Doctoral School in Business Administration

SUMMARY OF THESES

for

Richárd Szántó

Siting decisions – siting conflicts

Ph.D. dissertation

Supervisor:

Zita Zoltay-Paprika, Ph.D.
associate professor

Budapest, 2008

Department of Decision Sciences

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1. Background of research and justification of the topic

From the late 1970s a growing attention has been paid to siting (location) decision problems both by researchers and practitioners. Myriads of unwanted (many times noxious) facilities were rejected by local communities and other stakeholders in the past decades, and public opposition campaigns were often successful. This phenomenon is often characterized by the expression of NIMBY (Not in my backyard) or LULU (locally unwanted land use). People opposing the unwanted facilities often consider them extremely risky; however the "objective level" of risk of these facilities (such as power plants or waste incinerators) is usually under the official limit values.

1.1. Social conflicts around siting decisions – different theoretical approaches

The literature of siting decisions shows disagreement on the factors triggering social conflicts around siting processes. *Psychological approach* puts strong emphasis on the role of risk perception: researchers of the approach state that siting conflicts occur because local stakeholders' risk perceptions significantly differ from the ones of investors/decision makers (Slovic et al., 1982; Slovic, 1987), since investors are usually experts regarding their companies' activities and technologies, but others are laymen in the field. Different psychological research programs revealed that experts' and laymen's risk perceptions are constructed on different bases, formers consider risk as a technical measure – combination of negative impacts and their probabilities, latter group evaluate risk factors according to other dimensions such as dreadfulness and familiarity. Conflicts happen because of risk perception differences. Hence, the reason is not necessarily the magnitude of risk itself but the different assessment of risk. However, psychological approaches claim that any risk perception can be valid, and one is not more legitimate than the other (Faragó–Vári, 2002).

Economic approach states that decision makers have the chance to compensate those stakeholders who have to live with sure negative impacts and potential risks of the new facilities (Kunreuther, 1986). By applying different forms of placation, investors admit that facilities can generate negative impacts in the future, but these negative impacts – as the neoclassical economic theories say – can be compensated (Kunreuther–Easterling, 1996). According to this approach conflicts occur because decision makers neglect to develop compensation schemes in order to obtain the approval of local stakeholder groups. Investors often assume that potential benefits of siting such as new employment opportunities in the region or additional tax revenues for the host village or town mean satisfactory

compensational levels, and they are not willing to analyze and use other forms of compensation. Nevertheless, investors should be aware that stakeholders can consider compensation as some kind of bribery that reduces the chances for further cooperation (Frey et al., 1996; Groothuis–Miller, 1997).

Moral philosophical approach addresses the often unfair procedure and results of siting decisions. The representative scholars of the field claim that fair and just siting decisions seldom happen. Opinions of local stakeholders are often neglected or even ignored, and public participation occurs very rarely during siting, therefore local people can be distressed and feel that the decisions happened above their heads (Kuhn–Ballard, 1998). This approach emphasizes that it is not just the siting process that is often unfair, but in most of the cases – in accordance with the logic of the widely accepted utilitarian philosophies – those have to suffer the largest risks and burdens who are already in an unfavorable situation. Investors often place environmentally risky facilities into certain areas where they think that local people of poor neighborhoods will welcome new hazardous developments in spite of their riskiness since they will generate job opportunities and greater tax revenues (Hunold–Young, 1998). Decision makers often ignore that in this way deprived neighborhoods will become even more unfortunate in the long run, since the relatively wealthy people of these regions will likely move away after the establishment of a noxious and hazardous facility.

Sociological approach argues that the main reasons for siting fiascos are social institutions, cultural differences, and unfavorable political processes (Freudenburg, 2004). The basic assumption of the approach is that dissimilar societies assess risk differently. It denies the objectivist concepts of risk and risk management, and it states that risk is rather a social construction. Otherwise it would be really difficult to explain why nuclear facilities are strongly supported in Hungary (actually the level of support is the highest in the European Union), but neighboring Austria basically rejects this way of power generation (see about cultural differences and their implications on risk perception Aldrich, 2005). Risk perception is socially determined, which should be taken into account by decision makers even if they have very little chance to influence these perceptions.

