhabitants. We will point to the bridging potential as well as to the pitfalls of an organised Locals' group.

Conceptual framework

Multi-actor governance and the involvement of local communities

Complex problems in which innovative technology and the sustainable management of resources are at stake, pose serious challenges in terms of governance for business, government and civil society actors alike (Frame 2008). Classic top-down management turns out to be inadequate and much of what is known from organisation theory is overruled by challenges that are fundamentally inter-organisational in nature. Because of the complexity and ambiguity of complex sustainability problems, solutions can only be reached by crossing the boundaries of one's own organisation and reaching out for insights, meanings, and commitment of other players involved (Gray 1989; Huxham 2005). As each of the actors is framing problems from their own partial perspective, they are interdependent to reach satisfactory integrated solutions. The awareness of this interdependence is the starting point of any inter-organisational collaborative effort. However, there are no clear-cut recipes available. Especially the question of how to involve the local community in a promising yet potentially controversial endeavour like ELFM depends on a lot of situational particularities. It seems that each project requires a tailor made design and implies a learning process in which the stakeholders engage in a joint story, often of a highly adventurous nature. It is not uncommon in complex projects where technological innovation and risks need to be managed that relations with local inhabitants end up in exclusion,

disinformation, protest, controversy or protracted litigation (Craps 2000; Wiedemann and Femers 1993).

In studies on public policy the term participatory governance (Fung 2003; Fischer 2006) has been coined a lot for the widespread incorporation of citizens' voices into complex policymaking processes. Participatory governance brings new actors into incremental decision-making processes; citizens deliberate over and vote on the allocation of public resources and the use of state authority. As scholars turn their attention to questions about the role and nature of participatory governance, there is a growing body of evidence that co-governance processes are producing some of the desired outcomes: decisions about the allocation of public resources are being made by citizens in public venues; implementation processes are more transparent; citizens are learning about how the state functions and how to leverage some of its authority to meet their goals; citizens are forging ties to each other that help them to expand their ability to mobilise (Wampler 2011). Participatory governance thus involves a substantial process of passing competencies to communities, neighbourhoods and citizens. This can take quite different forms, as Wiedemann and Femers (1993) show with their public participation ladder in the context of waste management. Similar to Arnstein's (1969) ladder of participation, they identify increasing levels of public participation in the following sequence: public right to know, informing the public, public right to object, public participation in defining interests and determining the agenda, public participation in assessing risk and recommending solutions, and public partnership in the final decision.

Complementary to the rather top-down notion of participatory or democratic governance is the more bottom-up concept of community governance. Community governance concerns collaboration between public, private and non-profit sectors to achieve desired outcomes for a jurisdiction, be it a neighbourhood or a whole local government area (Smyth 2005). Political scientists such as Robert Putnam (1993) stress the need for strong 'social capital' and the importance of a 'civic community' for a democracy to work well. An effective community also monitors the behaviour of its members, rendering them accountable for their actions (Bowles 2002).

Although the community level is stressed as important, it is not very clear what exactly is understood by the community. Chisholm & Dench (2005) report that there is no single agreed definition of community and identified not less than 94 separate definitions. However, the research shows that there are a number of characteristics which in varying degrees determine peoples' understanding of community. Examples are the presence of key facilities such as shops, schools, places of worship, unique topographical features and other characteristics which make people think of an area as 'their place'. According to Rudkin (2003) a distinction has to be made between these 'geographical communities' and 'relational communities', or in other words between 'communities of place' and 'communities of interest'.

Communities of interest are based on the identification with a common interest by establishing meaningful relationships among the members. Such a community, like a research consortium in ELFM, is formed because the members have a shared interest in being part of the project, they

have competencies to contribute to it and expect benefits from it. Although communities of interest can include a range of different actors, Wenger (1996) explains how people can 'grow into a community' as they become socialised as members of communities of practice in working life. In this way they acquire and co-generate shared codes, rituals, knowledge and skills. As a consequence they tend to become internally homogenous and need peripheral learning and bridging mechanisms with other communities.

Geographical communities are based on identification with a common place of daily living. This shared place may favour meaningful relationships among (certain) inhabitants, but does not necessarily lead to one community of interest. Unlike communities of interest, local geographical communities are not part of a project like ELFM because of an intentional choice. The issue of a new project like ELFM is an additional element in the long and complex local history. Most probably there will be defenders and opponents, following and strengthening division lines of older conflicts. A local community can thus be considered as a multi-actor setting in itself, with a strong internal diversity of informal groups and formal organisations. The contrast between homogenous communities of interest and heterogeneous geographical communities must, however, be relativised as the former also have to deal with internal debate and conflict, while the latter can also evolve to a more homogenous stance towards a new issue, like ELFM. In this case study we will analyse the experience of an organised Locals' group that operates at the boundaries between a community of interest (the ELFM consortium) and a geographical community (the people living near the ELFM site).

