RESEARCH REPORT

Political and Institutional Prerequisites for Successful Mining Establishment and Development

A Synthesis of Social Science Research

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Abstract

Mining has a substantial influence on several parts of society, in part by providing economic and social development, but also through negative environmental and social-cultural impacts connected to its operation. This combination of both positive and negative effects induces a complex planning and permitting process concerning large and differentiated values, long time spans and large numbers of actors. The aim of this report is to conduct a survey of previous research on societal aspects on mines and mining conducted within political science in particular (and within a broader spectrum of other social sciences in general). The emphasis of the study is placed on identifying research focusing on how, and to what extent, political and institutional factors affect processes of mining development and subsequent serve to shape their outcomes. Results show that previous research has focused on the distribution of rights and resources in connection to development. Five main sub-categories are identified: national mining policies, indigenous rights, corporate social responsibility, company-community conflicts and environmental impacts. Research on how the development processes is impacted by the influence of e.g. public opinion and stakeholder core values, of interactions within the administrative system and of national and subnational policies has though largely been overlooked.

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Preface

This report was carried out at the Political Science Unit, Luleå University of Technology, during Fall 2012, and funded by Hjalmar Lundbohm Research Centre (HLRC).

Stefan Linde is the main author of the report and responsible for the literature survey.

1. Mining, stakeholder values, and development

By providing metals and minerals as raw materials for the production of industrial equipment, fuels, jewelry, technological equipment and more, the extractive industries plays a central role in several parts of society (Bridge, 2004). In many countries and regions around the world, mining also has a substantial impact and importance both for the local socio-economic development as well as for national economic stability (McMahon & Remy, 2001). Benefits of mining arises directly from financial investments needed to develop and run a mine and wages paid to mine employees; indirectly through employment of subcontractors and their services; but also from so called multiplier effects, e.g. local business development in connection to the mine. The positive economic effects of a mine can also stimulate development of local and regional health care and educational services as well as of community cultural activities (Ibid). The many positive benefits derived from mining often lead to a situation where local communities are as reliant on the mining company as the mining company is of the local community and its resources.

In contrast to the many positive effects of mining, extractive practices are often associated with costs or adverse effects on environmental as well as socio-cultural values (Bridge, 2004). Mining inherently requires large areas of land to operate and the physical impacts of opening and running a new mine therefore often causes big stress on the natural environment and its ecosystems. Leakage from refineries and smelters, the dispersal of dust and other suspended particles on land and in water and the often highly toxic substances used in mineral refinement cause a number of negative, sometimes irreversible, effects on the environment (Ibid). Furthermore, accidents at mining sites (e.g. ruptured dams and chemical spillage) can have dramatic effect on the surrounding environment and for local inhabitants. Development of new large deposits of minerals can also lead to many negative effects on local and indigenous communities' social and cultural practices, by physically altering areas traditionally used for these purposes by its inhabitants.

As a result of the wide array of both positive and negative impacts of mining possible conflicts of interests can arise between different views on the allocation of costs and benefits in society. Economic benefits are considered in contention to socio-cultural and environmental values, a choice which is rarely straight-forward. Another factor adding to this already complex situation is the multitude of actors with interests in the development process, e.g. representatives of local and indigenous communities; sub-national, national, and even supra-national authorities; NGOs; and privately owned mining companies. The great number of actors and the many possible views and opinions of these actors give rise to problems when aiming to construct a development process, which is at the same time (cost) effective and legitimate. Which actors that should be considered stakeholders, and thereby be included in the development process, and what influence each actor should be granted are central considerations for achieving successful mineral development and extraction processes. As issues of sustainable development and corporate social responsibility (CSR) are rising in both the public eye and among political decision-makers, the importance of negotiating conflicting interests and eliciting local support throughout the processes of deciding on and developing a mining site is a high priority for mining entrepreneurs as well as for local officials and development planners. Furthermore, without local support operating a mine could prove hard, even after a successful development process (McMahon & Remy, 2001).

As the development and operation of a mine incorporates a range of political factors, i.e. conflicting interests and actors, including the presence of difficult trade-offs between economic, socio-cultural and environmental values, it seems reasonable to assume that the *processes* concerning the decision to establish a mine are of significant importance. These processes, in turn, are surrounded by complex institutional frameworks shaping their outcomes. Spanning both formal and informal structures, these frameworks, for example, constrain the opportunities for individual actors to partake in the decision-making processes; shape the incentives for collective action; and include mechanisms for securing property rights and for resolving coordination failures

between different policies and regimes (e.g. Bardhan, 2004). In combination with the range of different actors and interests, such institutional frameworks therefore determine the prospects and prerequisites for effectively and legitimately implementing processes of mining development and operation. Knowledge on how these institutional structures function and interplay with political factors to shape processes of decision-making are therefore imperative for mining entrepreneurs aiming at initiating new projects.

1.1 Aim of the study

Provided the complex societal landscape in which mining development and operation is situated, the challenges facing such processes are not merely a matter of technological innovation. Rather, a range of political factors, predominately values, interests and actors, as well as the institutional frameworks in which they are situated, could be assumed to play a significant role in shaping processes and their outcomes. The relative importance of these factors is, however, less clear and so is also knowledge on the interplay between different institutional settings and socio-political contexts.

The aim of this study is, therefore, to conduct a survey of previous research on societal aspects on mines and mining conducted within political science in particular (and within a broader spectrum of other social sciences in general). The emphasis of the study is placed on identifying research on how, and to what extent, political and institutional factors affect processes of mining development and subsequent serve as to shape their outcomes. As such, the study answers the following questions:

- How should we conceptualize processes of decision-making concerning mining development and operation, i.e. which are the main political and institutional factors influencing the outcomes of such processes?
- What is the state of current political- (and social-) science research on political and institutional factors affecting mining establishment and operation?

- Are there any political and institutional factors of significance for mining development processes that are not covered in current research? And if so, which?

1.2 Method, material and outline

The study is a synthesis of current research on the development of mines and, although focusing primarily on political science research, has a wide social scientific perspective. In the first part of the study, a comprehensive overview of previously conducted research on the subject is conducted, thus answering the first question on present state of research. Since the focus of this study is on the political and institutional conditions surrounding processes of mining development and operation, two main delimitation criterions were set up for the process of data collection. *First*, the research included in the synthesis should have a political science or some other closely related social scientific (e.g. anthropology, sociology, political geography, economics, law) perspective. *Secondly*, the research should focus on the decision making processes and outcomes associated with the development of large mines. To avoid an over-excessive limitation of the collected material, this second criterion was, however, interpreted in a wide sense, including both institutional settings, stakeholder relations and the actual decision-making processes. Taken together, the two above criterions suggest that research on the technical aspects of mining, comprising a significant majority of available research but that are of no interest in this synthesis, is not included.

In the second part of the study, a qualitative comparative method is applied in order to provide a comprehensive understanding of the contents of the material and to elucidate strengths and weaknesses of previous research. By comparing the findings in the mining-survey with social science research on other forms of large scale industrial development processes, important gaps in our knowledge on how societal factors (i.e. political and institutional frameworks) affect mining development processes can be

identified. The comparison is based on two other forms of large scale development processes; establishment and operation of wind farms and hazardous waste facilities[1].

Research on wind power development is a widely researched area within the political and social sciences and therefore provides an adequate point of reference. Hazardous waste facilities has not attracted the same amount of scholarly attention as wind farms, but helps by adding extra depth to the comparison. Also, hazardous waste facilities have a number of features in common with mining that wind farms don't (see below). Although not identical, the development of mining, wind power and hazardous waste facilities respectively also shares several qualities which make them suitable for comparison. All three require large surface areas of land for operation and therefore also has a big impact on the local environment and on socio-cultural activities. In the development phase, all three affects a great number of actors and stakeholders (e.g. private companies, local inhabitants, supra-national, national and sub-national authorities etc.). This in turn leads to highly complex development processes where a big number of interests must be considered and negotiated by political authorities and mining entrepreneurs. Mines and hazardous waste facilities also share the common feature of being associated with a level of risk (e.g. spillage of toxic or nuclear substances) which may inhibit the possibilities to elicit local public acceptance for their development. These similarities notwithstanding, mining is also different to wind farms and hazardous waste facilities due to the significant economic possibilities it entails. Even though both wind farms and hazardous waste facilities require a certain level of personnel to operate, and thus provide benefits to local employment and business, the economic benefits of this can be assumed to be considerably smaller than that of a mine. This not the least since the major personnel needs is restricted to the start-up phase and thus not constitutes a long-term benefit. By applying a comparative perspective, a further overview of issues that have been seen as important is provided and thus assists in sharpening the hypotheses on how the political and institutional frameworks impact on large scale development processes is constituted.

[1] Hazardous waste facilities are here considered to include all kinds of businesses handling toxic or otherwise harmful material, such as nuclear waste facilities, oil refineries and recycling stations.

