CHAPTER IV
ANALYSIS & DISCUSSION

4.1 Introduction

Chapter 3 presented the main research findings of the field research. In this chapter, we will discuss in more detail these findings and analyze their implications for both the research framework and inference in practice. Additionally, a practical outline will be presented that can guide communities in their process of community HIA in the future. This proposed strategy outline is based on the practical experiences of the Na Nong Bong community, and aims to spread the lessons-learned to other communities in Thailand, in an effort to build a strong network that may one day challenge the existing hegemony of local government and businesses.

4.2 Stakeholder analysis

Seven main stakeholders of the gold mine in Loei province were identified and discussed in the previous chapter. In this section, we will discuss a number of these stakeholders and how they relate to one another, providing and analysis that in turn, creates the context in which the CHIA was conducted.

4.2.1. Local government & Tungkam Ltd.

Thailand has a long tradition of politics overlapping with business and vice versa. As a result, politicians have become financially dependent on the business that is conducted within their district or province. Given that some 30 million THB is paid each year in royalties by TKL to the local government, there seem to be a strong interest for the government to keep the mine operating.

According to a number of villagers that were interviewed, this intimate connection between local government and TKL is the most important reason for the community's decision to fight the battle against the gold mine independently and

without any form of outside support. One professor interviewed gave a clear example of this intimate connection: *"Last year, after having worked with a community that was heavily affected by an adjacent mine, I was contacted by someone from the local government, urging me to think twice before sharing more relevant health-data with the affected community. It shows to what extent the politicians are involved in business and what strategies they are willing to use in order to protect their financial interests"*.

4.2.2. Universities & the local community

University' involvement has until today only moderately benefited the community, while it has the potential to play a much larger role in the conflict. As stated earlier, a number of universities have been active, each providing data to one or more parties involved. As a result, there is a growing disagreement over the validity of the findings that universities present periodically, depending on who you ask. Even within universities, some professors are appreciated in their work for the community, while others are not.

The influence of these academic institutions can be increased when additional knowledge sharing between them would take place. Similar to the International Panel on Climate Change (IPPC) of the United Nations, which is *the* central body on climate change data, universities involved in the gold mine case should bundle their efforts, in order to increase their common database, objectivity within the conflict, thereby becoming the much needed independent body in this conflict.

4.2.3. Local government & government organizations

Given the financial interests of the local government in the gold mine, outside support to implement the HIA legislation must thus come from elsewhere. Several government organizations have taken on the task of developing the HIA program and assisting affected communities with its implementation. Both the National Health

Commission Office (NHCO) and Healthy Public Policy Foundation (HPPF), responsible for a progressive implementation of HIA legislation in Thailand, have provided practical support in the community HIA process. It is thus somewhat strange to notice that local government and governmental agencies have opposing interests when it comes to the mining operations. A closer alignment of national governmental actions (both at the national and local level) would speed up the HIA process implementation considerably. But given the levels of corruption at the local level, it is expected that further implementation of HIA practices will be slow. In the end, if decentralization of power is really aimed for, it requires governmental bodies to function well on both local and national level.

### 4.2.4. Conclusion on stakeholder analysis

The most striking conclusion with respect to the political context of this situation is the double role of the government. More specifically, on the one hand side it aims to promote a healthy public policy (see Art. 67 on HIA in the Constitution), while on the other hand, it is unable to enforce these healthy public policies through local governmental bodies. By many accounts, the local government is unwilling and unable to enforce this new HIA legislation as a result of the financial interests (both declared and undeclared) it has in the gold mine.

Additionally, there seems to be no genuine cooperation between the different universities involved. Instead, each stakeholder is able to select the data and information it wishes from the various sources available, adding to the controversy whether cyanide leakages from the factory still occur or not. The option of *pooling* data from the various sources available would considerably enhance the process and provide an opening to solve the current conflict between TKL and affected communities.