Risk communication approach focuses on the communicational problems during siting new facilities. Contrary to the previous four, mainly theoretical approaches, risk communication models are seeking to explore the best practice of communication – e.g. which are the most effective ways of risk communication within the siting process. According to the approach it is ineffective communication that primarily generates siting conflicts, and decision makers often overlook the findings and recommendations of the psychological,

economic, moral philosophical and sociological models. They usually apply top-down decision techniques and build on expert-opinion-based communication campaigns, consequently local stakeholders have no chance to achieve a greater level of involvement, and they only can take what they are offered in most of the cases. The main task of risk communication is to create trust and credibility in the process. The industry should show the greatest level of concern and care in risk management in order to create trust and credibility (Peters et al., 1997). Concern and care seem to be more essential for stakeholders than knowledge and expertise, and – maybe surprisingly a little bit – than openness and honesty.

1.2. Justification of the topic

I have been participating in research projects and teaching courses in the field of judgment and decision making for many years. As these research projects and courses, this dissertation uses findings of related disciplines such as sociology, psychology, and political science. The problems of environmental conflicts have been one of my key research areas for a decade, a concrete case (the social conflicts around the siting of used battery recycling plants) attracted my attention in 1998, and since that I have been continuously making research on the topic. My doctoral dissertation has the following research question:

What factors influence social conflicts around siting decisions in Hungary?

In the research question I strove to narrow the unit of analysis and to highlight my strong connection to the field of judgment and decision making. I believe that the factors have been explored during my study are present in foreign settings as well – international literature review supports this assumption – therefore the research hopefully will be able to enlarge the accumulated knowledge of the field in an international domain.

2. Methodologies

The dissertation explores problems of siting decisions; hence I created a research model that enables to answer the research question, and to confirm or to reject research hypotheses. The research model states that several factors influence siting processes: in the one hand socioeconomic factors such as average income, ratio of senior citizens, unemployment rate, and number of inhabitants can influence the outcome of these decisions. These factors were analyzed through quantitative research methodologies. On the other hand there are some factors that can be hardly operationalized, like the perceived fairness of the decision making

process, the different judgments and biases in risk assessment, risk communication practice of the investors, or social environment of the siting. These factors were investigated through qualitative research methodologies.

These two streams of research (quantitative and qualitative methods) provide a general picture about the Hungarian situation, and with the analysis of individual cases deeper interdependencies can be identified, and understanding of the phenomena can be reached. Both methods are well-known in the Hungarian siting decision literature; I relied on past experience in the research design.

Weighting the findings of the international literature review and the results of Hungarian works of the field, I postulated five hypotheses. These hypotheses are different from ones that are common in positivist research practice because of the idiosyncrasies of the applied research methodologies. The hypotheses are intentionally detailed and less concrete as an explorative case study is the central part of the research design. A comparative case study is beneficial to identify and deeply analyze key categories, phenomena or problems, but it is not appropriate to test clear-cut hypotheses. Although I mentioned before that my research project consisted of a quantitative empirical research part as well, the more fundamental basis of this dissertation is the qualitative empirical research that is mirrored by the way how hypotheses are stated.

H1 Hungarian social conflicts around siting processes mostly happen in regions with high incomes (foremost in Budapest and in its agglomeration), where citizens can afford the expenses of opposition and can have the support of non-governmental organizations.

H2 Different risk perceptions – discussed in the short literature review – can be identified regarding the Hungarian siting conflicts, and diverse risk perceptions are significant drivers of the social conflicts.

H3 The communication practice of Hungarian investors/decision makers have been professionalized in the past decade, they often use pr-techniques intensively and effectively.

H4 Open siting processes building on the participation of local stakeholder groups more often will result in successful facility siting than a closed, top-down decision making processes when investors just impose the new facility onto the local people. Facility siting is considered to be successful if it enjoys the support of all parties involved in the process, or at least decisions are implemented in a reassuring way for each participant.

H5 Siting conflicts and the pitfalls of the location processes in Hungary can be interpreted within the framework of the sociological approach: social institutions, culture, and political processes influence significantly the outcomes of the siting decisions.

The more concrete hypotheses (like *H1* hypothesis) can be tested with quantitative empirical research. Less tangible hypotheses such as *H4* and *H5* hypotheses are rather problem statements or propositions (well-known categories in qualitative research design literature) that can be analyzed with qualitative methodologies.