The material use in the study consists of academic reports, books and articles from international peer-review journals, collected mainly through searches in two major databases: *ProQuest* and *Web of Sciences*. These two are connected to a large number of smaller databases covering a broad spectrum of scientific research (e.g. incorporating both the natural and social sciences) and therefore provide a good overview of the subject, not only from a political science perspective but also from the view of other scientific disciplines. Searches were carried out in two steps; first a broad non-specific search was used to grasp of the scope of possibly relevant material. Secondly a number of more specific searches were executed by using search-terms found in the first search. All collected material considered relevant were then sorted according to a set of categories to make the material more accessible (see Table 1[2]). Although there are sometimes discrepancies within some categories the overall aim is not to make completely consistent groups, but rather to create an overview.

After this first introductory section the report continues as follows. Section two elaborates upon the complexities of public policy processes and provides a theoretical framework for sorting and placing the results of the study in a broader context. The focus in this part is placed on theories of policy making, as these outline key factors that previously have been suggested as important for the outcomes of complex decision making processes. This section thus serves to further structure the synthesis and to, in the concluding section, illustrate gaps in previous research. Section three and four summarizes the results and describes the main findings in research on mining (section 3) as well as on wind farms and hazardous waste facilities (section 4). In the concluding section five, implications of the results of the report on future research needs and possibilities are discussed and some final remarks for the synthesis report are provided.

[2] Table 1 is organized into five broad categories: International Conventions, Formal institutions, Informal institutions, Stakeholders, and Process, which in turn are divided into several sub-categories. See section two for further elaboration.

2. Public policy and large-scale developments

Most public policy processes, including those concerning large-scale developments, share some common features that make them inherently extremely complex and hard to overview (Sabatier, 2007). The conventional model of the policy process as a linear progression through a set of separated and functionally sequenced stages (i.e. problem formation, decision-making, implementation, and evaluation) (deLeon, 1999), has not proved adequate for capturing the shifting and uncertain patterns of governance characterising contemporary policy making, in particular in those instances where the issue at hand concerns large-scale establishments and the need to balance a significant number of interests. As such, the point of departure for this synthesis acknowledges that policy making rather is a dynamic process incorporating a range of competing ideas, actors and actions, and where the outputs of decision-making is the result of spatially and temporally interconnected processes of negotiation and resource mobilization among actors from a variety of organizational affiliations (e.g. governmental authorities; industry; organized interests; and the general public) (cf. Hall & McGinty, 1997). A number of reasons suggest that this might be the case.

First, most policy processes affect a large number of actors and stakeholders from different parts of society, all holding different and often competing interests. Actors with similar interests frequently organize in policy networks for influencing decision-making and obtaining collective held goals. This understanding of the policy process, described as a shift from government to governance, gathers a range of overlapping concepts for describing the structures of resource exchange, negotiation and coalition-building among actors within a policy subsystem, for example; implementation structures (Hjern & Porter, 1993), iron triangles (Jordan & Schubert, 1992), issue networks (Heclo, 1978), policy communities (Jordan, 1990), sub-governments (Rhodes, 1990), and advocacy coalitions (Sabatier & Jenkins-Smith, 1993). The founding idea within each of these notions is that actors seeking to influence policy development in a specific issue engage in different forms of collective action sharing their views on the problems at hand (Carlsson, 2000; Parsons, 1995; Sabatier & Jenkins-

Smith, 1999; Rein and & Schön, 1993). To take all stakeholders' preferences into account and at the same time balance effectiveness and legitimacy in the processes puts enormous pressure on entrepreneurs, development planners and responsible political authorities. This process can be even further complicated by considering the influence of *issue framing* by political elites, which has a significant impact on the way a policy is understood and legitimised by the public (Iyengar, 1991), highlighting the relevance of how actors frame their interests; attempt to transform them into policy; and communicate them to the public, both when legitimizing an already made decision or when seeking to elicit public support for a specific line of preferences. *Second*, the outcome of a policy process often concerns both deeply held values of stakeholders and large amounts of money, and sometimes also leads to coercive government regulation. This situation creates incentives for stakeholders to try to alter or distort the process by lying and cheating (Sabatier, 2007). *Third*, debates on policy formulation often include conflicts over technical and administrative matters of planning and implementation. Conflicts and coalitions in the political process are thus often linked to the perception and the impacts of different technologies (Hecht, 2001). Slight changes in rhetorical formulations can potentially have a big impact on the outcome of the final policy. *Fourth*, several different (interrelated or separate) policy programs, often including many of the same actors, are normally active at the same time both within a given substantive policy area as well as within a set geographical location. Without coordination between these horizontally and vertically linked systems, conflicts may erupt between different policies and institutional frameworks. *Fifth*, most policies cover time spans of a decade or more, which makes revision and feed-back a slow process (Sabatier & Jenkins-Smith, 1999; Sabatier, 2007). Because of this, initial (e.g. pre-development) policy formulation and decision-making is highly important. Finally, and *sixth*, large-scale establishments such as mines are not only a question for policy-makers at the national level. Contemporary efforts to promote sustainable development must span several territorial tiers in a system of multi-level governance (e.g. Hooghe & Marks, 2003). Thus, the actions and interactions of decision-makers and stakeholders are

determined and constrained by institutions and activities on supranational, national, as well as local levels, and the conflicts of interest that might arise will be influenced accordingly.

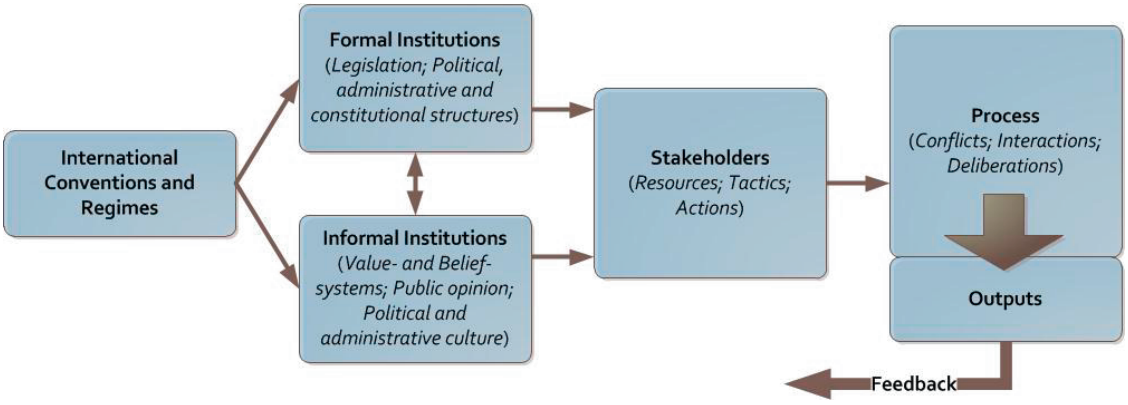
As mentioned in the introduction, an overarching ambition of this present study is to identify gaps in previous political (and social) science research on mines and mining, as well as to draw out key areas that are of significance for future research. However, following Sabatier and Jenkins-Smith, (1993), an analysis cannot be reliably conducted without some sort of framework or theoretical lens guiding the inquiry and determining what is important and what can be ignored. Therefore, the final part of this section will provide a theoretical framework for studying factors impacting public policy formulation and implementation.

Although new policy theories often arise as a result of critique of other theories, some common areas of interest can be detected in most of them. These concern the institutional framework of rules and norms regulating a specific policy domain, stakeholders' beliefs, tactics and actions within this framework, and the outcome of interactions between these two. The institutional framework surrounding the policy process both enables and constrains the actions of coalitions, organised interests and individual citizens wishing to influence decision-making (North, 1990), and can be of either a formal or an informal character. In spite of the problems in distinguishing between formal and informal institutions, it can be a useful heuristic and pedagogical device. Within a community formal institutions are the outspoken and commonly agreed upon rules, whereas informal institutions are the implicitly understood rules and norms. Formal institutions include legislation, such as mining or environmental policies and regulations, as well as the organizational features of the given policy domain (e.g. power relations between government authorities). They thus help explain how policy decisions are legitimised in relation to the public by regulating how, when and by whom policy should be decided upon as well as the extent of public participation in the process. Informal institutions on the other hand include norms, beliefs and political opinion of the public, but also describe the culture of behavior and practice within e.g.

decision-making bodies and political authorities. The resources and capacity for action of separate stakeholder groups working within this framework, including the physical and material conditions as well as the organizational and political resources, are also affected by these institutional rules and norms. The process of interaction between the institutional features and stakeholders within a policy domain, and the output it generates, constitutes the end of the public policy chain (see figure 1 below). This part of policy studies considers both the direct impact of a certain policy decisions, what type of interaction occurs, and if or how feed-back generates new insights within the policy domain.

These key features are summarized in the table below. Although a summary like this never can be as exact as the models and theories it's derived from, it gives a good overview of aspects that are important for the outcome of the public policy process.

Figure 1: *The Policy Process - A Compilation of Theories*



The contents of Figure 1 will in the coming sections (3 and 4) be used to structure the presentation of the results. Each box in the figure represent a separate sub-section both in the coming sections and in table in the Appendix 1, and material will be sorted in accordance to these groups. Some articles, and books, will though appear in several categories as they span several categories. Sub-sections *Formal institutions*, *Informal institutions* and *International conventions* will include material focusing on different forms of regulation within the policy process, including policies, legislation,

norms, culture, core beliefs and public opinion on all levels of government. *Stakeholders* will include material focusing on the actions and resources of separate stakeholder groups. *Process* focuses on the procedural parts of policymaking including material describing how policy is formulated (e.g. through hierarchical or horizontal decision).