The results of the stakeholder analysis are represented in Figure 4.1. It illustrates that while the Na Nong Bong community seeks to empower itself in order to benefit most from Art. 67 of the Thai Constitution (represented by the arrow

upwards), the joint efforts of TKL and the local government hinder any real change of the situation. At the same time, HIA volunteers and government organizations aim to facilitate the process of community empowerment, while the universities aspire to be independent, but possibly fragment the process even more.

Figure 4.1: Towards community empowerment: obstacles and sponsors of the community HIA process
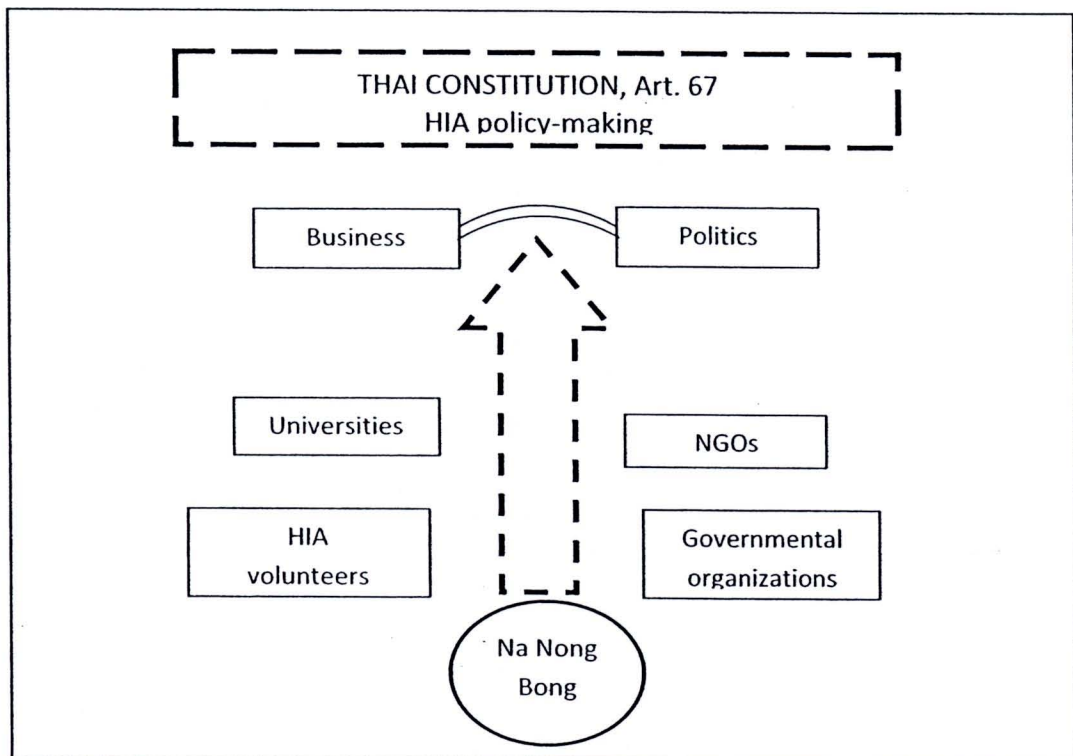
4.3 Analyzing the research framework

4.3.1 Introduction

In democratic systems, citizens have the right to participate in the decisions which affect them. In Thailand, this viewpoint was confirmed when issues of health were included in the 1997 and 2007 Constitution, and more specifically the obligation of conducting a Health Impact Assessments before industrial projects can be approved. The legitimacy of the HIA, it was subsequently argued, depends to a large extent on the amount of public participation that was applied during the process. This argument directly links back to the common understanding that democratic systems should include the voice of the public. The literature review suggested that in order to prove the effectiveness, we need to evaluate the program's process and outcome. The adapted framework of Beierle (1998) that was used to measure the effectiveness of the community HIA in Thailand aimed to do just that, by measuring five social goals of public participation.

The research findings presented in the previous chapter indicated to what degree each of the five goals were met according to the view of local community members. This section combines these individual findings and analyses the combined results.