Despite the dominant positive attitude toward participatory and community governance in the current day literature there are also critical concerns that have to be taken into account. An important concern relates to the question about the accountability of groups in partnership bodies that are appointed or self-created in representation of the local community without being elected. The main issue then is how such partnership initiatives operate at arm's length from the processes of representative democracy (Sullivan 2002). Similar questions of accountability and legitimacy can also apply to community leaders involved in collaborative arrangements and consultative bodies. Taking in such a position not only requires social skills but in order to be effective it demands also some kind of 'social contract' that can provide a clear mandate from both the community itself and the political establishment.

A critical view on community governance is formulated by Mowbray (2011) who argues that what is represented as inclusive and empowering community engagement is often in fact about containment and control by the interested parties over the local community. The question about participatory governance then becomes how to make sure that the process effectively allows shared decision-making between all stakeholders, including local communities and genuinely contributes to more social justice. Phillips (2006) has shown that the community building agenda is often not so much driven by governments but by non-governmental actors and by communities themselves. This means that citizens have to stand for their own rights. However, citizens face the challenge of getting organised as stakeholders in order to be represented in a multi-actor collaboration and to participate in policy making. In some cases, this leads governments to stimulating capacity building (Sips 2007; Wynants 2009). Wampler and McNulty (Wampler

2011) write that it is important to help citizens organize themselves and 'work through confusing policymaking processes'. Local universities are often referred to for playing a key role in providing the technical leadership needed to keep participatory venues active. The collective of stakeholders needs to take up responsibility as a collaborative task system to help organise those stakeholders that are not or 'under'-organised (Lambrechts 2010). But not only local residents, also other actors like local governments or companies, come 'to the multi-actor game' without much preparation, nor the capacity or structures to follow up on the project in a systemised way (Taillieu 2006). In sum, based on the above insights, both company and local community, as well as other actors, like the local government, need to prepare and do their homework.

Bridging knowledge communities

One of the reasons to involve stakeholders, local residents or the public at large in complex projects is the increase of knowledge for the betterment of a change effort or an innovation. Another reason has to do with risk management. Citizens expect and want to be able to prevent any risks that complex technological projects might bring. Bergmans (2008) states in this respect that the difficulty in engaging experts and lay people in meaningful communication on the subject of risk (or a particular risk situation) cannot simply be overcome by raising the level of (scientific) knowledge on the side of the public. As argued by Rowan (1994), a purely technical approach to risk situations will not suffice, but a purely democratic approach focusing only on political and procedural fairness will not be sufficient either. Different actor groups use a different kind of rationality, a different way of dealing with knowledge and interpreting (factual) information. In other words, they adhere to different social systems, and, accordingly, have developed different ways of framing the problem and the notion of risk in general. A big challenge therefore lies in developing mutual credibility in the communication about risks between the different involved communities (Rowan 1994).

Brown (2005) developed an approach to the distinctive knowledge bases that are typically involved in natural resource management decisions, which have since been applied more generally to decision making at the local level:

- Local knowledge (local lived experience, place-based knowledge);
- Specialised knowledge (expert knowledge and interpretations, scientific disciplines);
- Strategic knowledge (functioning of governance systems, planning, administration and management);
- Holistic knowledge (shared purposes and ways of synthesizing, working across cultures and other knowledge systems).

She argues that active collaboration between people from the four knowledge cultures is vital to achieving successful engagement in regional decision-making. According to her this implies long-term alliances among people from the different cultures and their organisations that go beyond the consultation needed for immediate purposes (Brown 2001). Ragas (2013) points out that different resident groups are well able to collect and interpret scientific knowledge through

internet and raise critical questions about it where needed. The interests and stakes that concern them make them critical observers of existing information indicating knowledge gaps or flaws in reasoning. As such stakeholder groups seem to be cut out for identifying the missing pieces in environmental questions.

In order to advance innovative projects, sufficient, clear and transparent information towards the public is crucial, including information about the remaining uncertainties. This is of course not a guarantee for public support. Bergmans (2008) states that 'an elevated level of knowledge combined with a strong sense of lack of control over a decision forms a solid basis for risk-consciousness' (Bergmans 2008: 180). It is not because one knows more that one necessarily feels safer; often to the contrary. Although this by no means justifies that the public should be kept ignorant, it may explain why interested parties are often reluctant to communicate openly.