3. Previous research on mineral development processes

Research on mining and mineral extraction processes are an extremely extensive field, ranging from research on economic, management and policy aspects to development of new methods for effective extraction and processing. Research within the field of social science is though quite limited, and when concentrating on research on the development process the remaining literature gives a rather slim and scattered impression.

Five main topics that seem to have attracted some extra attention can be identified within this material. *First*, an interest in national mining policies influence on the mineral development can be distinguished. This line of research mainly focuses on how mining policies affect the distribution of wealth, and the rights of citizens from a macro-perspective. The *second* topic concerns the relationship between mining and indigenous peoples. Mining on indigenous lands often encroach on the rights and interests of indigenous groups, which in turn often leads to conflicts. Research in this field has primarily been focused on how development processes can be designed so as to assure a positive outcome for indigenous communities. *Third*, corporate social responsibility (CSR) has attracted some scholarly attention. This research is focused on exploring the reasons for adopting CSR-policies, how the policies are constructed and what impact they have on company-community relationships. *Fourth*, conflicts arising as a result of mineral development have also attracted some interest. Commonly these studies focus on conflicts between mining companies and local communities. The *fifth* and final topic relates to studies of the interactions between mining and the surrounding environment. Here it's important to lift out two main studies: McMahon &

Remy (2001) and Bridge (2004), both of which gives comprehensive overviews of the relationship between mining and the environmental and social impacts it causes. The study of McMahon & Remy (2001) is a comparative case study of the socioeconomic and environmental effects of mining in five different countries. Although much of the study focuses on the impacts of mining on the surrounding community and environment a part of it also discusses the procedural attributes responsible for the given situation in each country. This part of the study is though only a secondary objective and is considerably limited by its scope, mainly focusing on corporate actions within poor, undeveloped communities. The study cannot therefore be considered to give a sufficient elucidation of the development process. Bridge (2004) composes a synthesis of prior research and focuses on how scientific perspectives on the relationship between mining and the environment have evolved through the years. Despite its comprehensive nature, the study only grazes the internal properties of the development process.

Although there are some exceptions, the vast majority of studies included in this study are of qualitative character and only a few use quantitative methods. Commonly interviews, participatory observations and document analyses are used as part of the qualitative methodological approach. A majority of the case studies within the material have also chosen to focus on countries in the developing parts of the world, e.g. Peru, Papua New Guinea, Tanzania, Ghana and Ecuador. There are though also a couple of case studies from developed countries, mainly Canada and Australia. The material included in the study have been collected from a wide range of different academic disciplines such as; anthropology, political science, economics, business, public administration, development studies, environmental studies, geography and technology.

3.1 International Conventions

International policy conventions have a great potential for impacting national and sub-national policy formulations by putting pressure on both governments and stakeholders with interest in mining. Despite this, very little seems to be written on the impact of

international conventions on mineral development. One example of such a study is though Lange (2011), who investigates the impact of the World Bank policy in the 1980s and 1990s encouraging developing countries to liberalize national mining policies to attract foreign investment. In Tanzania adoption to this policy resulted in extremely low revenues from the mining industry to the state, which eventually led to yet another revision of state mining policy (Ibid).

3.2 Formal institutions

Resource policy

The design of legislation and policies regulating mining and mineral development is perhaps the most important factor for determining the outcome of these processes. Depending on overall policy design, different policy instruments will have very different capabilities for controlling the distribution of risks and benefits arising from mineral extraction. The study of legislation and policy in the mineral sector has for the most part focused on how governments on a general level can assure a positive development in the mining industry, from an economic as well as from a social and environmental perspective. Three main themes can be identified within this subject. *First*, there is a concern with the so called 'resource curse' which is a situation where a resource rich country, despite its assets, suffer from low economic growth. Butkiewicz & Yanikkaya (2010) and Moreen (2006) both study the causes and effects of this 'curse' and what policy instruments that exists to circumvent or prevent the problem. A fundamental conclusion in both these studies is that it is weak institutional arrangements that are the chief cause of the problems, and that a sustainable solution only can be attained through an extensive revision of these institutions. *Second*, there is a focus on how governmental actions can attract, or deter, foreign mining companies interested in developing new mineral assets in a country. For example, in Papua New Guinea a conflict between central and regional authorities concerning the distribution of risks and benefits in association with mineral development are threatening to deter foreign investment (James, 1997). In the Philippines a similar situation has occurred as foreign

mining companies, despite a new more investor friendly mining policy, are being discouraged to invest as a result of wide-spread corruption and other regulatory problems (O'Callaghan, 2009). *Third*, another closely related theme focuses on the importance of active state involvement in mining development and operation. By taking an active stance the state can ensure favorable outcomes in new mineral developments (Cox, 1996), or put pressure on mining companies to adopt CSR-policies (Boon, 2009).

Environmental policy

Research on the impact of environmental legislation and policy on mineral development process have focused on two main issues; 1) how monitoring and regulation of CSR is conducted and; 2) how institutional frameworks can favor environmentally responsible mining. These issues are also often closely intertwined. In an overview of regulatory environmental policy in Ghana, Armah et al. (2011) describes a situation in which government regulation, as a result of weak institutions and low transparency, have been unable to compete with the 'best practices' of the industry. The responsibility of good CSR therefore ends up in the hands of the mining companies themselves, which has led to a big variance in standards of environmental behavior in different parts of the country. The importance of institutional design is also shown in two studies from 2009 (Bebbington & Bury, 2009; Zhu & Cherni, 2009) in which institutional impact on the environmental performance of the mining industry is analyzed. In Peru, the separation of decision making systems concerning mining, water resources and local development has put considerable strain on the possibilities for sustainability. Furthermore, a lack of communication between mining companies and the local community has reduced these possibilities even further (Bebbington & Bury, 2009). Similarly, several problems with the institutional framework regulating the Chinese coal mining industry has, despite recent market reform, led to substantial negative impacts on the environment. Further institutional revisions are needed to achieve a sustainable situation in the future (Zhu & Cherni, 2009).

Indigenous rights policy

Large mineral extraction projects sited on indigenous lands often lead to big impacts on the inhabitants' lives, from a socio-cultural as well as an environmental perspective. The possibility for indigenous peoples to participate in the decision making surrounding the development of new mineral deposits hasn't always been given. Recent trends though suggest that this is slowly changing. Howlett (2010) and O'Faircheallaigh (2006) both study changes in Australian indigenous rights legislation meant to create new possibilities for indigenous peoples to participate in decision making in mineral development processes. These changes are not only based on values of democracy and legitimacy but are also meant to create economic possibilities for indigenous peoples. Both articles conclude that even though these changes in legislation and policies have increased the influence for some indigenous societies several problems remain. One of these problems is that there seems to be an institutionalized resistance or hostility within the legal and political systems towards indigenous rights and influence. This reduces the effectiveness of the legislative changes that have been made. Another problem is, as Howlett points out, that a too big focus on the progress that has been made risks to overshadow many of the still existent problems. In a similar study, Fulmer et al. (2008), discover some problems with legislation meant to govern large scale mineral development in Guatemala. Even though much of recent legislation, policy and CSR-policies concerning indigenous rights are filled with great potential, the actual outcome is not always in line with the aims. Just like in the two case-studies discussed above, structural and institutional problems remain which constrain potential progress.

Government structure

The structure of government authorities and the distribution of responsibilities between these can have a great impact on the efficiency and performance of mineral policy and legislation. A well-functioning public administration can facilitate a smooth development process and reduce risks of confrontations. Though in some cases, structure of government can also be a basis for conflict. In an overview of Papua New Guinea's

mineral policy James (1997) discovers a situation where a conflict has risen between state and provincial authorities. The conflict concerns the allocation of risks and benefits between the two levels of government. Provincial and state authorities have not agreed on the terms for compensation for mineral development. The state is responsible for the distribution of exploration rights and is also entitled to returns from mineral developments. Provincial authorities' are though in a large degree impacted by the negative externalities of mining operations and feel that they are not compensated enough, which is also the basis for the conflict. Similar problems has occurred in Peru, where administrative structure reform has led to conflicts between state, private companies and local authorities over the distribution of economic benefits. One of the main reasons why the new decentralized mining policy has aggravated local conflicts is the lack of support from national institutions (Arellano-Yanguas, 2011).

3.3 Informal institutions

Core beliefs, public opinion, governmental and political culture

How informal institutions impact the development and operation of mines seems to be a largely unexplored area and only a few studies have dealt with the subject. One of these is Dashwood (2007) who considers the motives for adoption of CSR-policies within mining companies. The author challenges the commonly held conception that global norms pressure companies into adopting CSR-policies and discusses the possibility of internal company pressure as an alternative explanation. In this sense mining companies are learning from past experiences and are beginning to be proactive instead of reactive. In a another study, of a mine development in New Caledonia, Horowitz (2010) focuses on how social affiliations affect how people perceive and choose to trust scientific information about environmental impact. In the given situation it was not a matter of judging the credibility of a scientist or his work, but rather a matter of siding with your own affiliation. Long-term expectations of social and economic benefits of the mining project were in turn the basis for choice of affiliation for community members.

