

LOCAL COMMUNITY PARTICIPATION IN ENHANCED LANDFILL MINING: THE CHALLENGE TO BRIDGE BETWEEN COMMUNITIES

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Abstract

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, 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.

Introduction

In this paper we study the functioning of an organised group of local inhabitants (the “Locals”) in the development of an Enhanced Landfill Mining project (ELFM), *i.e.* “the safe conditioning, excavation and integrated valorisation of landfilled waste streams as both materials and energy, using innovative transformation technologies and

respecting the most stringent social and ecological criteria".¹ Local community participation is considered an important challenge for complex technological projects, of which ELFM is an excellent example. 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 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, while the local community members become part of the project only because they happen to live near the site where landfill mining is planned. They generally don't feel in control, feel they 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 paper is based on the longitudinal follow-up study of a local inhabitants group that has become actively involved in the case of ELFM at Houthalen-Helchteren (Belgium). We will analyse what can be learned from this experience about local community participation and the bridging function of the "Locals" group.

The underlying question is to what degree and how participation and citizen involvement is possible in a technically, economically, socially and politically (both locally and regionally) complex and difficult project such as ELFM. Technical engineers or risk management specialists will look at things very differently than financial managers, economic advisors or investors, and these will yet look very differently at things with respect to local inhabitants in the region or the people that live nearby. Each of them will reflect differently upon particular problems and also their (first) reaction to specific solutions will differ considerably. The question then becomes how to organise meaningful interaction between all these different stakeholders.

In the first part of the paper we give a short review of the literature on public participation in complex technological projects. The focus of this review is on the bridging function between different interested and geographical communities of actors. In the second part we analyse the case of the "Locals" group in the ELFM project at Houthalen-Helchteren. 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 group that have taken place since a research consortium, under the initiative of a private company and in collaboration with the regional government, was started up. In the last part of the paper we propose some learning conclusions for the different actors involved in ELFM about how they can best deal with an organised "Locals" group to maximise its bridging potential.

Conceptual framework

Multi-actor governance

Enhanced Landfill Mining (ELFM), just like many other complex problems where innovative technology and the sustainable management of resources is at stake, poses serious challenges in terms of governance for business, government and civil society actors alike. 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 reach out for insights, meanings, and commitment of other players involved.^{2,3} As each of the actors is framing problems from one's 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 that might serve for ELFM. Especially the question of how to involve the local community in a promising yet potentially controversial endeavour as 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 involved 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.⁴

The term governance is increasingly associated with the management of networks. Hovelynck, Dewulf and Sips⁵ refer to "governance beyond government" indicating the evolution towards the involvement of multiple actors in what they call multi-actor governance. This evolved understanding of governance is built on the notion that no single agency, public or private, has the knowledge and resource capacity to tackle the key problems unilaterally. Pillora and McKinlay⁶ argue that while the statutory powers and role of the public sector are very necessary, they are not sufficient in resolving many of the issues facing local governments' communities.

Participatory governance

In studies on public policy the term participatory governance has been coined a lot for the widespread incorporation of citizens' voices into complex policymaking processes. It is often referred to as the "third wave" of democratisation and this wave came accompanied by decentralisation, not just in new democracies but also in older, better-established democracies. This decentralisation provided government reformers, civil society activists, and ordinary citizens with the opportunity to

establish new institutional arrangements that alter how citizens engage each other and government officials. 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.⁷ Decentralisation is then not primarily about the passing down of responsibilities from central to local government. It involves a parallel, and more substantial, process of passing competencies to 'communities, neighbourhoods and citizens'.

Community governance

Complementary to the notion of participatory or democratic governance is the 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.⁸ Political scientists such as Robert Putnam⁹ stressed 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.¹⁰

Although the community level is stressed as important, it is not very clear what exactly is understood by the community. Chisholm & Dench¹¹ report that there is no single agreed definition of community and refer to a substantial report that 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 Rudkin¹² communities in general refer to either "relational communities" or "geographical communities", or in other words "communities of interest" and "communities of place".

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 group in EFLM, 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. Wenger¹³ explains how people '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 ELM because of an intentional choice. The issue of a new project like ELM 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 relativated 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 ELM.