It can be argued that the more stakeholders are involved in quality control and safety checks the more rigorous the tests will be, as there is more social control upon data gathering and interpretation of the findings. Beecher (2005) argues for collaborative research involving not only scientists but also other stakeholders with local experience, in the case of biosolids management. Of course such a mode of operation requires considerable time and effort and demands transparency and trust. Often such process profits from a convener who mediates and facilitates dialogue among the parties involved. Such role can be taken up by governmental bodies, being it the local commune, the province, or regional or nation state. It is in line with the new forms of governance in which additional roles are required from government, besides the classical ones of law enforcer or expert (Termeer 2012; Hovelynck 2010). When governmental agencies are also involved themselves, consultants or other professionals external to the project and the multi-actor network can act as process facilitators and help the convener to mediate between the parties involved.

In sum, while complex technological projects represent opportunities for creating knowledge, business or societal benefits from the perspective of the community of driving actors, they often represent a potential threat to health, safety or prosperity from the perspective of the community of people who happen to live near the facilities. What are the challenges and which practices are helpful in bridging this gap between the communities involved? We intend to address this question in our analysis of the ELFM project.

Method

Case study

The ELFM Consortium is a group of interested actors brought together by a local, family-owned, private company, managing a large landfill. This happened in close cooperation with an engineering scientist who is a research manager at the University. The first conversations with other scientists and other interested parties happened in the first half of 2008 (Craps 2011). At the outset, the group consists of scientists from different disciplines (applied sciences, metallurgical and chemical engineering, geology, bio-engineering, economics and human sciences) belonging

to different research centres and universities, government officials (from the Public Waste Agency), industrial partners and investors, and representatives from the initiating company.

Later on, a representative of the local community in the vicinity of the studied landfill site was also invited to the consortium. The group has also been extended with a biodiversity researcher for the topic of nature conservation, and with a bio-engineer – toxicologist, specialised in environmental health. The involvement of additional disciplines and research topics within the ELFM consortium shows how science is based on progressive understanding and illustrates the complex and multi-faceted nature of the subject matter.

Historically, the landfill site has been operational since the early 1970s. The site covers an area of 130 ha and is situated in the direct vicinity of three villages. A residential area of old coalminers families, mostly from Belgian, Italian and Turkish origins, is located close to the site. The landfill is surrounded by an old coal mine slag heap, a military training area and an important nature reserve, which is within a European protection zone of birds- and habitat guidelines. The technical details of the CtC^2 case and the ELFM principles and technologies have been extensively documented and discussed elsewhere (Jones 2013; Jones 2011; Geysen 2009).

Data collection and analysis

The authors of this paper are involved in varying degrees in the case under study: the first author as consultant facilitating the interactions between the Locals and the consortium, the second author as action-researcher supporting the organisation of the consortium, and the third author as a more distant yet interested researcher in multi-actor governance issues. The analysis is based on detailed minutes and video tapes of the main meetings of the consortium with the Locals, repeated interviews and focus groups with key actors of the consortium and the Locals' group, written documents and local press articles concerning the relationship of the local inhabitants with the CtC project. All these documents concern the period of more than 5 years, from the start of the consortium until now. The historical antecedents of the contacts and conflicts between the company and the local community are also well documented through the personal archive of the leader of the Locals[3], and through retrospective conversations with various persons. Part of this information has already been analysed in a systematic and thorough way with the use of NVivo software for qualitative data-analysis and was presented in earlier reports (Van Nieuwenborgh 2009; Verdegem 2012). These exploratory studies have pointed to the importance of the Locals' group for the ELFM CtC project, raising new questions like: what is precisely the bridging function of the Locals' group, how can this bridging be supported and what are the challenges ahead?

Case analysis

The organisation of a Locals' group

As in many villages in Belgium at that time, a municipal landfill was present in the case study area already since the early 1970s. Over the years the exploitation was sold a few times before it came in the hands of the company that actually owns it. With the passing of time, the landfill

operation had grown bigger and started also storing industrial waste. Currently it is one of the three major landfills in Flanders, the Northern part of Belgium, which can still accept industrial waste streams. As the local community in the surroundings of the site has often been plagued by stench and the hindrance of heavy traffic, manifestations and other forms of resistance by action groups have occurred in the past. The region was known and referred to by the public as 'the waste bin of Flanders'. Heavy protests against presumed infiltration by leakages, dirty water spilled over to neighboring country roads, tracks and streamlets, fueled local discussions and political debates. This lead to investigations of the environmental problems related to the landfill. One of the key players in the history of protest and debate was asked to represent the local population in the ELFM consortium in 2009. It is the same person who later on started the Locals' group. Several of these Locals were still very critical in the beginning, and skeptical towards the company and anything it would plan to undertake.