4.3.2 Analysis

Overall, a number of conclusions can be drawn based on the research findings. First of all, it seems the most important goal of the community HIA, empowering the community through knowledge and information, was achieved. As a result of the HIA conducted, we could say that the villagers now feel better "equipped" to tackle the health issues in the future by themselves. This is clearly a positive outcome of the community HIA.

However, on the other four criteria of the research framework that were tested, the scores of the HIA are less obvious. While, inherent to the process, the health

impact assessment improves the substantive quality of decision (criteria 2), there is little evidence that these public values are subsequently incorporated into decision-making (criteria 3). Although it may be too soon after the end of the process to draw this conclusion, a failure to truly incorporate the values of the general public into decision-making could be interpreted as a failure of the overall health impact assessment policy. The question then arises then is just how much impact local empowerment really can have if no real changes are taking place outside the community.

So what are other implications of our research findings? What does it mean that only one of the five criteria is assessed to be positively correlated with the community HIA process?

Criteria 1: Inform and educate the public

First of all, one could claim that the only real purpose of a *community* HIA is to empower the local community. In that case, we should not be surprised to find only a positive score for this social goal, while showing mixed or negative results for the other four criteria. The HIA guidelines of Thailand stipulate that people must learn to ask the right questions and exercise their legal rights. By seeking knowledge, their rights will be used effectively (NHCO, 2008). This is exactly what the community HIA yielded in terms of practical result. On the other hand, drawing the conclusion that the additional information and knowledge is the direct result of the HIA process, may well overstate the benefits of the community HIA process. For one, the ideas behind the HIA concept are not new to communities, as villagers have been conducting HIAs for a long time. In an age where technology has challenged or replaced these traditional forms of knowledge, EIAs have replaced local communities' consulting processes, and the traditional customs became sidelined (NCHO, 2008). Thus, one should be cautious about the benefits attributed to the community HIA process. Additionally, if the HIA outcomes claim to represent the holistic approach to health, it certainly needs to include the spiritual and mental aspects of health, which have been important aspects of how villagers assessed the environment and their health prior to the introduction of EIA and HIA.

Criteria 2: Incorporate public values, assumptions and preferences into decision-making & Criteria 3: Increase the substantive quality of decision

With respect to the second and third criteria of the research framework, it is arguable that new data (accumulated by the local community) may lead to more confusion about the numbers in the short run. This seems to be the case in Na Nong Bong, where various data reports all claim different outcomes. Thus, it seems that only in the long run, the community HIA process is able to improve the substantive quality of decision if a common agreement on the available data is achieved. For now, the community remains unchanged in their position towards the mine: *"TKL most stop it mining activities right now! We want them out of here"*. On the other hand, numbers only tell a story to a certain extent. The issue with HIA is that it should assess all aspects of health: physical, mental, social and spiritual. There is a genuine risk that when the discussion on the data is not solved soon, little attention is paid to the remaining three aspects of health. All things considered, while additional data may have increased the substantive quality of decision, it jeopardizes to an extent the holistic approach that HIA intends to pursue.

Criteria 4: Foster trust in institutions & Criteria 5: Reduce conflict among stakeholders

The previous argument, regarding the different sets of data available, links in well with the issue of conflict. According to the literature, one of the fundamental principles of the HIA process is that it serves as a conflict resolution tool. However, our research findings suggest that the community HIA of Na Nong Bong did not change levels of conflict within the current impasse. Should we therefore completely dismiss the HIA process as a conflict resolution tool? Probably not, if only for the reason that the nature of the *community HIA* does not involve any interaction or communication with the company, and as such, levels of conflict cannot be expected to alter. With respect to the level of conflict between stakeholders, it is more likely that an HIA at *project level* will influence the level of conflict between the various parties, whether positively or negatively.

Similar conclusions can be drawn on the aspect of trust. Levels of trust have been extremely low between the company and the local community ever since the company started operations without any notice in 2006. During the community HIA process, there has been no additional interaction with the company, so levels of trust were unlikely to have changed. The issue of trust is particularly relevant, yet difficult to improve, in cases of ongoing discussions about projects that have been operating for years. In contrast, when HIAs are conducted for new projects (i.e. at *project level*), it is possible that the levels of trust are positively influenced by an HIA process.