2.1. Quantitative research methodologies

In order to have a useful sample for applying quantitative research methodologies I made a comprehensive scanning of two Hungarian daily newspapers, namely Népszabadság and Magyar Nemzet. I was searching for siting conflict cases that appeared in one of the two newspapers between 1998 and 2007. I chose two newspapers with different political orientations because environmental discourses in Hungary are usually heavily politicized, and I was afraid that some cases would not be mentioned by some newspapers. Yet, most siting conflicts were reported by both media. Besides daily newspapers, I screened the archives of a green news web portal (www.greenfo.hu) from 2000 till 2007. I also checked the database of local referenda which has been registered by the Ministry of Municipalities (former Ministry for Internal Affairs) since 1999.

After media analysis it turned out that there are 166 cases in the sample of the Hungarian siting conflicts. The unit of analysis was the decision and the conflict situation, thus I picked cases only where some public opposition emerged. Some cases in spite they could be considered as a social conflict and were heavily discussed by the Hungarian press, did not become part of the sample. These siting conflicts happened outside Hungary, however they had significant impact on the country's affairs (for example the case of the gold mine near Rosia Montana (Romania), the waste incinerator in Heiligenkreutz (Austria) and the Novo Virje hydropower plant on Drava River (Croatia)). Decisions about these facilities were made abroad, however they were criticized by Hungarian authorities and the press.

After selecting the cases for the quantitative research, I identified the socioeconomic attributes of the townships where social conflicts emerged. These attributes included the number of inhabitants, level of unemployment, ratio of senior citizens, and average income. In most of the cases I usually was able to connect the siting conflicts to specific villages or towns, however in some cases the object in question were not able to be related to specific

municipalities (e.g. the strongly disputed Zengő case is among them, the planned NATO locator would have been close to the village of Hosszúhetény, but it is outside the borders of the municipality). Descriptive statistical analyses were made on the sample of siting conflicts seeking for patterns in the set of cases and investigating how and to what extent socioeconomic factors influence the outcomes of siting decisions.

2.2. Research methodology of the qualitative empirical research

The most popular research methodology of the field is the case study method; this tradition is followed by this dissertation as well. In the framework of the qualitative research design a comparative case study was elaborated with three individual cases. The research question concentrates on the "Why-s" of siting conflicts and the research program wanted to explore a phenomenon on which the researcher had no control. These attributes enable the researcher to use case study methodology according to Yin (1994). By choosing the comparative case study method I had the chance to analyze a certain type of decision making process three times strengthening the validity of the results.

After analyzing the 166 cases in my sample I realized that there are three cases that can be connected to the Hungarian cement industry. The cases of Duna-Drava Cement (DDC), Holcim and Strabag earned great publicity in the press. The three companies are major players of the Hungarian cement industry and two of them (DDC and Holcim) are affiliates of multinational companies of the global cement industry as well (Strabag is a construction firm). Holcim and Strabag planned to locate new cement factories: former decided to build a new facility in Nyergesújfalu; latter has been establishing a cement factory in Királyegyháza after its siting fiasco in Bükkösd. All these companies had serious difficulties in dealing with a siting conflict, and these cases lasted for years. DDC had a slightly different case: it planned to introduce a new technology in its existing Vác factory: they wanted to burn alternative fuels in the manufacturing process. The cement industry divides people regarding its environmental performance, and firms are constantly under attack by NGOs, and local inhabitants. Their environmental problems are well-known to the public and to themselves as well, hence they are flagships of corporate environmental programs – both in Hungary and abroad. It is crucial to mention that Hungarian cement industry went through a substantial enlargement, and it is still in progress. All three players announced that they planned to increase their capacity and develop the technologies they use.

3. Empirical results

In the following chapter I summarize the most important findings of the quantitative and qualitative research. I review the results of the quantitative results very briefly (see the details in Szántó, 2008).

3.1. Results of the quantitative empirical research

Since 166 cases were analyzed during quantitative research it can be stated that 16-17 cases were triggered off on average every year. Many of them lasted for years therefore the media keeps approximately 20 cases every year on agenda. This average figure is not far away from reality, the number of conflict cases seem to be constant over the years.

The most cases in the sample can be related to waste management which resonates with the findings of the Anglo-Saxon literature. No conflict resolution procedure was developed in the past decade that would have handled these sensitive issues in a reassuring way. Regarding international findings it was unforeseen that siting of nuclear waste facilities did not generate so intense public opposition as they do abroad (mostly in Western-Europe and in the US). In Bátaapáti the community approved the plan of a nuclear waste repository in a local referendum, yet it was not really part of the national discourse in the country. It is apparent that most cases usually remain in their local or regional context, and only some of them are appealing enough to attract the attention of the national media (although the formerly mentioned Zengő case draw attention of the wider public, this case was a rare exception in the history of Hungarian siting conflicts).