The leader of the group however made a switch towards a more constructive and dialogical stance regarding the troubles related to the landfill. His vision was that one should first of all be open towards facts and knowledge as to understand for oneself what is going on, and not base one's judgment on hearsay. Following that switch, several members of the Locals' group joined the quest for knowledge and started studying the information provided by the ELFM consortium.

The Locals thus form a local community group of concerned citizens from the villages surrounding the landfill. Although some of them might know one another from before, they have first met as a group and made more profound contact in 2010 for the occasion of a First International Symposium on ELFM organised by the ELFM-consortium and the company operating the landfill. The reason of inviting these people was to inform the local population. Through their participation the Locals' group could get first-hand information. Members of the Locals come from all segments of the population, reflecting a wide diversity of backgrounds and knowledge. All 'Locals' participate on a voluntary basis. From their website, the 'mission statement' of the Locals sounds as follows:

> *…the Locals aim at closely following-up on the EFLM project. They are informed first hand by means of scientific reports, research results and evidence presented in contacts with researchers and scientists. Thereby they obtain sound answers to the questions and concerns that live among the population.*

The Locals project can be seen as an interactive process between the ELFM consortium on the one hand and the local residents on the other hand. The ELFM consortium invests in the functioning of the Locals, by delegating researchers to present their research results and to answer questions. The involvement of the local population in ELFM project is also a research interest in itself for the authors as social science researchers in the consortium. The Locals invite researchers from the consortium, the project manager or other managers or staff from the company, or any other specialist with a particular expertise regarding the topics they like to discuss. The meetings are prepared by the Locals spokesperson and the external facilitator, the first author of this paper, in collaboration with the company project leader. Besides technical issues, the Locals like to receive first hand information from the company's representatives about

their timing, views and plans on setting up the project. This leads to a rich exchange of ideas, discussions about points of view, whereby the reasons behind certain technical or strategic choices are explored. One of the ways in which the Locals organise themselves is by working groups. These discuss and work out different elements such as a poster presentation for the 2010 ELFM conference, a Q&A list by and for local residents, translation of insights from articles from English to Dutch, an explanation of technical terms, a review of an introductory presentation that was made about the Locals and ELFM, the preparation of a Locals symposium, etc.

Position, identity and evolution of the Locals' group

The participants in the Locals' group see themselves as interested individuals, in search of the benefit for 'their community'. As indicated before, the group was formed on the occasion of an invitation to attend the first ELFM symposium, where they were considered as representatives of the local population (hence the name Locals), but they never got any formal mandate to represent the local population[4]. Neither have the Locals any decision making authority concerning the CtC project. It is through the meetings of the Locals' group and their contacts with the company that they represent and defend their interests. They are not in a position to give any formal approval to the project. There are legal procedures at the level of local and regional government for that purpose. According to the participation ladder of Arnstein (1969) the questions and arguments by the Locals can be regarded as 'consultation', which is a limited form of public participation. Or in terms of Wiedemann and Femers (1993) the level of public participation concerns informing the public and the public's right to know.

By engaging in interaction and communication with the Locals, the company gets to know the expectations and concerns of its neighbours. By doing so the company as well as the consortium wants to learn about the perceptions of local residents, getting public support for the project and about strategies and good practices to involve local inhabitants. For the company the Locals form a communication channel and a source of knowledge and experience to take into account as to implement the project with maximum support. In terms of stakeholder management it is an attempt to go from a so called 'buffering strategy' towards a 'bridging strategy' (Freeman 1984). For the consortium it is also a matter of developing expertise about the social dynamics and intervention methods for complex technical projects such as ELFM. If later on the ELFM concept is to be applied elsewhere, also the knowledge about social issues and participation can be exported and become capitalised upon.

Whereas in the beginning the meetings of the Locals were almost always jointly organised by the Locals representative and the company, over time they became more independent and have started to function more on their own. Representatives from the company are not permanently part of the meetings but are invited depending on the agenda. Through their organisation, the Locals have developed their own group dynamics and friendships, tasks division and coordination etc. The representative of the local population in the consortium is the driving force behind this strong identity of the Locals project.