4.3.3 Assessing the effectiveness of the research framework itself

There are several shortcomings to the research model that is proposed by Beierle (1998), based on the existing literature and the results of the research at hand. The following section therefore evaluates the research framework's usefulness itself.

First of all, as Parry and Wright (2003) already noted earlier that there exists a strong conflicting force between the knowledge providing and participatory aspect of public participation in health impact assessment processes. According to the authors, the public is unable to gather considerable amounts of information on health and at the same time critically add to the debate about health policies. Beierle's research model is based on this exact assumption. Why other would it try to measure the amount of information gathered during the process of public participation, while at the same time measuring the impact of public views on policy making? This is an inconsistency in the HIA literature in general and a contradiction as well in the research model of Beierle.

Secondly, the research framework insufficiently measures the process of public participation itself. Although it is not to say that we can rely on the assumption that good processes lead to good outcomes, it is important to evaluate the level of satisfaction participants had with the participatory process. For example, when participants are satisfied, they learn more, share more opinions, brainstorm on solution and engage with stakeholders more constructively (Beierle, 1998, Mindell et

al., 2004). The current research criteria thus fail to incorporate how the community has perceived the process, and whether they feel more confident now about the next steps of the process in the future. This may in fact be the most important outcome of the process.

Finally, as the social goals of Beierle's model measure rather broad aspects of public participation (such as trust, levels of conflict, information and knowledge), it is difficult to assess the validity, reliability and usability of the model. For instance, although the level of conflict may not have changed as a result of the process of public participation, the conflict may certainly have transformed in a certain direction. However, the current research model is unable to measure this change; hence, one can doubt about its usability in general. In addition, it is difficult to say whether the current model is reliable (in the sense that it measures consistently) because the model has not been used much, or at least, there are no written reports available of the use of the model in various other cases. Given that no standard questionnaire is available and interpretation of results is subjective, the validity of the model is not proven either. On a final note, it should be observed that neither one of the alternative evaluation frameworks of public participation score particularly high on reliability, validity or usability.

4.3.4 Conclusion

The framework of social goals that assessed the effectiveness of public participation under HIA in Thailand yielded mixed results. It demonstrated that the process of community HIA positively contributes to the information and knowledge gathering of the local community. However, we maintained that these benefits cannot be attributed solely to the community HIA process, since communities around Thailand conducted HIA themselves well before the official introduction of the concept in Thailand nearly 10 years ago. Additionally, research showed that levels of trust and conflict remain unchanged after the community HIA process. Given the fact that no official interaction between the community and outside stakeholders takes

place during the process, expecting improved levels of trust and a reduction of the conflict would overestimate the positive effects of a community HIA.

This concludes the analysis of our research findings when measured against the central research framework. However, while the field research's primary aim was to assess the community HIA effectiveness in terms of the five social goals, the research yielded more interesting results, somewhat outside the narrow scope of the research framework. In fact, much of the group discussion and individual interviews conducted in the community focused on the process, and more precisely on how the community had organized itself against the mining company before and during the HIA process. In order to fully understand the process and impact of the HIA of Na Nong Bong, it is necessary to investigate the various steps that the community made prior, during and after the HIA, with the aim of maximizing the positive effects of the community HIA. The following section will describe these steps as they were observed in the community. Using the experience from Na Nong Bong, a step by step strategy on how to maximize the impact of the community HIA will then be proposed, based on an inductive research methodology. It is expected that other health-affected communities around Thailand can use this strategy when conducting a community HIA themselves.

4.4 Discussion: developing a strategy for community HIA

4.4.1 Introduction

Figure 4.1 in section 4.2.4 was proposed to represent the work of the community HIA. The main idea behind the figure was to indicate that in order for the community to truly benefit from the HIA laws, a strong *bottom-up movement* is needed. This movement of empowering the community, making use of several allies (including government organization, HIA volunteers, NGOs and universities) during the process, will allow communities in the long run to truly challenge the pact of businesses and local governments. Empowerment, so it is argued, will contribute to the improved implementation of the HIA regulations proposed by the 2007 Thai Constitution. The *dashed* arrow in Figure 4.1 represents this movement of empowerment.