3.4 Stakeholders; resources, tactics and actions

Resource companies

Research on mining companies' activities in the mineral development process focuses mainly on the adoption and effectiveness of different forms of sustainability principles and CSR-policies (Corporate Social Responsibility). CSR is manifested in actions taken to prevent and reduce negative social and environmental externalities caused by company operations. Increased public awareness of environmental problems and the often visible environmental impacts of mining operations have created pressure on mining companies to adopt CSR-policies. The literature on CSR in mining industry covers a broad spectrum of issues, e.g. CSR development and progress, conflicts between corporate and state policy, community engagement, company/community conflicts and systems for handling grievances.

In a comparative case study McMahon & Remy (2001) comes to the conclusion that corporate efforts to have a high level of communication and transparency throughout the development process are imperative for the development to be effective. Mining companies must also interact with both state level and local authorities to ensure that these deliberative processes include all affected stakeholders and interests. Cameron (2009) and Cheshire et al. (2011) has also examined these interactions between mining companies, local communities and government authorities in the implementation process of CSR-practices. Both studies discovers potential difficulties with this process, but also points out possible benefits of cooperation. In a similar study Gifford et al. (2010) identifies an emerging 'industry-wide institutional environment' of CSR-practices focused on building local legitimacy in developing countries. Aaronson (2011) evaluates the Extractive Industries Transparency Initiative (EITI) meant to reduce corruption within the mining industry of resource rich countries. Despite good participation in the project several difficulties reduces its possibilities to be effective. These difficulties mainly concerns insufficient information, problems with participation, and divergent views of the projects purpose and aim. In another article Jenkins & Yakoleva (2006) studies mining companies' practices of reporting on their

environmental progress as a form of CSR. They find a big difference between the 'best' and the 'worst' companies, and conclude that more collaboration and good leadership is needed to raise the standards of the lowest performing companies.

Indigenous peoples

The subject of indigenous people and the mining industry has mostly been covered in a civil rights perspective, where the question is whether rights of native people (e.g. stated in ILO 169) are existent and if, or to what degree, they are able to exercise these rights. An increasing number of countries are acknowledging the rights of indigenous people to participate in the decision making processes surrounding the development and administration of a new mine (O'Faircheallaigh & Corbett, 2005). These rights include economic compensation for development on indigenous lands and a right to participate in the process of deliberation concerning the planning and management of a mine. By participating in the planning process indigenous people will be able to ensure that proper concern is taken to their cultural, social, spiritual and environmental heritage. The degree of participation and level of compensation are often a matter of negotiation between indigenous groups and the mining companies, which on several occasions has put indigenous groups in a somewhat problematic situation. In two studies O'Faircheallaigh & Corbett (2005) and O'Faircheallaigh (2010) looks at the contents and properties of these negotiated agreements. Both studies consider the possibilities of indigenous groups to have significant influence on the contents of the agreements as strictly limited in most cases. The provision of economic compensation also puts indigenous communities in a somewhat sticky situation. Economic compensation often is associated with confidential agreements which may force indigenous community members to officially support a planned project to gain any compensation. Economic compensation from a mining company may also reduce government financial support (O'Faircheallaigh, 2002; 2010). Another problem arising from the possible economic benefits is the risk for increased inequality within indigenous communities. Depending on the type of compensation and the social

composition of the community this risk may be quite diverse in different communities (O'Faircheallaigh, 1998). Development projects not including enough room for, or perhaps ignoring, consultation and communication with indigenous communities can also be the basis for conflicts. This has been the case in Guatemala, where indigenous groups, as a response to structural exclusion from decision making, has organized several protests, often ending in violent confrontations with the police (Yagenova & Garcia, 2009).

Community actors

Community actors are one of the groups that might have the most to win and the most to lose when a new mine is established. Economic development can significantly increase local welfare at the same time as e.g. environmental impacts can create many problems for the community. The role of community actors within the mineral development process have mainly been approached from a perspective of social conflict, often concerning conflicts between small communities and large mining companies. On several occasions small communities has shown an unexpected capacity for resistance. One example of this is a study of a conflict between small-scale Peruvian farmers and a large international mining company. Despite the imbalance in power between the two parts the farmers managed to 'even out the odds', and increase their resistance, by cooperating with national and international NGOs. By reframing their claims from an international perspective the farmers were able to find new support for their cause (Haarstad & Fløysand, 2007). In a similar study, of local grassroots resistance movements in Ecuador, Kuecker (2007) gave another example of the potential influence, and power, of community actors. In this case, local resistance groups through protests managed to stop the development of a new mine by making the cost of development too high. In one particular event, villagers removed all mining equipment from the extraction site, effectively stopping the mining company from operating.

Non-governmental organizations

NGOs often work as representatives for certain groups or interests and can thereby give a voice to public interests and serve as a vehicle for local empowerment. Although the overall literature on NGOs is quite extensive, very little is written on the role of NGOs concerning the development of mines. Bebbington et al. (2008b) has studied if the organizational features of social movements have any influence on their capacity for policy impact. The study shows that social movements potentially can have a big impact on the development process, although this is highly dependent on internal group dynamics and the level of cooperation with the surrounding community.

3.5 Process

Conflict of values

Since the development of a new mine both concerns a big number of stakeholders and involves several factors with great potential for community change, there is no surprise that conflicting values exist. Conflicts can arise between communities and the state (Lange, 2011; Bebbington et al., 2008a), small- and large-scale miners (Hilson, 2002b), within communities (Campbell & Roberts, 2010), but also between communities and mining companies (Kemp et al., 2011; Bebbington & Williams, 2008; Hilson, 2002a) which is an area that seems to have attracted the most attention. If not mediated properly these value conflicts may escalate into full scale confrontations between different factions, which potentially can have severe consequences both for the development process itself and for the affected communities. Commonly, these conflicts revolve around divergent views of the social, economic, environmental and cultural effects mining will have on the surrounding community and its inhabitants (e.g. Lange, 2011; Kemp et al., 2011; Bebbington & Williams, 2008). Contrary to this, Hilson (2002a) claims that these impacts rarely are the chief cause of conflict. Instead he considers lack of communication and information between community members and mining companies as the perhaps biggest reason for conflict. Except improved community-company consultation and communication, increased level of coordination

from regional authorities and better compensation to communities can also contribute to decreased levels of conflict (Ibid). Although these, and other similar, mechanisms have a good possibility to effectively handle potential conflicts they also require extensive efforts from both mining companies and community members. Without this engagement there is a risk that attempts to transform high-level CSR into 'on the ground practices' falls short of its intentions (Kemp et al., 2011).

Besides the design of the development process and the efforts of mining companies and community members, the type of intra-community communication also seems to affect the level of conflict during development. In an attempt to better understand the internal dynamics of a development process, Campbell & Roberts (2010) have analyzed the discursive process surrounding the proposal of a new mine. They discovered a highly polarized debate involving two separate discursive communities, each trying to convince undecided community members to join their side. Despite extensive campaigning, neither side was successful in converting members of the opposing faction. Only undecided community members could be convinced. This point to a possible problem for companies trying to establish new mines in communities with *a priori* strong anti-mining groups (Ibid).

Communication and deliberation

To prevent the development of a new mine (or the closure of an old mine) from turning into a conflict or to alleviate an already existing conflict, communication between stakeholders seems to be a prerequisite (Richardson, 2003; Kepore & Imbun, 2011; Laurence, 2006; McMahon & Remy, 2001). Developments including deliberative processes between mining companies and other stakeholders can also generate many positive outcomes for all concerned parts. Mining companies can for example both gain from an increased support from stakeholders on who they are reliant (e.g. local communities and government authorities) and from economic benefits (Laurence, 2006). To be able to enjoy these positive effects it is though imperative that the deliberative processes are commenced directly at the start of a new project, otherwise

they might be perceived as means to gloss over negative impacts already inflicted by the mining company (Kepore & Imbun, 2011). Although mineral development processes including deliberative procedures have a good potential to avoid conflicts, it is not given that the mere existence of these procedures guarantees a conflict free development. To ensure that deliberative processes, once they are in place, proceed as fluently as possible and leads to as good results as possible stakeholders must be educated in negotiation and mediation. They must simply be given the tools and resources needed to conduct a successful negotiation (Richardson, 2003).

4. Lessons from research on other forms of large scale development: wind farms and hazardous waste facilities

Research on the development of wind farms and hazardous waste facilities have largely focused on many of the same issues. Three main areas can be seen as having generated interest in both fields: the importance of public opinion and stakeholder core beliefs, the existence (or non-existence) of the NIMBY-syndrome and the conflict between top-down and bottom-up solutions to administrative implementation. Research on public opinion and stakeholder core beliefs have focused on how public attitudes influence decision making and how development processes in turn can be designed to respond to these opinions. Closely related to this research, and perhaps even part of it, is research on the NIMBY-syndrome. This research tries to explain divergences between national and local policy support, and is a wildly debated subject. The third area is also related to public attitudes and focuses on how the design of the development process influences the possibilities for effective implementation. Here emphasis is on the choice between hierarchical top-down processes relying on technocratic expertise and decentralized bottom-up processes enabling stakeholder participation and deliberation. Beside these three main issues, research on wind power development has also focused on the importance of the design of state policies and the administrative system, and how these interact with stakeholders and institutions on all levels.