Recently, the group has expanded with new interested members joining in. This enlargement was triggered by a public information session that was held at the local cultural centre. As it appeared that evening, several other people were interested in the case too, and often their voice sounded much more critical. One person present when standing up to raise a question explicitly stated 'I am also a local', indicating that this term could not be used exclusively. As a result of that evening, all the main interested parties from the consortium, as well as the local authorities and the Locals' group themselves intensified their thinking about a broader communication strategy. An open invitation to join the Locals was sent out and about 8 newcomers stepped in, bringing the group to a total of about 20 members.

Activities of the Locals in the ELFM project

The Locals' group have formally met about 11 times during the last 3 years (between the summer of 2010 and the summer of 2013). In between there are informal contacts among them. At their meetings, the Locals get first hand technical information from scientists and representatives from the company. Besides they talk about their own practical organisation and functioning.

If we look at the history of the ELFM project concerning the involvement of the local community in general and the functioning of Locals' group in particular, there are a few important milestones worth mentioning. At the end of 2011, when the Locals were meeting for about a year, a study trip was organised to the facilities of a test installation for plasma conversion in the UK. The idea for this visit came to birth at the poster sessions of the First International ELFM conference in 2010 where the Locals and their representative got acquainted with the UK company and their plasma technology. With support of the Belgian company that initiated the CtC project for their landfill, the entire Locals' group, together with civil servants and an elected official from the village, and some members from the ELFM consortium got an invitation for a dinner workshop with technical presentations and Q&A, as well as a visit to the plasma test installations. Through this visit the Locals could see with their own eyes what the plasma technology was all about, which led to an extension of (especially the answers on) their Q&A list. From then on their focus could shift to other aspects of the ELFM concept, as if they were moving towards a next step in the development of their technical expertise, more towards the practical operational aspects of the actual mining of the landfill and the hazards and health risks related to it. Besides, the trip had a community building effect and also fostered informal contacts between Locals and the company.

Another breakthrough can be seen in the organisation of a Locals Symposium as part of the 2013 ELFM conference, in an attempt to involve the local community in this international scientific event coming to their town. The symposium opens the doors for the Locals to participate in the event, offering the opportunity not only to acquire scientific knowledge first hand at the academic conference but also to ask questions and discuss concerns with their neighbours and fellow inhabitants. It is an acknowledgment for the Locals and their efforts, which has made them at the same time proud as well, becoming more aware of their bridging role in the ELFM project. The preparation of this mini-symposium was done by a task force of interested Locals and has augmented their activity and meetings, giving a boost to their group identity. Through a well organised communication campaign, the Locals themselves reached out to the rest of the

community, announcing their Locals symposium by placard, brochure, website, and in the local municipal newsletters.

The project as a great opportunity versus a potential threat for the local population

Both the researchers from the ELFM consortium and the company are quite enthusiastic about the CtC project. They try to create a positive and dynamic atmosphere around it. For the local community this fuzz about the potential and advantages of ELFM for a more sustainable world, be it regionally in their province or globally, is not their major concern. All the 'good news' about the technical possibilities and breakthroughs is not what they primarily care about. Neither do they become much convinced of the value or relevance of the project by the arguments of politicians who see it as a cleantech spearhead for their province. When everything seems to be straightened out, and all actors get aligned, the local population simply doesn't share the enthusiasm. Why not? After all, 'waste remains waste', the Locals argue, certainly at the outset when a landfill is reopened. It is true that collaborating in a project that is judged positively in society, is more satisfactory than when the project has a negative image. But still, the local community is suspicious. The positive atmosphere and the hype around ELFM doesn't mean so much to them. What they care about is their own local situation and especially health issues and concerns about nuisance. These are also the main issues they have lived with so far concerning the landfill site. For them transparent communication about the project to the community counts. All our information sources confirm that the Locals prefer receiving information from scientists. In comparison to the industry, the scientific world has far more credibility. It is interesting however to note that the research agenda of the consortium initially was restricted to analyzing the general (global) advantages and opportunities as well as the costs and benefits for the company. But it was only after involving a local representative in the consortium and organizing a public hearing, that local concerns were incorporated in the research agenda.