Different types of siting conflicts happen in places with different socio-economic characteristics. Waste disposals, incinerators and other waste management facilities are usually to be planned in smaller villages with modest or low income and relatively high unemployment rate. However, opposition against service complexes (shopping malls, public garages etc.) and residential developments generally happen in larger towns or cities with higher income. Between the two extremes other clusters can be found such as mining and energy, infrastructural investments (roads, airport etc.), and other industrial sites. In many cases local referendum was organized in order to decide whether a municipality should host the facility in question or not. Surprisingly an unsuccessful referendum (from the point of view of the investor) does not necessarily lead to a siting failure, but the opposite can be true as well: an approval in a referendum does not guarantee that the new facility will be built.

In many cases protestation was effective and in numerous places decision makers had to withdraw or look for new alternatives for the desired facility. In 40% of the time local opposition led to a complete failure of the siting process, but in the same amount of cases facilities were built in spite of usually heavy resistance (in the rest 20% remained undecided at the moment). We cannot say that protestations are always successful – from the opponents' point of view –, but if the clusters are analyzed regarding this matter, a more subtle picture can be drawn. In the one hand in the waste management cluster a lot of investments fail due to strong public opposition, on the other hand in the cluster of service complexes and residential developments protestations are practically ineffective, facilities are likely built irrespectively of the level of disagreement: local inhabitants usually protest in vain against shopping malls or other service complexes, investors implement their plans anyway. However, it is worth to exclaim against waste management facilities (landfills, incinerators, repositories etc.), since intensive demonstrations can cause a departure of the unwanted investor. These findings cannot be applied to other clusters; in these cases protestation has a chance of 40% to disappoint the unfavorable initiative which is basically the same as the figure for the whole sample.

It is essential to mention that all the 166 cases in the sample are multifaceted and complex siting conflicts, their analysis cannot be complete without studying their economic, political and social environment, the diverse interests of local, regional and national stakeholders and local idiosyncrasies. In this chapter I just wanted to give a comprehensive overview about the last ten years of siting conflicts of Hungary; to understand them more deeply preparation of individual or comparative case studies are needed. (Qualitative empirical results are presented in the next chapter.)

H1 hypothesis can be accepted. Most siting conflicts occurred in the Central Region of Hungary, more than one third of the investigated cases happened in Budapest or in its agglomeration. However, the high number of waste management cases and the fact that they take place usually in smaller villages with modest socioeconomic factors prove that great amount of siting failures happen in small townships.

3.2. Results of the qualitative empirical research

By coding my research interviews I revealed several key categories of siting conflicts. These are diverse risk perceptions, the role of risk communication, compensation, distrust among the actors and public participation.

Diverse risk perceptions

Cement industry certainly generates risks, but there is a great level of disagreement on their magnitude and characteristics. In the research interviews opponents usually mentioned more risk factors than the supporters of the factories when they were asked about the risk of a new cement factory. Proponents of cement factories (company representatives, politicians or even members of some NGOs) did mention some factors that can influence the conditions of the host village or town, and its environment in a negative way, but these risk factors usually did not refer to the production of cement itself, but they were more indirect effects such as the intensification of local traffic or the drastic change in the social structures in the host village or town. However, cement factory supporters did not see any risk in cement production or at least they assessed it as a very moderate risk. Their explanations generally emphasized the relatively simple way of manufacturing and the high level of control. If the incoming materials are systematically checked and the manufacturer has the necessary environmental end of pipe solutions, cement production is harmless to people. Thus manufacturing of cement is less risky than other industries considered being dangerous (e.g. pharmaceutical or chemical industries). It is true even if they use alternative fuels during production.