Since development of wind power, but also hazardous waste facilities in some degree, has been extensively researched, material included in this overview has intentionally been subjected to a more thorough screening, to keep the relevance as high as possible. Most of the articles included in the overview are qualitative in character, often focusing on in-depth case studies, sometimes with a comparative approach. There are though also a number of quantitative studies, usually aiming to quantify public opinion or government attitudes. Most of the included research has been performed with a focus either on Europe or North America. In European case studies Germany, The Netherlands, Sweden, Denmark, England and Scotland are frequently reoccurring, while North American studies mostly have focused on state-level implementation processes within the U.S.

4.1 International Conventions

EU-legislation has during the past years in an increasing amount focused on decentralized administrative processes where participation and democracy are the foundation. There has though been evidence of some development processes not following this intended approach. In a study of large scale wind power development off the coast of Germany Bruns & Gee (2009) has discovered that development has been heavily dominated by top-down implementation, largely lacking participation from all stakeholders but government authorities.

4.2 Formal institutions

Resource policy

A large number of studies have been concerned with the investigation of state level policy formulation impact on wind power development (e.g. Barradale, 2010; Bird et al., 2005; Enzensberger et al., 2002; Liou, 2011; Menz & Vachon, 2006). A common conclusion is that state policy has a significant influence on the planning and development of wind farms. One possible explanation to this influence that has been

put forth is that the wind power industry is largely dependent on government subsidies and therefore has a hard time competing with other energy producers without government support[3] (Menz & Vachon, 2006). Because of this dependency it is very important for wind power producers that state polices and supports schemes are consistent and predicable. In the US, uncertainty around federal tax incentives has caused a boom-bust cycle of wind power development, with low investment in wind power in years without federal economic support. According to Barradale (2010) it is not the absence of economic support per se, but rather the uncertainty concerning its existence that causes this boom-bust cycle. The actual design of state policy is also of great importance for its possibility to have its desired impact. This for example includes the legislative stability and the capacity and performance of the administrative system, two factors that are central to risk assessments for companies investing in wind power (Lüthi & Prässler, 2011). Well-functioning planning and permitting procedures might also neutralize negative impacts caused by insufficient state investment incentives by creating a smooth (and therefore cheap) development process (Söderholm & Pettersson, 2011). Inflexible steering and badly planned policy programs might on the other hand lead to insufficient and expensive development (Åstrand & Neij, 2006). Another factor impacting on policy efficiency is the influence of bureaucrats and local stakeholders on policy formulation. In a case study of hazardous waste facility siting in the U.S., McAvoy (1994) discovered that local stakeholder groups can affect the state's ability to implement policy, but have limited influence on policy formulation. The state is thereby not completely autonomous from stakeholder influence. State efforts to increase its own share of energy produced by wind power might also stimulate an increase in private investment in wind energy, which is the case in Taiwan (Liou, 2011). To give wind power developers the best possible means to succeed both domestically and internationally, state and sub-national subsides should be directed both at the national and the local level (Lewis & Wiser, 2007).

[3] The inability of wind power to compete is in turn derived from the fact that the negative externalities of producing energy from fossil fuels are not included in its price, hence giving it an competitive advantage (Menz & Vachon, 2006)

Government structure

As the formal administrative structure regulates the planning and permitting procedures of wind power development it can have a significant influence on these processes (Pettersson et al., 2010). A well-functioning administrative system might facilitate a quick and problem free permitting process, while a badly functioning system might increase both processing time and costs of development (Lüthi & Prässler, 2011; Söderholm & Pettersson, 2011). Several studies have been concerned with these processes and often problems have been discovered (e.g. Iglesias et al., 2011; Wolsink, 1996, 2007; Cowell, 2007; Valentine, 2010). In Spain, incoherencies in planning procedures between regions create uncertainty which increases the transaction costs for developers. Bad transparency adds to this dilemma and a situation of conflict has arisen between regional and central government authorities. This situation has created a desire among developers to have a more centrally managed development process (Iglesias et al., 2011). In the Netherlands the problem has been somewhat the opposite. Administered by central authorities, the planning and development process has had a strong top-down mode of operation which has led to systematic neglect of local level input. Together with a number of other institutional problems (e.g. confusion of energy and industry policy and high dependence on utilities) this has led to decreasing profits and a lack of sites for development (Wolsink, 1996). A suggested solution to this problem has been to include local authorities and other stakeholders in the planning process. Doing this will not only increase the legitimacy, but also the efficiency of the wind power development process (Wolsink, 1996, 2007; Breukers & Wolsink, 2007a). The same proposal has been put forth concerning the development of hazardous waste facilities, which often face a high level of public resistance. By incorporating local stakeholders in the development process, this resistance might be somewhat relived (Goetze, 1982). Public-private partnerships, where state and private actors cooperate in the development and management of a hazardous waste facility is another proposed solution to the problem. State ownership of the facility would in this case work as a guarantor for a 'long-term liability', and hence reduce opposition (Ibitayo, 2002).

Contrary to these solutions, a common method of solving problems within the planning and development of wind power has been to centralize the decision making in an effort to make it more effective, despite the many problems that might arise in the long run (Cowell, 2007).

4.3 Informal institutions

Core beliefs

Core beliefs are the most deeply held values of any actor and plays a central part in everything they do, including shaping their views on large scale development projects. It is therefore always of great importance to take these beliefs into consideration. Both instrumental reasoning and emotional connections can affect how stakeholders consider a certain development project. Concerning the development of hazardous waste facilities, perceived risk is one of the most central motives for objection among local inhabitants (Benford et al., 1993; Murdock et al., 1998; Gerber & Grant, 2005). Although *risk* might be seen as a neutral factor, *risk perception* is closely related to personal conceptions and beliefs. Wolsink & Devilee (2009) found that perceptions of 'environmental injustice, fairness of the process, and personal commitment to others' are having a great influence on individual risk assessment. Individuals also tend to always use this risk perception in similar way independent of the kind of siting (Ansolabehere & Konisky, 2009). Besides risk, other perhaps less tangible factors might influence attitudes towards siting. For example, in a study of off-shore wind power development Gee (2010) found that not only environmental concerns, but also aesthetic considerations and beliefs about the sea as something wild and untamed motivated the rise of local resistance. A similar point is put forth by Parkhill (2007) who in a study of Scottish wind power development found stakeholders identification with an area to be important for their attitude towards development in that area. Jones et al. (2011) also point to the importance of community attachment, environmental concern and sense of right and wrong for perceptions of wind power development. In a study of public acceptance of a nuclear waste repository Sjöberg & Sjöberg-Drottz (2001) discovered

that moral aspects and concern for the community were important factors impacting local attitudes. Wolsink & Breukers (2010) studied patterns in stakeholders' core beliefs concerning effective implementation of wind power. The results showed that hierarchical and technocratic implementation processes claming to 'serve the public interest' in fact were the least successful. Development processes encouraging stakeholder participation and dialogue and which in a higher degree reflected local concerns were instead the most successful (Ibid). In areas with a high degree of democratic activity there also seems to be a higher possibility for appeals and for 'negative' planning outcomes (van der Horst & Toke, 2010).

Public opinion

The issue of public opinion towards large scale development has been thoroughly investigated in a large number of studies concerning both wind power plants (e.g. Bell et al., 2005; Graham et al., 2009; Evans et al., 2011; Cowell et al., 2011; Ellis et al., 2007; Gee, 2010; Wolsink, 2000) and hazardous waste facilities (e.g. Anderson & Greenberg, 1982; Pollock et al., 1992; Murdock et al., 1998; Spies et al., 1998). Several studies of wind power/hazardous waste facilities and public opinion are concerned with the so called NIMBY-problem ('Not in my back yard'), which describes divergences between national public opinion and local policy support. The basic problem revolves around an overall positive public opinion towards the use of wind power but an at the same time high level of local resistance against siting decisions (Bell et al., 2005; Benford et al., 1993; Graham et al., 2009). A common finding though is that there is no or very little support for the NIMBY-claim when it comes to wind power. Local resistance towards development is not based on selfish motives of people unable to see 'the bigger picture', but rather stems from dissatisfaction with the transparency and the possibilities for participation in the development process (Wolsink, 2000; Jones et al., 2011). Other factors that could potentially explain divergence in support between local stakeholders and the public at large is the level of democratic and environmental engagement, the level of social capital and the amount of community attachment (Bell

et al., 2005; Jones et al., 2011). The level of risk associated with development of hazardous waste facilities also plays a major role in determining public attitudes towards development (Gerber & Grant, 2005; Ansolabehere & Konisky, 2009; Wolsink & Devilee, 2009). Communities with a previously positive experience of a hazardous waste facility have though shown a reduced level of perceived risk concerning development compared to communities without this experience (Spies et al., 1998). In some cases a form of reversed NIMBY-ism has been observed, where local actors with wind power plants established in their vicinity strongly support the development of wind power (Warren et al., 2005). Public opinion can also be very fragmented in communities hosting hazardous waste facilities. Those who stand to gain economically from the development are the ones who most strongly support it, while those who have no economic (or other) interest in the facility commonly reject it the most (Benford et al., 1993). In addition to enhancing the participatory features of the development process, increased economic and material benefits to affected stakeholders has been seen as a way to increase public support. Economic compensation might though not always be enough to sway public opinion. Development of facilities perceived to pose a serious risk for the concerned community often require more than compensation, e.g. state control and regulation of the facility, or local power to shut down facility operation (Kunreuther & Easterling, 1996). Compensation must also be delivered at the right time. Benefits handed out retroactively are often seen as rightful compensation for negative externalities caused by development, and not as positive gain for the community. Because of this, stakeholders see no reason to change their general attitudes towards development (Cowell et al., 2011).