Critiques of community governance

Despite the dominant positive attitude toward participative and community governance in the current day literature there are also critical concerns that have to be taken into account in ELM as well. 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.¹⁴ 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 more profound critical perspective is formulated by Mowbray¹⁵ who argues that what is represented as inclusive and empowering community engagement is often about containment and control by the interested parties over the local community. The question about community governance then becomes how to make sure that the process effectively places decision-making in the hands of the community and genuinely contributes to more social justice. Phillips¹⁶ has shown that the community building agenda is often not so much driven by governments but by non-

governmental actors and by communities themselves, which means that citizens have to stand for their own rights.

Organising the representation of local communities

Several authors have pointed at the importance of getting organised as stakeholders. A stakeholder needs to get organised to be represented in a multi-actor collaboration. Getting organised is also crucial for stakeholders to be able to participate in policy making and therefore governments often stimulate capacity building.^{17,18} Wampler and McNulty⁷ write that it is important to help citizens organise 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. Also from experience in facilitating multi-actor collaboration projects it is well known that 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.¹⁹ Often civil stakeholders, like local residents, come 'to the game' of a project without much preparation, nor do they have the capacity or structures in place to follow up the project in a systematic way.²⁰ 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 other stakeholders and also local residents or the public at large 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 projects might bring. This expectation is mainly based on fear and people are often more scared than necessary. When concerned let alone agitated, it is not easy to calm a public down. Bergmans²¹ 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. 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. Brown²² 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 synthesising, 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.²³

Ragas²⁴ indicates that representatives of stakeholder organisations like for instance from the chemical sector often contribute to better standards by bringing in their scientific knowledge. At the same time, not-for profit organisations or foundations can also develop quite a lot of environmental expertise, like *e.g.* ‘Leefmilieu’ in the Netherlands, an organisation that sets up collaboration with local residents all over the country and can offer both legal and scientific arguments in debates. Ragas 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. Ragas therefore suggests that stakeholder groups are very well capable to interpret scientific information and the interests and stakes that concern them make them critical observers of existing information easily 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, the interested actors are benefited by reducing the uncertainties for the public as much as possible through sufficient, clear and transparent information. Remaining scientific uncertainties should also be indicated appropriately. This is of course not a guarantee for public support. Bergmans²¹ 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’. It is not because one knows more that one necessarily feels safe; 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. 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 municipality, the province, or regional or nation state. This 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.²⁵ When governmental agencies are also involved themselves, consultants or other professionals external to the project and the multi-actor network can act as neutral process facilitator and help the convener to mediate meanings between the parties involved. The final 'truth' then lies in the eye of the beholders, who agree upon it.

In sum, while complex 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 Group Machiels (GM), a local family owned private company, in cooperation with an engineering scientist/research manager from KU Leuven. The first conversations with other scientists and other interested parties happened in the first half of 2008.²⁶ The group consists of scientists, government officials, industrial partners and investors, and representatives from the GM company. At the outset, the following partners were involved:

- Business partner, Group Machiels;
- Researchers belonging to different disciplines (applied sciences, metallurgical and chemical engineering, geology, bio-engineering, economics and human sciences), different research institutes and universities (KU Leuven, U Hasselt, HUBrussel, VITO);
- OVAM (Flemish Public Waste Agency);
- LRM (an investment fund for the Province of Limburg)

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 a with a bio-engineer – toxicologist, specialised in environmental health. The involvement of other disciplines and research topics within the ELM consortium shows how science is based on progressive understanding and illustrates the complex and multi-faceted nature of the subject matter.

Recently the Flemish consortium has launched a call to European colleagues to join forces in bringing together research results, discuss technological problems, legal and governance issues, as well as social and societal challenges, and put forward a shared agenda for research and possibly policy making suggestions. All invited actors from academia, government, industry, civil society from more than 10 different countries have confirmed to participate in a first European Consortium meeting at the beginning of the Second International ELM symposium in Houthalen-Helchteren. This illustrates the importance of the topic, which gains increasing attention in different countries, not only in research and industry but also on the agenda of different policy makers with regard to Sustainable Materials Management.