While the community HIA is a process that can be used to assess the health threats, it is equally interesting to assess other success factors of a community HIA. These factors, perhaps closer to the field of "social movement", create important preconditions for an HIA to be truly beneficial. Based on the findings of the field research in Na Nong Bong, the following section describes a number of critical steps. Prior to discussing these steps, it should be noted that in reality, the chronologic order in which these steps take place can differ from case to case. However, all steps are very relevant as contributing factors to the success of an HIA, irrespective of the order in which they take place.

4.4.2 A framework of community empowerment

The community of Na Nong Bong woke up one day in 2006 and realized dramatic changes were occurring not far from their village. Trees were cut and trucks passed the village at high speed. At that time, the community was not close to being as organized as it is now. When the people realized the mining company was there to stay, they organized themselves over the next several months. Unity within the village was created, although this is easier said than done. As with any other community

around the world, there is a constant struggle of keeping the community together, as the younger generations are attracted to city life, while strong community ties are most important to older generations. These struggles between generations and challenges within each generation (including addiction to games, drugs, and alcohol, social isolation of elderly and premature pregnancies), are just as relevant in Na Nong Bong as anywhere else. However, when faced with the outside threat of the gold mine, the community started the process of creating **unity of the community,** as an important starting point in their pursuit of justice.

Over the next several months, the community witnessed the gradual degradation of the natural environment and the villagers' health. In order to fight the battle against TKL as good as possible, the community decided on the **goals and strategy** that were required. In the case of Na Nong Bong, the long term goal of the community was straightforward yet complicated: to force the company to abandon its mining operations on nearby Phu Thap Fah Mountain.

The two steps described above seem fundamental in order to prepare for a community HIA. If communities request an HIA to be performed according to section 67 of the Constitution, it is likely that they have organized themselves prior to the request and have decided on the goals and strategy.

Subsequently, when the community HIA process is started, the **build-up of knowledge** becomes the next goal. The research framework demonstrated earlier that the accumulation of information and knowledge is a strong tangible outcome of the community HIA. In Na Nong Bong, one of the HIA-volunteers that assisted the community during the HIA process argue that "the biggest benefit of conducting an HIA is that it awakens the knowledge inside the community. With more active knowledge, the community is able to help itself". **Knowledge** should be understood at two levels. Firstly, it denoted all the information and understandings the community already has within its borders. This knowledge about the surrounding environment and health may have been passed on for generation. The HIA process can awaken this knowledge. Secondly, it denotes the knowledge that exists outside the community, which is needed to communicate with outside stakeholders at later stages of the

process. In order to be perceived as a solid stakeholder at later stages, it is vital to master the relevant outside *terminology* that applies to the specific health issues.

The knowledge build-up should be a combination of the knowledge that can be extracted from the community and its issues, combined with the knowledge of similar processes that have taken place in the past elsewhere in Thailand. This process of knowledge transfer constitutes the first important step towards the **creation of a firm network outside the community**. Networking is essential as it allows for better transfer of knowledge and information exchange, allowing a community to improve the process and quality of the community HIA that is to be conducted. A strong network can make further improvements to the community's strategy, based on lessons learned elsewhere.

Towards the end of the HIA process, the community needs to make plans on how to spread the knowledge acquired. This can be done directly through the network of communities, but solely sharing the knowledge within the network is insufficient. Instead, a strategy should be developed to **spread knowledge** around Thailand **using the media**. Creating (local) awareness for the issues at this stage is important. During the field research in Loei, it was a surprise to find that virtually no one in the city of Muang Loei (provincial capital, 20km away from Na Nong Bong) neither knew about the existence of the community of Na Nong Bong, nor its health-related conflict over the gold mine.