Government culture

Government culture is, together with policy formulation and government structure, one of the most important factors for determining the effectiveness of the administrative system, which in turn has a big impact on the outcome of any given policy. In an analysis of the Chinese wind power sector Lema & Ruby (2007) illustrates a development from

what they call 'fragmented authoritarianism' towards a more coherent and coordinated policy field. As long as the policy field was 'fragmented' the development process was very uncertain and risky for wind power companies. Only when different government bodies were able to coordinate their efforts and put aside internal disputes could the wind power sector become successful (Ibid). When planning, permitting and development isn´t a national but a local or regional responsibility, divergent attitudes among public planning officials might lead to a highly differentiated development process in different parts of a country (Khan, 2003). Depending on what values (e.g. economic, political, technical etc.) are considered important in a specific region outcomes of a development process might be very different. Which points to the importance and impact of government culture on the development process (Bergek, 2010; Fischlein et al., 2010; Toke, 2005).

Political culture

Both political perceptions of the public and the overall political climate in a country or region can affect the preconditions for development of wind power. In Denmark, changes in the national political leadership have led to an ideological shift which initially created a small crisis for the Danish wind energy sector. A change in government, from a center-left coalition to a center-right coalition, led to a substantial decrease in government spending on energy conservation, renewable energy research and wind power development[4]. This decrease was though eventually somewhat reduced when the new government reverted back towards a more environmentally friendly stance (Ryland, 2010). The political can also affect wind power development on the local level. In a study of community attributes connection to wind power development in England, van der Horst & Toke (2010) found that the level of 'democratic deficit' in an area and the level of 'positive' development outcomes are closely related. Low democratic activity (low voter turn-out) significantly increased the possibilities for a successful development process, and also reduced the likelihood of an appeals process (Ibid).

[4] Not only did the new government decrease spending on new wind power development, but it also stopped the construction of three already planned large off-shore wind parks (Ryland, 2010)

4.4 Stakeholders; resources, tactics and actions

Regional/local government

Regional and local government planning officials are often closely involved in the planning, permitting and development process of a new wind power park. These officials, and their related agencies, also have a considerable influence over the outcome of these processes (Bergek, 2010; Khan, 2003). This influence also means that the internal dynamics and attitudes of responsible government agencies are of great importance. Political, economic, environmental, aesthetic and technical considerations are all examples of issues that can affect both planning officials, and other stakeholders, in their decision making (Fischlein et al., 2010). In Sweden, municipalities have a far reaching 'local competence' which has set its marks in the wind power development in the country. Planning has differed considerably between municipalities concerning siting decisions, citizen participation in development and ownership of turbines (Khan, 2003). In a study of Swedish national wind power planning influence on local decision making Bergek (2010) reveals a situation where local planning officials considers wind power as a private rather than a public concern. This has led to a situation where wind power has to compete with both local level public and private interests. The fact that wind power is a national public interest doesn't necessarily mean that it is a local public interest (Ibid). Public opinion and local stakeholder attitudes also have an impact on planning officials' decisions. In a study of wind power development in England and Wales, attitudes of people living in the direct vicinity of a proposed plant were discovered to be the most influential on planning officials' decisions. Estimated economic impact of development and the national political environment were in turn factors that influenced local opinions (Toke, 2005). Sometimes the knowledge about what fuels public resistance is limited. Wolsink & Devilee (2009) have found that planners often have a too narrow and 'one-dimensional approach' towards the reasons for public opposition to hazardous waste facilities. Locals rejecting development are considered to be acting only on selfish motives of personal gain. This misperception might in the long run undermine the credibility of the development process and the possibilities for local cooperation (Ibid).

Resource companies

Depending on the institutional features of a current policy regime, wind power developers' possibilities of a successful development process vary quite fundamentally (Agterbosch et al., 2004). This is also the case in the Netherlands where social and institutional conditions have proven to be the most important factor for determining success or failure for wind power entrepreneurs. An important point here though is that no 'best solution' exists, rather it's a matter of match between companies and the institutional environment. Since government agencies have the best possibilities for changing the social and institutional landscape it's important that they consider company preferences and at the same time have a wide perspective when forming government policies (Ibid). Although government agencies form the institutional landscape, private companies might of course take action themselves. In a study of Swedish wind power developers' management of the permit process Corvellec & Risberg (2007) describe how developers 'frame' development projects to give them meaning and direction. In doing so they facilitate a deeper understanding for their development projects, which hopefully will reduce negative criticism of them.

Community actors

The importance and influence of community actors in the development process has been widely discussed. In what extent can community actors influence planning and permitting procedures and in what extent should they be able to so? Is community influences important for the development process to be legitimate or can it as well do without? These and other related issues are often discussed in relation to the NIMBY-syndrome (see *Public Opinion*), where local community actors are considered to have a substantial impact on the development process. Several studies start their investigation in this seemingly strange divide between an overall national support for wind power and the high rate of resistance by local community groups (see for example: Bell et al., 2005; Graham et al., 2009; Ellis et al., 2007). By organizing, local community groups can have a considerable influence on policy making, even without the cooperation with large NGOs

(Rootes & Leonard, 2009). One example of this is the organization of local level environmental groups in the U.S. who in several areas managed to stop development of hazardous waste facilities in their communities. Some of these facilities were instead developed in communities that didn't put up the same level of resistance, providing an insight into the importance of these environmental groups (Schelly & Stretesky, 2009). Although many studies argue for a relatively big importance of community groups, not all do. In a study of the wind power development process in Great Britain, Aitken et al. (2008) tries to show that local objectors have a much lower level of impact than commonly assumed. The influence of local protest groups mainly concerns the ability to delay and raise the costs of development by turning in objection letters or by starting appeals processes. The end result is though rarely changed by these efforts (Ibid). McAvoy (1994) comes to a similar conclusion in a study of hazardous waste policies in the U.S. According to him local actors only possess the ability to delay and increase the cost of development, and not to alter policy formulation or stop development. Community actors might though improve the development process by helping siting officials in making value trade-off decisions (McAvoy, 1998).

Non-governmental organizations

More formal forms of resistance in the form of NGOs might also prove to have influence over wind power siting. This has been illustrated for example by Wolsink (2010b) in the case of a Dutch resistance group (WaddenVereniging) who managed to stop a large national off-shore development project. The group used information to raise the public awareness of the importance of the issue and eventually managed to gather enough support to stop the project. A mistake by government authorities responsible for the development was to assume that an off-shore siting wouldn't raise any local resistance, which turned out to be wrong (Ibid). In the U.S. grassroots resistance movements managed to get organized without the initial assistance of more well established environmental NGOs, and eventually evolved into a large influence on the environmental arena (Rootes & Leonard, 2009).

4.5 Process

Conflict of values

Even though the development of wind power farms often are part of bigger national projects for fighting climate change and ensuring energy independence, locations for siting sometimes end up encroaching on areas planned for other interests. This has occurred in Germany, where a national policy designed to conserve designated areas for wind power development has ended up competing with regional and local interests. This conflict of interests has resulted in a much slower development process than originally planned (Ohl & Eichhorn, 2010). Conflicts can also arise between two or more interests that all are more or less equally important to the community. And since support or objection of a siting decision rarely is absolute (Ellis et al., 2007) this opens up for a broad range of possible interests and opinions. Siting of hazardous waste facilities has recurrently been a cause of conflict, primarily between community members and siting officials (McAvoy, 1998). In the wake of a large number of sitings being overthrown, local resistance groups have on many occasions been described to act on self-centered motives, ignoring the needs of society. Contrary to this, community actors can also be seen as helping siting officials with value trade-off decisions, effectively improving the policy making process (Ibid). In the Netherlands conflicts has arisen around processes of wind power development and the both positive and negative attributes inherent in wind power as a technology. On the one hand is the positive effect of a low emissions technology and on the other hand is the negative impact on the local environment. This duality has led to a big variance in public acceptance, which in turn can be the basis for conflict (Wolsink, 2010a). Different forms of implementation and decision making might also be the foundation for possible conflict. Development processes focusing on hierarchical implementation and technocratic decision making without stakeholder participation has on more than one occasion been the cause for conflict. Including local stakeholders might not just increase legitimacy of the development, but might also increases its effectiveness (Breukers & Wolsink, 2007a). A decision making process with badly defined responsibilities are yet another factor that

can stimulate an increase in the chance of conflict. In Spain, the lack of coordination between different levels of government has led to a conflict between regional and national government authorities. This conflict has in turn made investments in the wind power sector a very risky business for developers (Iglesias et al., 2011). It has also been argued that to fully understand the origin of conflicts a broadened concept of community is needed. Since sitings often lead to spillover effects to adjacent areas and populations, a too narrow definition of community might risk neglecting influences from outside the defined administrative area (Lesbirel, 2011).