Formal and informal communication channels

Communication in multi-actor settings contains formal and informal elements. An important aspect of informal communication which is paramount for building trust is personal contact. The intensity and frequency of the Locals meetings and their encounters with people from the company and the consortium encouraged this. Locals meetings provided an opportunity for the Locals and the company representatives (like the CtC project manager and the operations director of the landfill site) to interact with one another. Also the study trip to the UK was a significant moment in this respect. Not only was there a lot to learn on the technical side, also could one get to know 'the person behind the function'. In an English pub the Locals could talk about the history of their local situation more easily with representatives of the company. The physical distance helped them to feel closer to each other. Genuine personal contacts also grow over time. The involvement and openness of the project leader from the company and of the coordinator and researchers from the ELFM consortium appeared very important to establish rapport with the Locals. The presence of a clear spokesperson from the side of the company as well as from the side of the Locals, who had continuous and fluent communication, was an advantage. Continuity in that sense is also important as participation requires trust in one's own people, and in people with whom one has established relationship. Especially for the spokesperson of the Locals, it

took some adaptation to find himself in front of new faces and 'colleagues' at the other side when some management changes took place within the company.

The media play an important role in communication for the Locals, as well as for the company and the other actors of the consortium. Each of them has his own preferred contacts and channels to the media, be it local, or regional/national media. Besides newspapers, also magazines have addressed the topic of ELFM and the CtC project. All the involved actors have different experiences with the press, and they all search to involve them in the best possible way to advance their point of view and serve their interests. As the media also happen to have an agenda on their own, the Locals have learned that (local) newspapers are not necessarily the best information channel. They also learned to distinguish between different types of information and communication, meaning that superficial information by daily newspapers is not very helpful for clarifying difficult discussion issues. For such subjects communication through direct dialogue is preferable.

The bridging function of the Locals

The Locals' group functions as a liaison between the local community and the CtC project. They are a gateway to the local community but they cannot replace the entire population. Although they are not an unbiased sample of the local community they represent to a certain degree the variety of the broader community, in terms of age, gender, ethnical background and other demographic characteristics. But they are not elected by the local community to represent their interests and concerns. The Locals are well aware of their position and the limitations of their representational function, and organise their activities also in this realm. It is rather the company and the rest of the ELFM consortium that need to be aware not to confuse, interchange or equal the Locals with the entire local community. Even if there is an organised group such as the Locals, the task of stakeholder management is not automatically fulfilled therewith. The question remains how to communicate with all other inhabitants and to involve them to an appropriate degree, in relation to what other stakeholders such as for instance the local authorities do. The mayor's office also plays an important role in the distribution of information for the common good and public well being. The local municipality will organise a participation platform in which information is shared. The functioning of this platform was put forward as a condition for the environmental protection plan and for the permission to build an extension to the current landfill.[5]

Representatives of a local population need to be knowledgeable and respected people. If discussions get to endlessly repetitious arguing, they can take over. They function as two-way 'communicative bridges', to their fellow inhabitants as well as to scientific experts and officials, although the former is more salient in practice. In the Locals' group members have quite different backgrounds, but most have some basic technical knowledge. In some cases people work or have worked in the waste or recycling industry or in related sectors. For instance one local who worked in the company played an important role in bridging between the experts and the other members of the Locals' group, as he could respond to both 'worlds'. Mostly such group members who know the sector from the inside, take a critical stance as knowledgeable citizens, rather than as defenders of the industry. For the former employee, having worked in the company did not

mean that he would approve with all of their positions or actions. Similarly he could be critical to certain questions or presumptions raised by fellow members of the Locals' group while at the same time contributing to the discussions within the group. From his background and experience he could often bring in a realistic point of view. This made it possible to fully explain certain details, make the discussions sometimes very specific and avoid that people get to speculate or fantasize about how the work and technical processes actually take place. It provided a very factual common sense description of how the waste site is operated and controlled.

Discussion

Bridging without leaving the bridge

As mentioned above, the Locals function as a bridge towards the broader local community in the surroundings of the ELFM project site. The question for them is: how can they best organise themselves to fulfil this bridging and boundary spanning function? In order to be able to reach out to an audience as diverse as the different citizens and voices in the local community, the Locals need to stay sufficiently diverse themselves. By the fact that they are getting more and more (self-)organised they become more homogeneous and start to work from their own convictions and identity. In that sense it is important to break open every now and then and to bring in new people, new ideas or communication initiatives towards the local community. Enlarging the group with newcomers has been a step in this direction and the organisation of the Locals symposium by and for local inhabitants related to the international conference also served that end.