The 'Closing the Circle' project (CtC) is the first case-study for the ELM Consortium to investigate the opportunities and barriers for ELM in the REMO landfill site in Houthalen-Helchteren. 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 will also offer a substantial amount of 800 jobs. The CtC project was initiated in 2007, and finished its concept phase at the end of 2008. Valorisation tests, engineering and more detailed elaboration of the project were then performed in the period 2009 to 2012. From 2013 onwards, the project will enter a pilot-scale phase. Subsequently, full-scale operations for Waste-to-Energy and Waste-to-Materials plants are to be constructed, allowing the resource recovery to start by 2017.

Historically, the REMO landfill site has been operational since the early 1970s. The site covers an area of 230 ha and is situated in the direct vicinity of the villages Heusden-Zolder, Helchteren and Houthalen. A residential area of old coalminers families, mostly from Belgian, Italian and Turkish origins, is located very nearby the site at Heusden-Zolder. The landfill is surrounded by an old coal mine slag heap, a military training area and one of the main nature reserves in Flanders, which is within European protection zone of birds- and habitat guidelines. The technical details of the CtC case and the ELM principles and technologies have been extensively documented and discussed elsewhere.^{1,27,28}

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 the leading figure and representative of the Locals group in the consortium, the third author as researcher supporting the organisation of the consortium, and the fourth author as a more distant yet interested researcher in multi-actor governance issues. Notwithstanding their different positions, they can all be considered as “action researchers” in this case, as they all have in different degrees, contributed as well to the documenting as to the analysis of the case. The mixture of different positions from which the authors are involved in this case, is helpful to generate rich insights and to avoid one-sided interpretations.

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 locals inhabitants with the ELM project in Houthalen-Helchteren. All these documents concern the period from the start of the consortium until now. The historical antecedents of the contacts and conflicts between the company GM and the local community, is also well documented through the personal archive of the leader of the locals group, and through retrospective conversations with various persons. This information has already been analysed in a systematic and thorough way with the use of NVivo software for qualitative data-analysis, by two students of HU Brussel for their MSc thesis.^{29,30} These exploratory studies have pointed to the importance of the Locals group for the ELM project, raising new questions like: what is precisely the bridging function of the Locals group, how can this bridging be favoured and what are the challenges ahead? By crossing the experiences and ideas from four different researchers that have been involved in the case over a time period of at least 5 years, we want to arrive at new insights into these questions.

Case analysis

The organisation of a “Locals” group

‘De Locals’ are a local community group of concerned citizens from the villages of Houthalen-Helchteren and surroundings. 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 the First International Symposium on ELM organised by the Flemish ELM-consortium and Group Machiels. The reason of inviting these people was to inform the local population. Through their participation ‘the Locals’ could get first hand information. The Locals group existed mainly of

residents from the neighbourhood of the REMO landfill site where the CtC project is going to happen. Some members are villagers from further away, and also other interested citizens with a particular and sincere interest in the project are welcome. Members of 'De Locals' come from all parts 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: *“De 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.”*

On the company's CtC website one can read: “In preparation of the First EFLM conference a group of locals was briefed on the project and the new technologies. After the conference there were workshops organised to gather questions that remained unanswered at the conference, leading to an elaborated Q&A list.”

The Locals project is thus seen as an interactive process between the EFLM consortium and the company on the one hand and the local residents on the other hand. The EFLM 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 EFLM project is also a research interest in itself for the social science researchers in the consortium. The Locals invite researchers from the consortium, project manager or other managers or staff from the GM company, or any other specialist with a particular expertise regarding the topics they like to discuss. The Locals meetings are prepared by the Locals spokesperson and the external facilitator, the two first authors 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 EFLM conference, a Q&A list by and for local residents, translation of insights from articles from English to Dutch, explaining technical terms, reviewing an introductory presentation that was made about the Locals and EFLM, preparation of a Locals symposium at the 2013 international conference on EFLM, etc.

Position, identity and evolution of “De 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 from an invitation to attend the First ELM 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. That’s 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 “locals”.