Communication and deliberation

All large scale developments, and perhaps especially those inherently pertaining risk, are always sources for possible conflicts of value (Lidskog, 1997). Development processes excluding stakeholders from planning and permitting procedures focusing on hierarchical implementation and technocratic expertise, are a common source of conflict (e.g. Wolsink & Breukers, 2010; Bruns & Gee, 2009; Szarka, 2006). Such top-down development processes might initially seem promising in the eyes of politicians and other decision makers, tempting with promises of quick and problem free implementation. In reality though, they often collide with local institutions and interests and end up costing more and taking more time than initially planned (e.g. Jones et al., 2011; Breukers & Wolsink, 2007b). The commonly expressed solution to these problems is to systematically and throughout the whole development process allow local actors and stakeholders to participate and contribute with their opinions. By opening up for a more deliberative implementation process developers can gain from both an increased efficiency and from an increased local acceptance (e.g. Breukers & Wolsink, 2007a; Enzensberger et al., 2002; Lidskog, 1997: 2005; Wolsink, 2007). In Canada, voluntary siting of hazardous waste facilities has successfully been performed in several areas. Communities that previously had expressed negative sentiments on such development changed their views after extensive deliberation. This kind of process has proven to be effective even concerning low-grade nuclear waste disposal (Rabe et al., 2000).

Feedback, output, learning and adoption

Through the outcomes of a development process different kinds of feed-back and learning is usually advanced. This learning helps participants in the development process to better understand the interaction between stakeholders and the institutional environment and can thereby facilitate improvements of this process. The Danish wind power industry (which has been very successful) have especially well taken care of the possibilities of learning, and have resourcefully adapted to its competition and eventually also outmaneuvered it (Hendry & Harborne, 2011). Much of the progress within an industry can be related to different forms of technical learning. Depending on which form of policy regime that is currently active learning can either be easy or difficult to achieve. To facilitate learning between countries or industries, it's therefore important to have a good understanding of how different forms of learning occurs (Smit et al., 2007). It's also important to have a wide perspective on learning, not only focusing on economic aspects, but also incorporating institutional and community factors (Szarka, 2006).

5. Discussion

The aim of this study has been to conduct an overview and synthesis of social scientific research on mineral development processes and to identify possible gaps in this literature. So what can the results say about the development process of a new mine? Are there any factors that seem to be the more influential to development than others? And is it possible to explain the whole development process or are there any 'missing parts'? As earlier mentioned in the introduction to section three, research on the development and operation of mines have focused on five main topics: national mining policies, indigenous rights, CSR, company-community conflicts and environmental impacts. Although seemingly separated, all these topics essentially deal with the same kind of problem: the distribution of rights and resources in connection to mineral development. Environmental degradation, conflicts between stakeholders and violated

rights of indigenous peoples are all examples of problems arising as a result of badly functioning development processes. CSR, mining policies and legislation on environmental and indigenous rights are in turn all methods meant to reduce these negative impacts.

All of the above mentioned areas have been given a considerable amount of attention and are all relatively well understood. There are though several problems with this research when the aim is to understand processes of mineral development. *First*, almost no research has been targeted at understanding central policy formulation impact on local level implementation. Instead a majority of the research on mining legislation are concentrated on how state level policies impact the national level, focusing on environmental regulation, economic performance and indigenous rights. To fully understand the development process, research has to consider the internal dynamics and interactions between policy design and administrative system out-put and performance. To be able to do this it's also important to investigate the role and influence of local and regional governmental bodies in the development process, something which have been largely overlooked. Besides national policy, international conventions impact on the mineral development process is a rather unexplored research field. Since international conventions can influence both directly through binding agreements and indirectly through influencing attitudes, it can have a big impact on development. Furthermore, the interaction between policies within interrelated policy areas (e.g. environmental policy and mining policy) are another area that should be given more attention than it has been given so far.

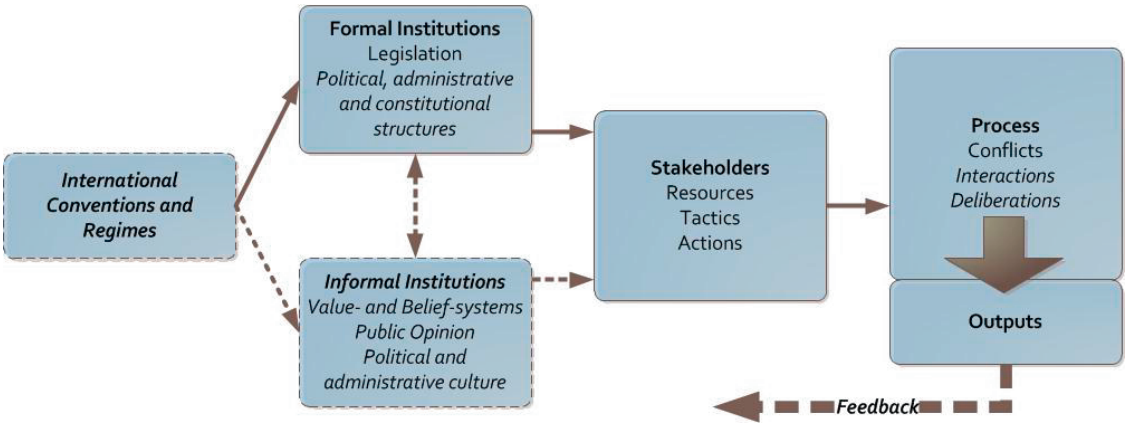
Second, very little attention has been given towards investigating the influence of informal institutions on the development process. Neither public opinion and stakeholder core beliefs nor political and governmental culture has been given any extensive exploration. Even though these informal features can be a bit harder to measure and to understand, they undoubtedly play a central role in the development process, as have been show in research on wind power and hazardous waste facilities. Deeper understanding of these informal attributes would contribute extensively to the

analysis of both the design and performance of administrative planning and permitting processes. *Third*, the majority of research on mineral development has focused on countries in the developing part of the world. Because of differences in the institutional context (e.g. judiciary system, social capital, traditions, norms and culture) results from these studies can be hard to transpose to countries in the developed part of the world. This in turn creates a big gap in knowledge of how similar processes work in developed countries. Also, studies from developing countries frequently focus on heavily conflictive development processes, often trying to reflect an underlying mismatch between rural communities' livelihoods and a global neoliberal expansion project. Applying conclusions from these studies on the developed part of the world would probably lead to somewhat distorted results. *Fourth*, only a small number of the studies looking at problems with e.g. policy implementation and administrative culture and capacity, have sufficient methodological and theoretical foundations, something which often shines through into the results. A lack of theoretical and methodological structure makes the results significantly harder to analyze, generalize and to put into comparison. A *fifth* and final point relates closely to the influence of public opinion. As have been show in studies of other forms of large scale development, systems for incorporating public opinion into the development process can have very big importance both for the legitimacy and efficiency of the development process. Although a few studies have made an effort to understand how public opinions are best integrated into the development process, the area is not very well understood. Both corporate, political and administrative actions and initiatives to internalize public opinions should be investigated.

The overall picture that is emerging is that there still are several areas of the mineral development process that still are either completely unexplored or investigated in an unsatisfactory fashion. To be able to fully understand the interactions between the institutional settings and actors of a development process, and the out-put these interactions generate much research still has to be done. Such research would not only benefit mining companies, but also several other stakeholders influenced by mineral

development processes. The results can be summarized in a revised version of figure 1 shown below:

Figure 2: *The Policy Process – Previous research on Mineral Development Processes* [5]



From the above discussion three main areas of interest for further exploration can be proposed. These do not represent all necessary, or possible, research, but rather gives an insight into what can be considered to be the most critical points of future research:

Public opinion influence on development

Since research on all forms of informal institutions have been mostly neglected one important area for inquiry would be an analysis of how public opinion and stakeholder core beliefs impact the development process. In such a study focus would be to investigate what factors shape public opinion the most and what influence public opinion have on development processes. Stakeholders' possibilities to participate in the development process and planners, mining companies and governmental authorities efforts to enable participation could also be included in a study of this kind. A study of

[5] Dashed lines and Italics represent areas of research that are largely unexplored. Other areas have been investigated in previous research, although often from a different, geographical as well as substantive, perspective than that of this study.

this kind would also benefit from analyzing subnational, national as well as supranational levels to cover all forms of public and stakeholder influence.

Local/regional government

Local and regional government bodies often play a central part in mineral development, often taking on the role of development planners. It would therefore be of great importance to understand how these actors influence development. Both the influence of different forms of administrative systems as well as the importance of government culture should be considered here. Further, interactions between local/regional governments and other stakeholders (primarily local communities, mining companies and other government agencies) would probably provide invaluable insights into the processes deciding development outcomes.

National politics

Government policy formulation, policy processes and ideological persuasion of influential political actors all have a potentially big influence on development outcomes. And since not only resource policies but also other policies (e.g. environmental policies) regulate how mineral prospecting occurs, understanding interactions between different government bodies and different forms of legislations is imperative. Additionally, an analysis of international policy conventions influence on national policy formulation could prove important for understanding the national policy process. By studying how national policy processes are influenced by different actors and how different forms of legislation interact, a central part for understanding mineral development processes would be provided.