An important challenge for the Locals is to keep their function well focused and well in between the ELFM consortium and the local community. If they get too closely attached to the consortium and the CtC project, they will be perceived to move too much in the direction of the company, which will create a distance with the rest of the local community. They risk collusion with the consortium and as such to be seen as in-crowd. At the same time it is true that a rift can also develop if the Locals would be drawn back too far solely to the citizens' side and certain negative sentiments that still exist, taking a purely activist position and a confrontational stance. This could lead to a rupture with the company and to losing the connection (and information!) at that end. So the matter is 'not to leave the bridge at either side'. We do consider this to be the responsibility and challenge for all parties involved, so not only the Locals need to manage their position well. Also the local authorities and the researchers in the consortium as well as the company need to contribute to this bridging function from their own positions and roles. Local community leaders and volunteers, should all be able to voice their concerns, just like local politicians and civil servants, the company representatives, academic researchers or regional policy administrations and government officials. It will become important with which mandate the Locals can operate. If they want to represent the local population, some further contracting with other citizens, organisations, and subgroups is necessary. They then need to cover the full range of opinions, not necessarily by incorporating these opinions as their own, but by voicing them. The Locals have established a parallel process with the one dominated by the political parties and they strive for members that act independently from the local political power play. In

this spirit one has to understand their ground rule that they want to safeguard their activities and functioning from political influence. Although politics is everywhere and politicians play an important role, definitely also at the local level, they operate in a different arena and usually also have an agenda of their own.

The need for a multi-actor communication effort

Multi-actor collaboration advances by sharing insights, agendas, expectation and fears among the parties involved. Being clear about one's plans and intentions is helpful to this aim. Each actor should therefore communicate as much as possible from his particular position and role. For the company the Locals' group serves as a communication channel, to transmit information towards the broader local community and to learn from it, they don't replace the local population as a stakeholder. Therefore, other communication channels and participatory structures still need to be brought in place. The local authorities play an important role in this regard. Alignment with them is important for both the company and the Locals. Neither the company nor the local authorities should expect everything from the Locals' group. The Locals cannot cover the whole communication and local involvement strategy by themselves alone. The need remains to inform broadly the lay audience about the status of the CtC project and the strategic concerns with regard to the mining of the landfill as far as it touches upon peoples living environment.

It remains important for the ELFM project to engage in a serious two way communication campaign for which using a media-mix is suggested. By doing so also those local inhabitants who were not there at formal or informal gatherings or study visits can still find the information needed when they have time for it. The videos, Q&A and links to presentations on the CtC website are efforts in that direction. Equally important as the answers are the questions that are gathered by the Locals' group. Communication by a newsletter to the whole community was prepared by the Locals representative, supported by project staff, but was finally withheld from distribution by the company's top management. While there might have been good reasons to do this from a perspective of timing in the context of the project's planning or because of the content or the style of writing of the newsletter, it may be hoped that the idea behind such a newsletter still remains and that the launch of it or of any other broad communication tool has only been postponed.

The complementary role of the local authorities requires further attention in the practical management of the ELFM project and deserves follow-up in further research about the case. The municipal participation platform can try and bring an integration of different information. Scientists will also be important there for the communication. Alignment with the ELFM consortium will therefore be needed. We found that the Locals do prefer and even claim information directly from the researchers in the consortium. This is in line with the findings of Keune, Morrens and Loots (2006) that scientists are the most trusted information source regarding pollution, after the family doctor , while information from the polluter is least trusted (Keune 2006).

It is definitely recommended to use the full potential of local involvement in the safety and health research and the development of a tailor made approach for the CtC project (Smolders, 2013).

The set up of base line measurements offers an opportunity to include social indicators such as trust and attitudes into the research and management of the ELFM case, and it involves the public in advance, long enough before the actual operations will start. The local community may then feel listened to and respected with regard to their concerns and need for information. It avoids a sentiment of being passed by in silence and/or on speed. This may sound overly cautious, democratic and time consuming, but experience has taught that trust is hard to gain but easy to lose.

Interaction with the public requires discussion, training, time and patience

Local inhabitants in general need the chance to express their concerns and experiences and to inform themselves and participate as freely as possible and at their own level of understanding in the on-going debates, considering all aspects of the project, so not only the environmental or health related, but also the technical, strategic and commercial, as well as the timing and planning of the company's CtC project. Ideally it should not matter what their opinion is or how much time it takes. Training and education may therefore be needed as citizens need to gain basic understanding of the policy processes involved as well as the technical matters addressed. Policy makers and other experts also need to be retrained so that they understand how to work with the public. It can be useful to give room for expressing negative feelings about the project and this on more than one occasion. Among process facilitators there is an expression that says: 'disturbances get priority'. To accept again and again the debate and listen carefully to people's concerns demands not only skill but also patience. Even if emotional arguments by inhabitants may be based on technically wrong information, business leaders and scientists need to be aware that the fact that the content of certain critiques may not be justifiable, does not make a person's feelings less real. Even if a point of view can be (technically) countered, the sensation or squabbling will not go away just like that.