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. So according to the participation ladder of Arnstein³¹ the questions and arguments by the Locals can be regarded as “consultation”, which is a limited form of public participation.

By engaging in interaction and communication with the Locals, the company from their side gets to know the expectations and concerns of its neighbours. By doing so the company as well as the consortium want 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’.³² For the consortium it is also a matter of developing expertise about the social dynamics and intervention methods for complex technical projects such as ELM. If later on the ELM 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, since half a year, 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.

Overview of the 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. Looking at the agenda of the successive meetings we can see the following technical topics have been addressed: plasma conversion technology, pre-treatment of waste, state-of-the-art separation and processing technologies, excavation of the landfill, pre-concept study for environmental quality and health, presence and treatment of radioactivity in waste cycles, presentation on the development of a health and safety plan. Other subjects that were on the agenda over time were concerning the status of the CtC project, organisational changes at the GM company, planning a site visit to REMO landfill, development of a communication plan towards the population, setting up a presentation to explain the Locals project, preparation for the integration of new group members, organisation of a Locals symposium, evaluation and elaboration of Q&A list.

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 Advanced Plasma Power (APP), in Swindon, 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 APP and their plasma technology. With support of the GM company, 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 APP 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. 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 international ELMF conference in Houthalen-Helchteren in October 2013. This is again an attempt to involve the local community with the symposium that is coming to their town. It opens the doors for them 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 from the Locals group. 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 ELMF project. The preparation of this mini-symposium is done by a task force of interested Locals and has augmented their activity and meetings, giving a boost to their group identity (the idea of printing 'Locals' T-shirts included). Through a well organised communication campaign, the Locals themselves reach out to the rest of the community, announcing their Locals symposium by placard, brochure, website, and in the local municipal newsletters.

Insights from the locals participation in the ELMF project

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

Both the researchers from the ELMF 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 ELMF 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 ELMF 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.

The origin of worried citizens

Over the years, the local inhabitants have experienced a general lack of interest for their concerns and they had to struggle hard to have their voice heard. Only by protest and activism they were able to put their issues on the agenda. It was never asked for, and a 'listening ear' was not a given from the start. They had to shout out loud. From this historical background they find it hard to make a shift. Even if the situation has improved and earlier problems of nuisance have been solved, there often remains a negative atmosphere and local people's minds are not free to listen to new messages. Former communication soundboards and other committees in which the local population was represented, were lacking knowledge and dynamism, and often even lacked the presence of appointed officials to follow up on the concerns that were raised in the neighbourhoods of the local landfill and other waste treating installations. This explains why local inhabitants are also reluctant to the ELFM project. They justify their sceptical stance by referring to the past. They don't want to be 'run over' or 'fooled' once again. *"If we were not listened to before, why would that be different this time"*, the argument goes. This indicates that addressing the past may become an important ingredient for the advancement of public support for the ELFM project. Like the waste in the landfill, also the memories from the past seem in need to be cleansed. The origin of worried citizens is wrapped in the local history.

Formal and informal communication channels, and the press

Communication in multi-actor settings contains formal and informal elements. An important aspect of informal communication and paramount for building trust is personal contact. The intensity and frequency of the Locals meetings and their encounters with people from the GM 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 REMO landfill site) to interact with one another. Also the study trip to APP in 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. Sometimes one needs some distance to get closer. 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 balance between formal and informal contacts is a delicate equilibrium and even paradoxical. Although the informal and personal contacts are important, one does not want to run the risk to be considered friends. The conviction lives that keeping enough distance and guarding one's neutral stance and credibility is crucial. There is some kind of implicit belief that the position of the Locals should stay critical. Also the media play a role in communication. They are important for the Locals, as well as for the company and the consortium. Each of the actors has their own preferred contacts and channels to the media, be it local, or regional/national media. Besides newspapers, also magazines have addressed the topic of ELM and the CtC project. All of the actors involved 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 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 and first hand information is therefore preferable.