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Appendix 1: Political and institutional factors in large scale development processes, research overview

		Mining	Wind power	Hazardous waste
International Conventions		World Bank influence on national mining policy (Lange, 2003)	EU legislation on participatory development and management (Bruns & Gee, 2009)	
Formal institutions	**Resource policy**	State influence on CSR (Boon, 2009), Weak institutions and the resource curse (Butkiewicz & Yanikkaya, 2010), State influence on mineral development (Cox, 1996), State sovereignty and mineral extraction (Emel et al., 2011), Distributional effects of mineral legislation (James, 1997), Mining policies under different institutions (Lagos, 1997), Policies to mitigate the resource curse (Moreen, 2006), Governance and regulation problems (O'Callaghan, 2009)	The importance of policy predictability (Barradale, 2010), Policy drivers and development (Bird et al., 2005), Support instrument evaluation criteria (Enzensberger et al., 2002), National and sub-national policy importance for development (Lewis & Wiser, 2007; Liou, 2011; Liu & Kokko, 2010; Menz & Vachon, 2006), Policy support instruments and risk factors (Lüthi & Prässler, 2011), The importance of an integrated support system (Sperling et al., 2010), Policy support schemes, planning systems and development (Söderholm & Pettersson, 2011), Evaluation of policy instruments (Åstrand & Neij, 2006)	State autonomy and public influence on policy (McAvoy, 1994)
	Environmental policy	Regulation of corporate environmental behavior (Armah et al., 2011), Different approaches to mining and the environment (Bridge, 2004), Institutional challenges for local sustainability (Bebbington; & Bury, 2009), Environmental valuation methods (Damigos, 2006), Mining and environmental performance (Newbold, 2006), Coal mining and environmental policy (Zhu & Cherni, 2009)		
	Indigenous rights policy	Mining, indigenous peoples and inequality (Howlett, 2010), Mining on aboriginal land (O'Faircheallaigh, 2006), Transnational dynamics of indigenous rights (Fulmer et al., 2008)		

	Government structure	The ´localist´ paradigm and conflict (Arellano-Yanguas, 2011), Central/regional conflict on distribution of risks and benefits (James, 1997)	Administrative procedures influence on development (Iglesias et al., 2011), Top-down implementation and siting stagnation (Wolsink, 1996; 2007), Centralized planning procedures (Cowell, 2007), Government structure impact on policy instruments (Valentine, 2010), Institutional impact on policy and planning (Breukers & Wolsink, 2007a), Regulatory system risks (Lüthi & Prässler, 2011), Efficiency in planning and permitting (Söderholm & Pettersson, 2011), Comparison of planning procedures (Pettersson et al., 2010)	Decentralized planning and decision making procedures (Goetze, 1982), Public-private partnership in siting (Ibitayo, 2002)
Informal institutions	**Core beliefs**		Social capital and wind power development (van der Horst & Toke, 2010), Justice and development (Jones et al., 2011), Stakeholder core beliefs and implementation (Wolsink & Breukers, 2010), Aesthetics and development (Gee, 2010), Perceptions of rural areas and development (Parkhill, 2007)	Injustice, fairness and risk (Wolsink & Devilee, 2009), Moral concern and community commitment (Sjöberg & Drottz-Sjöberg, 2001), Risk perception (Murdock et al., 1998; Gerber & Grant, 2005; Benford et al., 1993; Ansolabehere & Konisky, 2009)
	Public Opinion	Global norms and the adoption of CSR policies (Dashwood, 2007), Development, trust and community affiliation (Horowitz, 2010), Development and community support (Richards & Brod, 2004)	The 'social gap' in public opinion (Bell et al., 2005; Graham et al., 2009), Community benefits and acceptance (Cowell et al., 2011), The nature of public acceptance (Ellis et al., 2007), CSR, development and public acceptance (Evans et al., 2011), Aesthetics and offshore development (Gee, 2010), Capacity estimation and acceptance (Jones et al., 2011), Public perceptions of wind power implementation (Warren et al., 2005), Limited importance of public support (Wolsink, 2000)	Public opposition towards facility siting (Anderson & Greenberg, 1982), Facility siting and environmental harm (Ansolabehere & Konisky, 2009), Nuclear waste siting and public opinion (Benford et al., 1993), Risk perception and public opinion (Gerber & Grant, 2005; Pollock et al., 1992), Compensation and public acceptance (Kunreuther & Easterling, 1996), Impact assessment and public support (Murdock et al., 1998; Sjöberg & Drottz-Sjöberg, 2001), Siting experience and risk perception (Spies et al., 1998), Motives for resident resistance (Wolsink & Devilee, 2009)
	Government culture		Bureaucracy influence on planning (Lema & Ruby, 2007), Government culture and differentiated outcomes (Khan, 2003), The importance of values in planning (Bergek, 2010; Fischlein et al., 2010; Toke, 2005)	

	Political culture		Political-ideological influence on wind power implementation (Ryland, 2010), Democratic activity and planning outcomes (van der Horst & Toke, 2010)	
Stakeholders; resources, tactics and actions	**Regional/local government**		State policy stakeholders perceptions (Fischlein et al., 2010), Municipal planning procedure (Khan, 2003), National policy and regional implementation (Bergek, 2010), Local authority planning influence (Toke, 2005)	Planners' perceptions of public resistance (Wolsink & Devilee, 2009)
	Resource companies	Public-private (EITI) partnerships to avoid corruption (Aaronson, 2011), Ecological contradictions in production (Bridge, 2000), CSR, local communities and host governments (Cameron, 2009; Cheshire et al., 2011; McMahon & Remy, 2001), CSR, public acceptance and regulation (Evangelinos & Oku, 2006), Sustainable mine development (Hilson & Basu, 2003), Disclosure of information as CSR (Jenkins & Yakoleva, 2006); Privatization and adoption of CSR (Salmi, 2008), CSR and community development (Gifford et al., 2010; Esteves & Barclay, 2011), Changing approaches to sustainable development (Fitzpatrick et al., 2011)	Company performance under different socio-institutional settings (Agterbosch et al., 2004), Planners, implementation and sensgiving (Corvellec & Risberg, 2007)	
	Indigenous peoples	Negotiated agreements (O'Faircheallaigh & Corbett, 2005; O'Faircheallaigh, 2010), Income distribution and inequality (O'Faircheallaigh,1998), Environmental management and aboriginal participation (O'Faircheallaigh, 2007), Indigenous resistance (Yagenova & Garcia, 2009), Mining payments and service provisions (O'Faircheallaigh, 2002)		
	Community actors	Cooperation and rearticulation (Haarstad & Fløysand, 2007), Local grassroots resistance (Kuecker, 2007)	Local objectors influence (Aitken et al., 2008), Wind power and community resistance (Bell et al., 2005; Graham et al., 2009; Ellis et al., 2007)	Community-based environmental resistance groups influence (Schelly & Stretesky, 2009), Local resistance development (Rootes & Leonard, 2009), Community influence on policy implementation (McAvoy, 1994:1998)

	Non-governmental organizations	Social movements influence on development (Bebbington et al., 2008b)	Environmental NGOs resistance to near-shore development (Wolsink, 2010b)	Grassroots environmental movements resistance to siting (Rootes & Leonard, 2009)
Process	**Conflict of values**	Discourse communities and mine development (Campbell & Roberts, 2010), Company/ community land use conflict (Hilson, 2002a; Bebbington & Williams, 2008), Distribution of risk and company/ community conflict (Kemp et al., 2011), Displacement and compensations conflict (Lange, 2011), Conflict between large and small scale mining (Hilson, 2002b), Mining, debate and conflict (Bebbington et al., 2008a)	Regional spatial planning conflict (Ohl & Eichhorn, 2010), Environmental value conflict and public acceptance (Wolsink, 2010a), Centralized planning and local acceptance (Breukers & Wolsink, 2007a), Central/ regional government conflict (Iglesias et al., 2011), Discourses of support and objection (Ellis et al., 2007)	Siting conflicts and the concept of community (Lesbirel, 2011), Citizen/ planner conflict and value trade-offs (McAvoy, 1998)
	Communication and deliberation	Assessment of CSR and community discourse (Kepore & Imbun, 2011), Mine closure, risk and communication (Laurence, 2006), Collaboration in development (Richardson, 2003), The importance of communication (McMahon & Remy, 2001)	Central technocratic vs. local deliberative decision making (Wolsink & Breukers, 2010), Cooperative or hierarchical planning (Bruns & Gee, 2009), Deliberative and fair decision making (Wolsink, 2007), Public engagement in decision making (Jones et al., 2011), Local participation in planning (Breukers & Wolsink, 2007b), Community engagement in implementation (Szarka, 2006), Deliberation in planning (Breukers & Wolsink, 2007a), Stakeholder participation (Enzensberger et al., 2002)	Facility siting, conflict and communication (Lidskog, 1997), Siting conflicts, public participation and collective decision making (Lidskog, 2005), Deliberation and voluntary siting in the long run (Rabe et al., 2000)
	Feedback, output, learning and adoption		Implementation and institutional capacity building (Breukers & Wolsink, 2007b), Processes of industrial learning and innovation (Hendry & Harborne, 2010; Smit et al., 2007), Policy learning and paradigm change (Szarka, 2006)	