In Bükkösd where Strabag planned to locate its cement factory, even the pro-cement people admitted that traffic would have been more intense if the factory had been built. This would have triggered an increase of air pollution and noise level in the surrounding villages. Almost all my interviewees agreed on this statement. However, opposition mentioned far more risk factors such as the permanent damage of the water basis of the region, the growth of carbon dioxide emissions (protesters often cited research findings of local medical doctors arguing that emission of cement facilities could cause health problems for locals); someone claimed that the biggest risk factor is the extreme transformation of the landscape since whole mountains would be eliminated due to mining. It is beyond dispute that elimination of hills or mountains elicits ecological damages and produces unaesthetic landscape changes, but cement factory supporters can argue that these risk factors do exist even if the facility is not created (mining activities would remain in the original places in all cases). Of course, it raises the question whether only the “new” risk factors should be taken into account when making a siting decision or the cumulative risk factors including those factors that people had to bear in the past.

It is not surprising that opponents mentioned much more risk factors than proponents of the investments. Differences certainly can be a result of their dissimilar motives; nevertheless the pattern of the mentioned risk factors suggests a more complex picture. It is understandable

that firms do not mention risk factors such as the drastic landscape change due to mining or potential damages of some Natura 2000 areas (very sensitive and strongly protected areas). These are constraints for the cement companies that they are not able to modify. There are numerous mines close to Natura 2000 areas in Hungary (because of natural conditions) and strip-mining generally cause elimination of mountains and landscape changes (although some landscaping recultivation can fix this problem to a certain extent). If they wanted to reduce these risk factors radically their core activities should be questioned.

The increased level of traffic is a typical problem which can be solved mainly by municipalities or the state – according to the stakeholders of the cases – by building by-pass roads (as it happened in Vác). In public's opinion heavy traffic is not just the fault of the cement firms, but the lack of high-quality infrastructure can be blamed as well. Air-pollution and high noise level due to the intense traffic has been a well-known problem in Nyergesujfalu, Bükkösd and Vác for many years; hence local people likely accept this risk factor more easily than the unknown and dreadful risk factor of the incineration of hazardous waste. These results support the findings of the psychological approach which emphasizes diverse risk perceptions. It is very probable that this is the reason why company representatives are willing to admit the risk of heavy local traffic and together with local municipalities they seek for solutions to the problem, but they reject to acknowledge the risk that can be related to cement production itself.

Communication dilemmas

The overwhelming communication campaigns and intense pr-activities are among the most spectacular momentums of the cases. After analyzing the comparative case study it turned out that all firms reached considerable success in this field, and risk communication was a key factor in the processes. Communication practices of the companies have been professionalized a lot during the years, which is a noteworthy phenomenon since the cement firms did not have any experience in communicating siting decisions, the last establishment of a new cement factory in Europe happened more than three decades ago.

One of the deepest traps that the companies fell into was the lack of communication. Opponents very often stated that they learnt about the industry development ideas very lately and from the press only – firms did not informed them directly in an early stage of the siting process. As the most inhabitants of Vác did not know anything about the experiments with alternative fuels in the local cement factory of DDC, people in Bükkösd learnt about the plans of a new cement facility from the local newspaper. In Nyergesújfalu the plans for most people

turned out surprisingly and suddenly in 2005, although rumors said that Holcim intended to replace its old factory in the neighboring town Lábatlan. Company officials reported that they were thinking about a new site since 2001, four years before the actual announcement occurred. This kind of delay calls forth distrust of the locals since they can assume that there must be some reasons for the concealment of the new initiative.

The communication practices of the firms were fairly reserved at the outbursts of the conflicts (or at least less intensive and effective than it is today). The debates on the new developments launched radical changes in their communicational approaches. In these change processes companies hired communication experts (Holcim and Strabag even contracted with communication agencies to handle these issues) in order to avoid communication mistakes they made in the past.

Firms were not prepared for protest campaigns; the extremely high level of public opposition was totally unexpected (cement companies rather anticipated warm welcomes in regions with poor townships and relatively high unemployment). This unpreparedness can be recognized in the early communication practices, firms had to implement their communication strategies very quickly often producing precipitation and trepidity. These communication pitfalls had serious consequences on the whole siting processes, and the companies were not able to escape from the stigmas that were generated by the contradictory pronouncements at the beginning.

As a summary it can be stated that cement firms applied colorful and widespread communication practices including lots of pr-techniques. Campaigns stumbling at the beginning became professional activities of well-thought communication strategies very soon winning many supporters for the cement facilities. Though, the overwhelming communication campaigns sometimes resulted in arguable situations. Some local people hesitated and were uncertain about the siting after experiencing very intensive information campaigns and other forms of persuasion, and often the most important messages vanished in the noise that was created by other actors.