The "Locals" as liaison

The Locals Group functions as a liaison between the local community and the project. They are a gateway to the local community but they cannot replace the entire population. As a sample they form a representation of the broader community and they need to have sufficient 'requisite variety', geographically, in terms of age, gender, ethnical background and other demographic characteristics. The Locals are well aware of their position and organise their activities also in this realm. They know their representational function and its limitations. It is rather the company and the ELM 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 village of Houthalen-Helchteren 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 (MER) and for the permission to build an extension to the current landfill.¹

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 'communicative bridges' to their fellow inhabitants as well as to scientific experts and officials. 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 GM 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 GM 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 fantasise 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.

Other interesting personalities within the Locals group are an experienced practicing veterinary, a specialist in chemistry, a civil engineer with a Phd in computer security, a software developer, a post man and free lance journalist-photographer, a student, an international sales representative with a linguistic background, a group leader in the operation of water treatment, housewives with a practical 'hands on' view and a caring attitude, a nurse, an economist, etc. They are all highly knowledgeable, skilled and experienced people who at appropriate times bring in their specialties or insights. Everyone contributes in his/her own terms. Someone makes notes of the locals meetings, another member put together a list with abbreviations and difficult technical terms, translated from English, someone made a logo for the Locals group, etc. One of the Locals became very persistent in taking note of the latest research

¹ 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.*"³³

data, or anything related to ELM he could find on Google or Youtube. He found pride in studying the scientific reports provided at the First ELM Conference, with tables and calculations and all, and he cultivated a personal ambition to further track down facts on internet and analyse research results.³⁴

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 ELM project site. The question for them is: how can they best organise themselves to fulfill this bridging and boundary spanning function? In order to be able to reach out to as diverse an audience 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 serves that end.

For the Locals an important challenge is to keep their function well focused and well in between the company 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 incrowd. 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 consortium as well as the company need to assist by taking their own positions and roles. Local community leaders and volunteers, should all be able to "talk from their own hat" just like local politicians and civil servants, the company representatives, academic researchers or regional policy administrations and nation state 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. A suggestion for the local community is to always strive for independent representatives. In this spirit the Locals have stated in their ground rules 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 on their own.

The need for a multi-actor communication campaign

Multi-actor collaboration advances by sharing insights, agendas, expectations 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 can be considered as a communication channel, to transmit information and to learn from for themselves, more than that it should replace the local population as a stakeholder. Therefore, other communication plans and participatory structures still need to be brought in place. The local authorities will play an important role in this regard. Alignment with them is important for both the company and the Locals. The company nor the local authorities should expect everything from the Locals group. The Locals cannot cover the whole communication and involvement strategy by themselves alone. Neither is it desirable nor clever to rely on only one communication channel. The need remains to broadly inform 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 people's living environment.

It remains important for the ELFM project to engage in a serious 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. Communication by a newsletter to the whole community was prepared by the Locals representative, supported by GM 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.

Hence, it is suggested to look carefully to the division of tasks in the communication and participation plan, as to which actor can take on which role in the communication to and the representation of the local community. A broadband

strategy to communication and participation is needed. By running their own communication campaigns towards the population, the company and the consortium can also avoid to be perceived as hiding behind the Locals. The participation platform that will be organised by the municipality can serve an important role in a broadband communication strategy. This platform of the local authorities is expected to function in a dynamic way integrating the perspectives of the local villagers with region state health and environmental policies. It offers an opportunity for multi level governance³⁵ as also other policy levels and domains are addressed. The respective administrations concern not only the province but also the Materials and Waste Agency and Public Health department at the regional level. Community governance still needs governance by governments. Or as Hambleton³⁶ points out, strong civic leadership is an essential component of community governance for it requires not just aligning internal organisational capacity but also mobilising external stakeholders and communities. He argues that civic leadership requires councils to provide the focal point for the development of a 'collective vision' that reflects local priorities and brings together all the relevant agencies.

The complementary role of the local authorities thus 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 Loots³⁷ in Flanders that indicate that after the family doctor, scientists are the most trusted information source regarding pollution, while information from the polluter is least trusted (out of 12 communication channels questioned).