The issue of public communication is complex in Thailand, not only for the political ties that many media channels seem to have. *TV-Thai*, the only public TV channel in Thailand, however is an exception to this rule. Its programs focus on issues that matter at the community level, and as such, raise awareness of local battles for justice such as the one in Na Nong Bong. At a media-workshop that was organized in Loei at the time of research, the president of TV-Thai made an interesting comparison on how the media and the community can truly benefit from each other:

> *"A long time ago, there was a shepherd with many sheep. Every night the hungry foxes would come out from hiding and eat several sheep because they were hungry. The shepherd brought a dog to protect the*

sheep, but the dog was too small and still every night, sheep would get attacked by the hungry foxes. Then, the shepherd bought a big dog to protect the herd, but this time the dog was too sleepy to protect the sheep at night, and many were still eaten by the foxes. In the end, the shepherd decided that he should use both dogs, because they could cooperate and keep the foxes at a safe distance. He was surprised to see that together, these dogs were able to protect the herd from danger"

Consequently, the media and the community should cooperate more closely in order to protect the rights of the community. As the media is able to spread the story, the community should contact them more often to feed them with the latest news.

Throughout the entire process, it is important to make use of the **financial assistance and expertise** of the governmental organizations that promote the HIA policy throughout the country. Given the CHIAs that have been conducted around Thailand over the last couple of years, these institutions can actively support the process. In the case of Na Nong Bong, a strong mistrust for outsiders has developed as a result of a number of negative experiences with outsiders. Although this defensive attitude is understandable given the history, it is essential to keep a strong connection with outside stakeholders, such as universities, researchers and government organizations. The primary benefit is that these bodies can spread the community's story to a larger audience, thereby increasing public awareness of these clear examples of *double standards* within Thai society.

Finally, once the community has gained enough self-confidence through the HIA process and through the network it has become part of, it needs to **open up** (again) towards **the other stakeholders** of the project. In the case of Na Nong Bong, this is a very delicate issue given the history of the mining operations. The community has reacted with discontent to one of the professors' proposal to seek a *middle way* in the conflict. In Na Nong Bong, at this point, there is no space for mediation between the community and the company, for the simple fact that the community does not want to communicate with TKL, unless they decide to shut down the operations. There is a strong feeling that the community should protect itself without outside

support, even when it comes to conducting the HIA. The local translation for HIA is "เฮ็ดเอาเอง" which translates best to "do it yourself". Again, this is a valid attitude, but unlikely to lead to a sustainable long-term solution.

Figure 4.2 represents this step-by-step process of empowerment that can lead to a more effective CHIA process. As mentioned earlier, the order in which these steps are conducted is not fixed, but rather it is an indication through which important stages the community should progress to fully benefit from the community HIA process.

Figure 4.2: Strategic steps in a successful community HIA process
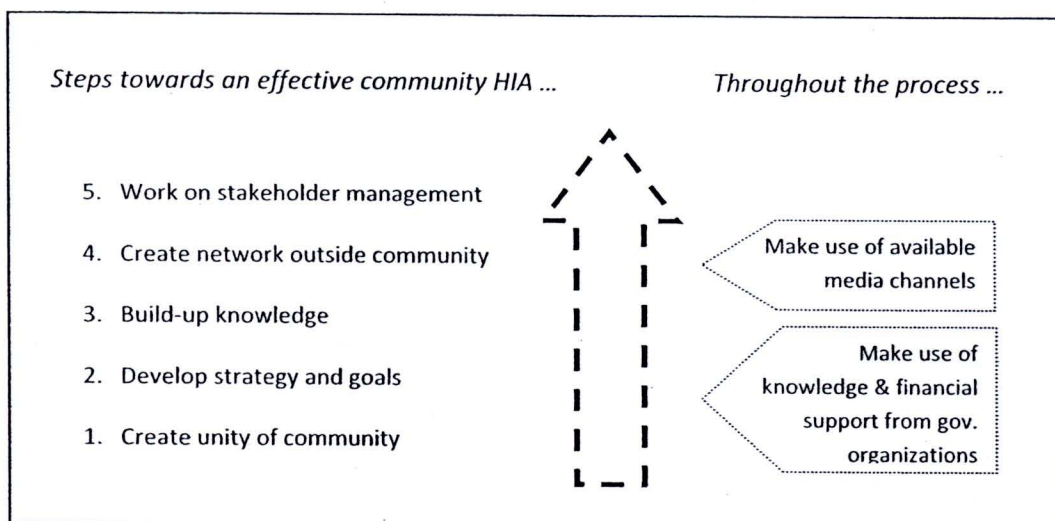
The above analysis and framework represented in figure 4.2 is the direct result of inductive research at Na Nong Bong community. This implies that no theory or framework of how social movements are build up was tested. Instead, based on our observations, it was attempted to reconstruct the most important steps in the process building up to the community HIA. The current research will not attempt to match its findings with available theoretical models. However, one concept presented by Pengkam and Sukkemnoed (2007) will be discussed, as it relates closely to the issue described above. The authors describe the concept of the "Triangle that moves the Mountain", which represents a big and very difficult problem that seems unmovable at first. As a result, it proposes three elements that complement each other: creation of knowledge, social movement and political involvement.