Nevertheless, in my opinion, the biggest mistake that decision makers made was the preference of one-way communication forms during the siting processes. It is incontestable that there were some intentions in order to widen the level of public participation and some endeavor to integrate the public's opinion into decision making (civil control groups were good examples for that); however dialogue occurred very rarely between the two sides. It is not enough to organize forums for public hearings, but it is essential to make people believe that their opinions and viewpoints are taken into account. It is obvious that dialogue is not a

one-way process either; the willingness of both parties is needed to create a friendly environment for further disputes.

Problems of compensation

As it was mentioned at the introduction of the main theoretical approaches of siting conflicts, one of the mostly discussed approaches is the economic one that deals dominantly with the problem of compensation. Although it is not so intensively discussed in scientific papers, the topic seems to be a hot issue in Hungary. It is extremely important whether the decision maker/investor can determine an appropriate compensation level at which local stakeholders are willing to accept the new facility in their neighborhood or not.

After observing the 28 research interviews that were made, the most actors accept the institution of compensation. Compensation is a useful tool in the hands of the investors, but it is not surprising that they try to separate it from the unwanted, many times hazardous activity. In the one hand compensation can make people suspicious about the new facility, saying a company compensates its stakeholders only if there are reasons for. On the other hand companies can generate more positive attitudes towards their activities if they can demonstrate that they are good citizens of the community they are part of, and they are responsible for the people of the town or village where they are planning to locate their new investment. We cannot ignore the fact that in certain cases if a company sponsors a non-governmental organization can cause public opposition that both sides want to avoid. Once in Vác when the DDC cement factory supplied a green activist group with free building material, a great outcry took place accusing the firm of blackmailing the NGO. It is not enough to support or sponsor local initiatives but it should be done in an acceptable way for everyone.

Lack of trust

In-depth research interviews revealed a lot of signs of distrust. The lack of trust is apparent in many levels. The actors do not trust each other; they regularly question the statements, arguments of their opponents. The representatives of NGOs do not trust companies' experts, and the firms are usually skeptical about the expertise of the other side. Civil groups also distrust authorities and regulators, saying they mostly represent the interests of the investors and they make their judgments very slowly in most of the cases. There is a general distrust against politicians; most people question if the political elite really act according to the people's interests. Besides these, people usually do not trust multinational companies that – in

the opponents' opinion – exploit the resources of the country following only their profit motives and ignoring the interests of the local communities.

There seem to be many reasons for the distrust against the cement companies. Communicational failures can be a key source of the suspicion, at the beginning – as I mentioned before – firms were quite surprised and unprepared for the opposition, and they sometimes had to reconsider their original standpoints. The changes in their thinking were always mentioned repeatedly in the arguments of the opponents. Weak environmental performance in the past can be another basis of present mistrust. Before transition – in the socialist regime – cement industry in Hungary was supervised by a giant nationalized trust and individual cement factories did not really care about their environmental performance, towns where they operated were usually covered by dust, and air pollution sometimes reached abnormal levels. The interviews also proved that for local people the companies are represented by only some contact persons such as the project manager, the manager responsible for communication, and the technical staff. After analyzing the cases it turned out that the personalities of these persons and how people judge them could be crucial in the siting processes.

However, lack of trust is not just a characteristic of the opposition. Company representatives, potential facility managers do not believe in people of the other side either. They mostly presume undercover financial interests or political attacks behind objections. It was very often stated that opponents could not have financial resources to maintain so intensive campaigns against the cement factories (printing brochures, presence in the press, inviting celebrities and other guests, using legal consultancy) without financial support of other actors remaining in the background. It means – at least according to the cement firms – that protestations are supported by certain interest groups that do not want another new cement facility in the country.

In most cases cement facilities were not completely new to the inhabitants. These experiences for the companies can be advantageous and deteriorative in the same time. In the one hand they are advantageous because there is no need to explain to local stakeholders what this facility or technology is about and people likely got used to the unfavorable activities, hence they will not protest so vehemently. On the other hand they are deteriorative because locals can feel that they had to suffer a lot of inconveniences in the past already, and it is not fair to impose even greater negative impacts (risk and harm) on them.

Participation of the public

Models supporting citizen participation in decision making usually assume that stakeholders should be involved in an early stage of the process (see the recommendations of the moral philosophical approach). Yet, in Nyergesújfalu according to the mayor, the biggest problem was that the company informed the local people too early about its plans.