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. 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

In general, 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, it is recommended to give the local community the chance to inform themselves and participate as freely as possible and at their own level of understanding in the ongoing debates. 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 again and again accept the debate and listen carefully to people's concerns demands not only skill but also patience. Even if emotional arguments by inhabitants may not be correct, business leaders and scientists alike need to know 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. Reducing the barriers to participation is an important point of attention. The borderline lies in sharing the rules of the game to interact, meaning to engage in a respectful dialogue with arguments and discussions that remain on a level that a professional can relate to without denying his/her expertise.

As Wampler and McNulty⁷ point out, conflict is always present in participatory governance programmes because citizens are contributing to decision making and co-determine how scarce resources will be allocated as well as how authority is exercised. They suggest that we should not expect participants to reach consensus, although the interactions can be structured to bridge conflicts between the actors and communities involved. For participation in complex projects like ELM, another advice by Wampler and McNulty seems relevant. Although errors and even failure are part of the learning process, inherent to trying out something new, we should also not forget that poorly performing participatory programmes can undercut the legitimacy of the government officials who organised them as well as the community leaders who mobilised their followers to attend meetings. The same counts for participatory processes initiated or co-designed by industry. Also in that sense local community participation brings about learning, implying either stronger confidence and belief or resistance and disbelief towards future interventions. We would state that in order to make local community participation a success, the quality of interaction among the actors and communities involved is important, requiring sufficient trust to develop a working relationship.

To this end, Ragas²⁴ suggests to scientists not to claim to possess the truth. There is no problem in a scientist being uncertain, it is even better to share what is still unknown or under debate. This is not a reason for any other actor to either stop a project or advance blindly with it. Also uncertain information is relevant for learning and decision making. It means that further studies are needed. This is also precisely the reason why Ragas stimulates policy makers and politicians to involve stakeholder groups in scientific studies and where needed to facilitate experts from stakeholder groups.

In this context it can also be recommended to worried citizens to not demand or suggest scientific independence but to acknowledge and make use of scientific subjectivity and uncertainty for the collective advancement of understanding the complex challenges in a given local situation. With such an attitude it can be easier to get the floor in debates on the matters that concern them, which regardless of the amount of knowledge or technical jargon one has available at a given time, is definitely worthwhile to strive for as a local population. Getting organised and creating a structure that allows locals to enter conversations among scientists and to start a dialogue among oneself seems one of the best way for citizens to get informed. By doing so, they can gain access to knowledge, develop their own expertise and contra expertise, and remain vigilant.

Conclusions

Participation of local communities in complex technological projects is an important challenge. Getting a shared vision of the project among different stakeholders and to gain support for and profit from possible contributions during the implementation is crucial for the undertaking. Fields like ELFM are typically referred to as 'wicked problems' or 'messy problems'^{38,39,40} that require some form of multi-actor collaboration. Alternative governance mechanisms and leadership apt for complexity are also needed in such settings.⁴¹

In health and environmental research these issues are getting more and more acknowledged.⁴² 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 projects. In our case an organised group of locals 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.

In this paper we have described the specific concerns that are raised by the local inhabitants. Because of their 'proximity' the local inhabitants are more sensitive for the possible threats than the driving actors behind the ELFM project.⁴³ 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 in their stakeholder strategy sometimes falling back from 'bridging' to a more defensive strategy of 'buffering' when it comes to dealing with the local community. Although this is easily understandable, we have argued that the company needs to invest in a bridging strategy and work along the principles of community governance.

Both the ELFM consortium and the company have acknowledged the importance of local community participation, which is needed to advance both the CtC project and the study of ELFM implementation in general. By investing time and choosing appropriate activities and interventions, little by little trust and public acceptance can grow. The locals project can be positively used by 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 company and the 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 contexts⁴⁴ 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. One might argue that not only the company but also the Locals group must embrace a bridging stakeholder management strategy towards their environment.

The bridging function of the Locals group is not only a continuous challenge towards the diverse local community but also towards the driving actors of ELFM. Indeed, the more critical and sceptical local actors are often not equally involved in the informal

communication and information sharing among the other actors. We have seen that joint activities with high relational qualities,⁴⁵ such as site visits and study trips can bring together members of both types of communities, and contribute to the necessary informal communication. At the same time structural measures, like full representation in the ELFM consortium, guarantee the formal communication that is equally necessary. 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.

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