Figure 4.3: The Triangle that moves the Mountain.


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                    Creation of relevant knowledge
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                             /  \
                            /    \
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                         /          \
                        /            \
    Political involvement            Social movement
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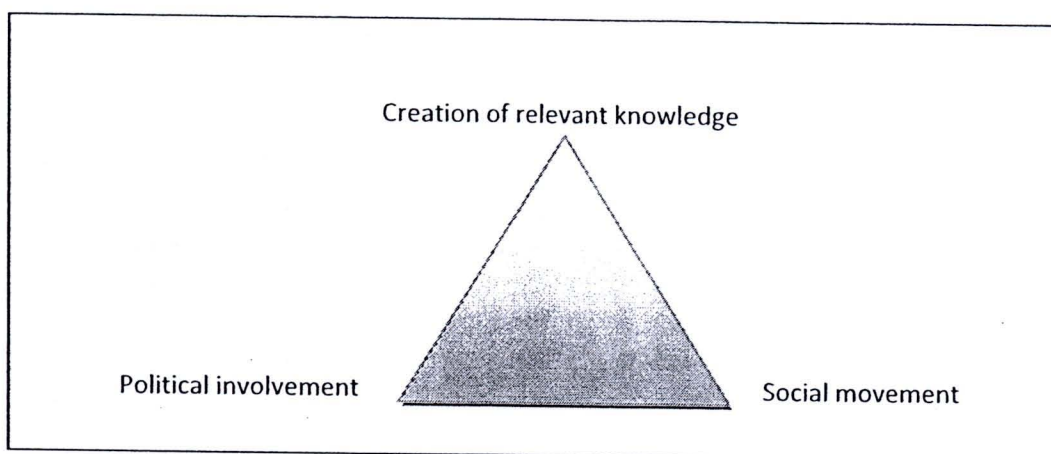
(Source: Pengkam and Sukkemnoed (2007)

The reasoning behind the triangle-concept is that the creation of knowledge is vital but inadequate by itself. It must interact with social movements through a process of social learning. Likewise, without relevant knowledge, social movements cannot gather momentum and will die unnoticed. Finally, without political involvement, the structure is incomplete and relevant knowledge and social movement will be powerless. Only when all three forces come together can there be real change and will the community HIA have true impact.

4.5 Discussion: additional issues

The previous sections of this chapter discussed the outcomes of the community HIA process in Na Nong Bong, and based on their experiences, proposed a strategy to increase the impact of the community HIA. This section deals with a number of issues and reflections that have not been discussed yet, despite their relevance in the HIA process.

4.5.1 The seven underpinning principles of HIA

To start with, let there be some reflection on how much of the seven underpinning principles was recognized during the community HIA process in Na Nong Bong. To recap, the literature identified the principles of *democracy, equity, ethical use of evidence, practicability, collaboration, comprehensiveness* and *sustainability* as the main principles behind the HIA concept (Sukkemnoed and Al-Wahaibi, 2005).