Conclusions

The feasibility of complex projects is considered to be not only technical, but also social. Broad support among stakeholders is paramount. One of the important stakeholders to involve is the local population confronted with the practicalities and local impact of complex technological projects. In our case an organised group of local inhabitants and their representative play an important role to put issues on the agenda, enacting the role of challenger. As such they take up responsibility for the local public good, representing not only their own concerns but also those from fellow citizens, in particular about health issues, environmental impacts, the quality of their neighbourhood and nuisance in the case of ELFM. The local group studied combines this challenger and critical observer role with an ambassadorial role to advance the project in terms of popularity and reputation.

Because of their 'proximity' the local inhabitants are more sensitive for the possible threats than the driving actors behind the ELFM project (Driscoll 2004). But at the same time they can play a crucial role as 'critical local experts' to enhance the 'shared value' of the ELFM project especially from a social and environmental perspective. We have demonstrated how an organised

Locals' group plays its bridging function between the community of driving actors (the company in the first place) and the community of local inhabitants. We have observed that the company, because of its high interests in the project, is balancing its stakeholder strategy between a 'bridging' strategy and a defensive strategy of 'buffering' when it comes to dealing with the local community.

Both the ELFM consortium and the company have acknowledged the importance of local community participation, which is needed to advance this particular project and the study of ELFM implementation in general. By investing time and choosing appropriate activities and interventions, trust and public acceptance can grow gradually. The Locals' group can be beneficial for both the company and the local authorities. Together they have a collective and an individual responsibility to inform and involve as many local residents as possible. However the in-between bridging position of the Locals' group is delicate and must be continuously reflected upon. Even when the Locals are supported by the ELFM consortium they have their own functioning, with particular group dynamics, identity and community building effects. As the Locals' group shows its own internal dynamics it evolves towards more cohesion and internal consensus, becoming a community by itself, appealing to people with similar opinions. As we have observed in similar cases in other contexts (Craps 2004) to the degree that the group becomes more homogenous and integrated in the community of driving actors, it risks to lose contact and legitimacy in the diverse local community. Involving new and eventually more critical actors is then a counter-intuitive but necessary intervention. Because of the evolving social dynamic there is a need to continuously and creatively reflect on new bridging activities and mechanisms between the local and other actors interested in ELFM.

From a risk communication point of view, it is suggested moreover to not only provide and improve the information that the citizens of the surrounding villages receive so that they know what they are talking about and can better understand the professionals when they converse with them. Evenly or even more important is to work the other way around and to listen sincerely to the concerns and risk perceptions of the citizens, and take these into account in the technical decision making. In that way the social acceptance and sustainable qualities of a project like ELFM can be enhanced. It is by acknowledging the concerns and values of the local population that companies build trust.

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Notes

1 Enhanced Landfill Mining project (ELFM) is defined as "*the safe conditioning, excavation and integrated valorization of landfilled waste streams as both materials and energy, using innovative transformation technologies and respecting the most stringent social and ecological criteria*" (Jones 2013).

2 The 'Closing the Circle' (CtC) project in which we analyse the local community participation here, is the first case-study for the ELFM Consortium to investigate the opportunities and barriers for ELFM. The aim of CtC is to process about 18 million metric tonnes of waste into renewable materials and energy, over a time period of 20 years. After that the site should be developed into a nature park. Besides ecological advantages the project offers a substantial amount of 800 jobs. The CtC project concept phase was initiated in 2007. Valorisation tests and a more detailed elaboration of the project were then performed in the period 2009 to 2012. From 2013 onwards, the project enters a pilot phase. Subsequently, full-scale operations for Waste-to-Energy and Waste-to-Materials plants are to be constructed, allowing resource recovery to start by 2017.

3 The authors are very grateful to Maurice Ballard, for sharing his information and personal experiences as founder and active leader of the Locals' group, described in this case.

4 That is why we indicate the organised Locals' group with capital L, distinguishing them from the entire population of the surrounding neighbourhoods and villages near the landfill site, referred to as the local community.

5 This new part will be dedicated to 'temporary storage' activities. Incoming materials that cannot be recycled yet with today's technology will be stored for future recovery. Temporary storage is defined as 'environmentally and structurally safe storage places that already permit present in-situ recovery of materials and energy from waste streams and allow easy future access to resources whenever needed. (Hoekstra 2013).