It is not obvious when to let people participate in the decision making process and what level of participation should be adequate. DDC finally introduced the technology of burning alternative fuels (including hazardous waste) and local inhabitants more or less accepted the decision. Strabag – although in another location – began to build their cement factory, and they consider siting process as a success. Holcim has already had a permission from the environmental authorities to establish the facility, but this case still has numerous question marks. Looking at the cases from the viewpoint of the cement companies siting processes seem to be rather triumphs than failures.

It is not really hard to recognize in the cases the so-called DAD phenomenon (Decision-Announcement-Defense) that is intensively discussed in the literature of siting decisions (O'Hare et al., 1983). In all the three cases the most local stakeholders got information from the press or from local representatives of the municipalities, not directly from the companies. One may say that these decisions were already made in corporate headquarters, and there were little chance that it would have been changed according to the articulated interest of the broader public. After announcing the projects all firms were pushed into defensive position (Strabag even had to withdraw and look for a new location). The companies in a relatively hostile environment had to insist that their investment was fairly harmless and had no serious negative impacts on the people and the natural environment.

Experiences show that even the traditional DAD mechanism can be successful in the long run if the company is adaptive enough. It is true that firms that were involved in the cases changed a lot during the siting processes, they introduced innovative practices and techniques, but their activities focused mainly on communication and some forms of compensation. Besides these, time had an important role: tenacious investors are usually capable to implement their initiatives since the level of resistance from time to time decreases. People fighting with a monolith giant are generally less and less enthusiastic in their battle and they are generally exhausted after a certain time. If the investor/decision maker has enough time, its patience is rewarded in most of the cases.

3.3. Summary of the findings

After short introduction of the antecedents of my research, I presented my research model and five hypotheses. In order to test the hypotheses, a two-stream-research design was worked out: I applied both quantitative and qualitative empirical research. I investigated the siting conflicts of the past decade with descriptive statistical analyses. Afterwards a comparative case study was elaborated analyzing three individual cases of the Hungarian cement industry. It turned out that decisions dealing with waste management facilities (disposals, incinerators etc.) trigger the most siting conflicts. These conflicts occur mainly in small villages with unfavorable socioeconomic conditions, strengthening the assumption that investors and decision makers proceed towards weaker objection and seek for potential locations where benefits coming with new investments such as new job opportunities and additional tax revenues are supposedly enough reward for the potential and certain negative consequences. It is also apparent that in many cases some service complexes (shopping malls, hotels, underground garages etc.) and residential developments generate intensive social conflicts. These conflicts happen mostly in Budapest and its agglomeration where there is a substantial demand for these services and where protesters have support from NGOs (they are located mainly in the central region of the country). Between the two extremes other clusters can be found like infrastructural investments, mining and energy, and other industrial facilities. In these categories there are much fewer cases than in the first two.

The qualitative empirical research revealed that certain key categories around the conflicts can be identified. It turned out that different stakeholder groups see risk factors of the new facilities differently – as the psychological approach states. Company representatives and their NGO or political supporters consider risk much lower than their opponents. This finding certainly fosters *H2* hypothesis. The analysis of the interviews also showed that communication is one of the most important aspects of siting conflicts. The communication practices of the firms have been professionalized as time evolved and the very reserved corporate communication was replaced with a more open behavior. This finding strengthens *H3* hypothesis, however it must be declared that this is usually a one-way communication, and does not rely on the participation of stakeholder groups. Although there were some steps made to enable public participation in the decision making process (mainly through so called Community Boards), this participation remained in the level of tokenism, citizens are only informed, consulted and placated by the companies, real citizen control is missing. However, siting processes – at least from the companies' point of view – are not unsuccessful; all three

industrial development seem to be implemented (the technological change in Vác by DDC has already been in operation). This to a certain extent falsifies *H4* hypothesis, because by using communication tools and offering effective compensation packages companies seem to achieve their objectives. Though, there are some issues that are beyond the firms' capacities. They cannot really handle issues like the overall distrust and skepticism of the Hungarian society, and it is apparent that siting conflicts become political games – among many others – in Hungary that also makes consensus building more complicated. One may have an impression that the validity of *H5* hypothesis is quite inarguable; the institutional, political and cultural environments of the siting cases are rather setbacks of the conflict resolution.

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