To a certain extent, promoting grassroots empowerment through HIA is a rather weak problem-solving approach. In the case of Na Nong Bong, we have witnessed the government's inability to implement HIA legislation over the last years; cases of clear environmental and health violations have remained unnoticed and unpunished. From a government perspective, it is easier and far less risky to promote local empowerment than to start the battle that is long overdue against corruption at district and provincial level in Thailand. The glass ceiling formed by the coalition between businesses and local government will keep communities losing these battles for a long period to go, unless corruption is tackled with adequate conviction. Thus, given the underpinning principle of *democracy* in HIA, there may well be a deceptive smell of democracy to the HIA process, if in reality public opinion is disregarded in the final decision making.

By conducting a community HIA, additional knowledge was gained by the villagers as to which aspects affect their health. Or rather, the knowledge was elicited from villagers and put in a "mold" that the outside world calls "health impact

assessment". In that sense, inequality of knowledge has decreased. However, the community HIA so far has not changed the distribution of health impact across the population, as the theory suggests. Again, proponents of the HIA argue that the process is just as important as the outcome of the HIA, but even they cannot deny that positive tangible outcomes are needed at some point in the future in order for villagers to feel the effects of empowerment.

In terms of collaboration, the nature of the community HIA excludes any official interaction between the community on the one hand side, and the company and local government on the other side. Therefore, it would be unfounded and inappropriate to dismiss the community HIA in terms of contributing to the principle of collaboration. However, collaboration is an vital aspect of HIA and therefore a crucial absentee within the community HIA. There are strong arguments to include interaction with the community at some point in the CHIA process, because one cannot expect a conflict to be resolved without interaction between the key stakeholders.

4.5.2. Community HIA vs. HIA at project level

The relationship between a *community* HIA and an HIA *at project level* has yet to be discussed. NHCO suggest that the community HIA "was born in an attempt to revive local communities' traditional HIA processes and integrate them into the national HIA" (NHCO, 2008b:29). In contrast, HIA at project level is performed when a proposed project needs approval to proceed. So is community HIA conducted prior to a HIA at project level, in order to sufficiently *educate* the local community when they face other stakeholders in the *real* HIA process? Is a HIA at project level likely to take place in the near future in Na Nong Bong, now that the community is ready for it? There is no definite answer yet to these questions. But a HIA without real impact on the other stakeholders is like shooting a gun without bullets; scary at first, but completely ignorable in the long run. That would be a sad end to the community efforts...

Overall, there is a strong need for a follow-up after the community HIA. The "Triangle that moves the Mountain" clearly demonstrated that fundamental changes can only occur when the creation of knowledge (through the CHIA process) is accompanied by a strong social movement and political involvement. At this point, there is insufficient proof that the CHIA can encompass all three elements. Instead, there seems to be a strong need to complement the CHIA with a formal HIA process, in which the community can exercise its knowledge, within a process that has above all more legal implications than its little brother.

4.6. Conclusion

Various important issues were discussed in this chapter. When analyzing the stakeholders of the gold mine, it was argued that due to the strong interconnection between businesses and local government in Loei province, the government is unwilling and unable to take sufficiently care of the local communities in protecting their rights in a transparent manner. Additionally, we maintained that, at this moment, the various universities involved are too scattered in their work, and as a result, and fail to be perceived as objective stakeholders. This means they cannot play a moderating role in the conflict, as universities often do elsewhere. Based on the field work solely, an inductive strategy was proposed for communities to achieve additional impact when conducting a CHIA themselves in the future. This framework was in many aspects similar to the "Triangle that moves the Mountain" model proposed by the HSRI.

The next chapter will recap these findings in order to answer the main research question investigated during the research at hand. In addition, the chapter will provide a number of recommendations, both practical and theoretical, on how to improve the HIA structure that is available in Thailand.